PATTERN DRAFTING AND FREE-HAND CUTTING SKILLS ACQUISITION BY INFORMAL DRESSMAKERS AND TAILORS AND THEIR APPRENTICES IN KOFORIDUA, GHANA

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DECLARATION

This thesis is my original work and has not been presented for a degree in any other university or any other award.

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DEDICATION

To God Almighty for his guidance and protection throughout the programme

Also to beloved husband, Professor Dominic Edoh of University of Ghana, Legon, for his constant, encouragement, finances and care, and our daughters Mildred, Margarita and Mansa for the emotional support and having a great understanding of being away from them.

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ABBREVIATIONS AND ACRONYMS

AGOA   Africa Growth and Opportunity Act

CoO   Country of Origin

COTVET   Council for Technical and Vocational Education and Training

DTA   Dressmakers and Tailors Association

FHC   Free-hand cutting

FSD   Flexible Skills Development

GIDTA   Ghana Informal Dressmakers and Tailors Association

GNDTA   Ghana National Dressmakers and Tailors Association

GSS   Ghana Statistical Service

HND   Higher National Diploma

IDT   Informal Dressmakers and Tailors

IDTA   Informal Dressmakers and Tailors Association

IODL   Institute for Open and Distance Learning

IPSA   Integrated Process in Skill Acquisition

JHS   Junior High School

NGO   Non-Governmental Organisation

NVTI   National Vocational Training Institute

PD   Pattern drafting

PSI   Presidential Special Initiative

RDTA   Regional Dressmakers and Tailors Association

SHS   Senior High School

SPSS   Statistical Package for Social Sciences

TVET   Technical Vocational Education Training

DEFINITION OF TERMS

Apparel: all types of garment constructed from fabric for use by both men and women specifically to cover the body.

Apparel construction: refers to the technique of joining the different parts of garment together.

Apprentice: a person who learns apparel making under the supervision of skilled dressmaker or tailor.

Dressmaker: refers to a person whose main occupation is cutting, fitting and altering women's apparel.

Fashion designer: refers to an individual who is responsible for making specific apparel for individual.

Fit of apparel: refers to apparel that conforms to the body contour.

Formal set-up: refers to a set up with systematically laid down procedures of acquiring knowledge in school.

Free-hand cutting: refers to a methodology used by dressmakers and tailors in apparel making where individual body measurements are used as a guide when cutting directly from a fabric.

Gown: refers to as a dress worn by all type of people

Informal dressmaking and tailoring: refers to a way of acquiring or providing practical training skills on apparel making under the supervision of a skilled dressmaker or tailor.

Informal set-up: refers to a set-up where an individual acquire apparel making skills under a skilled supervision.

Kaba: refers to a Ghanaian term used in the study to refer to the top-half of common traditional attire for females.

Master: used in the study to refer to an individual with the responsibility of guiding and training apprentices in apparel making in Ghana.

Pattern: refers a template or a guide from which different parts of the apparel are traced onto fabric before being cut and assembled and guides dressmakers and tailors in the entire process of apparel making.

Pattern drafting: refers to an apparel making methodology based on a client's body measurements that is used to produce a pattern.

Slit: refer to a long skirt mostly worn by women together with *Kaba* in Ghana

Style modification: refer to a technique of remodelling an apparel into a new style or a series of styles.

Style: refer to a type of apparel that has more than one specific feature which distinguishes it from other apparel.

Tailor: refers to a person whose main occupation is cutting, fitting and altering men's apparel.

Training manual: refers to interactive information that has been crystallized into a document to guide informal dressmakers and tailors for improved apparel making skills.

OPERATIONAL DEFINITION OF TERMS

Apparel: used in the study to refer to all types of garment constructed from fabric for use by both men and/or women.

Apparel construction: used in this study to refer to the type of sewing method used in making apparel.

Apprentice: in the study, it is operationalized as a male or female individual under the supervision of a skilled dressmaker or a tailor in apparel making.

Dressmaker: respondents were asked if their main occupation was to make apparel for women.

Fit of apparel: operationalized to mean the relationship of sheath dress, bustier blouse, panel long dress, ladies trousers and a peplum blouse that conforms between the size and body contour of clients by looking at the shoulder, waist, hips, nape to waist, sleeve bicep sleeve length, full length, blouse length, ankle and thighs of the selected articles.

Free-hand cutting: refers in the study to mean the method informal dressmakers and tailors use in apparel making for their clients.

Informal dressmaking and tailoring: refers in the study to mean a way of acquiring skills on apparel making either by free-hand cutting or pattern drafting.

Pattern: operationalized as the pieces of the different parts of cut out apparel to be assembled.

Pattern drafting: refers to an apparel making methodology based on a client's body measurements that is used to produce a pattern.

Style modification: operationalized in the study to refer to a technique of remodelling apparel into a new style or a series of styles into different apparel look.

Tailor: operationalized in the study to refer to a Ghanaian male designer who sew for both men and women.

ABSTRACT

Apparel can be made using various methods and processes. Among these methods are pattern drafting and free-hand cutting. The method used could determine the appearance, and how well apparel fits on a figure. Clients now demand better products as they have difficulties with the fit of apparel made by their informal dressmakers and tailors. The level of dissatisfaction with the fit and modification of apparel by clients of informal dressmakers, tailors and apprentices has increased. The purpose of the study sought to examine the fit and style modification of apparel using pattern drafting and free-hand cutting among Ghana's Informal Dressmakers and Tailors Association (GIDTA) in Koforidua. The study sought to test the hypothesis that there was no significant relationship between dressmakers and tailors' demographic characteristics and method used in apparel construction. A cross-sectional survey design was employed. The study was carried out in the New Juaben Municipality in the Eastern Region of Ghana. The total target population for the study was 843 informal dressmakers, tailors, apprentices and clients. Stratified simple random sampling was used to select 281 participants. Instruments for the study included questionnaires, interview schedules, an observation checklist, photography, audio recording and video recording. Thematic analysis was done on the qualitative analysis while quantitative data was analysed using descriptive statistics and Chi-Square using SPSS. The study found that apart from gender all other demographic characteristics influenced the methods of apparel construction and consequently the apparel fit and style modification. Additionally, it was established that there was significant relationship between age, level of education, type of training and years of experience influenced the method of apparel construction. Hence, the study rejected the null hypothesis which stated that there was no significant relationship between dressmakers and tailors' demographic characteristics and method used in apparel construction. A practical aspect of this research involving making apparel by the two methods revealed that apparel by pattern drafting had better fit and generally more accepted by assessors compared to free-hand cutting. This was supported by Pearson's Chi-square results which revealed significant relationship between demographic characteristics and choice of method used apart from gender which results were insignificant ($X^2 = 13.78$, $p > 0.05$). Further, it was determined that between free-hand cutting and pattern drafting methods of apparel construction, the latter was better but less used technique. The study recommended that the association of informal dressmakers and tailors should conduct periodic training to encourage the use of pattern drafting in apparel construction. Additionally, the IDTA should include pattern drafting methods in training of apprentices. Also, the study recommended that, policy makers should inculcate teaching pattern drafting in the school curricula at the basic level. Additionally, training manual was developed out of the findings to boost the skills of the informal dressmakers and tailors in Ghana. The study noted that future study be carried out to compare the formal and informal training and their influence on apparel outcome in Ghana.

CHAPTER ONE: INTRODUCTION

1.1 Background to the Study

Apparel is an article worn to protect and beautify the body. It is a basic need of humans which communicates to others the traits and values of the wearer. Apparel shows if the wearer is reserved, conservative, organized, confident or a leader (Aboagyewaa-Ntiri & Apreku, 2012). It also describes the wearer's identity, social-economic status, gender, and religious inclination (Sarpong, Howard & Osei-Ntiri, 2011). Apparel refers to all types of clothes worn by humans, both men and women. It is made through the use of various methods such as pattern drafting or free-hand cutting.

Apparel communicates louder than words hence more acceptable apparel helps to boost one's confidence. Apparel, style and fit directly determine whether a client is satisfied or not (Dove, 2016). This in effect relates to adequate knowledge about the selection of apparel which fits and makes one feel comfortable considering the type of method used to make the apparel and the style outcome. According to Obinnim and Pongo (2015a), free-hand cutting and pattern drafting remain the bedrock of ways of designing apparel in the fashion industry which come with variances of fit and modifications of style.

According a study done in Ghana by Foster and Ampong (2012), which sought to investigate the pattern cutting and its variance in competencies displayed by skills in small scale fashion designers reported that, diverse sources with which apparel are produced makes it more difficult to assess perfect apparel fit by their clients. Variances also create marginalization in skills training between formal and informal setting with regard to the scope of training as well as the approach of tutoring for the concept (Foster & Ampong, 2012). Hence, the ability to adapt to different methods of

training is crucial for the development of the apparel industry. The ability to adapt and implement the changes also allows creativity where by dressmakers and tailors can develop their own methods which could be integrated with other existing methods hence create better apparel designs.

Carter (2010) studied on free-hand sewing in Ghana ascertained that skills acquisition has become very essential to earn a meaningful living. This demonstrates Ghanaian market's increasing demand for new and fashionable custom-made apparel that conforms to the body contour of the client. This has become necessary in order to compete in the hypercompetitive global environment. Hence, informal fashion trainers in most communities in Ghana are contending in the platform of perfect fit and style modification to meet client's satisfaction and to compete globally in the fashion industry. Clothing and textiles are important components of Technical, Vocational Educational Training (TVET) programme in Africa including Ghana where people are trained to acquire skills in self-employment through apparel making. A report from Ghana Statistical Service (2014) indicated less than two per cent of its secondary enrolments in technical and vocational education. Graduates from junior high schools alternatively have access to skills through apprenticeships and other enterprise-based training, or through training centres operated outside formal education.

A pattern is achieved through the use of actual measurements of the person concerned and this results in a piece of paper drafted and cut to shape and subsequently used for sewing apparel (Ekumankama & Igbo, 2009). Seemingly, the informal dressmakers and tailors in Ghana do not put much emphasis on measurements and steps taken in measurements which leads to poor apparel fit outcome. Free-hand cutting does not employ patterns and it is achieved by coming out with a style of the apparel cutting

directly on the fabric (Shailong & Igbo, 2009). The option of free-hand cutting or pattern drafting method to make apparel may affect the end product. Previous studies have ascertained that clients are more particular about how well apparel fits (Dove, 2016; Shailong & Igbo, 2009**).** The problem is that, particular technique, either the pattern drafting or the free-hand cutting is more suited to a specific apparel fit and clients' requirements, yet, most of dressmakers and tailors in informal dressmaking industry seem not well versed in both techniques.

A study by Efajemue and Lily (2011) which compared the fit of a shoulder, sleeve and bust of a gown sewn by pattern drafting and free-hand cutting in Nigeria revealed that, the former method fitted better. The same study also revealed that pattern drafting techniques applied to sew the skirt part of a gown fitted the waist, hips and draped better on the body. In another study conducted in Ghana by Foster and Ampong (2012), it was indicated that apparel made by free-hand cutting will not automatically fit well and sometimes fabrics are wasted or spoiled hence clients end up rejecting the end product which leads to negative cost implications. Therefore, integrating pattern drafting and free-hand cutting methods would yield great apparel fit outcome which will help improve the fashion industry at large.

The use of free-hand cutting does not involve much precision, science and formal education therefore; informal dressmakers and tailors in Ghana seem to be comfortable with it (Obinnim & Pongo, 2015a). Many dressmakers acquire and use the skills of sewing as hobbies or part-time jobs to enhance their income. They are very busy and do not find the time or bearing of schooling to gain more in-depth knowledge to be more skilful (Gizeski, 2009). It has been observed that most informal dressmakers and tailors prefer to use free-hand cutting while sewing because it is a faster way of making apparel without minding its fit (Efajemue & Lily, 2011). The

authors again stated that, clothes made from pattern drafting are made to fit well and done to the wearer's choice and exact size. While free-hand cutting method is less time consuming and stress-free to learn it does not give the best results in terms of apparel fit and style modification. However, pattern drafting which consumes more time consequently brings out better apparel fit, gives modification of styles and serves clients better.

Most informal dressmakers and tailors are not aware of the inaccuracy of apparel sewn with the free-hand method (Foster & Ampong, 2012). As a result, they prefer free-hand cutting to other sewing method which seems to them faster, but sometimes pose a lot of problems in terms of fit for their clients when the apparel is made. The method of apparel construction has great influence on the outcome of apparel fit. Since, each technique is suited to a particular fit and style and modification, the dressmakers and tailors need to familiarize with both of the techniques to enable utilization of a technique where it is best suited. However, if dressmakers and tailors remain ignorant of the influence of technique on the apparel outcome, more conflicts with clients will arise and this leads to cost implications, collapse of businesses and waste of resources.

1.2 Problem Statement

The level of dissatisfaction with fit and style modification of apparel by clients of informal dressmakers, tailors and apprentices has increased. Clients now demand better products as they have difficulties with fit of apparel made by their informal dressmakers and tailors in Koforidua in the eastern region of Ghana. The problem can be seen to the demographic attributes such as the age or level of education which influences their capacity to learn and acquire new skills. In spite of the contribution that the fashion design components of the skills training programmes have in the

informal economy, not much research has been done regarding the use of pattern drafting and free-hand cutting on fit and style modification among informal dressmakers and tailors in the eastern region of Ghana.

The Informal Dressmakers and Tailors Association of Koforidua in the New Juaben Municipality of Ghana organises a periodic workshop on pattern drafting for its members. This is done in addition to their known method of apparel making which is free-hand cutting. However, it seems most of them go back to use the old method. Hence there is the need to determine, what prevents the informal dressmakers, tailors and apprentices in Koforidua area from fully adopting the recommended method (pattern drafting) or integrate it with free-hand cutting as they construct apparel for their clients. Therefore, the study sought to answer the question on fit and style modification of apparel using pattern drafting and free-hand cutting among the informal dressmakers and tailors and their apprentices in Koforidua Ghana.

1.3 Purpose of the Study

The purpose of the study was to assess skills acquisition and its influence on use of pattern drafting and free-hand cutting on fit and style modification of apparel among Informal Dressmakers and Tailors and their apprentices in Koforidua area, Ghana.

1.4 Objectives of the Study

The following were the specific objectives for the study:

1. To establish the demographic characteristics (IDTA) gender, age, level of education, years of experience and type of training method of informal dressmakers, tailors and their apprentices in Koforidua area of Ghana.

2. To examine the fit when apparel is constructed with the use of pattern drafting and free-hand cutting techniques among Informal Dressmakers and Tailors (IDT).

3. To assess style modification when apparel is constructed using pattern drafting and free-hand cutting techniques among informal dressmakers and tailors.

4. To determine views of executives of the association, apprentices and clients on fit of apparel made with pattern drafting and free-hand cutting techniques.

5. To establish the extent to which demographic characteristics of informal dressmakers and tailors influences the use of pattern drafting and free-hand cutting in apparel making.

6. To generate information and guidelines that would be used to develop training manual on pattern drafting and free-hand cutting for informal dressmakers and tailors.

1.5 Study Hypothesis

H_{01}: There is no significant relationship between dressmakers and tailors' demographic characteristics and method used in apparel construction.

i. There is no significant relationship between gender and method used to make apparel.

ii. There is no significant relationship between age and method used to make apparel.

iii. There is no significant relationship between levels of education and method used to make apparel.

iv. There is no significant relationship between type of training and method used to make apparel.

v. There is no significant relationship between years of working experience and method used to make apparel

1.6 Significance of the Study

This study provides relevant knowledge to equip the informal dressmakers and tailors on the available sewing techniques and their influence on the apparel construction. The study will be important for the policy makers to improve the informal apparel industry. The study training manual generated will serve as a guide for the Flexible Skills Development (FSD) programmes organised by the fashion department of Institute for Open and Distance Learning (IODL) in the Koforidua Technical University for all artisans in the Municipality. This will guide informal dressmakers, tailors and their apprentices to make their products more acceptable and business sustainable to benefit their clients and the global market as a whole.

The study results will be available to the association of the informal dressmakers and tailors in Koforidua area to be incorporated into the periodic training organized for their members. Further, the study is of great importance in formulating guidelines for training manual generated to support the informal dressmakers, tailors and their apprentices in the fashion industry. Finally, it is expected that this study contribute to academic knowledge on pattern drafting and free-hand cutting in apparel construction and form a basis for further training for the informal dressmakers and tailors in Ghana and the global fashion industry at large. The findings of this study are relevant addition for the existing literature of fashion design among informal dressmakers and tailors in Koforidua area in the New Juaben Municipality of Ghana. In addition, it contributes toward literature on the educational level of the informal dressmakers and tailors which inform national developmental agenda when drawing policy for the sector.

1.7 Delimitation of the Study

The study was confined to issues related to fit and style modification on the use of pattern drafting and free-hand cutting as apparel making methods among informal dressmakers and tailors association in Koforidua in the New Juaben Municipality in the Eastern Region of Ghana. The study was concerned with only registered members of informal dressmakers and tailor's association, their apprentices as well as their clients.

1.8 Limitations of the Study

i.   The study focused on pattern drafting and free-hand cutting methods only. As such generalization to other apparel construction methods should be done with caution.

ii. The findings were confined to only members of the informal dressmakers and tailor's association in the New Juaben Municipality in the Eastern Region of Ghana. Therefore, generalization to informal dressmakers and tailors in other Regions in the country should be done with caution.

1.9 Assumptions

This study was based on the following assumptions:

i.   Informal dressmakers, tailors and their apprentices knew about pattern drafting and free-hand cutting methods.

ii. Clients of informal dressmakers and tailors were willing to give information about their views on fit and style modifications of apparel made from pattern drafting and free-hand cutting techniques.

1.10 Theoretical Framework

The study was anchored on skill acquisition theory which was advanced by Ackerman's (1988). According to Ackerman's (1988) the theory of skill acquisition entails general learning ranging from cognitive to psychomotor skills. The model also acknowledges the fact that external force such as goals; practice format and task characteristics can directly influence skills acquisition. The integrated process framework for skill acquisition and performance developed by Langan-Fox et al., (2002), was based on Ackerman's (1988) theory of skills acquisition.

Fashion may be thought of as two-dimensional, encompassing both the fashion object and the fashion process. The fashion process is the process by which a potential fashion object moves from its point of origination to public acceptance (Langan-Fox, Armstrong, Balvin & Anglim, 2002). Also, the fashion process is characterized by the introduction of a fashion innovation; its early adoption by fashion leaders, the diffusion of the fashion object throughout a particular socio-cultural network, and the eventual decline in acceptance of the fashion object (Langan-Fox *et al.,* 2002).

As shown Figure 1.1, the theoretical framework comprises internal processes and characteristics and external influences impacting on skilled performance. Variables from internal processes such as levels of consciousness, cognitive abilities, emotion, metacognition, motivation, memory and external influences: interruptions, goals, practice format, task characteristics interact to influence skilled performance.

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┌─────────────────────────────┐
│ Internal Processes &        │
│ Characteristics             │
│                             │
│  • Levels of consciousness  │
│  • Cognitive Abilities      │
│  • Emotion Metacognition    │
│  • Motivation               │
└─────────────────────────────┘

┌─────────────────────────────┐        ┌───────────────────────────┐
│ External Influences         │        │   SKILLED PERFORMANCE     │
│                             │        └───────────────────────────┘
│  • Interruptions            │
│  • Goals                    │
│  • Practice Format          │
└─────────────────────────────┘
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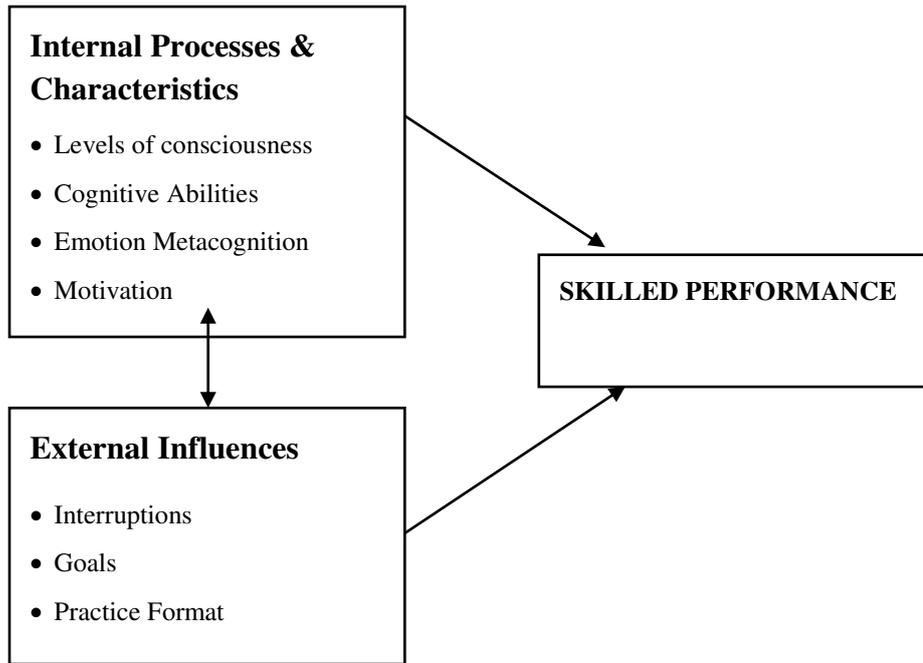
Figure1.1: An integrated process framework in skill acquisition and performance adopted, from Langan-Fox et al., (2002).

The Langan-Fox et al., (2002), skills acquisition and performance framework internal processes talk about one's level of consciousness, cognitive abilities, motivation and memory while the external influence talks about task characteristics, practice format and goals. In the researcher's perspective, this framework relates to the current study in that learning and adjusting to new methods and skills are the ultimate goals of this research.

1.11 Conceptual Framework

Conceptual framework is a diagrammatic representation of the variables and how they interact to achieve the purpose of the study (Brunswick, 2009). The variables used in the study were the independent demographic characteristics which comprised of age, gender, type of training, level of education and years of experience. The intervening variables comprised of free-hand cutting and pattern drafting. The dependent variable of the study was fit and style modification which was the outcome of the apparel.

The external influence or demographic characteristics comprised of the level of education which is one's ability to use free-hand cutting or pattern as the preferred method of apparel making, type of training during apprenticeship, and years of experience on the job (Efajemue& Lily, 2011). An individual's exposure to a particular method of apparel construction during a training period can greatly influence the type of method he or she will use after the training period. One's experience on a job usually builds up the confidence and ability to learn new ways of doing things. This implies that the richer the experience of a dressmaker or tailor, the better his or her demeanour to try new designs and methods which in effect reflect the on the trainee (apprentice). The age and gender of a dressmaker or a tailor also has the potential of influencing their ability to use free-hand cutting or pattern drafting. The figure 1.2 below shows the conceptual framework of the study.
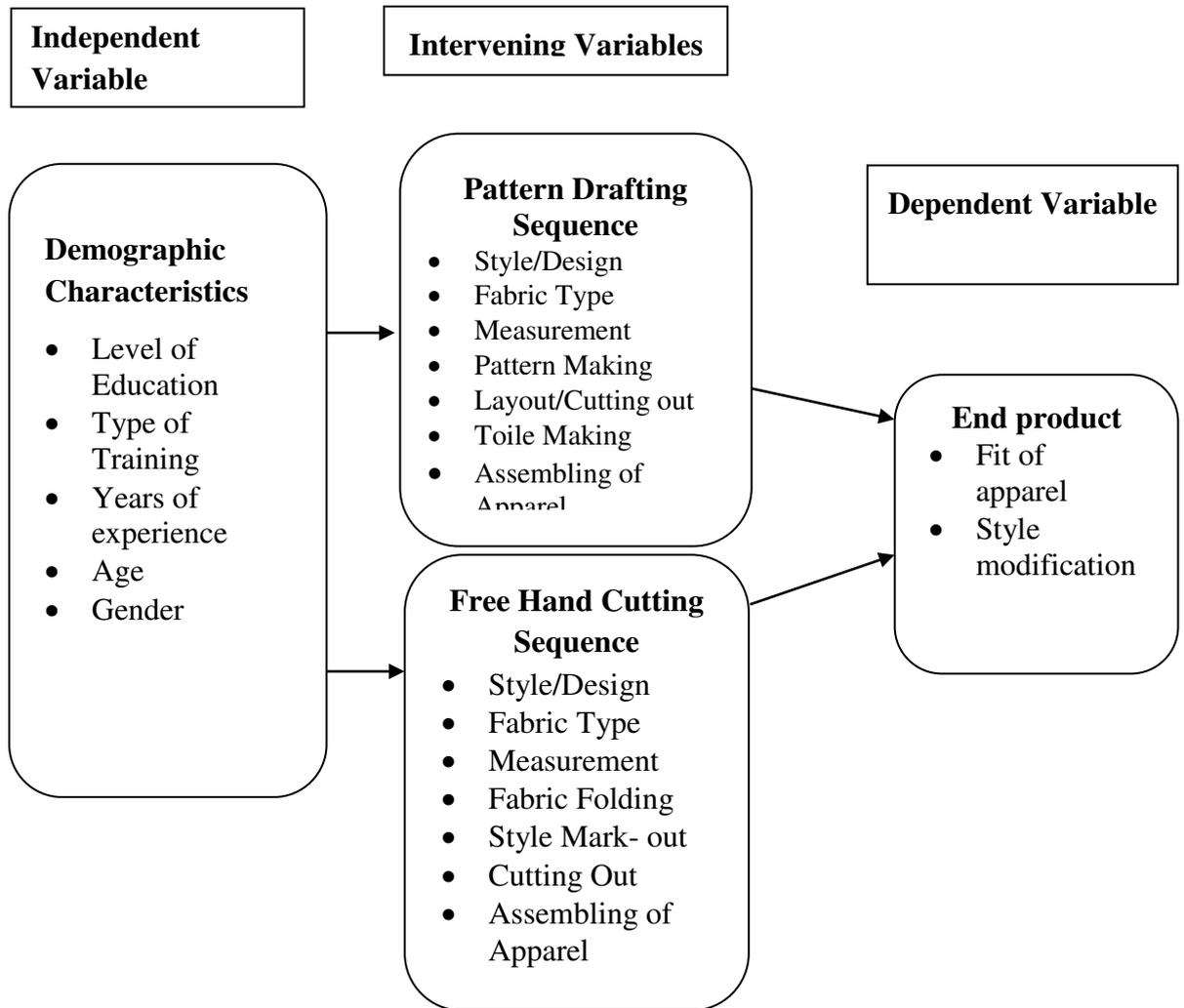
Figure 1.2: The Conceptual Framework of the Study Showing Relationship between Independent and Dependent Variables of IDTA.

From the conceptual framework in figure 1.2, the independent variables which comprises of demographic characteristics: level of education, type of training, years of experience, age, and gender influences the technique or method of apparel making. According to the framework, the technique is the pattern drafting and free hand cutting which were the intervening variables of the study. The dependent variables which were the fit of apparel and the style of modification were influenced by either pattern drafting or free-hand cutting.

CHAPTER TWO: LITERATURE REVIEW

2.1 Industrial Transformation in the Apparel Industry

The aspiration and the benchmark of a successful economic growth of any meaningful nation is the integration of domestic produce into hypercompetitive global market for income generation. Industrial upgrading is very essential towards industrial transformation. Industries are being transformed in the process of construction to save time, energy and resources as well as increasing construction to maximize profit.

Richardson (2009) and Pongo et al., (2014) explained that in order to gain the competitive advantage, firms need to continually invent new processes and products. The study used explorative research design to identify how the apparel industry works and what were the differentiating factors between the performing and non-performing dressmakers. The study found that majority of the successful companies embraced technology in their techniques and had stroke a balance between two common methods of dressmaking which were pattern drafting and hand cutting. The study however did not identify the main influence of success and if the techniques adopted had any influence on the performance. However, the study did not identify the influence of demographic attributes on embracing technology and their influence on method of apparel construction adopted.

In recent years, it could be said that the informal fashion design industry has seen numerous changes. Brun and Castelli (2013) opined that clients nowadays are known to be very selective in fashion products. Globally, well-known fashion industries come out with apparel products through various creations from contemporary sources. Currently, lots of fashion designers create apparel in the technological trend set by leading global designers (Sampaio, Zonatti, Mendizabal-Alvarez, Rossi, & Baruque-Ramos, 2017).

Design and style go hand in hand and are important aspects in apparel construction which enhance fitting. This starts from design aspirations, sketching of styles and right type of fabric and method to be used for the construction which helps to bring about a perfect fit. According to Pierce (2010), pattern drafting and other methods in apparel design are very critical to the informal fashion designers' concepts being made into apparel. The techniques serve the purpose of creating style details that can be seen in construct of the designers' concept.

Sampaio et al., (2017) stated that a good pattern maker must learn how to come out with a perfect pattern and even creates pattern on computer to produce products. Although, the author takes into consideration what makes a good pattern maker, he does not clearly identify what are the attributes of a good pattern maker. This leaves the gap for future studies to identify whether demographic characteristics of dressmakers and tailors such as the age and working experience contribute to the prowess of pattern making.

2.2 Clothing and Fashion Industry

The need to use clothes for various reasons is the basis of the clothing industry. Fashion industries are currently among the largest and fastest growing industries and have become a powerful force economically (Aboagyewaa-Ntiri & Apreku, 2012). Clothes are used for various reasons but mainly for protective, decorative, modesty purposes (Amander, 2012). Mackinney (2012) indicated that clothing is worn in most communities for protecting the body against harsh weather conditions such as intense heat, heavy rain, cold and precipitation.

According to Obinnim and Pongo (2015), there were a lot of changes in the fashion industry after the Second World War which resulted in more youthful styles and

changed the focus of the fashion industry. Hodges and Karpova (2009) supported this assertion by maintaining that the fashion industry has continually been shaped by the global forces turning it into a more complex and far-reaching phenomenon.

After the 20th century, advances in technology such as availability of sewing machines, rise in global capitalism and the development of the factory system of construction, has brought about mass construction of clothing in standard sizes (Fashion, 2012). Four major cities, namely; Paris, Milan, New York City, and London have been acknowledged as current fashion capitals (Radclyffe-Thomas, 2015).

Clothing, beside food and shelter, has been recognized as the most basic necessities of people all over the world. Clothing is one of the essential needs of human beings and man cannot live without it. The style of cloth and the fabrics from which they are made must give warmth, maintain body temperature and must be comfortable to wear. As stated by Sampaio et al., (2017) and Isika (2014), many apparel designers develop new products of various types in accordance with the trend set by the leading international designers. However Isika (2014) noted that most of the fashion designers combined pattern drafting, free-hand cutting and draping when producing patterns for clothing. Although, the study recognized the influence of level of education on the choice of method, the study did not establish the influence on other methods of apparel construction, its fit and style modification of apparel outcome hence this pave way for the current study.

2.3 Overview of the Fashion Industry in Ghana

Fashion design is a service-oriented industry where the success of most establishments depends on performance excellence and customer delight. Clothes made by fashion designers and fashion industries need to fit well and look attractive

on the prospective users (Nzula & Opoti, 2014). However, in Ghana, this simple fact is underestimated as a result of poor fit in apparel making among the informal dressmakers and tailors with respect to pattern drafting and free-hand cutting (Obinnim & Pongo, 2015; Foster & Ampong, 2012). Studies by Mangieri (2006) revealed that, the input cost, including labour and energy, poor product quality, in agreement with the author, unpredictability of prices and lack of market outlet are some of the setbacks in the fashion industries in Ghana.

It has been observed that in Ghana, the informal dressmakers and tailors' industry is growing speedily. Limited technical know-how on the skills with regard to pattern drafting which ensures that apparel comes out with unique style and improved fit, seems to pose problems in its use (Efajemue & Lily, 2011; Foster & Ampong, 2012). A study by Kinuthia (2010) indicated how informal dressmakers and tailors in Kenya face a challenge in apparel making due to the lack of education and training. The objective of the study was to investigate the challenges informal dressmakers in Kenya encounter while making apparel construction. The study utilized descriptive research designs and questionnaires were presented to the targeted dressmakers and tailors. The study found that lack of training and education as the major contributes of apparel construct challenges especially among micro-enterprises. The study however, did not look at other factors which influenced the apparel construction such as age and experience which are touted to have significant effect on the apparel outcome and influence on the method or technique adopted.

The belief is that adequate knowledge on the skills in pattern drafting and free-hand cutting can boost confidence of the informal dressmakers and tailors thereby maximize income from their businesses. Another study by Stone (2013) affirms other challenges with fashion-designing, manufacturing, distribution, marketing, retailing,

advertising and communication, publishing and consulting and entreats the need for excellence in the profession in Canada. The study took into consideration the whole array of textile industry, while the results were relevant, they cannot be generalized to have the same effect on other sub-sectors such as the informal dressmakers. This leaves a gap whereby future studies can focus on challenges affecting the apparel constructing methods in informal dressmaking sectors hence the current study.

Parkins (2013) asserted that the biggest contributing factor to every nation depends on the growth and sustainability of its industry and economy. A viable fashion industry has the capacity of accommodating a huge number of people for designing, illustration, marketing, media and many more to bring the fashion product to the final user. Researchers were of the opinion that for Ghanaian fashion industry to compete with the international apparel industry there is the need for continual evaluation of the challenges facing the fashion industry especially the informal sector (Biney-Aidoo & Antiaye, 2013; Parkins, 2013).

The Ghanaian apparel sector consists of small-scale dressmakers established as a one-person business (Ampofo, 2011). Ampofo asserts that in 1979, for instance, there were 138 medium and large-scale apparel manufacturing companies in Ghana registered with the Ministry of Trade and Industry. However, this declined to 72 by 1995, with most of them, in Accra and Tema Metropolis. Under the President's Special Initiative (PSI) programme, a special dispensation by the Head of State under the Fourth Republic of Ghana was initiated to establish more local factories.

Consequently, in response to the huge market opportunities created by the African Growth and Opportunity Act (AGOA), some apparel firms were established in the Accra and Tema Metropolis (Biney-Aidoo & Antiaye, 2013). The intention of the

Government was to make these apparel firms become a leading export earner and also serve as a primary source for employment generation in Ghana but this aim has not been fully realized (Ampofo, 2011; Biney-Aidoo & Antiaye, 2013).

2.4 The Ghanaian Youth and Fashion

The communal and cultural practices of people change with time throughout the world and Ghana is no exception. However, the pace of fashion change could be less vibrant in countries like Ghana where different ethic groupings, different cultural beliefs, and social norms may adversely affect the rate of fashion change. Other factors that could influence fashion change include media providing instant access to happenings all over the world, and the availability of sophisticated communication technologies (Amankwah, Howard & Sarpong, 2012; Giddings, 2009).

In Ghana, the fashion industry has been subjected to changes in trend based on a merger between old and new clothing styles as well as a blend of fashion styles from various ethnicities and countries. Policy direction could also be a major determinant in fashion trend in a country. Clothing in Ghana has been influenced by foreign clothing, both style and fabric, starting with the arrival of the missionaries in the then Gold Coast (Amankwah et al., 2012). The youth of today, have their clothing styles keenly influenced by European and American clothing styles. However, few studies have researched on Europeans methods of apparel construct and their prevalence in Ghana.

Other foreign countries, whose citizenry have frequently been visiting Ghana, within and outside Africa such as Nigerians and Indians, have their clothing styles adopted in the Ghanaian clothing industry. Such influences from the foreign clothing have robbed Ghana of its traditional local wears and clothing styles. The clothing style and

mode of dressing in the seventeenth century in Ghana must have been elaborate and complex and people then dressed based on the rank and the status of the individual (Dove, 2016).

Earlier researchers have shown that the Ghanaian youth prefer and follow the fashion trend of foreign clothing and only a few young individuals blend both the local and foreign clothing. Amankwah et al., (2012) report that 60% of a study group indicated they preferred foreign influenced fashion as against 23% and the least who preferred Ghanaian influenced fashion and those who blended the two respectively. In addition, 70% of the study group preferred foreign manufactured clothing and fabrics. However, these styles and modes of dressing before the coming of the missionaries were not extensively documented thus leaving historical information on the production mode and how they influence the apparel fit.

Amankwah et al., (2012) report that Ghanaian designers stressed on the fact that most Ghanaians, especially the youth, do not have a trendy fashion but they adapt to on-going foreign fashion and stick to it for years. However, though the Ghanaian fashion is influenced by the European and American clothing, some blends are a mixture of cuts, materials and colours from countries in Africa and the East. The author however does not indicate the influence of choice of apparel making methods which can grow dressmakers and tailors attributes. Okonkwo (2007) indicated that many European countries including Germany, Spain and Portugal were influenced by French clothing and fashion. England also acknowledged the elegance and the sophistication of the French fashion.

Many young Africans are dressing in their own style despite the attraction of western clothing. In addition, the introduction of a national policy of Friday local fabric wear

in Ghana in 2014, by the then Government through the Ministry of Trade and Tourism has significantly improved the patronage of apparel made from Ghanaian and African fabric and style (Amankwah et. al, 2012).

It can be observed that the young Ghanaians wear clothes with more local content of fabric and accessories that have international appeal. This could be because the local Ghanaian and African designers are seriously and fearlessly fashioning African fabrics in western styles and these clothes have broader and more international outlook which appeal to the young Ghanaian (Amankwah et. al, 2012).

The youth also select and buy clothes based on quality, brand and the origin. The young people will want to buy clothes based on certain brands associated with quality and country of origin. These are predominately clothing from Europe and North America, consequently, the young Ghanaians who can afford prefer buying second-hand clothing with American, London or French trade mark (Tungate, 2005). Ghanaian fashion designers and dressmakers are working hard to give fashion a face lift by blending styles and fabrics. They should not just copy western styles but also be innovative by introducing their own brands. The youth have access to foreign fashion and clothing by visiting weekend markets as organized in almost all big cities in developed countries over the years, which are now the new trend among the youth in African (Amankwah et al., 2012). The Ghanaian designers and dressmakers can market their innovative style using an African print and making these products available in the fashion section of these weekend markets. This could then positively influence African prints, fabrics and wear in the fashion trend of the Ghanaian youth.

2.5 Formal Learning in the Fashion Industry in Ghana

The World Bank (2013) acknowledges the fact that, knowledge has become a key driver of growth and development. The World Bank (2013) further maintains that countries with higher skill levels are better equipped to face new challenges and master technological discoveries for development. This new challenge may hinder development and undermine the foundation for sustainable development in most developing countries since skills for the knowledge economy are built at the tertiary education level (World Bank, 2013).

African tertiary education institutions and policy makers must ensure that the workforce acquires the needed skills to compete, innovate, and respond to the complex social, environmental and economic situations (World Bank, 2013). The primary reason is that knowledge has become the fundamental feature of the developmental process for many nations.

According to Larbi and Atta (2009) and Nigavekar (2006), the youth now require three new skills -the ability to learn, to change, to analyse and to prepare for the challenges ahead. They also need to develop the appropriate skills to adapt to the various changes that will arise, since the 21st century represents change (Nigavekar, 2006).

Indeed, Smith (2011) made an observation that there is a correlation between participation in higher education and a country's level of development. Smith further argues that higher education is crucial to economic success and long-term development of Africa, a continent that needs rapid social progress, economic growth, and technological advancement.

Performance excellence means producing excellent graduates by imparting high quality training and shaping them to become complete individuals to face the competitive world in the modern fashion world. The fashion industry needs skilled labour trained at the junior high schools (JHS), senior high schools (SHS) as well as the tertiary institutions such as the polytechnics and universities in Ghana.

In Ghana, students are examined for Degree, Higher National Diploma (HND) pre-HND; certificates in National Vocational Training Institute (NVTI) and dropouts are given other forms of training to qualify them for other certificates in proficiencies. The accreditation institutes include NABPTEX, Ghana Education Service and NVTI (Afeti and Adubra, 2012).

Afeti and Adubra (2012) describe knowledge and skills as the key drivers of most economies. They further state that through knowledge and skills, new ways of doing things, new technologies and new products are made. These form the core of constant change which is the dynamic interaction between knowledge, skills and enterprise. In the informal dressmaking in Ghana, dynamic interaction between the techniques used and the enterprise is lacking, and therefore, a critical mass of knowledge and skills are necessary for the effective participation in the apparel industry.

2.6 Informal Learning in the Fashion Industry

Informal learning is the unofficial, unscheduled, impromptu way of most learning to jobs. It does not follow a specified curriculum and is not often professionally organized, but rather originates accidentally, sporadically, in association with certain occasions, from changing practical requirements. Informal education is a general term for education outside of a standard institution. It can refer to various forms of

alternative education, such as home-schooling or self-teaching (Biney-Aidoo, Antiaye, & Oppong, 2013).

Foster and Ampong (2012) observed that, in Ghana, apparel construction is a widespread in small-scale occupation for both men and women and there has been a long and sustained condition of apprenticeship in apparel making. Larbi and Atta (2009) note that apprenticeship in sewing has been the practice by master-craftsmen who have the knowledge and skills in making clothes, and hand down what they have mastered from generation to generation to ensure continuity. These studies however did not indicate the minimum requirements or the factors influencing apprenticeships in apparel industry. These factors such as the level of education or knowledge are perceived by many as the determinants of apprenticeship training and the area of training.

With the foregoing reason these apprentices are not ready or prepared to learn any other method apart from what they already know. Larbi and Atta (2009) further argue that, it is imperative that in the absence of academic certificates and other paper qualifications, the youth be equipped with strong vocational or technical skills as a means of livelihood.

According to Uwameiye and Iyama (2010) apprenticeship is a contractual agreement undertaken by the master craftsmen and the apprentice, through which the apprentice is trained for a prescribed job process through practical experience, under the supervision of the master craftsman for a period of time. It is a form of workplace learning, which enables the apprentice to have on-the-job training. Palmer (2007) pointed out that the informal training sector plays a vital role in the national economy

by promoting technical and vocational skills through traditional apprenticeship training schemes.

Uwameiye and Iyama (2010) and the African Union (2007) indicated that traditional apprenticeship offers the largest opportunity for the acquisition of employable skills in the informal sector in West Africa. In Ghana, the informal sector accounts for more than ninety percent (90%) of all skills training. Uwameiye and Iyama (2010) also revealed that roadside apprenticeship provides opportunity for training adolescents who drop out of schools. This helps keep the youth busy, hence prevent them from engaging in social vices such as drug abuse and robbery. However, little has been established about formal education and its impact on the skill acquisition in the informal dressmaking industry.

2.7 Challenges of Informal Dressmakers and Tailors

Foster and Adamtey (2009) intimated that with regard to free-hand cutting, masters normally allow learners to explore because there is not enough documented information on skills for the method. Researchers realized that in most cases beginners are given a small piece of brown paper to manipulate the cutting of particular styles without using accurate measurements for a number of months just to master how to hold the scissors well and cut.

For the foregoing reasons, the researchers also agreed on the use of pattern drafting in apparel making as part of the training for the informal fashion industry but lack the technical know-how (Foster & Adamtey, 2009). There are few documented studies on the challenges for skills recognition in the informal sector in foreign countries worldwide. These challenges need to be studied to identify where skills exist, define those skills, communicating to learners, and administer the learning process.

Steenekamp and Singh (2012) indicated that five African countries beside Ghana, namely; Mauritius, Seychelles, Botswana, Namibia and South Africa were studied for recognition and validation of informal learning. The results of these studies facilitated the participation in formal education and training, employability and labour mobility in the informal sector (Steenekamp & Singh, 2012).

There are many constraints associated with sewing using adapted patterns for informal dressmakers and tailors. The processes of drafting and adaptation of patterns before laying, cutting and sewing is time consuming and may be difficult for an inexperienced person. It can be boring to a dressmaker or frustrating if the individual lacks the needed competence (Foster & Ampong, 2012). The dressmaker or tailor may not be able to satisfy his/her clients' needs without detailing the design at the first stage of construction before sewing (Boakye, 2010; Obinnim & Pongo, 2015a). Hence, conflicts may arise due to incompetence and costs interests. This outlines the need to address the constraints in apparel making through measures such as vocation training, internship and enterprise education in Ghana.

2.8 Free-hand Cutting Skill

Free-hand cutting is a method of cutting a style of apparel directly on the fabric without the use of a pattern (Efajemue & Lily, 2011). Many types of apparel worn these days apart from ready-to-wear apparel are usually made from free-hand cutting. This is because majority of the Ghana dressmakers are used to this technique in contrast to the pattern drafting which is more costly. Foster and Ampong (2012) noted that, little has been done on documentation on free-hand cutting. Shailong and Igbo (2009) described free-hand cutting as a method of cutting the fabric marked with chalk based on a measurement and cut directly without the use of a paper pattern. The measurement of the individual is utilized directly on the fabric in free-hand cutting.

If a dressmaker or a tailor makes a mistake while using the free-hand cutting method, the fabric is usually wasted.

According to Shailong and Igbo (2009), free-hand method of apparel construction may spoil the apparel entirely, thereby wasting the fabric. In addition, free-hand cutting is time consuming and slow, therefore cannot be conveniently used for mass construction. Thomas (2009) mentioned that free-hand cutting has in some instances resulted in to poorly fitted apparel and quarrels among dressmakers and their clients.

Boakye (2010) has stated that, people may prefer ready-to-wear clothes due to the unsatisfactory jobs from some dressmakers and tailors that use free-hand cutting for apparel making. This has made the budget for clothing in some cases increase for individuals as a result of fabric wastage or increase in cost when patterns are used. Thus, affecting the output of the dressmaking and tailoring institutes negatively. For the purpose of this study, an analysis was carried out on some of clothes made with drafted patterns and free-hand cutting, as a way to confirm these research findings.

2.9 Pattern Drafting Skills

Pattern drafting is mostly the art of designing and coming out with the outline plan or arrangement for making apparel (Aldrich, 2014). Thomas (2009) posits that the first step in pattern drafting is the taking of body measurements. She recommends that when taking measurements for pattern drafting, the person should just wear normal underclothes. However, Thomas (2009) does not clearly indicate the actual steps taken in apparel constructing in pattern drafting. This leaves a study gap on steps for taken measurements during apparel making and how they influence the apparel fit. Aldrich (2014) noted that pattern drafting by adopting shapes from pattern can play a central role in apparel making.

Semptress (2010) stated that flat-pattern drafting, involves using a sheet of paper, pencil and all the pattern drafting tools, and coming out with a pattern based on a set of measurements. Flat pattern drafting is based on commercialized basic patterns with standard measurements but when employed in designing, one makes use of fitting darts to increase apparel fitting (Aldrich, 2014).

Anikweze (2013) added that flat-pattern has several advantages which include the ability to design patterns to fit into economical fabric layouts, the possibility of restyling old patterns and out-of-date clothing into new ones. It also ensures ease in determining causes of mistakes during the making of the pattern and how to correct them. By pattern drafting, one can plan properly and organize himself or herself efficiently during the construction of apparel (Rosen, 2004; Wandaka, 2009; Aldrich, 2014).

According to MacDonald K.F. (2010) and Joseph-Armstrong (2010), patterns used in apparel making bring out the good style of the apparel and makes it fit better. The main categories of fashion designs are haute couture, ready-to-wear and mass construction. Haute couture collection is mainly custom-made to size and fit. This called for the need to determine the type of style modifications commonly made by informal dressmakers and tailors in the New Juaben Municipality.

2.9.1 Pattern Making Methods

Aldrich (2014) states that, competency in pattern cutting is a major factor in the construction of well-fitting apparel. Pattern cutting methods taught in Ghanaian schools include draping, drafting, copying and direct cutting on fabric, called free-hand cutting. Commercial patterns are usually mentioned but not discussed, because they are not available on the Ghanaian market for teaching in the two teaching

universities. Dress forms used for the draping process are also not available and students generally find the draping process on their figures expensive and unaffordable, because of the high cost of fabric and equipment.

In the opinion of Forster and Adamtey (2009), copied patterns or existing patterns, on the other hand, are not emphasized because students are unwilling to unstitch sewn articles, for fear of not being able to re-assemble them and also for the fact that unstitching and re-stitching are laborious processes.

With regard to free-hand cutting, lecturers normally teach the theory and leave the practical aspects for the students to explore because there is not enough documented information on skills for that method (Forster & Adamtey, 2009). For the foregoing reasons, pattern drafting is the method that is emphasized, especially in the University of Education, Winneba and students graduate without acquiring practical skills in the other methods. In pattern drafting, students draft a basic block and adapt it to fit their figures.

Forster and Ampong (2012) write that adaptation of existing patterns is now widely used by dress trade because of its accuracy of sizing and speed with which ranges can be developed. However, the authors asserted that pattern cutting should be used in conjunction with dress forms which are usually not available to students in most fashion institutions.

2.9.2 Measurements Used in Pattern Cutting

According to Aldrich (2014), accurate measurements are a major input in pattern and apparel cutting. Without accurate measurements, cutters will not have the right statistics to cut fitting apparel (Aldrich, 2014; Adu-Gyamfi, 2006). Standard measurements are developed from accurate measurement statistics of a cross section

of a specific population. These measurements are taken manually with tape measures and their accuracy largely depends on the skill of the data operator.

Body scanning provides multidimensional data that have the potential to provide more reliable standard measurements for the development of standard size categories and fitting patterns (Aldrich, 2014; Ashdown, 2007). Body scanners are, however, not common in Ghana for measurements standardization, sizing categorization and pattern cutting. The instructional guide used to teach pattern cutting in fashion institutions in Ghana are of British and American origins.

These teaching-learning materials are based on measurements aligned to sizing systems that are derived from anthropometric databases of cross sections of Americans and Europeans. The set standards indicate size codes and their corresponding body measurements for toddlers, children, women, and men's apparel. Measurements of individuals are aligned with corresponding measurements on a particular size code, despite the fact that measurements often show many differences (Aldrich, 2014).

Aldrich (2014), however, explained that basic block patterns can be drafted to fit individual figures by using personal measurements instead of standard ones listed on a size chart. Tools and equipment for taking body measurements and developing the patterns as well as the measurement procedures are also clearly stated and illustrated in drafting instructional documents.

Drafted patterns can be made to produce very good apparel if the operator is skilful and meticulous. Apparel made from drafted patterns will only fit the client well if the body measurements were well taken, the calculations were correct and construction lines well positioned on the drafting paper (Adu-Gyamfi, 2006). This brings up the

need to focus on the steps of taking body measurements which when done well can have significant and positive influence on the apparel fit.

2.9.3 Pattern Cutting Procedures

Building pattern drafting can lead to a good understanding of the body to apparel interaction and its fit (Dove, 2016). Fashion institutions in Ghana, for instance, used personal body measurements to go through four different stages of pattern cutting before they get patterns to cut their apparel. First, they develop the block pattern that is used as a basis for all adaptations (Ampomah, 2015).

The block is traced on to drafting paper to come out with the working pattern used for marking out the basic style lines and design features. After adding all the desired essential details to get the desired style of apparel, the various sections of the apparel are traced on a third sheet of paper (Ampomah, 2015). This pattern is clearly marked with the necessary apparel cutting details and making up instructions, including all allowances for seams and fullness, hem turnings and pattern symbols for the particular apparel.

Finally, the pattern sections are numbered and traced on another sheet of brown paper (Ampomah, 2015; Forster & Adamtey, 2009). It is from this final pattern that the garment is cut. In most of the fashion institutions in Ghana, seam allowances for the patterns developed by the students are pegged at 1.5 cm while hem turnings are usually 1.5 to 2.5 cm, depending on the style. Mostly, the seam allowance ranges from 2.5 to 4 cm, the hem turnings are 1 to 5 cm depending on the style. Hence, there is need for the Ghanaian fashion formal curriculum to align to industrial practices to make what is learnt relevant to what is practised in the industry.

2.10 Fit of Apparel

Apparel fit is one of the major factors considered by consumers in selecting apparel from shops and even in accepting apparel sewn by their dressmakers or tailors. Anikweze (2013) and Dove (2016) described clothing fit as the outward appearance of a piece of clothing to one's body. Fit is one of the first things that clients consider when apparel is made for them by their designers. This is also the first complaint by clients and areas on to reject apparel (Dove 2016; Wu & Ashdown, 2016). Anikweze (2013) further cited that proper fit gives the wearer of a dress a feeling of physical comfort and self-confidence. Anikweze (2013) also proposed that well-fitting clothes should not only appear gorgeous on the wearer but, should offer comfort whether the wearer is standing, sitting, walking or bending and also fit in motion.

In addition, to recognize and identify standard quality apparel, one must be guided by some details which involve almost all of the constructional techniques. In providing guidelines for assessing clothing fit, Dove (2016) emphasized three major considerations, namely; wrinkles, grain and ease. The authors considered wrinkles as the main indicator of improper fit in clothing (as cited in Anikweze, 2013). A dressmaker or a tailor may choose to use a standard size that has been pre-graded on a purchased pattern or they may decide to design a pattern to better fit the wearer. This may be done by creating a sewer's apparel template (toile) from inexpensive muslin material or by customizing a computerized pattern to fit. The three-dimensional technology enables the home sewer to see the final apparel as a virtual simulation on the wearer (Obinnim Pongo, 2015; Dove 2016).

2.11 Apparel Style Modification using Pattern Drafting and Free-hand Cutting

The creation of apparel comprises many processes. The appearance and fit of apparel are highly dependent on a particular process used in the construction (Kumar 2012;

Radclyffe-Thomas, 2015). The use of free-hand cutting to make apparel is an initial step in apparel making. The use of patterns is another earlier step in apparel making. It is a craft that has evolved over centuries into a skilled technical process. Today, patterns have been designed to quickly perform repetitive time-consuming tasks, which have allowed apparel manufacturing companies to keep pace with the fast-moving world of fashions (Tamakloe, 2011; Larbi & Atta, 2009; Clark 2008).

Pattern drafting, prior to the industrial revolution was used only by the rich because tailors had to work hard to customize patterns using personal measurements of their clients. After the industrial revolution, standardised patterns were used essentially to produce ready-to-wear clothing (Aldrich, 2014). Initially, the use of standardised patterns resulted in poorly fitting apparel such as boxy men's suits, and ill-fitted skirts (Anikweze, 2013). However, after extensive experimentation and standardizing sizes, pattern drafting has triumphantly been transformed from customization to standardization (Anderson, 2011; Amander, 2012; Aldrich, 2014).

2.12 Technological View of Pattern Drafting Over Free-hand Cutting

Lewis and Loker (2014) had emphasized that civilizations connote the satisfaction and conformity of the dress silhouette in the global competitive settings for confidence and comfort. It is very essential to identify the setbacks that impede the progress in the work environment. Hence, the fundamental implication of quality life boarded on the perfect apparel that cling well to the body contour (Wu & Ashdown, 2016). No matter where people live, clothing is an integral part of their lives, and civilized people are protected by clothing from the cradle to the grave. Without clothing, we would be living in a ridiculous world. Clothing enhances modesty in our everyday jobs (Aboagyewaa-Ntiri & Apreku, 2012; Oppong, J. A., Biney-Aidoo, V., & Anyiaye, E. 2013).

In this technological era where time has become a commodity, we are to accomplish more to enhance progress and development. Time is the most valuable coin in one's life. Bray (2009) writes that the main drawback of free- hand cutting on haute couture approach to apparel creation is the time required for the many attempts to produce a perfect shape for just single apparel, and this renders the approach unsuitable for modern mass construction.

Bray (2009) further reiterated that the advantages of pattern drafting outweigh that of free-hand cutting in the sense that the outcome of pattern cutting results in conformance to international designs whereas the free-hand cutting operates within the traditional settings and therefore, conforms to traditional design cues. Pattern drafting has the ability of restyling old patterns as well as out of date clothing into fashionable ones to suit the demand of the time and also the ease of determining causes of mistakes on a particular design and flexible planning for correcting procedure (Tamakloe, 2011; Larbi & Atta, 2009). Tamakloe (2011) outlined that pattern drafting skills increase productivity and maximize profit and ensure business survival and growth.

In other words, pattern drafting helps to identify certain faults that might arise on the design and seek to adapt remedies to the problem before construction. In contrary, the free- hand cutting skills only identify the problem through fitting after sewing which waste much time and resources (Tamakloe, 2011; Larbi & Atta, 2009).

Creativity is the bedrock of any competitive market and this is best achieved in stages, process manipulation and systematic organization of processes. That is exactly what the pattern drafting skills portray which brings out creativity in styles. This platform is opposite in the free-hand cutting skill in that the styles remain static and still.

Tamakloe (2011) write that pattern drafting offers free movement if more tailored to close fitting to the body contour.

Several studies have been conducted to identify the influence of technology on the apparel fit. A study by Ampomah (2015) investigated how technology has impacted the apparel industry. The study found that technology has completely transformed the apparel construction through use of 2D and 3D technologies hence making the apparel fit better. Further, the study indicated the influence of technology on the technique choice. However, it did not establish how technology can be used to incorporate in both pattern drafting and free-hand cutting.

2.13 Challenges of Flat Patterns and Large-Scale Construction

According to Aldrich (2014) and Semptress (2012), flat pattern is based on commercialized basic patterns with standard measurements but when employed in designing, one makes use of fitting darts to increase apparel fitting. Challenges are obstacles that hinder the progress of work. Despite the numerous advantages the flat patterns have over the free hand methods of cutting fabric for apparel design, one requires technical know-how in order to succeed. Apparel construction processes involves an interest in manufacturing clothing which includes technical knowledge in areas of pattern drafting, designing, sewing, trimming, embroidery, and patterns in the textile print arrangement and organization. To assemble and coordinate the activities and creative imaginations of these categories of craftsmen in a business setting is quite taxing.

Horton (2009) advises that the type of figure, "its proportions and characteristics" should be considered when selecting the style of apparel so as to disguise figure problems. Consideration of figure type and body measurements is also necessary in

order to avoid too many alterations of patterns before achieving a perfect fit. The main challenge in flat pattern for large scale construction is the ability to take accurate body measurements for sizing and grading to suit the variance of figure type for mass construction (Obinnim & Pongo, 2015a).

2.14 Traditional Apprenticeships

In Ghana, the use of apprenticeships is increasing for youth 15–30 years of age, as measured by Ghana's Living Standards Surveys in 1991/92 and 2005/06 (World Bank, 2009). The share entering an apprenticeship has been rising for young men and women, reaching just over one-quarter of the population, but with a higher growth rate for young women. Apprenticeships are more evident. Traditional apprenticeships are by far the most frequent form of skills training in Africa for the informal sector, with a concentration in West and Central Africa.

Filipiak (2007) and Haan (2006) estimate that up to 70 per cent of urban informal sector workers in Africa have been trained through the traditional apprenticeship system. The Ghana Statistical Service (2012) for example, found 207,000 youths registered as apprentices in 2002, while in this same period, a much smaller number, just over 50,000 youths, were enrolled by public and private providers (World Bank, 2009).

Traditional and formal apprenticeships have fundamentally different structures (Filipiak, 2007; Haan, 2006). Traditional apprenticeships in the informal sector consist of private contractual arrangements between a parent or apprentice and a master craftsperson who agrees to provide practical training in the workplace, ranging from several months to three or four years in duration, and subsequently to certify the training in return for some fee or reduced earnings for the apprentice while learning

(Biney-Aidoo & Antiaye, 2013). Traditional apprenticeships have both strengths and weaknesses. They are self-financing and self-regulating and provide practical, hands-on training with good prospects for employment after training.

However, traditional apprenticeships suffer from weak education among the entrants, where literacy is an issue (Biney-Aidoo & Antiaye, 2013). Few participants pass beyond a lower-secondary education and many will not have completed a primary education. In addition, choices of trades follow gender biases. Master craftsmen, in turn, do not provide theoretical knowledge alongside practical experience and, more often than not, teach out-dated technologies (Palmer, 2007). Pedagogy varies and few market standards are available to judge the quality of the training provided (Johanson & Adams, 2004).

2.14.1 Apprenticeship and Gender Equality

Apparel manufacturing is a major determinant of Ghana's economic growth and development. It is one of the industrial businesses that are labour intensive and a systematic form of manufacturing that does not require highly sophisticated technical skills to start off.

Pongo et al., (2015) reported that apparel construction is a small-scale occupation for both men and women in Ghana and has been practised for many years with sustained conditions of apprenticeship in the industry. The National Apprenticeship Services (NAS) which has been set up by the YWCA in most countries has encouraged and increased apprenticeship training for young people and this saw a significant increase in the 2010in England (TUC & YWCA, 2010; Marangozov et al.,2009).

This increase was more in the area of gender equality which has led to an increase in the proportion of female apprenticeship. The increase in female apprenticeship as

reported was largely due to an increase in workforce in mostly retail and business services and not increasing influx of young women (Fuller & Unwin, 2012; Betto & Veraschagina, 2009). Beck, Fuller and Unwin (2012) reported that occupations with labour shortages are in areas such as construction and automotive engineering where female participation is lowest. In addition, men wishing to work in hairdressing or childcare may be dissuaded not only by the low pay prevalent in those sectors but also by stigma and tagging attached to these occupations as "women's work".

Researchers have also reported that there is a correlation between low pay and the prevalence of women in certain apprenticeship sectors. Beck, Fuller and Unwin (2012) showed that in England, in 2007 electro- technical, engineering and construction apprentices topped the wages league with 210, 189 and 174 pounds pay piece but had 1%, 3% and 1% women apprentices. In contrast, the bottom of the wage league was health/social care, childcare and hairdressing apprentices with 157, 142 and 109 pounds pay piece with high women participation of 92%, 97% and 92% respectively.

In Ghana, women with sewing skills have been said to have benefited from sewing apprenticeship since they mostly work at home and also have enough time to take care of their families without obstacles (Biney-Aidoo, 2006). Gondwe and Walenkamp, (2011) using information from the Ghana Statistical Service reported that the distribution of apprentices in the service sector were mostly (36%) in the textile and apparel industry and predominantly women (78%). Imirhe (2004) showed that most of master craftsmen (67.5%) and apprentices (70.4%) in the dressmaking and tailors industry were females.

In an Agreement with the aforementioned, Fuller and Unwin (2012) also revealed that apparel construction historically throughout the world has been dominated by women. This is also prevalent in most communities in Ghana where sewing is seen as more women work than men. Fuller and Unwin (2012) further argued that most young girls receive training in needlework and handicrafts skills within the home and this helps them to easily enrol in the trade.

2.14.2 Apprenticeship and Educational Levels

Apprenticeship is where master craftsmen and apprentices agree to the apprentice given a prescribed on the job training for a defined time period through practical experience, and under the supervision of the master craftsmen. In Ghana, this agreement is mostly not formal and not written (Frazer as cited in Anokye & Afranie, 2014). It is a kind of on-the-job training which allows the apprentice to learn from the workplace (Uwameiye & Iyama, 2010). The apprentice system of training dressmakers and tailors provides a form of training for the youth to have expertise in employable skills which could help the youth to gain employment.

Apprentice training in sewing organized by master craftsmen has been in existence for years where knowledge and skills in making clothing are taught to individuals from generation to generation. The knowledge acquired by master craftsmen is passed on through generations to ensure continuity (Larbi & Atta 2009). They intimated further that it is important for the youth to be trained through the system of apprenticeship to acquire strong vocational and technical skills especially where the youth have no academic qualifications or other paper qualifications. Eze and Okorafor (2012) indicated that traditional apprenticeship training provides vocational and technical skills and this informal training sector is important for every economy.

The Ghanaian national policy which was introduced in 2002 mandated that Junior Secondary School graduates who dropped out of formal school should be given the opportunity to undertake apprenticeship in informal education was seen as laudable (Ghana Statistical Service, 2014). Many researchers have presented many and varied entry requirements for new apprentices but Donkor (2006) reported that though entry requirements vary for new apprentices however, it's generally opened for one who can pay the training fee, but minimum educational requirements do not exist (Middleton et al., as cited in Anokye & Afranie, 2014).

Some level of education is important for a category of teaching to be done in apprenticeship but some dressmaker apprentices may not have had basic education. A number of studies have shown that master craftsmen have had some education but Imirhe (2004) reported that 84, 6% and 15.4% of apprentices examined had first cycle and second cycle education respectively. Uwamieya and Iyama (2010) argued that apprenticeship was mostly available to school dropouts and those who cannot afford acquiring some level of education may be helpful in apprenticeship training but might not be pre-requisite entry criteria.

2.14.3 Apprentice Age and Training Period

Apprenticeship as a means of acquiring skills and transferring them from generation to generation in the wake of the changing socio-economic conditions in Ghana also faces challenges in its processes and dynamics. It is important to examine how apprenticeship in various service fields provides alternative paths to job acquisition and entrepreneurship (Freund, 2008; Moubari, 2012). In Ghana, Anokye and Afranie (2014) reported that nearly 33% and 42% of students drop out of Junior High School and Senior High School respectively. It was also evident that most of the master craftsmen/women in apparel making have limited theoretical basis of their trade and

were financially handicapped. They turn to vocational and technical skills to make a living. Evans (2013) reported that in England, new apprentices were mostly of age 25 years and above and had risen to 44%.

The formal educational system seems not to provide the requisite vocational and technical skills which will enable students to produce standard fashion products. This in effect makes the students unemployable in the formal sector as they are unable to exhibit the required skills needed to meet the competitive nature of the job market. Many of the young school dropout people, as a survival and coping strategy, have opted for learning a trade and settling in the informal sector. This has created awareness and increased interest in apprenticeship training in the informal sector in Ghana and Africa at large (Fox & Gaal, 2008; Connell & Presley 2012).

DiMacro (2010) intimated that the apprenticeship system which was once regarded as a 'marginal job' is now an important determinant of the Ghanaian economy. Apprenticeship training as a way to learning a trade is beneficial and should be organized regularly with theoretical and practical components.

Some researchers have indicated that most apprentices enter the training in the adolescent age. For instance, Anokye and Afranie (2014) reported that a great number of pre-teens in the adolescent age starts apprentice training in most instances. This could be due to the fact that, in the past or the mid-year of 1900s, young people had to support household chores before entering into training. Anokye and Afranie (2014) reported that new apprentices examined in a study ranged in age from 14 years to 35 years with a frequency of 78.5% and 20% for the age groups 19years – 24 years and 18 years and lower respectively. This contrasting revelation of new apprentices at youngest age of 14 years and majority between 19 – 24 years may be due to most

students completing Junior High school at about 15 years in Ghana before joining the apprenticeship system (McIntoch, 2007).

The duration of apprenticeship varied from various service sectors. There is limited documented information on the durations of apprenticeship. Hogarth and Hasluck (2003) reported that the average duration of apprenticeship training ranges from one year to five years but differs for the various professions. They indicated that duration of apprenticeship training is longer in engineering and construction sectors than sewing and social care. Anokye and Afranie (2014) intimated in a study in Ghana that, most apprentices totalling 76% spent an average of 3 years, whereas only 14% spent 2 years in training.

Notwithstanding Anokye and Afranie (2014) further reiterated that some apprentices totalling 6% or less spent close to 4 years on the training. There are also some instances where apprentices stay on and provide additional services to their master craftsmen to settle off their fees or be on contract appointment.

2.15 Skills Development in the Informal Sector

Education levels for youth are rising as a consequence of Ghana's efforts to provide basic education for all, and the share of those following their education with an apprenticeship is also rising at each level of education except post-secondary. Although individuals with a technical or vocational education are likely to acquire their skills in an institutional setting, those with a general education are more likely to pursue skills through an apprenticeship.

An apprenticeship opens opportunities for employment not only in the informal sector but also in other types of employment. In the Ghana surveys, 4 of 10 people working in the private informal sector as self-employed or wage workers in 2005 acquired

their skills through an apprenticeship. Reflecting the growing importance of traditional apprenticeships, 51 per cent of youth in non-farm self-employment in 2005 acquired their skills in this manner, a rate twice that of the earlier period. With consumption levels used as a proxy for family income, apprenticeships in Ghana were accessible to all income groups but favoured those who were better off.

People in the lowest consumption quartile demonstrated much lower rates of participation in apprenticeships. Should traditional apprenticeships form part of a strategy for skills development in Sub-Saharan Africa? Small, informal sector firms that acquire skilled workers through apprenticeships are unlikely to contribute in a significant way to the export-led development strategies of most countries.

Moreover, the ability to leverage large numbers of apprentices is constrained by the number of skilled craftsmen available. These considerations aside, improving traditional apprenticeships can contribute in a positive way to employment and poverty reduction. Small firms with more productive workers have the potential to become suppliers of intermediate products in value chains leading to exports. People employed in the informal sector earn more than those in the farm sector and improving their productivity through skills can further contribute to poverty reduction (Fox & Gaal 2008).

It is reasonable, however, to question whether emphasis on skills alone will improve the productivity and incomes of people who are employed in the informal sector. The improvement of financial services and access to credit are often listed as critical needs in surveys of small businesses, along with secure worksites and access to new technologies and business services (Adams, de Silva & Razmana, 2013). Non-Governmental Organizations (NGOs) play an important role in providing these

services to micro and medium-size enterprises, often providing a menu of services alongside training.

Working through informal sector employer associations, as noted earlier, can further assist in organizing services, particularly in skills training, by using their collective size to reduce the cost of training needs assessments, establish competency standards, develop curricula, and certify skills obtained in traditional apprenticeships.

2.16 Education and Attitude towards New Learning

Education is central to development to every nation. According to Isika (2014), most institutions do offer courses in apparel design draping for people and also admit for trainers for apparel design courses both formal and informal. Workman (2011) noted that individual learning determines one's level of ability and willingness to learn. Isika (2014) on draping stated that people with technical hands lacked hands-on experience, had poor work attitude and were inflexible to change. Due to the literature that has been reviewed, it comes to bear those psychological factor interactions between trainers and trainees can be detrimental to the learning processes. Understanding a skill and its interpretation is very important towards skills learning especially incorporating into new skills learning (Hauge, 2009; Joseph-Armstrong, 2010).

2.17 Clients and Apparel Satisfaction

Apparel satisfaction causes issues for both consumers and retailers (Dove, 2016; Apple, Smith & Coury, 2016). Clients' satisfaction with apparel fit directly influences the choice of clothing and selection behaviour of clients. Client's satisfaction is thus paramount in the construction and design of apparel. Client's needs vary from person to person and are determined by many factors.

Apparel designers and manufacturers have difficulty in satisfying all the needs of apparel consumers because of the huge variation in individual needs (Apple et al., 2016). However, retailers and apparel designers must strive hard to understand the apparel needs of clients.

Fit has been defined as the way in which a garment conforms to the body and how it appears on the body. Shin (2013) argued that clients' satisfaction with fit depends on personal and external factors. A study by Aklamati, Twum and Deikumah (2016) in Ghana examined differences between male and female adolescents in evaluating the fit of their clothing. The authors had observed that most of the garments worn by the respondents in Sekondi-Takoradi had fit problems such as "defective waist lines, wrinkles and pulls around the arm scye and unnecessary fullness" (p.39). Aklamati et al. (2016) found that artistic and well-designed apparel played important roles in analysing the fit of clothing. Also factors such as the body size of the client, ease of the apparel and the feeling self-confidence also helped to determine respondents' satisfaction (Aklamati et al., 2016).

According to Shin (2013) study indicated that, clients' satisfaction with fit depends on personal and external factors. Clients may feel happy or otherwise towards their own body due to the physical size of the body or body emotions. The authors argued that women sometimes do not blame the style of the clothing when it does not fit well on their body but their own body shape. They asserted that women are relatively more concerned and have shown more interest in clothing than men (as cited in Shin, 2013).

Most studies on clients' satisfaction with fit considered the level of fit satisfaction in some parts of clothing or for specific types of clothing. Shin (2013) therefore opined that largely, fit satisfaction of apparel is seen by clients in specific areas such as

blouses, jackets, dresses and skirts. This may be seen in terms of the level of satisfaction or displeasure a client may experience with fit of clothing in general (Shin, 2013).

2.18 Summary of Literature Review

The literature was reviewed based on the objectives that were set for the study. The in-depth review of literature revealed that there is limited research on free-hand cutting and pattern drafting in Ghana and other parts of Sub-Sahara Africa. Most studies conducted took place in the western world. Clients' satisfaction is a key to survival of the modern-day businesses. Thus, a satisfied client would continue to patronize a product so long as it meets his/her expectations. The literature reviewed showed that clients' perception on apparel constructed using free-hand cutting and pattern drafting has not been researched.

The preference of the type of constructional method used by the informal dressmakers and tailors propelled the information for documentation to address the gap. The review of literature revealed that although some studies have been conducted on the informal dressmakers and tailors, none touched on how demographics influence the use of free-hand cutting and pattern drafting in apparel construction. Second, few studies have been conducted on fit of apparel but failed to consider style modification and evaluation of fit of apparel constructed using free-hand cutting and pattern drafting as well as client's satisfaction. These methods included the use of questionnaire, focus group discussions and apparel evaluation sessions. The use of training manual in the informal sector helps build up the confidence level of the trainee and boost up their business globally.

Most of the studies in the literature review did not focus on the end product of apparel fit. Few studies investigated the factors and challenges facing the dressmakers in Ghana. However, there was no study which investigated the influence of demographic characteristics on the choice of technique or method used and the apparel fit outcome. Among the gaps identified in literature review were; inadequate focus on the steps of taking body measurements which when done well can have significant and positive influence on the apparel fit; the need to determine the type of style modifications commonly made by informal dressmakers and tailors in the New Juaben Municipality; and the influence of techniques adopted such as pattern drafting or free-hand cutting on the apparel outcome. Therefore, this study sought to examine the influence of demographic characteristics on choice of apparel making methods on fit and style modification in Koforidua in the Eastern region of Ghana.

CHAPTER THREE: RESEARCH METHODOLOGY

3.1 Research Design

A cross-sectional descriptive survey was used for this study as it has the advantage of soliciting respondent's views on the nature of the situation as it existed at the time of a study (Creswell, 2012; Mugenda, 2008). The design is an efficient way of collecting information of a large group of people within a short time using questionnaires. The survey design was deemed appropriate for this study as it has the advantage of seeking the views of informal dressmakers and tailors on the use of pattern drafting and free-hand cutting in apparel construction. It allowed for the use of both quantitative qualitative techniques in the study. The study used SPSS to analyse the data. The descriptive statistics and Chi-square results paved way for better understanding of a phenomenon under study. The use of these methods offered the opportunity to have in-depth information and also the weakness in one method is compensated for by the strength in another method.

3.2 Measurement of Variables

The independent variables in relation to the study were the demographic characteristics of the respondents. The intervening variables were: pattern drafting and free-hand cutting skills of apparel construction. The dependent variables were fit of apparel and modification of styles that were geared toward client's satisfaction on fit of apparel. The respondents were presented with both open-ended, closed ended items and likert items. Close ended items were used to assess the demographic characteristics while the likert items examined the attitudes and perceptions of respondents towards apparel fit and style modification. The study interviewed the executive to examine their views and perceptions towards training methods used by the IDT. The views were recorded on an audio and transcribed for thematic analysis.

The clients participated into focus group discussion and their views were recorded and arranged into themes. Additionally, the models wore the constructed apparel made by the two methods and were subjected to judges who assessed on the apparel fit and style modification using the evaluation criteria adopted from NVTI. The images were captured and the judges' view recorded for examination and thematic analysis.

3.2.1 Demographic Characteristics of Respondents

The researcher collected data on respondents' demographics to check whether there is any link between the demographics and method used in constructing apparel. In this case, the respondents were characterized in terms of gender, age, educational level, work experience and preferred method in apparel construction.

3.2.2 Measurement Taken

The fit of apparel largely depends on the correct and accuracy of the measurement taken. How measurement taken was assessed through observation and interaction with the respondents during the practical section on apparel construction using both pattern drafting and free-hand cutting methods. This was categorized into body sections: upper torso and lower torso. The upper torso comprised bust, waist, hips, across back, across chest, shoulder line, nape to waist, blouse length, sleeve length and bicep. The lower torso section included waist, hips, skirt length or trouser length, seat or crotch.

3.2.3 Design and Style Modification

Design and style modification was examined using likert items on questionnaires presented to apprentices and dressmakers. They were asked to construct apparel using their preferred method of construction and the constructed items were worn by models. The style modification was examined by judges who gave their views on style modification in relation to method of apparel construction. The judges used

composite score based on the observation checklist of the finished products of apparel made from both free-hand and pattern drafting technique. There was an agreement between the respondents and the researcher on a common style. One of the styles was to check for fit and others for fit and style modification respectively. The finished product from both methods was analysed on live models to check on the stitches and seam, arrangement of fullness, application of fastenings, arrangements and position of motifs in the fabric as well as the design details that conform to fit standard based on the checklist used by judges.

The five judges who comprised three executive members of the Association, one renowned fashion designer and one examiner from National Vocational Training Institute who are all members of the association helped to evaluate the fit and modification of styles of the selected apparel. The assessment was done using a three and four-point scale depending on the part of apparel being assessed.

3.2.4 Client Satisfaction

Clients were involved so that the study can perfectly evaluate the methods which were more likely to gain market acceptability and can contribute to the growth of the business. Focus group discussion was instituted among the clients to elaborate more on the topic for the study. Qualitative data were collected using semi-structured discussion guide to assess the extent to which apparel constructed with pattern drafting and free-hand cutting meet the expectations of clients.

3.3 Study Area

The study was conducted in Koforidua area in New Juaben Municipality located in the Eastern Region of Ghana which is the regional capital of Eastern Region. Ghana Statistical Service (2012) show that the Municipality has a population of 183,727

made up of 51.1% females and 48% males in the Municipality. Appendix L shows the map of Ghana and location of the Eastern Region.

Informal dressmakers and tailors in the Koforidua area was selected for this study because Eastern Region has a larger number of clothing manufacturers as compared to other regions in Ghana. Apparel making formed about 60% of job opportunity in the Koforidua area (Ghana Living Standard Survey, 2012). Most of the youth in the Koforidua area and its environs migrate to the regional capital to seek for greener pastures. Most of these youth find themselves in the fashion world and learn dressmaking and tailoring as a source of livelihood.

In addition, the regional capital is noted for its passion for fashion therefore many fashion firms are centrally located in Koforidua. This made it possible to reach a good number of respondents who were into dressmaking and tailoring and therefore got access to a representative proportion of them for the study. The researcher also found that these informal dressmakers and tailors have been organised into an association and therefore, it was easier to reach the members for the different parts of the study.

3.4 Target Population

The total target population was 843 which included registered dressmakers, tailors, the apprentices and clients operating in the Koforidua area**.** The target population details are as shown in Table 3.1.

Table 3. 1: Distribution of Target Population

Group	Total number
Dressmakers	195
Tailors	93
Apprentices	510
Clients	45
Total	**843**

Source: IDTA Record Book (2016)

The target population number in Table 3.1 was retrieved from the IDTA Registration Record Book of the association (IDTA Record Book, 2016). The total number of the clients was retrieved from the dressmaker and tailors who had contact and records of their clients.

3.5. Sampling Technique

The stratified sampling was used in the study to put the entire population into strata. Multi-stage sampling method was used for this study and it involved three stages. The first stage involved purposive selection of communities from the Koforidua area. Due to the vastness of the study area, there was the need to narrow the study area by developing study stratas. The second stage involved the selection of individual dressmakers and tailors as well as their apprentices from the selected communities using systematic sampling technique using list of all registered dressmakers, tailors and apprentices. The purposive sampling technique was used to select other key informants such as the clients of Dressmakers and Tailors Association in Koforidua area. This was done through the help of the masters who have the contact of their regular clients who can give very constructive answers to support the study.

3.6 Sample Size

The sample size comprised the dressmakers, tailors, and their apprentices, clients. In determining the size to be used for the study stratified random sampling was used to select and put them into strata. A third of each of the various categories of participants was drawn for the study. The total of each category was put together to form the total sample size for the study. The choice of a third was consistent with Leedy and Ormrod (2005) and Neuman (2012) that studies involving homogeneous population can conveniently be represented by one-third of a population as the sample size.

Table 3.2 demonstrates the sample size for dressmakers, tailors, apprentices, and clients.

Table 3. 2: Computation of the Sample Size

Respondent	Total number	Sample size (1/3)
Dressmakers	195	65
Tailors	93	31
Apprentices	510	170
Clients	45	15
Total	**843**	**281**

Source: DTA Records, (2015)

3.7 Research Instruments

Seven research instruments were used in this study. These were questionnaire, interview guide, focus group discussion guide, photography, video and audio recordings, observation checklist and apparel evaluation checklist.

3.7.1 Questionnaire

Two sets of questionnaires were used to collect data from apprentices and informal dressmakers and tailors. The questionnaire for apprentices (Appendix A) was divided into three subsections. Section A elicited data on respondents' demographics while section B collected data on general knowledge on the use of pattern drafting and free-hand cutting. Section C collected data on fit of apparel and style modification. The responses to items in sections B and C were on a five-point Likert scale. All the items were closed-ended questions.

The questionnaire for informal dressmakers and tailors (Appendix B) was used to gather data on the use of pattern drafting and free-hand cutting in apparel construction. The questionnaire was divided into three sections. Section A sought to collect data on dressmakers and tailors' demographics. Sections B and C were made up of questions on the use of pattern drafting and free-hand cutting in apparel construction.

3.7.2 Interview Guide

A structured interview guide for executives (Appendix C) was used to gather data from the executives of informal dressmakers and tailors. This instrument elicited responses on the interviewee's view on constructional methods used among the IDTA members, training mode for apprentices**.**

3.7.3 Focus Group Discussion Guide for Clients

A focus group has been defined as a "carefully planned discussion designed to obtain perceptions on a defined area of interest in a permissive, non-threatening environment" (Iakshmy & Kumar, 2016). Focus group interviews are based on group dynamics. This method relies on interactions of members of a group to produce a range of insights. Focus group techniques encourage constructive elaborations among group members' ideas (Harvey & Janke, 2014). This instrument had the potential to generate discussion on topics that were meaningful to a group of participants.

A structured focus group discussion guide (Appendix D) was used to collect information from selected clients of dressmakers and tailors. Simple random sampling was done to select 36 clients. One focus group comprising of 12 clients of dressmakers and tailors was created which was a third of the total selected clients. A focus group interview employed in this research was appropriate qualitative method for generating a range of ideas. For the focus groups, a semi-structured Interview schedule (Appendix D) was developed to elicit clients' views about clothing items. It was made up of 13 questions which were used to elicit clients' views of wide range of apparel attributes.

3.7.4 Observation Checklist

A structured observation checklist was given to judges to evaluate the procedure and processes in apparel making both free-hand cutting and pattern drafting methods. This instrument was used by judges to observe the steps in construction of selected apparel sewn by the selected dressmakers and tailors before evaluation. The checklist contained major constructional processes such as measurement taking, design or style analysis, folding of fabric, layout and cutting out type of stitches used and required seams and seam allowance (Appendix E). These processes were graded good or poor depending on its accuracy as portrayed by the respondents.

3.7.5 Evaluation Criterion

An evaluation criterion was used, as shown in Appendix F. This criterion was an adaptation of the National Vocational Training Institute proficiency checklist used to assess the members of the IDTA during their examinations. The judges evaluated apparel made by some selected dressmakers and tailors using the two methods (free-hand cutting and pattern drafting).

The finished products were worn by models for appraisal. This instrument was divided into sections which sought to compare fit and how styles can be modified by the use of both methods. The information that was generated from this evaluation was important to reinforce the perceptions of dressmakers and tailors on fit and style modification of apparel using pattern drafting and free-hand cutting methods.

3.7.6 Photography Video and Audio Recording

The researcher used photography to capture images of different constructed apparel during evaluation by the judges. Additionally, video and audio recording was used

during interviews and focus group discussion in order to capture verbatim quotes by the participants as well as video recordings during the fitting and evaluation.

3.8 Pre –Testing of the Instruments

A pre-test of the instruments was conducted in five zoned communities namely Central, Anlo Town, Asokore-Kuma and Effiduase, Highways area and Old Estate all within Koforidua area. The researcher carefully chose these communities due to great number of dressmakers and tailors that operated in these areas. In all 20 participants made up of five dressmakers, three tailors, 10 apprentices and two clients took part in the pre-testing. According to Mugenda & Mugenda (2003), one per cent of every total sample of a study is enough for pre-testing.

The questionnaire was pre-tested among eighteen respondent who comprised of dressmakers, tailors and apprentices who were asked to respond to items testing knowledge on pattern drafting and free-hand cutting. These dressmakers and tailors were not part of the main sample selected for the study but they were members of the association. The pre-testing exercise ensured that the items of the questionnaire were clarified. It also helped to ascertain the understanding levels of the respondents and feedback was received on the duration required for the completion of the questionnaires and the conduction of the interviews.

To pre-test the evaluation checklist, the two dressmakers and tailors each were selected and given the same style and fabric to sew in their various shops using the two methods. The apparel was submitted within three working days. The apparel was collected and kept by the researcher. Upon agreement with the participants, a day was fixed for the evaluation of the categories of apparel A. Five-member committee who are all members of the IDTA comprising three executive members of the Association,

one renowned fashion designer and one examiner from National Vocational Training Institute were made to evaluate the fit of the finished product on two different occasions.

This was done in order to avoid the problem of introducing bias and also create a situation for other experts to be involved in the evaluation of the processes. After the evaluation, it was realised that, there was the need to amend the evaluation processes where the judges would be around from start to finish during the construction of apparel. This was agreed upon to enable the judges keep track of all the processes concerning both methods.

3.9 Validity

The study used content validity technique to assess the validity of the research instruments. This technique refers to the extent to which a measure or instruments adequately covers the topic it is supposed to cover under the study (Kothari, 2004). The technique ensures that the variables as stated in the objectives are being measured appropriately. Expert advice was sought from university supervisors and the study thesis was subjected to peer review to correct any anomalies identified in relation to validity. Content validity was ensured through well-constructed items and well-edited statements to suit the level of understanding of the respondents.

3.10 Reliability

Reliability is another important measure of sound measurement. According to Kothari (2004), an instrument is reliable if it produces consistent results. To ensure a high internal consistency in this study, a reliability test was conducted using the Cronbach alpha technique. According to Santos (1999), the Cronbach's Alpha correlation coefficient may be used to describe the reliability of factors from multi-point

formulated questionnaires or scales. He further points out that though 0.7 is the most accepted and reliable threshold, above 0.5 is also acceptable. Six Chronbach's Alpha tests were computed for the six constructs measuring pattern drafting, free-hand cutting, fit of apparel by pattern drafting, fit of apparel by free-hand cutting, style modification by pattern drafting, and style modification by free-hand cutting. All items in different constructs were measured on a 5-point Likert-type scale and consisted of 5 items each. Chronbach's Alpha for all the constructs were presented in Table 3.3.

Table 3. 3: Reliability Statistics

Construct	No. of Items	Chronbach's Alpha
Pattern drafting	5	0.78
Free-hand cutting	5	0.74
Fit of apparel by pattern drafting	5	0.88
Fit of apparel by free-hand cutting	5	0.85
Style modification by pattern drafting	5	0.83
Style modification by free-hand cutting	5	0.81

Source: Analysis of Survey Data (2017)

As indicated in Table 3.3, all Alpha coefficients were above the threshold of 0.70 and thus, all constructs were considered acceptable for data analysis and reporting (Cohen, Manion, & Morison, 2011).

3.11 Data Collection Techniques

Using the research authorization obtained from the Kenyatta University Graduate School; permission was sought from the Regional Office of the IDTA at Koforidua. This was followed by booking of appointment with the executives of the Association. The meeting discussed the aim of the research. Another meeting followed where those chosen as participants for the study were given informed consent forms. Prior to the actual data collection exercise, a research assistant was chosen and trained to assist the researcher in the data collection.

The research assistant was selected because of his formal training and experience in apparel making. Training was conducted to equip the research assistant on administration of questionnaire, the observation checklist and a professional photographer also helped in taking of pictures during the apparel evaluation sections. After the training, a dummy data collection exercise was conducted to ensure that both the photographer and research assistant had acquired the skills. The interviews and the focus group discussion were done by the researcher.

3.11.1 Questionnaires

The questionnaires were delivered to dressmakers, tailors and apprentices by the researcher and research assistant. The researcher with the help of the assistant took the apprentices through the questionnaire for the purpose of clarity on the issues involved. The questionnaires for the apprentices were completed and collected on the same day. The researcher and her assistant met the dressmakers and the tailors on a different day which was agreed upon to complete the questionnaire. The questionnaires for the dressmakers and tailors were also completed and collected the same day.

3.11.2 Apparel Evaluation

The researcher booked appointments with the respondents involved for the apparel evaluation section to get them adequately prepared. This was to ensure high return rate of the instruments. The researcher conducted the section at the regional community centre which was the usual monthly meeting place for the association and therefore was very convenient to the respondents. This made the respondents relaxed and ready for the exercise. The meeting for the apparel evaluation was done on five different occasions using five different apparel sewn with pattern drafting and free-hand cutting technique which include one dress, a bustier blouse, a blouse with peplum, trousers and a panel skirt and were worn for evaluation.

The first day of evaluation was on one-piece sheath waist dress with long sleeve. On the second and third days, a long panel slit (skirt) and bustier panel *kaba* (blouse) and ladies trousers with a side zipper and a blouse with a flare peplum were evaluated respectively on the fourth and fifth day. These styles were chosen because they were mostly sewn and worn by the people of Koforidua area in Ghana. The finished apparel was worn by models for discussion by the judges. The five different styles were carefully chosen to check on fit and style modification on both methods. Each style had two apparel made with pattern drafting and free-hand cutting. All styles made by pattern drafting technique were labelled 'A' while 'B' was used for labelling free-hand cutting. Based on this, sheath dress was labelled as sheath dress '1A' and sheath dress '1B'for pattern drafting and free-hand cutting respectively.

The bustier blouse for pattern drafting was labelled as bustier blouse '2A' and bustier blouse '2B'for free-hand cutting. The same was done for the long panel skirt (slit), ladies trousers and blouse with a flare peplum. The selected communities were zoned into two and each zone was represented by one model. At the end of each apparel evaluation, there was a general discussion on the apparel which was worn by the model for appraisal. The overall goal of these sessions was to elicit further views of the executives present. The apparel evaluation lasted approximately three hours in each session for five days. The sessions were video and audio recorded for future reference. Still pictures were also taken by the research assistant.

3.11.3 Clients Focus Group Discussion

There was focus group discussion among the clients of the dressmakers and tailors to determine their perception and satisfactions on fit and style modification of apparel constructed with free-hand and pattern drafting. This was deemed important to enhance collection of qualitative information to enrich the study. It encouraged

discussion into areas which were not covered in the questionnaire but very important to the study. Permission was sought to audio record discussions for transcription and analysed.

3.12 Data Analysis and Presentation

After data cleaning, the questionnaire was coded and the SPSS Version 20 was used for the analysis. The data from the focus group discussion guides were also transcribed and put into themes. The data collected were summarised and analysed using both quantitative and qualitative methods. The analysis was conducted guided by the objectives and the hypothesis of the study. The quantitative data was analysed using descriptive statistics such as frequencies and percentages. In addition, inferential statistics (Pearson's X^2 of association) was used to establish the relationship between dressmakers and tailors' demographic characteristics and the type of methods used to make apparel. A P-value of $\alpha \leq 0.05$ was used to establish the significance of Chi-square results.

The study also used a semi-structured interview guide to conduct the focus group discussion. The qualitative data obtained from the respondents during the interview sessions were analysed in common themes to bring out similarities and differences. The information obtained from the quantitative data was presented in tables and graphs. The qualitative data was presented in narratives and in verbatim reports to complement and support the quantitative data.

3.13 Logistical and Ethical Considerations

Ethical considerations can be specified as one of the most important parts of the research. For this study, the researcher sought for a research approval letter from Kenyatta University Graduate School in order to seek permission from the office of

the Regional Dressmakers and Tailors Associations (RDTA) of Ghana. An introduction letter was obtained from RDTA to seek permission from the offices of the Dressmakers and Tailors Association in New Juaben to conduct the study. The researcher obtained full consent from the research participants prior to the study. Subsequently, selected participants were informed about the purpose of the study of the study. The researcher also informed the participants that their participation was voluntary and they had the rights to withdraw from the study at any stage if they wished to do so without any harm or risk. In order to protect the privacy, participants were not requested to indicate their names and those of their organizations. Moreover, the researcher assured participants confidentiality of the data they provided and assured them that, such information was solely going to be used for the purpose of this thesis only.

CHAPTER FOUR: FINDINGS

This chapter presents the analysis of data findings using both quantitative and qualitative data analysis tools. The purpose of the study was to assess fit and style modification of apparel using pattern drafting and free-hand cutting among informal dressmakers and tailors who are registered members of the Informal Dressmakers and Tailors Association (IDTA) of the Koforidua Municipality in Ghana.

The orderly presentation of the results starts with descriptive statistics. The second section of the analysis presents the qualitative data analysis obtained from apparel evaluation of the finished product. Qualitative data were collected from the executives of the association and clients of the dressmakers and tailors using face-to-face interviews and focus group discussion respectively. The findings were presented according to the objectives of the study.

4.1 Questionnaire Return Rate for Informal Dressmakers, Tailors and Apprentices

Table 4.1 outlines the questionnaire distribution and return rate of the respondents.

Table 4. 1: Reliability Statistics

Respondents	No. of questionnaires sent		No. of questionnaires returned	
	Freq.	**%**	**Freq**	**%**
Dressmakers & Tailors	96	100	89	92.7
Apprentices	170	100	166	97.6
Total	**266**	**100**	**255**	**95.9**

Source: Analysis of Survey Data (2017)

Results presented in Table 4.1 indicated that a total of 266 questionnaires were distributed for data collection (96 to dressmakers and tailors and 170 to apprentices) for a response rate of 95.6%. However, 11 were found to have missing data and were thus discarded yielding 255 questionnaires that were useable for data analysis and reporting.

4.2 Demographic Characteristics of Apprentices, Dressmakers and Tailors

The first objective of the study was to determine the demographic characteristics of the informal dressmakers and tailors and their apprentices within Koforidua area in terms of their level of education, type of training, years of experience, age and gender. This section presents a descriptive analysis of these characteristics.

4.2.1 Demographic Characteristics of Apprentices

The apprentices' questionnaire included demographic information such as gender, age, highest level of education, type of pattern making technique training being received, number of years in apprenticeship and linkage between formal education and current training. Table 4.2 shows the gender distribution of apprentices.

Table 4. 2: Gender Distribution of Apprentices

Gender	Frequency	Percent
Male	52	31.0
Female	114	69.0
Total	**166**	**100.0**

Source: Analysis of Survey Data (2017)

The data in Table 4.2 indicates that the majority of the respondents (N=114, 69%) were females while a minority (N=52, 31%) were males. It brings to bear a percentage difference of 38 between the females and male respondents. This finding confirms the assertion by Obinim and Pongo (2015) when they opined that there were more female apprentices as compared to their male counterparts in the informal fashion industry.

4.2.2 Age of Apprentices

Analysis of the apprentices age distribution are presented in Table 4.3.

Table 4. 3: Age of Apprentices

Age	Frequency	Percent
Below 20 years	114	68.7
21-30 years	47	28.3
31-40years	5	3.0
Total	**166**	**100.0**

Source: Analysis of Survey Data (2017)

In reference to Table 4.3, majority of apprentices (N=114, 68.7%) involved in the study were under 20 years. None of the apprentices were in the age range of 41 years and above. Apprentices with the age range of 31-40 years were the least (N=5, 3.0%) while those in the age range of 21-30 years ranked the second highest (N=47, 28.3%). These findings meant that the mean age bracket when most youth learn to acquire skills was the teen group. These findings support Junejo (2009) on the age distribution of the selected apprentices that were used for that study.

4.2.3 Level of Education of the Apprentices

Apprentices questionnaire item three sought for information on their education level and results are illustrated in Figure 4.1.
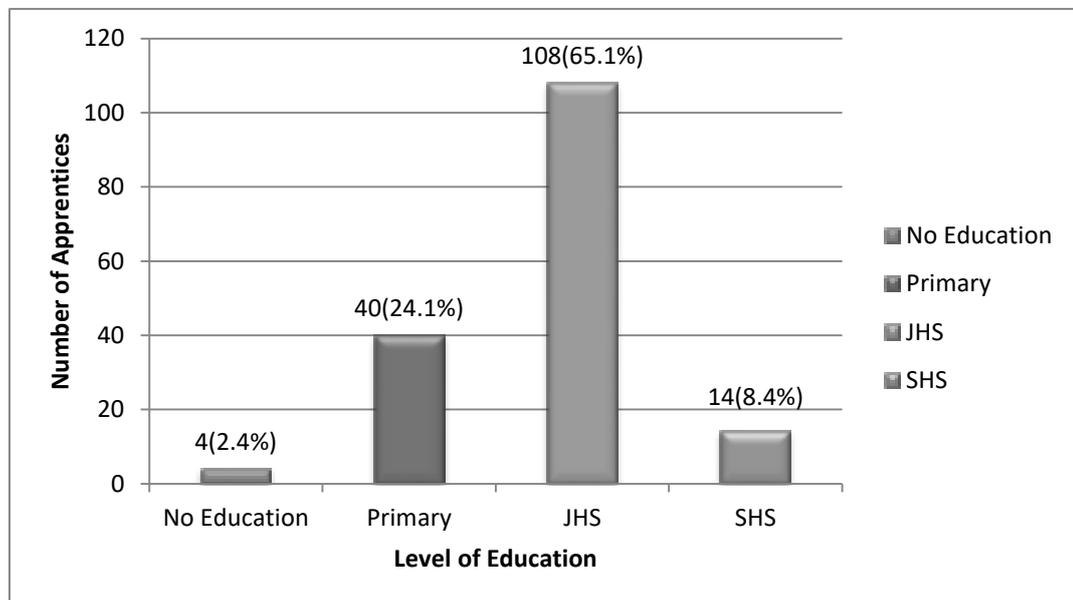
Figure 4. 1: Level of Education of Apprentices
Source: Analysis of Survey Data (2017)

Figure 4.1 indicates that the majority of the respondents (N =108, 65.1%) were junior high school leavers followed by primary school leavers (N = 40, 24.1%) and senior high school (N = 14, 8.4%) leavers. Four out of the total number of respondents representing 2.4% had no formal education.

4.2.4 Type of Training offered to Apprentices

The study sought to determine the type of training offered to apprentices in apparel construction and the results are presented in Table 4.4.

Table 4. 4: Type of Training for Apprentices

	Frequency	**%**
Pattern drafting	2	1.2
Free-hand cutting	152	91.5
Both	12	7.2
Total	166	**100.0**

Source: Analysis of Survey Data (2017)

The results in Table 4.4 revealed that 152(91.5%) of the apprentices of informal dressmakers and tailors were trained in free-hand cutting while few used both pattern drafting and free-hand cutting (N=12, 7.2%). Only 2 of the respondents representing 1.2% were trained in pattern drafting. It can be concluded that, the main type of training used in apparel construction by informal dressmakers and tailors in Koforidua area was free-hand cutting. This revelation corroborates with earlier studies by (Biney-Aidoo 2012; Foster & Ampong, 2012).

4.2.5 Apprentices by Number of Years in Training

The results in Table 4.5 show the number of years apprentices had spent in training. This according to the (IDTA) association rules and regulation is between 4years.

Table 4. 5: Apprentices by Number of Years in Training

Years	Frequency	Percent
< 1year	5	3.1
1-2 years	138	83.1
3-4 years	23	13.8
Total	**166**	**100.0**

Source: Analysis of Survey Data (2017)

Results in Table 4.5 indicated that majority of the respondents (N=138, 83.1%) were within the training period between 1-2 years. Twenty-three of the respondents were found to be the senior apprentice with between 3-4 years' training period in the

apprenticeship. New entrants with less than a year training period recorded the least

(N=5, 3.1%).

4.2.6 Apprentices' Views on Formal Educational Linkage with Current Training

The study sought to determine the views of the respondents on formal education

linkage with their current training. The results are presented in Table 4.6.

Table 4. 6: Apprentices Views on Formal Linkage with Current Training

Response	Frequency	Percent
Yes	161	96.9
No	5	3.1
Total	**166**	**100.0**

Source: Analysis of Survey Data (2017)

Table 4.6 shows that almost all the respondents (N=161, 96.9%) affirmed that formal

education had a link with the current training they were undergoing. Out of the total

of 166 respondents, only 5 representing 3.1% could not see the relevance of education

having any link with their training.

4.3 Demographic Characteristics of Dressmakers and Tailors

The study further analysed the demographics of the dressmakers and tailors in terms

of gender, age, level of education, type of constructional training, years as member of

the association, number of years of experience in the profession and effect of one's

education level on choice of constructional methods.

4.3.1 Gender Distribution of Dressmakers and Tailors

Table 4.7 summarizes the details on the findings of gender of dressmakers and tailors.

Table 4. 7: Distribution of Dressmakers and Tailors by Gender

	Gender of Respondents					
	Female		Male		Total	
	N	%	N	%	N	%
Dressmaker	59	67.0	0	0.0	59	100.0
Tailor	0	0.0	29	33.0	29	100.0
Total	59	67.0	29	33.0	88	100.0

Source: Analysis of Survey Data (2017)

Table 4.7 shows that all the dressmakers were females (N=59) while all tailors were males (N=29). Although a tailor is generally used to refer to one who can sew for both male and female, there is that semantic restriction where dressmaker refers to female while tailor refers to male in the area of informal dressmakers and tailors in Ghana. The results concur with that of Biney-Aidoo, Antiaye and Oppong (2013) who also found that more females tend to enlist in the apparel construction business than men.

4.3.2 Dressmakers and Tailors by Age

The results of the analysis of the dressmakers and tailors age distribution are presented in Table 4.8.

Table 4. 8: Dressmakers and Tailors Age Distribution

Age	Frequency	Percent
21-30 years	12	13.6
31-40 years	65	73.9
41 years and above	11	12.5
Total	**88**	**100.0**

Source: Analysis of Survey Data (2017)

One can observe from Table 4.8 that 63 (73.9%) of the respondents were within the age brackets of 31-40 years. These were followed by 21-30 years representing 13.6% respondents, while respondents age range 41 years and above were 11 (12.5%). Incidentally, none of the respondents were found to be below 20 years. This was in contrast to the apprentices who were found to be 20 years and below. This finding is similar to other research on apprenticeship by Obinim and Pongo (2015) Pongo et al. (2014) and Biney-Aidoo, Antiaye and Oppong (2013) who also reported that informal dressmakers and tailors unlike apprentices were found to be in the age range of 26- 41 years and above.

4.3.3 Education Level of Dressmakers and Tailors

The results of the analysis of dressmakers and tailors' education level are presented in Table 4.9.

Table 4. 9: Dressmakers and Tailors Level of Education

Level of Education	Frequency	Percent
No Education	2	2.3
Primary	26	29.5
JHS	42	47.7
SHS/Vocational School	16	18.2
Tertiary	2	2.3
Total	**88**	**100.0**

Source: Analysis of Survey Data (2017)

The majority of the respondents 42(47.7.0%) were holders of JHS certificate. Twenty-six (29.5%) were primary schools leavers which emerged the second highest among the respondents. Sixteen of the respondents representing 18.2% were SHS/Vocational school graduates. The number of respondents without any formal education was two (2.3%). In addition, analysis revealed that the number of master craftsmen with tertiary level of education were only two (2.3%). These findings supported the study of Obinim and Pongo (2015) who found that majority of the dressmakers and tailors had secondary education and therefore, they could upgrade themselves and improve their expertise by applying their academic knowledge.

4.3.4 Type of Training Received by Dressmakers and Tailors

Results of the analysis of dressmakers and tailors (masters) type of training they received during their training are presented in Table 4.10.

Table 4. 10: Type of Training received by Dressmakers and Tailors

Type of Training	Frequency	Percent
Free-hand cutting	77	87.5
Pattern drafting	0	0.0
Both	11	12.5
Total	**88**	**100.0**

Source: Analysis of Survey Data (2017)

The study found out that majority of the respondents 77(87.5%) were trained solely in free-hand cutting skills while 11(12.5%) were trained in both free-hand cutting and

pattern drafting. This revealed that the main apparel constructional method learnt by the master craftsmen was free-hand cutting.

4.3.5 Dressmakers and Tailors Years of Experience

Results of the analysis of dressmakers and tailors' years of experience in apparel construction are summarized in Table 4.11.

Table 4. 11: Dressmakers and Tailors Work Experience

Years	Frequency	Percent
1-5 years	11	12.5
6-10years	32	36.4
11-15 years	28	31.8
16 years and above	17	19.3
Total	**88**	**100.0**

Source: Analysis of the Survey Data (2017)

Results indicated that more than one third of the total respondents, 32(36.4%) had been in the sewing profession between 6-10 years while close to one-third, 28(31.8%) claimed they had been in the sewing profession for 11-15 years. Those who had been in apparel making for more than 16 years accounted for 19.3% of all the participants. These findings indicated that dressmakers and tailors in the study had adequate experience in apparel making.

4.3.6: Type of Training Used by Dressmakers and Tailors in Teaching their Apprentices

Results of the analysis of the dressmakers and tailors in teaching their apprentices are summarized in Table 4.12.

Table 4. 12: Type of Training used by Dressmakers and Tailors

Method used	Frequency	Percent
Pattern drafting	6	6.8
Free-hand cutting	64	72.7
Both	18	20.5
Total	**88**	**100.0**

Source: Field Survey (2017)

The study found out that 64 (72.7%) of the masters comprising dressmakers and tailors taught the apprentices solely on free-hand cutting skills while only 6(6.8%) used pattern drafting skills. The findings further revealed that 18 (20.5 %) of the respondents employed both skills to teach the apprentices. From these results, it could be concluded that dressmakers and tailors were most comfortable in using free-hand cutting while teaching their apprentices.

4.4 Fit Evaluation of Apparel made by Free-hand Cutting and Pattern Drafting

Objective two sought to compare fit when apparel is constructed with the use of pattern drafting and free-hand cutting techniques. Two dressmakers and two tailors (masters) with skills of pattern drafting and free-hand cutting were purposively selected and were made to sew a common style at a designated centre. This was done to determine which of the methods produce a better fit and also can modify styles better. Procedures of measurement taking, style analysis and construction from start through to the finished apparel were assessed using an observation checklist. Three weeks was agreed on for the sewing. Every week three days were set aside for five selected apparel to be evaluated. The models wore the apparel for appraisal at the end of each activity and were evaluated using evaluation check sheet.

On the first three days in week one, a sheath dress was made to check for fit. This was followed on the second week with sewing of a panel bustier blouse (strapless panel *kaba*) and long panel skirt (panel slit). On the third week a blouse with flare peplum and ladies trouser with a side zipper and a waist band were made. The styles on the second and third week were purposely selected to check for fit and style modifications respectively. This was done to check which method can be easily used to modify the basic blouse and skirt into other styles and come out with a perfect fit. An observation

checklist was used (*See Appendix E*) to evaluate the various processes the dressmakers and tailors used during the sewing of the apparel.

4.4.1 Evaluation of Steps in Apparel Construction by free-hand cutting and pattern drafting

Design and style modification were examined using data collected through observation checklist which was adopted from National Vocational Training Institute (NVTI). The checklist were given to five judges and each judge was requested to rate the details of apparel made using free-hand cutting and pattern drafting technique where a score rating from 0-49 indicates poor, and a score rated from 50-100 indicated good. An average score of each characteristic observed was captured for the scores indicated by the judges. The results of the findings of observation of steps in construction of the apparel are shown in Table 4.13.

Table 4. 13: Results of the Steps used in Construction of different Apparels

	Free-Hand Cutting		Pattern Drafting	
Steps in Construction	Good	Poor	Good	Poor
How measurement is taken	34	66	75	25
Design / style analysis	65	35	81	19
Preparation of fabric for cutting	47	53	66	34
Assembling of apparel	74	26	78	22

Source: NVTI (2017)

Table 4.13 indicated the standard steps used in construction of different apparels for survey data (NVTI, 2017). As general observation all the steps in construction, pattern drafting scored higher than free-hand cutting. The judges rated the steps in accordance to the models standing positions; the dressmakers were holding the tape measure. Concerning how measurements were being taken, it was realized that there was great disparity between the pattern drafting and free hand cutting in the way measurements were taken and recorded. For free hand cutting scored (66%) poorly and (34%) of the

observations were rated good. While the group using pattern drafting scored good (75%), the group using the free-hand cutting had a low score of 34%. In other words, they showed poor skills in taking measurement in all the apparel they sewed. The implication is that measurement taking was a great problem that needed to be addressed as far the use of free-hand cutting method is concerned. Proper taking and recording of measurements for future references was not part of their style. Standing position of clients during measurement taking was not given the proper concern.

The reason behind that practice was that though clients visit the shops for transactions, some never come back so there was no need of keeping records on such clients. It was observed that the group using pattern drafting was more careful with every bit of the measurement taken and recordings were being done in a small book they called first customers. The reason behind this was that in dealing with patterns, every information counted towards the fit of the apparel therefore, there was the need for accuracy.

On the design or style analysis, the researcher was concerned with the ability of the dressmakers and tailors to interpret the style they were given to sew in relation to the fabric. One can notice from Table 4.13 that on both methods, pattern drafting scored higher than free-hand cutting. However, both methods scored a good percentage on the use of right types of stitches. The researcher also checked the types of seams used and the seam allowances of the apparel made by both methods. Apparel with free-hand cutting had problems with the width of seams and the required seam allowances. It was observed that large seam allowances were created in the apparel when the dressmakers and tailors were given fabrics which were more than what was needed to sew for the required apparel. In general, the researcher could conclude that pattern drafting method had some advantages over the free-hand cutting.

4.4.2 Fit Evaluation for Sheath Dress

On the first day scheduled for the appraisal, the sheath dress was constructed for evaluation. The apparel was labelled as sheath dress '1A' for pattern drafting and sheath dress '1B' for free-hand cutting. The finished sheath dresses were worn by models for evaluation. Figures 4.2 and 4.3 illustrate the sheath dresses.

| Front View: Sheath Dress '1A' Pattern Drafting | Front View: Sheath Dress '1B' Free-Hand Cutting |
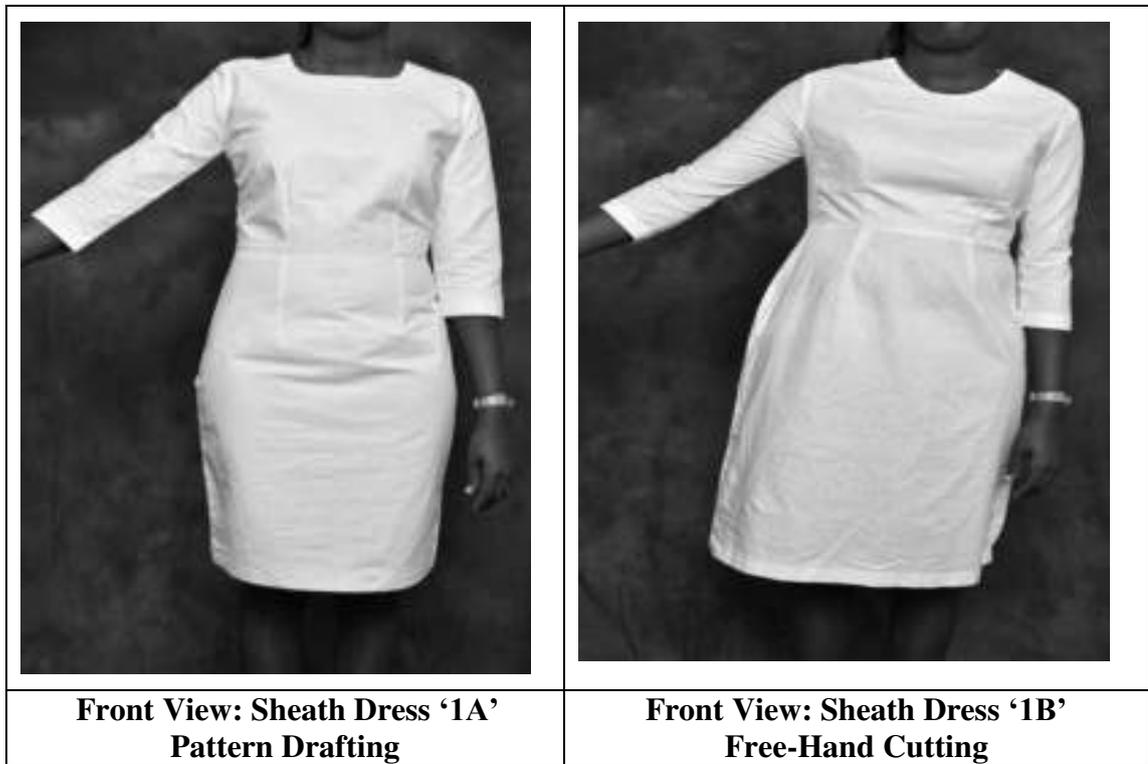
Figure 4. 2: Evaluation of a Sheath Dress (Front View)

Source: Analysis of Survey Data (2017)

Figure 4.2 illustrates the front view of sheath dress designated sheath dress '1A' and sheath dress '1B'which were constructed using pattern drafting and free-hand cutting methods respectively. The following areas were considered to check for fit: neckline, shoulder line, bust, waistline, nape to waist, dart, hips, full length, sleeve bicep and arm scye. The neckline of sheath dress '1A' made with pattern drafting looked better than that of sheath dress '1B' made with free-hand cutting.

The neckline of sheath dress 1B' looked smaller, too close to the neck and poked out as well. The shoulder line of sheath dress '1B' seemed to be too long as compared with that of '1A'. The armscye of sheath dress 1B' was too small and the sleeve looked tight resulting in folds at the underarm and under bust when arms were raised to check for ease. Taking the bust, and hips of both methods into consideration, it was noted that sheath dress '1B' looked too loose. In the same way, the hips of sheath dress '1A' looked better as compared with sheath dress '1B'. This is because sheath dress 1B' seemed loose and sagged out and gave added fullness on the hip level.

The back-view of both sheath dresses were considered for evaluation and results are demonstrated using pictures as shown in Figure 4.3.

Back View: Sheath Dress '1A' Pattern Drafting	Back View: Sheath Dress '1B' Free-Hand Cutting
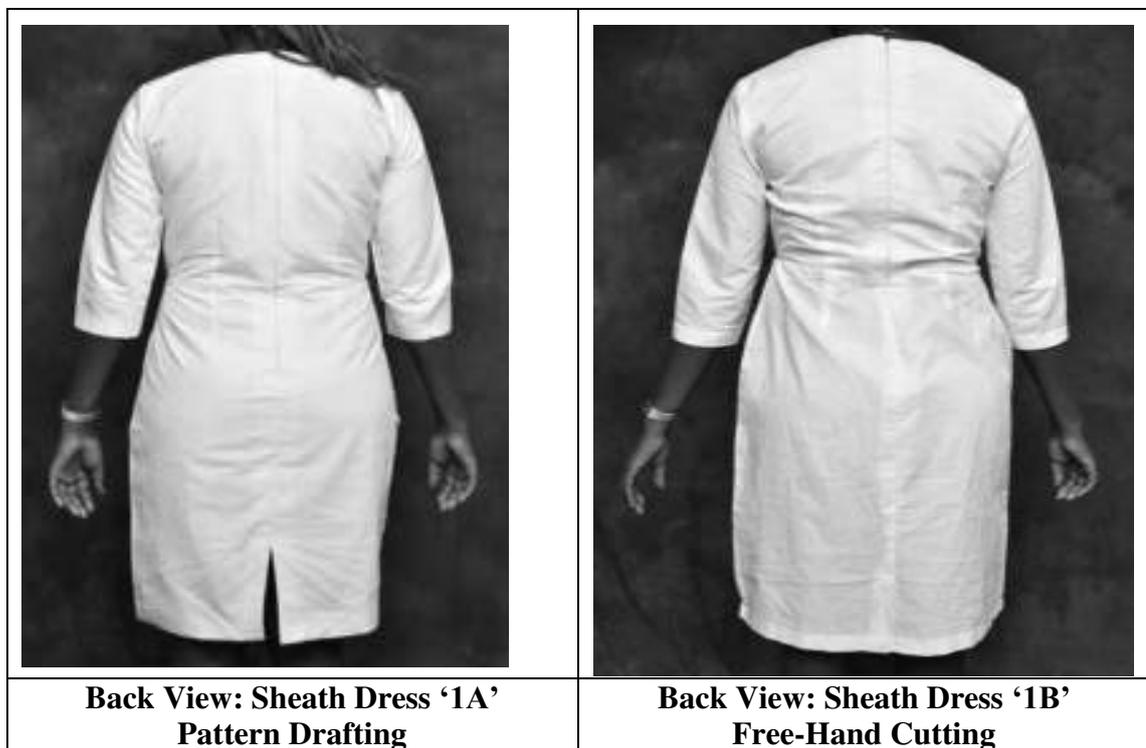
Figure 4.3: Evaluation of a Sheath Dress (Back View)

Source: Analysis of Survey Data (2017)

There was a vast difference in the nape to waist section of sheath dress 1B' as compared to sheath dress '1A'. This resulted in ill-fitting that amounted to puckering at the back of sheath dress 1B'. Though sheath dress '1A' seemed a bit tighter at the

hips, it appeared better as compared with lots of folds at the back of sheath dress 1B'.

To seek for the views of experts, five judges made up of three executive members of

the Association, one renowned fashion designer and one examiner from National

Vocational Training Institute were used to evaluate the sheath dress using a checklist.

Results of the experts with regard to sheath dresses '1A' and '1B' are presented in

Table 4.14.

Table 4. 14: Experts Opinion with regard to Front and Back of Sheath Dress

Fit point	Observation from five judges	Pattern Drafting		Free-hand Cutting		Remarks
		Freq	%	Freq	%	
Neckline	Too low	0	0	3	60	Pattern drafting was
	Too high	0	0	2	40	accepted as better fit
	No problem	5	100	0	0	
Shoulder line	Too short	0	0	0	0	Pattern drafting was
	Too long	0	0	4	80	accepted as better fit
	No problem	5	100	1	20	
Bust	Too tight	1	20	0	0	There was no
	Too loose	0	0	1	20	difference in terms of
	Off the fullest part	0	0	0	0	the bust
	No problem	4	80	4	80	
Waistline	Waistline raised	1	20	1	20	Pattern drafting was
	Waistline drop and	0	0	0	0	accepted as better fit
	Sagging at the back	0	0	4	80	
	No problem	4	80	0	0	
Nape to waist	Too high at the front	0	0	0	0	Pattern drafting was
	Too low at the back	0	0	5	100	accepted as better fit
	No problem	5	100	0	0	
Dart	Wrong location	0	0	1	20	Pattern drafting was
	Too long at the front	0	0	1	20	accepted as better fit
	Too short at the back	3	60	3	60	
	No problem	2	40	0	0	
Hip	Too tight	1	20	1	20	Pattern drafting was
	Too loose	0	0	3	60	accepted as
	Not on the fullest part	0	0	1	20	better fit
	No problem	4	80	0	0	
Full length	Too short	0	0	0	0	There were no
	Too long	0	0	0	0	differences in terms
	No problem	5	100	5	100	of length
Sleeve length	Too long	0	0	0	0	There were no
	Too loose	0	0	0	0	differences in terms
	No problem	5	100	5	100	of length
Sleeve Bicep	Too tight	0	0	4	80	Pattern drafting was
	Too loose	0	0	1	20	accepted better fit
	No problem on fit	5	100	0	0	
Arm scye	Too tight	0	0	4	60	Pattern drafting was
	Too loose	1	20	2	40	accepted as better fit
	No problem on fit	4	80	0	0	

Source: Analysis of Survey Data (2017)

According to Table 4.14 sheath dresses constructed using both pattern drafting and free-hand cutting were worn by models for evaluation by the judges. Special areas of apparel that add up to total fit were identified and assessed. These special areas were the most highly ranked and scored by the judges. For instance, all the five judges indicated that the neckline of the sheath dress made with pattern drafting had no problem giving it a 100% score. The shoulder line of the sheath dress made with free-hand cutting was considered as too long by four (80%) out of the five judges.

The implication is that the shoulder line of the sheath dress made with pattern drafting was accepted to be the best. The bust of the sheath dress of both methods was seen to be good by the judges; one (20%) indicated that the sheath dress made with pattern drafting was too tight while another one (20%) also claimed it was too loose with respect to the sheath dress made with free-hand cutting. There was a vast difference in the nape to waist section of the sheath dress made with free-hand cutting as compared to that of the pattern drafting resulting to ill-fitting that amounted to puckering at the back of the dress made with free-hand cutting.

All the five (100%) judges agreed that, nape to waist was too low and as a result the problem observed on the sheath dress made with free-hand cutting was obvious. It can further be noticed from Table 4.14 that though the judges accepted the darts on the sheath dress made with pattern drafting, it is worth mentioning that three (60%) of the judges had the opinion that the darts at the back of both dresses were short.

On the fit points such as the full length and the sleeve length of the sheath dress, all five (100%) indicated that there were no problems with either pattern drafting or free-hand cutting. This meant that the dressmakers and tailors had full accuracy as far as

the measurements of the full length and the sleeve length of the apparel were concerned.

4.4.3 Fit Evaluation for Panel Bustier Blouse (*Kaba*)

The second evaluation day concentrated on a panel bustier blouse. Figures 4.4 and 4.5show details on findings on panel bustier blouse constructed with pattern drafting and free-hand cutting.

Front view: Panel Bustier Blouse '2A' Pattern Drafting	Front view: Panel Bustier Blouse '2B' Free-Hand Cutting
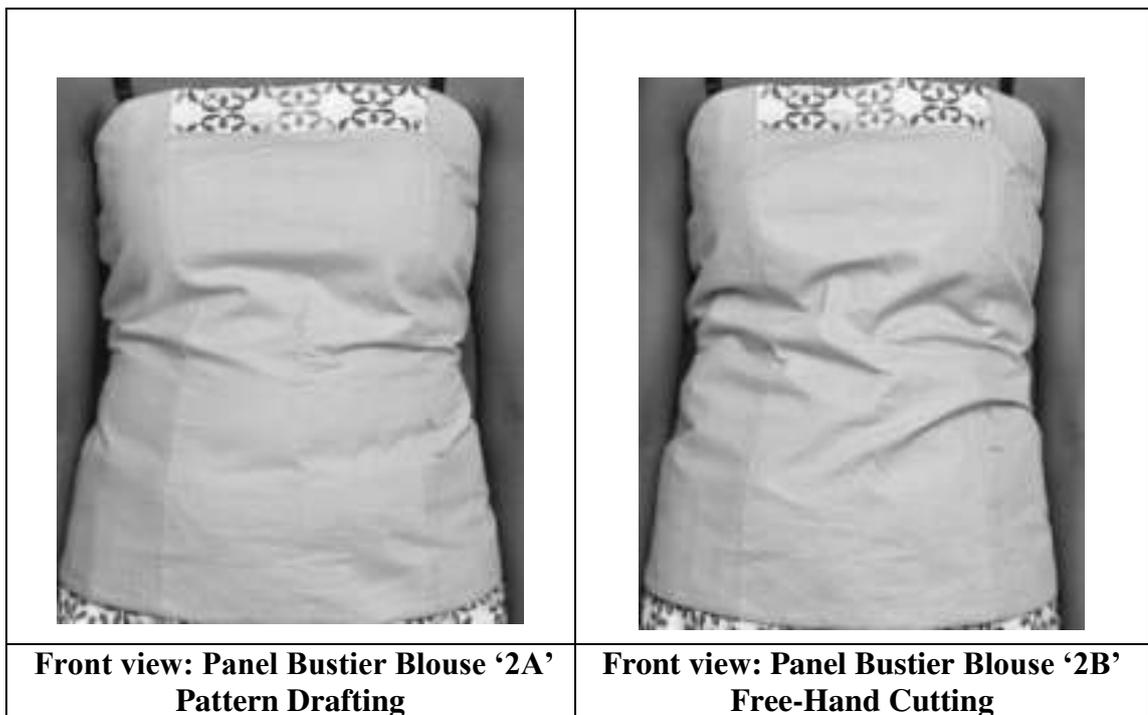
Figure 4.4: Panel Bustier Blouse (Front View)

Source: Field Survey (2017)

It can be observed in Figure 4.4 that the bust of panel bustier blouse '2A'made with pattern drafting was well fitted as compared to panel bustier blouse '2B' made with free-hand cutting. The reason was that this was a strapless blouse and needed to be kept in position when worn without slipping off. Though both images show some sort of fullness under bust, there seems to be more problem in the measurement from nape to waist of panel bustier blouse '2B'. This resulted in the creation of the folds in the blouse.

Back view: Panel Bustier Blouse '2A' Pattern Drafting	Back view: Panel Bustier Blouse '2B' Free-Hand Cutting
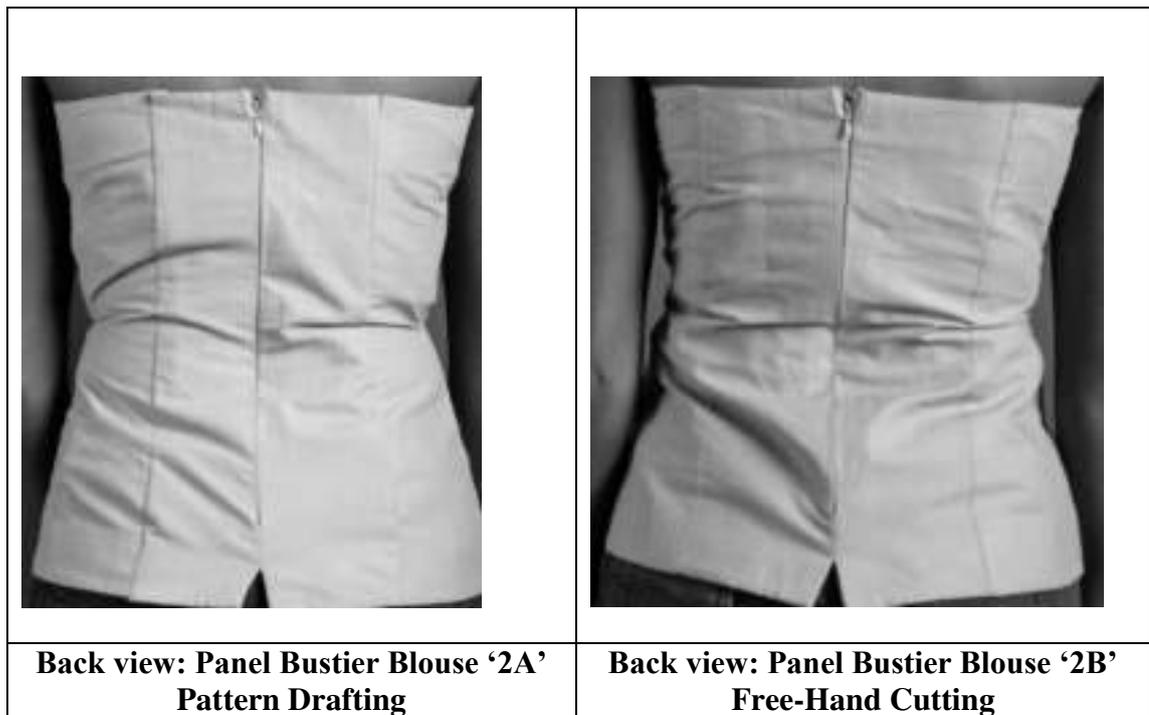
Figure 4.5: Panel Bustier Blouse (Back View)

Source: Field Survey (2017)

There was the evidence of wrong measurements and style modification as shown by the panel bustier blouse by the two methods. It was evident that adapting a style from normal bodice into a strapless panel bustier blouse was a challenge when free-hand cutting was used. Though panel bustier blouse '2A' seemed to be a bit tight in the picture, it looked better as compared to panel bustier blouse '2B'made with free-hand cutting as indicated by the images in Figure 4.5. The bustier of '2B' could be seen from the back-view image that the measurement from the nape to waist was too long. As a result, too many folds were observed at the back. In addition, it seemed the width of the dart was not enough to take in the extra fullness at the waist as well as the darts were too apart. The panel blouses were then subjected to evaluation by the five judges using a checklist. The results of the judges are presented in Table 4.15.

Table 4. 15: Experts Opinion on Front and Back of Panel Bustier Blouse

Fit point	Observation from five judges	Pattern Drafting		Free-hand Cutting		Remarks
		Freq.	%	Freq.	%	
Bust	Too tight	1	20	0	0	Pattern drafting
	Too loose	0	0	4	80	was accepted as
	Not on fullest part	0	0	0	0	better fit
	No problem on fit	4	80	1	20	
Waistline	Waistline raised	0	0	0	0	Pattern drafting
	Waistline drop	0	0	4	80	was accepted as
	Too loose	0	0	1	20	better fit
	No problem on fit	5	100	0	0	
Nape to waist	Too high	0	0	3	60	Pattern was
	Too low	0	0	2	40	accepted as
	No problem on fit	5	100	0	0	better fit
Blouse length	Too short	0	0	0	0	There was no fit
	Too long	0	0	0	0	difference
	No problem on fit	5	100	5	100	
Panel Positioning	Wrong panel positioning	0	0	3	60	Pattern was accepted as
	No fit problem	5	100	2	40	better in modification
Fixing of invisible zipper	Wrong positioning	0	0	0	0	Pattern drafting
	Too visible	1	20	3	60	was accepted as
	Good fixing	4	80	2	40	better in modification

Source: Field Survey (2017)

Results in Table 4.15 from the judges indicated that the panel bustier blouse made with free-hand cutting had problems of fit in terms of bust showing to be quite loose, wrong measurement affecting the nape to waist, wrong panel positioning and fixing of the zipper. For instance, fixing of the invisible zip was more visible than it should be as indicated by 3(60%) of the judges. The position of panel of free-hand bustier blouse was wrongly placed away from the dart and the waistline was too loose. This was confirmed by 4(80%) of the judges.in addition to those areas mentioned, there was puckering on the wearer of the free-hand cutting at the back (see Figure 4.5).

These same special areas were evaluated on the bustier blouse made with pattern drafting. Two of the judges mentioned that the panel bustier blouse made with pattern drafting also had fit problems with the bust and the fixing of the zipper. This notwithstanding the assessment on fit of panel bustier blouse made with pattern

drafting was accepted as being better fit as compared to panel bustier blouse made with free-hand cutting.

Upon critical scrutiny for fit and style modification of the blouse, it came to light that there were differences between the blouse constructed with pattern drafting as compared to free-hand techniques. This can be confirmed from Table 4.15 as most of the items under pattern drafting were graded as better fitting by 80% and above of the judges. Almost all the judges accepted the fit of the panel bustier blouse made with pattern drafting and its modification.

4.4.4 Fit and Style Modification of Long Panel Skirt (Slit)

The researcher strategically selected the long panel skirt with full hem to check for fit and style modification with the aim of assessing how the informal dressmakers and tailors modified basic skirt to long panel skirt (slit). This was deemed important because this style of skirt (slit) is mostly worn and accepted traditionally by the people in Ghana. Images of the front views of both pattern drafting and free-hand cutting are illustrated in Figure 4.6.

| Front view: Panel Long Skirt '3A' Pattern Drafting | Front view: Panel Long Skirt '3B' Free-Hand Cutting |
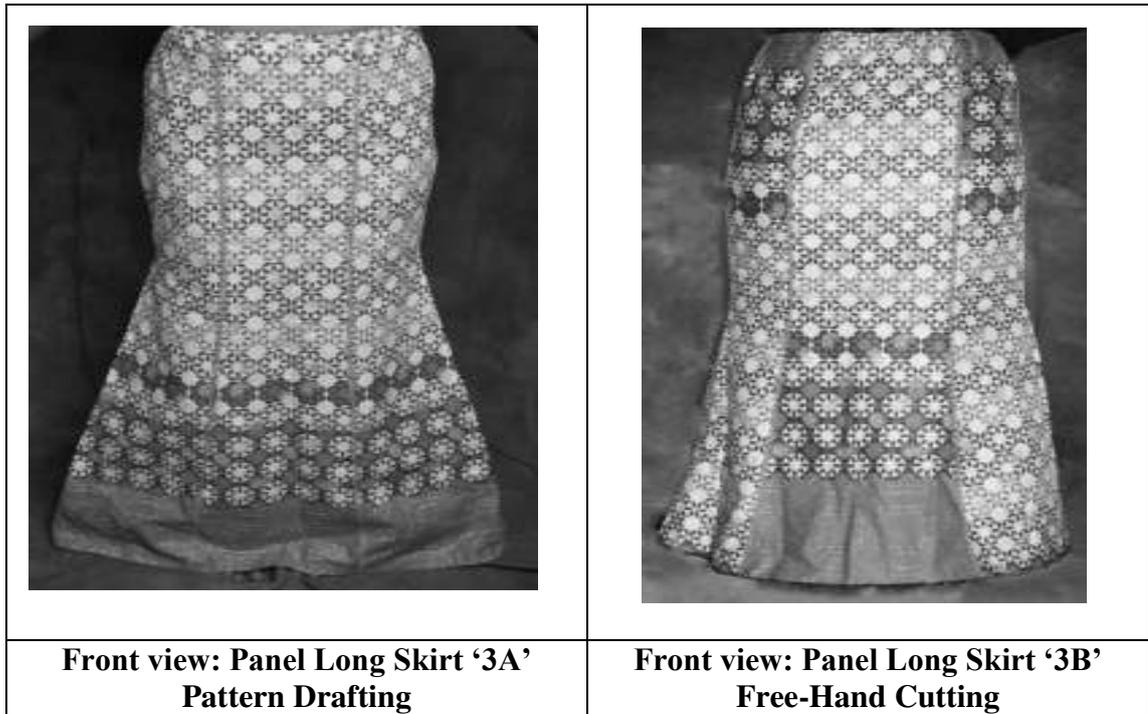
Figure 4.6: Panel Long Skirt (Front View)

Source: Field Survey (2017)

Figure 4.6 shows the pictures of panel long skirts sewn using the methods under discussion. The following areas of the skirts were considered for assessment: hips, panel position, ease of fullness at the hem and the length of the skirt. As illustrated in Figure 4.6, the pattern drafted panel long skirt '3A'fitted perfectly at the waist and hips as compared with that of panel long skirt '3B'of free-hand. The style of the "slit'' should ideally shape from above the knee and flare out to the hem bringing out the curves of the figure. This was achieved with pattern drafted panel long skirt '3A. However, panel long skirt '3B' seemed to have straight sides. As it can be seen from the images, the style modification was not achieved by the free-hand cutting method.

Comparing the border-line design in the fabric, it can be noticed from images in figure 4.7 that pattern drafted panel skirt had a good arrangement as compared to the free-hand panel skirt. The perfect arrangement of the border line of panel long skirt '3A' added more aesthetics to the skirt. Though the arrangement in panel long skirt

'3B' of free-hand can be seen as some form of creativity, it distorted the flow at the hem.

Back view: Panel Long Skirt '3A' Pattern Drafting	Back view: Panel Long Skirt '3B' Free-Hand Cutting
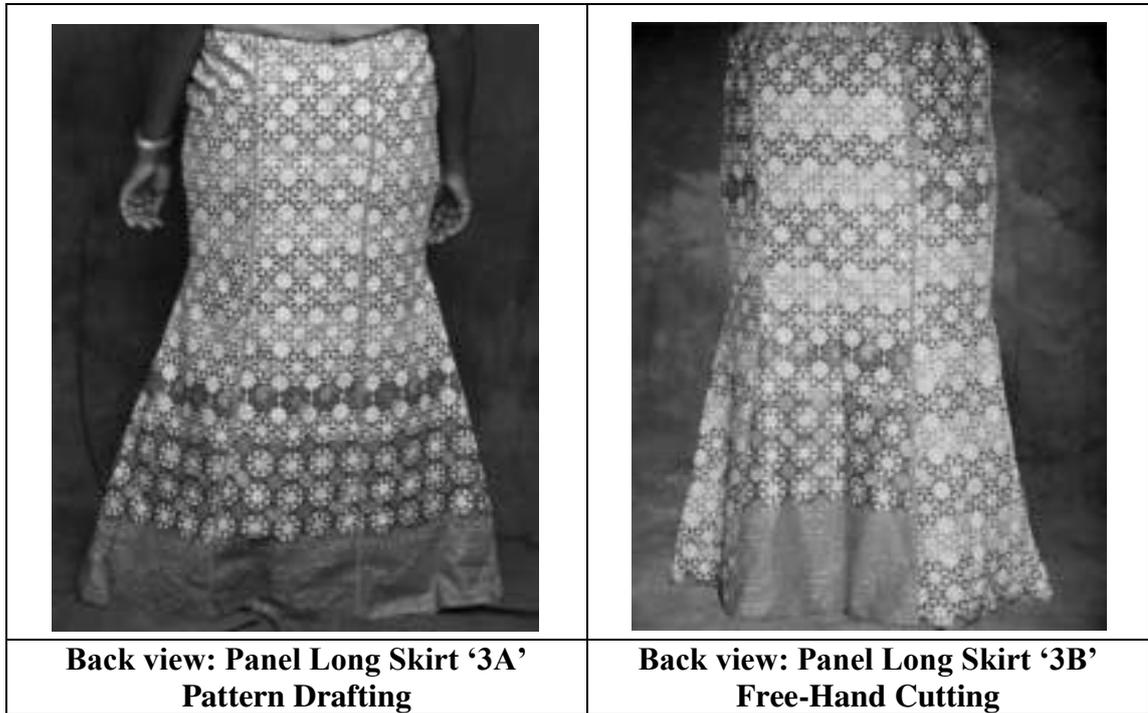
Figure 4.7: Panel Long Skirt (Back View)

Source: Field Survey (2017)

Just as the front view of the panel long skirt, the same procedure was followed for the back view as portrayed in Figure 4.7. Areas like hips, panel position, and ease of fullness at the hem and the length of the skirt were the concern points evaluated. The waist and hips of panel long skirt '3A fitted perfectly as compared with that of panel long skirt '3B' of free-hand cutting. The centre panel position was far away from the usual dart location as can be seen in free-hand panel long skirt '3B'. The panel positioning of the pattern drafted skirt was more proportional. Table 4.16 presents the results of the evaluation of fit and style modification for both methods by the five judges.

Table 4. 16: Experts Opinion on Front and Back of Panel Long Skirt

Fit point	Observation	Pattern Drafting		Free-hand Cutting		Remarks
		Freq.	%	Freq.	%	
Hips	Too tight	0	0	0	0	Pattern drafting was
	Too loose	0	0	3	60	Accepted as better fit
	Not on fullest part	0	0	0	0	
	No problem on fit	5	100	2	40	
Waist	Too tight	1	20	0	0	Pattern drafting was
	Too loose	0	0	4	80	accepted as better fit
	No problem on fit	4	80	1	20	
Skirt length	Too short	0	0	0	0	There was no
	Too long	0	0	0	0	difference on
	No problem on fit	5	100	5	100	both methods
Panel positioning	Wrong position	0	0	0	0	There was no
	Good position	5	100	5	100	difference on both methods
Panel shaping	Wrong shaping	1	20	3	60	Pattern accepted as
	Good shaping	4	80	2	40	better in modification
Fullness at hem	Too full	1	20	0	0	Pattern drafting was
	Not enough	0	0	3	60	accepted as better in
	Rightful amount of fullness	4	80	2	40	modification

Source: Field Survey (2017)

Judges assessed the fit of the long panel skirt (slit) on the wearer based on the criteria on the checklist used. As noted from Table 4.16, all the judges accepted there were no differences in the long panel skirt in terms of the panel position and skirt length for both pattern drafted and free-hand skirts. However, with all other fit points, the judges noted that pattern drafting method resulted in better fit. Looking at the details, one can observe from Table 4.16, 3(60%) of the judges noted that the hips of the long panel skirt made with free-hand cutting was too loose. Another concern identified by the judges was the waist fitting for both methods. One of the judges mentioned that the waist was too tight on the pattern drafted skirt while three of them indicated it as too loose on the skirt made with free-hand cutting.

The panel shaping of the skirt made with free-hand cutting was judged by 3(60%) of the experts as wrongly shaped while 4(80%) of them indicated that it was well shaped on the pattern drafted skirt. Regarding the fullness of the hem, three (60%) of the

judges were of the view that it was not enough for the skirt made with free-hand cutting though the other two (40%) indicated it showed the right amount of flare.

4.4.5 Style Modification of Ladies Trousers

Ladies trousers were chosen to check on style modification. These included how the skirt can be modified into trousers, positioning of the zipper at the side instead of the normal fly at the front and proper introduction of crotch section of the trousers. The images of the front view of the ladies' trousers made using pattern drafting and free-hand cutting methods are illustrated in Figures 4.8.

Front view: Ladies Trousers '4A' Pattern Drafting	Front view: Ladies Trousers '4B' Free-Hand Cutting
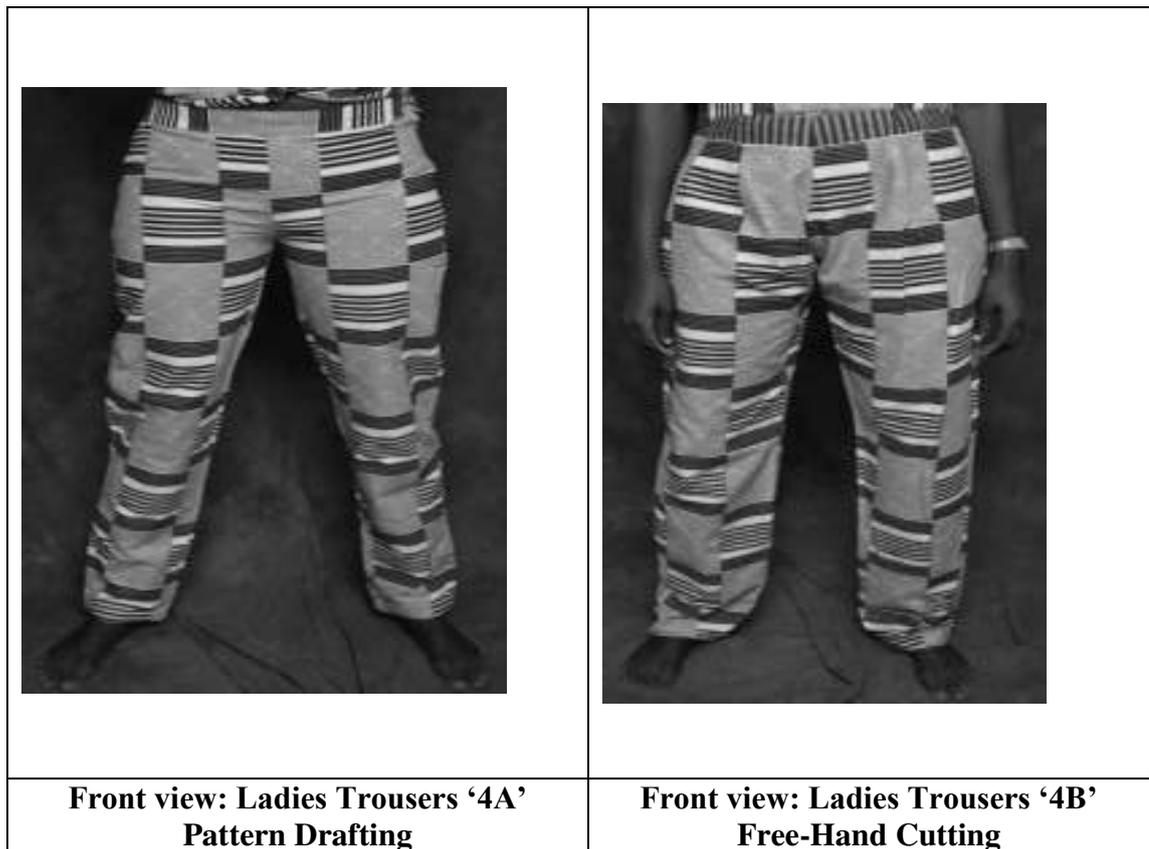
Figure 4.8: Ladies Trousers (Front View)

Source: Field Survey (2017)

The following as fit points were examined: waist, hips, thighs, ankle, trouser length, waist band and crotch. It was found both ladies trouser '4A' and ladies trouser '4B' showed problems with the fit points under consideration.

The waistband of pattern drafted ladies trouser '4A' was well fitted as compared to ladies trouser '4B'. The measurement taken for the hips of ladies trouser '4B'seemed to be bigger. This error resulted in the gaping out of front section of free-hand ladies trouser '4B'. Additionally, the zipper of ladies trouser '4B' was quite visible. Fit points such as the ankle and the thigh were good in both ladies trouser '4A' and '4B'. Figure 4.9 illustrates the back-view images of ladies trouser '4A' and '4B'.

| Back view: Ladies Trousers '4A' Pattern Drafting | Back view: Ladies Trousers '4B' Free-Hand Cutting |
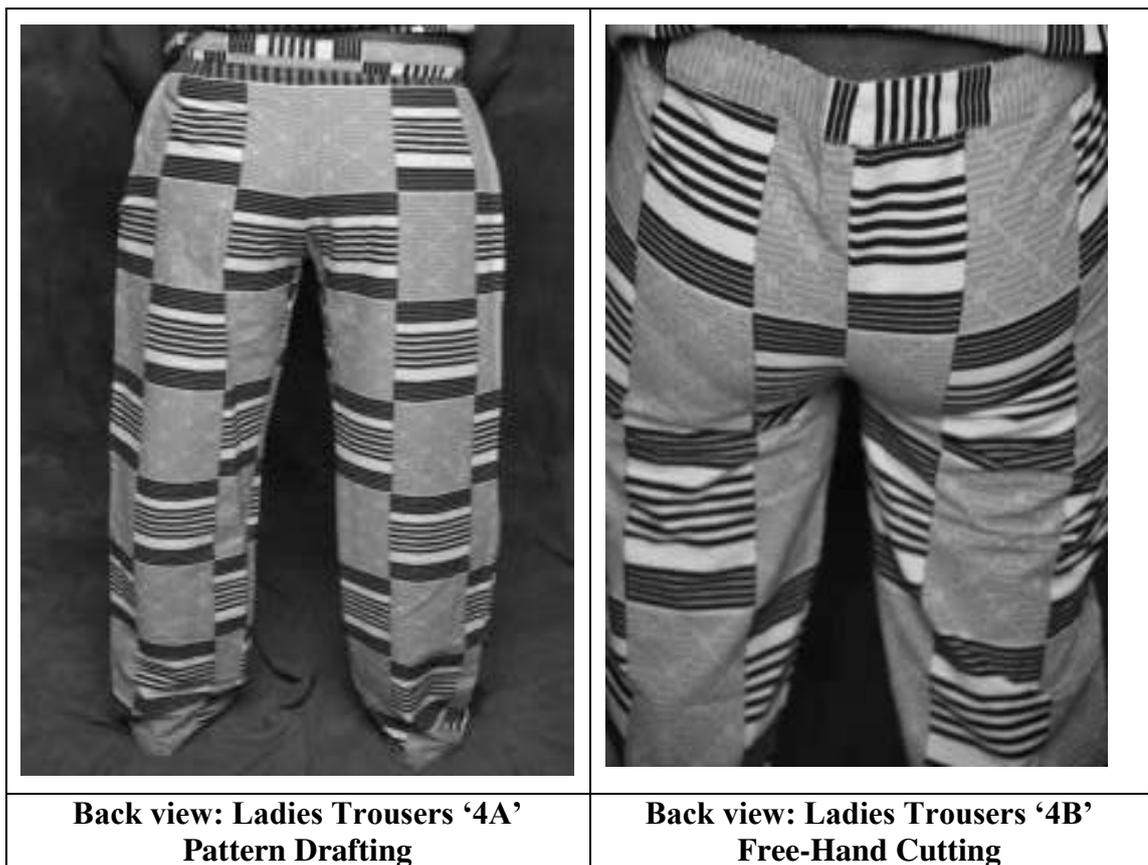
Figure 4.9: Ladies Trousers (Back View)
Source: Field Survey (2017)

As done with the other apparel, the areas of concern for the back view of the ladies' trousers were the waist, hips, thighs, ankle, trouser length, waist band and crotch. With a quick observation, one can notice that waistband and the crotch of free-hand ladies trouser '4B' seemed shorter, as a result it appeared there was a force on the

wearer at the in-seam. In addition, the waistband seemed quite loose at the back as a result of wrong measurement.

Considering the problems identified on the ladies trouser '4B', one can conclude that ladies trouser '4A' made with pattern drafting was the better in terms of style modification and fit. The judges evaluate the ladies' trousers and their opinions are presented in Table 4.17.

Table 4. 17: Judges Opinions on Ladies' Trousers made by Pattern Drafting and Free-hand Cutting

Fit point	Observation from Five Judges	Pattern Drafting		Free-hand cutting		Remarks
		Freq.	%	Freq.	%	
Waist	Too tight	1	20	0	0	Pattern was
	Too loose	0	0	5	100	accepted as better
	No problem on fit	4	80	0	0	fit
Hips	Too tight	1	20	0	0	Pattern drafting
	Too loose	0	0	3	60	was accepted as
	Not on the fullest part. No problem on fit	0	0	2	40	better fit
		4	80	0	0	
Thighs	Too tight	1	20	2	40	Pattern drafting
	Too loose	0	0	0	0	was accepted as
	No problem on fit	4	80	3	60	better fit
Ankle	Too close	0	0	0	0	There was no
	Too loose	0	0	0	0	difference between
	No fit problem	5	100	5	100	the two methods
Trouser length	Too short	0	0	0	0	There was no
	Too long		0	0	0	difference between
	No problem on fit	5	100	5	100	the two methods
Fixing of zipper	Wrong fixing of zipper	1	20	1	20	There was no difference between
	Perfect fixing of zipper	4	80	4	80	the two methods
Crotch	Too short	0	0	5	100	Pattern accepted as
	Too long	0	0	0	0	better fit
	Perfect cut	5	100	0	0	
Dart into Pleat manipulation	Wrong positioning	0	0	0	0	There was no
	Excessive amount	0	0	0	0	difference between
	Perfect manipulation	5	100	5	100	the two methods

Source: Field Survey (2017)

An observation from Table 4.17 confirmed that ladies' trousers made with pattern drafting were generally accepted by the judges on the four out of the eight fit points

on the checklist. Areas like the ankle, trouser length and fixing of zipper recorded no differences between the two methods. It was however important to highlight few areas where most concerns were raised by the judges.

All the judges considered the waist of the trousers made with free-hand cutting as loose while three (60%) of the judges indicated that the hips were also loose. The crotch of the trousers made with pattern drafting was judged as coming out better than that of the free-hand cutting. All five (100%) agreed the crotch of the free-hand cutting was too short. As indicated earlier, the ladies' trousers made with pattern drafting seemed to be the better choice of the judges in most of the fit points under consideration.

4.4.6 Style Modification of Blouse with Flare Peplum made with Pattern Drafting and Free-Hand Cutting

Ladies blouse with flare peplum without sleeve were chosen to check on the manipulation and creative modification of dress style by the use of pattern drafting and free-hand cutting. Front-view images of the peplum blouse are illustrated in Figure 4.10.

Front view: Blouse with Flare Peplum '5A' Pattern Drafting	Front view: Blouse with Flare Peplum '5B' Free-Hand Cutting

Figure 4.10: Blouse with Flare Peplum (Front View)

Source: Field Survey (2017)

There was clear evidence from Figure 4.10 that pattern drafted blouse with flare peplum '5A' looked better compared to free-hand blouse with flare peplum '5B'. However, the buttons of pattern drafted blouse with flare peplum '5A' gaped because they were arranged too far apart. The sweetheart neckline of blouse with flare peplum '5A' actually came out better compared to the free-hand blouse '5B'. The shoulder to waist length of blouse with flare peplum '5B' seemed too short at the waist giving it a hanging effect. The shoulders of the pattern drafted blouse with flare peplum '5A' looked better than free-hand blouse '5B'. This made the shoulder line of free-hand blouse appeared pointed instead of slanting down smoothly. Figure 4.11 illustrates the back-view images of blouse with flare peplum made by pattern drafting and free-hand cutting method.

| Back view: Blouse with Flare Peplum '5A' Pattern Drafting | Back view: Blouse with Flare Peplum '5B' Free-Hand Cutting |

Figure 4.11: Blouse with Flare Peplum (Back View)

Source: Field Survey (2017)

An observation of the back view from Figure 4.11 shows that the shoulder to waist of free-hand blouse with flare peplum '5B'came out better compared to that of blouse with flare peplum '5A'. The shoulder to waist of pattern drafted blouse with flare peplum '5A' was too long therefore resulting in the sagging of the blouse at the back. However, arm scye shaping and length of both blouses were good. The five judges' views on the fit and style modification of the blouse with flare peplum are presented in Table 4.18.

Table 4. 18: Judges Opinions on the Fit and Style Modification of the Blouse with Flare Peplum

Fit point	Observation From Five Judges	Pattern Drafting		Free-hand cutting		Remarks
		Freq.	*%*	Freq.	*%*	
Neckline	Not well shaped	0	0	4	80	Pattern drafting was accepted as modification
	Perfect shape	5	100	1	20	
Nape to waist	Waistline drop at the back	4	80	1	20	Both had problems at nape to waist
	Waistline raised at the front	0	0	4	80	
	No problem on fit	1	20	0	0	
Arm scye	Too tight	0	0	0	0	Pattern drafting was accepted as better fit
	Too loose	1	20	5	100	
	No fit problem	4	80	0	0	
Peplum (flare cut)	Not on the bias	1	20	3	60	Pattern drafting was accepted as better modification
	Motif not well arrange	1	20	1	20	
	No fit problem	3	60	1	20	
Blouse length	Too short	0	0	0	0	There was no fit difference
	Too long	0	0	0	0	
	No problem on fit	5	100	5	100	
Fixing of buttons	Good position	0	0	5	100	Free-hand was accepted
	Wrong position	5	100	0	0	

Source: Field Survey (2017)

In Table 4.18, the judges evaluated the following: neckline modification from basic round neck into sweetheart neckline, accurate nape to waist, peplum bias flare cut and joined to get a perfect blouse length and correct intervals for fixing of the buttons. The neckline of the blouse made with pattern drafting was accepted by all five (100%) judges as in a perfect shape while four (80%) saw that of the free-hand cutting as not well shaped. With the evaluation of the nape to waist, four (80%) of the judges mentioned that the waistline at the back of the blouse made with pattern drafting was too low or dropped. In the same manner, four (80%) of the judges also indicated that the waistline at the front of the blouse made with free-hand cutting was raised. Based on this judgement, the nape to waist of the blouses made with both methods was seen to have fit problems.

Table 4.18 also shows that all the five (100%) judges evaluated the length of the blouses made with methods as good and had no problem as far as fit was concerned. Comparing the fixing of the buttons, the judges were in favour of the blouse made with free-hand cutting as it was perfectly done compared to the blouse made with pattern drafting. On the whole, though the blouse made with free-hand cutting scored some good points on fit. However, the judges were in favour of the blouse made with pattern drafting in terms of neckline, arm scye and peplum.

4.5 Executives' Views on Apparel made using two Methods

The first part of the fourth objective was to establish the views of the executives of the Informal Dressmakers and Tailors Association on the method used in making of apparel. This was done using a semi-structured interview guide (see appendix C).

Five regional executives comprising President, Secretary, Coordinator, Financial Secretary and one co-opted old executive member were interviewed to find out the use of pattern drafting and free-hand cutting in making apparel and scope of training of apprentices.

The first question sought to find out the method dressmakers and tailors used. All five executives agreed that the most common method used by informal dressmakers and tailors was free-hand cutting. The next question was to find out whether their members had an idea of any other method. One of the executives indicated that some of their members were trained with other methods like pattern drafting but most of them tend to use free-hand cutting in sewing. This paved the way for the researcher to probe on reasons why they preferred free-hand cutting to pattern drafting. The results revealed that dressmakers and tailors' preference to free-hand cutting was influenced by the method they were trained with. One of the executives said:

"…I want to use myself as an example. I was trained with free-hand cutting and other methods like pattern drafting but am very comfortable in using free-hand cutting in sewing. Though there are some types of styles I cannot do without the use of pattern."

Another indicated that:

"…most of our members were trained with free-hand cutting and that is what they are used to in sewing of apparel. Even though these days due to the nature of style demands by clients, most especially the youth, dressmakers and tailors are now challenged. They now go for sloppers from friends who use pattern. The problem some of them face is that because they lack understanding of the symbols on the pattern, the outcome is most at time different from what the clients expect."

In support of the above, another executive member indicated that:

"I was once taught draping in a formal set-up but since I stopped teaching to have my own shop I have been sewing with free-hand cutting because I don't have the equipment for draping otherwise I would have preferred draping for sewing because I like it so much."

The comments made by the executives suggested that the method dressmakers and tailors were trained with influenced their choice of method they used in making apparel. Most dressmakers and tailors felt free-hand cutting method was easier to use as compared with pattern drafting.

The next question sought to discover the scope of apprenticeship training among the informal dressmakers and tailors of the association. One of the executive members commented that, "the duration of the training is a minimum of three years and a maximum of four years. The method of training is mostly by free-hand cutting method."

The researcher further asked them if there were any thoughts of reviewing the scope of apprenticeship training among their members. This was deemed important because most trainees found it easier to use the methods they were trained with than using methods that were new to them. Interestingly, they all answered in the affirmative and added that the syllabus was undergoing review. One member stated that:

"There is an intention to review the current syllabus which to inculcate the skills of pattern drafting alongside the free-hand cutting for training of apprentices. It will also include other areas like simple arithmetic and practical instructions on construction of patterns."

Further interrogation revealed that the standardization of apparel production among the members can best be achieved by intensifying the use of pattern drafting as part of apprenticeship training to ensure accuracy in fit among informal dressmakers and tailors locally. The respondents were asked to state their views on whether educational level hinders the progress of their training.

They all concurred and mentioned that they were taking that into consideration of apprentices' education level as part of the new syllabus which was under review. The researcher wanted more information on this and one of respondents commented:

"We have been having organising short training on the use of pattern to help our members improve their skills. We realised the challenge some of our members face due to their low level of education. So, we are considering one's level of education as a requirement for apprenticeship training in the new syllabus. An apprentice must have at a certificate in basic education to qualify to train as a dressmaker or a tailor."

The executives were asked about their opinions on differences in apparel sewn by members using free-hand cutting and those sewn using pattern drafting or ready-made new clothes. All the executives agreed that there is great variation in apparel made with the two methods most especially areas with curves.

One of them commented that,

"As an experienced designer I can easily notice the difference. Comparatively, the ready-made new apparel has a complete and perfect technical feature which the free-hand cutting apparel may lack."

The last question sought to find out if the executives had any contribution to the interaction. The interviewees indicated that in most cases the informal dressmakers and tailors concentrated on traditional apparel such as shirts, trousers, "*kaba* and slit" (long skirt and top) and '*fugu*'(smock) which can easily be made with free-hand

cutting. They were of the view that more could be done to encourage members into the sewing of apparel like dinner wear, bridal and evening wears which may require patterns.

The executives were of the view that these styles needed to be included in the new syllabus of apprenticeship training which will improve sewing of curves. By so doing they can sew apparel with such styles in local fabrics and package for export to nearby countries.

4.6 Apprentices' Views on Fit and Style Modification using Pattern Drafting and Free-hand Cutting

The fourth objective aimed at determining apprentices' views on fit and style modification when apparel is constructed with free-hand cutting and pattern drafting. For the purpose of analysis, the responses of strongly agree and agree were collapsed into agree and disagree and strongly disagree were considered as disagree. Table 4.19 summarises the results.

Table 4. 19: Apprentices' Views on Fit of Apparel using Pattern Drafting

No	Statement on Pattern Drafting	Agree	%	Disagree	%
1	Pattern drafting contributes to fit of an apparel	166	100	0	0
2	Pattern drafting enhances the aesthetic view of an apparel	166	100	0	0
3	Pattern drafting takes care of fullness	163	98.2	3	1.8
4	The curves in pattern drafted apparel fit better	164	98.8	2	1.2
5	Pattern drafted apparel gives more comfort in wearing	159	95.8	7	4.2

Source: Analysis of Survey Data (2017)

As can be seen in Table 4.19, most of the apprentices agreed with the fact that use of pattern drafting in apparel construction had advantages over free-hand cutting. All the respondents (N=166, 100%) indicated that the use of pattern drafting contributed to

perfect fit of apparel. Regarding the aesthetic view of the apparel, all respondents agreed that the pattern drafted apparel was better as clients easily appreciate apparel which stand out or show clearly all the aesthetical features. On the issue of whether pattern drafting takes care of the fullness of the apparel, 162(98.2%) of the apprentices agreed to the statement. The results revealed that most of the apprentices believed that the fullness of apparel made from pattern drafting was good.

The results also show that the majority of the apprentices (N=164, 98.8%) indicated that the outward and inward appearance of apparel made from pattern drafting came out better. In general, the respondents were of the view that apparel made from pattern drafting feels more comfortable in wearing as indicated by 159(95.8%) of the apprentices with only a few who disagreed (N=7, 4.2%).

Another set of questions were used to explore apprentices' views on apparel constructed with free-hand cutting. Table 4.20 presents the results.

Table 4. 20: Apprentices' Views on Fit of Apparel using Free-hand Cutting

No	Statement on Free hand Cutting	Yes	%	No	%
1	Free-hand cutting contributes to fit of an apparel	49	29.5	117	70.5
2	Free-hand cutting enhances the aesthetic view of an apparel	12	7.2	154	92.8
3	Free-hand cutting takes care of fullness	51	31.0	115	69.0
4	The curves in free-hand apparel fit better	4	2.4	162	97.6
5	Free-hand apparel feels more comfortable in wearing	37	22.3	129	77.7

Source: Analysis of Survey Data (2017)

In Table 4.20, more than two thirds (N=117, 70.5%) said no to the statement that free-hand cutting contributed to perfect fit of an apparel though 49(29.5%) agreed. On the statement that free-hand cutting was able to bring out the aesthetic view of apparel, 154 (92.8%) of the respondents agreed while the rest indicated no. Majority 115

(69%) of the apprentices did not concur to the statement that free-hand cutting takes care of fullness of apparel construction to enhance perfect fit. As many as 162 (97.6%) did not agree to the view that the outward and inward appearance of apparel made free-hand cutting comes out better whereas a few indicated it does. The majority (N=129, 77.7%) of the apprentices refuted the general perception that apparel made from free-hand cutting feels more comfortable in wearing.

As seen in Table 4.20, respondents agreed that using free-hand cutting method of apparel construction has certain limitations such as its inability to neither produce a perfect fit, takes care of fullness nor bring out the curves among others. Less than one third of the respondents were of the view that free-hand cutting contributed to perfect fit of apparel.

The views of apprentices on differences in style modification between pattern drafting and free-hand cutting were as captured in Tables 4.21 and 4.22 respectively.

Table 4. 21: Apprentices' Views on Style Modification of Apparel using Pattern Drafting

No	Statement on Pattern Drafting	Yes	%	No	%
1	Pattern drafting facilitate variations of style	166	100.0	0	0.0
2	Skills on pattern drafting allows for modification of style	162	97.6	4	2.4
3	Clients appreciate services provided by the use of pattern drafting	156	94.0	10	6.0
4	Use of pattern drafting gives special features to apparel	166	100.0	0	0.0
5	Apparel made from pattern drafting has similarities with ready-made new clothes	163	98.2	3	1.8

Source: Analysis of Survey Data (2017)

It can be deduced from Table 4.21 that all apprentices (N=166, 100%) confirmed pattern drafting facilitated the variations of style. The respondents indicated yes to the fact that using pattern drafting created more room for modifications to be made in the

future as indicated by 162 (97.6%). Just 2.4% out of the total respondents indicated no that, skills on pattern drafting allow more room for modification of style. On how clients reacted to apparel made with pattern drafting, the respondents indicated yes (N=156, 94%) that most clients really appreciated such services. However, 10(6.0%) out 166 respondents indicated no to the statement that clients appreciated services provided by the use of pattern drafting. Regarding the outcome of the apparel made using pattern drafting having the similarities with ready-made new dress,163(98.2%) respondents affirmed the statement that pattern drafted apparel shared some similar features with ready-made new apparel.

Table 4. 22: Apprentices' Views on Style Modification of Apparel using Free-hand Cutting

No	Statement on Free hand Cutting	Yes	%	No	%
1	Free-hand cutting facilitates variations of styles	3	1.8	163	98.2
2	Skills on free-hand cutting do not allow for modification of style	161	97.0	5	3.0
3	Clients do not mostly appreciate the services provided by the use of free-hand cutting than any method	106	63.8	60	36.1
4	Use of free-hand cutting gives special features to apparel	68	41.0	98	59.0
5	Apparel made from free-hand cutting has similarities with ready-made new clothes	2	1.2	164	98.8

Source: Analysis of Survey Data (2017)

Concerning free-hand cutting' stability to facilitate variations of styles in apparel construction, only 3(1.8%) participants shared different views with 163(98.2%) respondents said no to the statement. Seeking the views of the respondents on how free-hand cutting allowed for modification of style, 161 representing 97% indicated yes that apparel made with free-hand cutting can be modified into other styles. The respondents agreed (N=106, 63.8%) that most clients appreciated the services provided using free-hand cutting though there were about 60(36.1%) who indicated

no. On the statement that the use of free-hand cutting gives special features to apparel, 68(41%) agreed that free-hand cutting had the ability to create special features such as flounce, frills and panels among others.

It is however worth noting that 98(59%) indicated no to this statement. It further came to light that only two (1.2%) out of 166 respondents agreed that outcome of apparel constructed using free-hand cutting can be compared to that of ready-made new clothes as many as 165 respondents representing 99.4% stated no to the statement. One can observe from Tables 4.21 and 4.22 that the apprentices agreed that pattern drafting had more advantages over free-hand cutting. This result was quite encouraging as it was viewed as a tool for improving the skills of the up and coming dressmakers and tailors in the effective use of both methods.

4.7 Findings of the Focus Group Discussion for Clients of Informal Dressmakers and Tailors

Clients' view on fit of apparel made with pattern drafting and free-hand cutting techniques were determined through focus group discussion. This was deemed important to help clarify information about the taste of the consumers on the use of the two methods under discussion. The study collected information on the age and gender distribution of the clients and the findings are presented in Table 4.23.

Table 4. 23: Apprentices' Views on Style Modification of Apparel using Free-hand Cutting

Age	Gender			
	Male		Female	
	Freq.	%	Freq.	%
18-25 years	0	0.0	2	13.3
26-30 years	3	20.0	1	6.7
31-35 years	1	6.7	5	33.3
36 years and above	2	13.3	1	6.7
Total	**6**	**40.0**	**9**	**60.0**

Source: Analysis of Survey Data (2017)

In Table 4.23 fifteen clients comprising six males and nine females participated in the focus group discussion. Three male participants were within the age range of 26-30 years, one fell within the age range of 31-35 years while 2 of them were more than 36 years. In contrast, the age ranges of the female participants were given as follows; 18-25 years were two, 26-30 years one, 31-35 years were five and only one was above 36 years. Six (40%) of the respondents who participated in the discussion were within the age range of 31 – 35 years. This showed that most of the participants were mature in terms in terms of age. Table 4.23 also highlighted that the age group that mostly sews from the informal fashion industry were those in the age range of 31 and 35. It also indicated that there were more females' clients than their male counterparts.

4.8 Constructional Method of Apparel

It was interesting to note that almost all (N=14, 93.3%) of the clients testified that the constructional method best used by their dressmakers and tailors was the free-hand cutting which the clients called 'direct cutting'. The researcher was interested to know if the clients were aware of other methods of constructing apparel apart from free-hand cutting. Four (26.6%) of the respondents said they were aware of another method in which the design is first done on the paper before it was transferred on the fabric. The researcher then took the opportunity to seek the views of the respondents on the difference between the two methods on the final products. The participants noted that apparel made using pattern looked more like the ready- made new apparel than the one that was cut directly on the fabric. When questioned on whether they would like their dressmakers or tailors to use another method in addition to what they already knew, all the participants affirmed that in order to improve upon the fit which can match up with that of ready-made new clothes, it was better if both methods were used as the need arose.

4.8.1 Style Modification

The researcher inquired from the participants how many designers they had. Through the interaction with the clients, it came to light that close to half (N=6, 40%) of the respondents said that they have more than one designer. Further interrogation revealed that this was as a result of closeness to a designer or due to time frames for making of apparel one may decide to change his or her designer. Another reason was given as an instance where a client needed particular style noticed from anew designer as well as recommendations made by close associates. As a confirmation, this was what a respondent had to say:

> "I think pattern drafting gives more styles/designs. Since my designer is used to free-hand cutting, a friend introduced me to a new designer. Even though the designer is not in the same town where I lived I travelled to her place to sew my dresses because she was able to meet my demands. I did not mind the extra expenses I incurred because she was able to introduce me to new styles using pattern drafting. It makes me look confident in my clothes."

Further inquiries were made from the participants on some of the reasons why some clients reject apparel made by their dressmakers or tailors. Some of the reasons given included poor fit as a result of wrongly taken body measurements, improper stitching and mismatch of particular colour combination as well as changes in the agreed styles without the consent of the client. For instance, this was what one respondent indicated:

> "Personally, I think what might bring about the cause could be due to improper analysis of the style detail, incompetency level of method used and wrong constructional method. I had an experience where a style I have agreed with my designer was totally different from what she made for me and what we had already agreed on so I refused to collect it. I had to a new designer."

Another client also added that:

> "I have rejected a dress twice from my designer simply because she made a combination which the colour contrast was far different from what we agreed on. Again, I expected a circular flare with pleats in another style in catalogue I had shown her. Rather she gave me a dress with pleats. When I asked why, she said that style was too complicated to be made by direct cutting."

From the above comments, it could be deduced that clients perceived pattern drafting to modify and give a variety of styles as compared to free-hand cutting. The comments by the clients showed dissatisfaction with apparel made by most dressmakers and tailors.

Participants were asked to suggest ways to remedy the situation. Among the suggestions made by the respondents were refresher courses on other methods for the craftsmen to help them have knowledge of current methods. This was what a client stated:

> "I have a friend who is reading fashion in the university and apart from pattern drafting and free-hand cutting methods she always talked about the use of methods like the use of modelling and AutoCAD. Such methods produced patterns for making apparel which brings out perfect fit. For example, this dress I am wearing was made by my friend using draping method. I think such methods can be learnt by our dressmakers and tailors."

The rest of the respondents applauded her for the dress because one could not tell the difference between what she was wearing and ready-made new dress. Based on this, another client added that, "I think these methods could be inculcated into the curricula of the apprentices' mode of training", he concluded.

4.8.2 Views on Fit in Relation to the Method Used

The clients expressed various views on apparel fit and finally concluded that apparently there was no way the apparel constructed through the use of patterns can be compared to the one directly cut on the fabric. All the clients mentioned they had bought ready-made new clothes and they could testify their fit. On the outlook of the apparel, almost all (N=13) the clients indicated that there were differences in appearance of apparel made with free-hand cutting, pattern drafting and ready-made new clothes. For example, one client commented that:

> "It can be noted that, the dress which was done on paper before transferring to the fabric paved way for possible faults to be detected and early corrections to be done to it before working on the fabric. So, in brief, the one that is done on the pattern fits better than the free-hand method."

Another respondent further narrated that:

> "During cutting, my designer made some paper pattern for me to fit first to make sure that I had the exact style. I think this is someone who uses both methods. When I came the next day, she made me try it and it fitted perfectly well. I have given this same style to someone to sew for me but the outcome was horrible and her explanation was that, that style needed special skills. I trust from experience that the outlook and appearance of apparel made from pattern drafting looks the same as ready-made new apparel."

The researcher asked another question about the general outlook of apparel made by their designers and what is so unique about comparing apparel made by their designers and that of ready-made new clothes. Another client responded that ready-made new clothes have special features that stand out better than that apparel mostly made by local designers. The client explained that:

> "I remember I wanted a style that fits for bride-maids at a wedding of a friend. I was so disappointed because the apparel was supposed to have a free-flowing tail but it ended up a stiff and rigid tail. I had to buy a new dress with the same style for the wedding. It was just a waste of financial resource and apparently the difference in style and fit between the two products was too obvious."

The next question was how many years they have been engaging the services of their designers and their general comments about their designers. The participants reiterated that they have been with their designers for a year, some two years and others three years and more. Their reasons were that they had known them and could always walk to them at any time. One participant indicated that:

> "I have been with my designer for the past three years and have never changed to any designer. Though I am not always satisfied because we always disagree on some products, I always find myself going to her back. She is very approachable and has good customer care skills."

On their general conclusion about their designers, all the clients agreed that they needed to have regular in-service training to upgrade their skills to meet the fast growing and new demands of clients.

4.9 Influence of Dressmakers and Tailors Demographics on the Use of Pattern Drafting and Free-Hand Cutting

The fifth objective of the study sought to establish the extent to which the demographics of dressmakers and tailors influenced the use of pattern drafting and free-hand cutting in apparel making.

4.9.1 Gender and Method used by Dressmakers and Tailors

The researcher wanted to test the hypothesis that that there was no significant relationship between gender and method used to make apparel. Table 4.24 presents the results of method used and gender of dressmakers and tailors.

Table 4. 24: Cross tabulation between Methods used to Make an Apparel and Gender

Method Use	Female		Male		Total	
	N	%	N	%	N	%
Free-hand cutting	40	68.0	24	83.0	64	100.0
Pattern drafting	19	32.0	4	14.0	23	100.0
Both	0	0.0	1	3.0	1	100.0
Total	59	100.0	29	100.0	88	100.0
					Pearson's X^2 = 13.78, p > 0.05	

Source: Field Survey (2017)

Table 4.24 shows that 40 (68%) of the dressmakers and 24 (83%) of tailors used free-hand cutting as compared to 19 dressmakers representing 32% and 4(14%) tailors who used pattern drafting. It is worth mentioning that out of the 88 respondents only one male was found to be using both free-hand cutting and pattern drafting. The results further showed that a total of 64 females and males used free-hand cutting as compared to 23 who used pattern drafting. This meant that many of both dressmakers and tailors (females and males) were found to use more of a particular method (free-

hand cutting) than the other (pattern drafting). Pearson's Chi-square results of the association between gender of dressmakers/tailors and methods used whether freehand cutting or pattern drafting were not significant with the reported p-value 0.612 greater than the acceptable p-value 0.05 ($X^2 = 13.78$, $p > 0.05$). This result meant that the gender of the informal dressmakers and tailors had no association with the type of methods they used. In other words, gender was not an influence on the methods dressmakers and tailors used when constructing apparels. The results were used to accept the null hypothesis (H_{01}) which stated that there was no significant relationship between gender and method used to make apparel.

4.9.2 Age and Method Used by Dressmakers and Tailors

The study sought to test the hypothesis that there was no significant relationship between age and method used to make apparel. The results are presented in Table 4.25.

Table 4. 25: Cross tabulation between Age of Dressmakers and Tailors and Methods Used

Age	Pattern Drafting		Free-hand Cutting		Both		Total	
	N	%	N	%	N	%	N	%
21-30yrs	13	30.2	30	69.8	0	0.0	43	100.0
31-40yrs	7	21.9	25	78.1	0	0.0	32	100.0
41 yrs. and above	3	23.0	9	69.2	1	7.7	13	100.0
Total	**23**	**26.1**	**64**	**72.7**	**1**	**1.1**	**88**	**100.0**

Pearson's $X^2 = 15.75$, $p < 0.05$

Source: Analysis of Survey Data (2017)

The results in Table 4.25 revealed that 43 of the respondents were aged 21-30years, 32 aged 31-40years and 13 aged between 41years and above. The results demonstrated that the most used method among all the ages was free-hand cutting (N=64, 72.7%) as compared to pattern drafting (N=23, 26.1%). However, it is worth mentioning that respondents with age range of 21-30 years were more versatile with the use of both free-hand cutting and pattern drafting.

Pearson's Chi-square results of the association between age of dressmakers/tailors and methods used whether freehand cutting or pattern drafting were significant with p-value 0.0023 less than 0.05 ($X^2 = 15.75, p < 0.05$) demonstrating that, age could influence the method used by dressmakers and tailors. The results were used to reject the null hypothesis (H_{02}) which stated that there was no significant relationship between age and method used to make apparel.

4.9.3 Level of Education and Method Used

The study sought to test the hypothesis that there is no significant relationship between levels of education and method used to make apparel. Table 4.26 shows the findings on level of education and method used.

Table 4. 26: Level of Education of Dressmakers and Tailors and Method Used

Level of Educ.	Pattern Drafting		Free-hand Cutting		Both		Total	
	N	%	N	%	N	%	N	%
No Education	0	0.0	2	100.0	0	0	2	100.0
Primary	7	28.0	18	72.0	0	0	25	100.0
JHS	8	19.0	34	81.0	0	0	42	100.0
SHS	4	25.0	10	68.8	1	6.3	15	100.0
Tertiary	4	100.0	0	0.0	0	0	4	100.0
Total	**23**		**64**		**1**		**88**	**100.0**
						Pearson's $X^2 = 14.85, p < 0.05$		

Source: Analysis of Survey Data (2017)

The findings show that two dressmakers and tailors had no formal education, 42 had JHS certificate while 25 had primary school education. It is important to observe that four of the dressmakers and tailors had tertiary education. One can observe from Table 4.26 that most the respondents with education levels between no education and JHS used free-hand cutting (No education=2, Primary=18, and JHS=34) as compared to the respondents with the same educational level who used pattern drafting. It was also evident from the results that while all four respondents with tertiary education used pattern drafting, none of the respondents with no education used it. Chi-square

results of the association between level of education of dressmakers / tailors and methods used whether freehand cutting or pattern drafting were significant with the p-value of 0.001 less than 0.05 ($X^2 = 14.85$, $p < 0.05$). This implies that masters were likely to train the apprentices using familiar methods. Most masters trained their apprentices using the free-hand cutting. The results were therefore used to reject the null hypothesis (H_{03}) which stated that there is no significant relationship between levels of education and method used to make apparel.

4.9.4 Type of Training and Current Method Used

The study also sought test the hypothesis that there was no significant relationship between type of training and method used to make apparel. Table 4.27 presents the summary of results.

Table 4. 27: Type of Training and Method Used by Dressmakers and Tailors

| Type of Training | Current Method Used | | | | | |
| | Free-hand cutting | | Both | | Total | |
	N	%	N	%	N	%
Free-hand cutting	55	85.9	9	14.1	64	100.0
Pattern drafting	6	26.1	17	73.9	23	100.0
Both	0	0.0	1	100.0	1	100.0
Total	**61**		**27**		**88**	**100.0**
				Pearson's $X^2 = 16.23$, $p < 0.05$		

Source: Analysis of Survey Data (2017)

As shown in Table 4.27, 55(85.9%) of the respondents who were trained with free-hand cutting still used free-hand cutting while one (100%) respondent trained with both pattern drafting and free-hand cutting used both constructional methods. However, out of the total of 27 respondents trained with both methods, 17 (73.9%) used pattern drafting while nine (14.1%) used free-hand cutting. Table 4.27 also shows that the method most dressmakers and tailors were trained with was free-hand cutting and it had an influence on the current method used in apparel construction. Pearson's Chi-square results of the association between type of training dressmakers/

tailors had gone through and methods used whether freehand cutting or pattern drafting were significant with p-value of 0. 0007 less than 0.05 (X^2 = 16.23, $p < 0.05$). This demonstrated that, type of training and methods used by dressmakers and tailors could be influenced by type of training. The results were used to reject the null hypothesis (H_{04}) which stated that there was no significant relationship between type of training and method used to make apparel.

4.9.5 Years of Experience and Method Used

The study also sought to test the hypothesis that there was no significant relationship between years of working experience and method used to make apparel. The results are presented in Table 4.28.

Table 4. 28: Years of Experience and Methods used by Dressmakers and Tailors

Years of Experience	Pattern Drafting		Free-hand cutting		Both		Total	
	N	%	N	%	N	%	N	%
1-5 years	14	43.8	17	53.1	1	3.1	32	36.4
6-10years	5	21.7	18	78.3	0	0.0	23	26.1
11-15years	3	17.6	14	82.4	0	0.0	17	19.3
16 and above	1	6.3	15	93.7	0	0.0	16	18.2
Total	**23**		**64**		**1**		**88**	**100.0**
						Pearson's X^2 **= 12.17,** $p < 0.05$		

Source: Analysis of Survey Data (2017)

Table 4.28 shows that a total of 14(43.8) dressmakers and tailors with a working experience of 1 to 5 years used pattern drafting. This was followed by five (21.71%) of the respondents with a working experience of 6 to 10 years. It can also be noted from Table 4.28 that only one out of the 16 respondents with more than 16 years' experience used pattern drafting. One can observe that there were not many differences among the respondents on the use of free-hand cutting but comparing the two methods, there seemed to be a decline in the number of dressmakers and tailors who used pattern drafting after 15 years of experience. This might be as a result of

lack of exposure to pattern drafting or they seemed to have more experience in free-hand cutting over the years and consequently showed more preference to this method. Pearson's Chi-square results of the association between years of experience of dressmakers / tailors and methods used whether freehand cutting or pattern drafting were significant with p-value of 0.002 less than 0.05 ($X^2 = 12.17$, $p < 0.05$). This showed that years of experience influenced the method of apparel construction adopted by the informal dressmakers association. The implication is that the more experienced dressmakers or tailors are more likely to favour free-hand cutting as a method of apparel construction. The results were used to reject the null hypothesis (H_{05}) that there was no significant relationship between years of working experience and method used to make apparel.

4.10 Components of Training Manual on Pattern Drafting and Free-Hand Cutting

The sixth objective sought to generate information and guidelines that was used to develop the training manual on integration of pattern drafting into free-hand cutting using the findings of the study. The training manual would be useful to informal dressmakers, tailors, apprentices and the general public in Ghana and the world of fashion at large. Preliminary discussions suggested that the participants might be interested in such training manual for skill improvement.

The study identified the composition of the training manual. The focus of the training manual would be used to upgrade the skills of informal dressmakers and tailors and their apprentices on integration of pattern drafting into free-hand cutting in apparel construction taking into consideration their experience in free-hand cutting. Based on the findings, the following guidelines for the manual were generated for phase one of the manual:

Tools and equipment used in apparel making, understanding pattern drafting and adaptation, measurement taking and integration of pattern drafting into free-hand cutting,

   i.   Differences between pattern drafting and free-hand cutting as methods used in apparel construction

        a) Introduction

        b) Integrating pattern drafting into Free-hand cutting as method used in apparel construction

        c) Pattern drafting as a method in apparel construction

  ii.   Position and Processes in taking and recording body measurements accurately

        a) Points to note when taking body measurements

        b) Taking measurements for female bodice block

        c) Importance of proper record keeping of measurements

 iii.   Pattern drafting instructions and symbols

 iv.   Pattern drafting and adaptation

        a) Patterns

        b) Types of patterns

        c) Drafting

        d) Drafting Pattern

        e) Integrating pattern drafting into bodice block

CHAPTER FIVE: DISCUSSION OF FINDINGS

This chapter discusses the findings of the study. The discussion was done on the basis of the objectives formulated for the study. The discussion further made references to studies that corroborated or contradicted the findings of this study. The section starts with discussions on the demographic characteristics of apprentices, dressmakers and tailors. An examination of constructional pattern drafting and free-hand cutting on fit and style modification of selected apparel was discussed.

The chapter also presents the views of executives of the association, apprentices and clients on fit and style modification of apparel constructed with pattern drafting and free-hand cutting. The chapter ends with the influence of demographic characteristics of dressmakers and tailors on their choice of methods used in apparel construction. Information on some components for a training manual as guided by the findings of the study was produced.

5.1 Demographic Characteristics of Apprentices, Dressmakers and Tailors

The demographic characteristics considered in this study were gender, age, and type of training, level of education and years of experience for dressmakers, tailor and apprentices. Sections 5.1.1 and 5.1.2 present detailed discussion of findings on these variables.

5.1.1 Demographic Characteristics of Apprentices

The findings of the study revealed there were more female apprentices than males. The findings support the studies of Obinim and Pongo (2015a) and Pongo et al., (2014) in Ghana who reported that the majority of apprenticeship trainees in fashion design were females. The researchers found that there was a clear indication of female dominance in the sewing industry in most parts of the country. This is supported by

the study findings which revealed that the majority (69%) of the dressmakers or tailors were females. This finding further concurs with similar studies conducted in Kenya by Isika (2014) and in U.K by Hiller and Connell (2012) which used respondents from institutions of higher learning. Both studies found that the respondents were mostly females as compared to the males. This finding is portraying the cultural orientation of the Ghanaian fashion populace. Most Ghanaian women use a lot of African fabrics for most of their day-to-day social activities. This has created market opportunities for the female apprentices than the male. Implication is that females dominate the fashion industry in most parts of the world and have higher preference for dressmaking as compared to males as confirmed in this study.

On age, the current study found that, most of the apprentices (68.7%) were aged below 20 years with a few (28.3%) of the respondents ranged between 21- and 40 years. None of them was 41 years or more. This finding is in line with the study by Anokye and Afraine (2014) which showed that apprentices were mostly between the ages of 19-24 years. In addition, Obinim and Pongo (2015) for instance, reported that 66% of the apprentice respondents from Ho Municipality were mostly aged 20 years and below. Studies have shown that in Ghana, the youth mostly those in their teens, opt for apprenticeship training in fashion. The researcher deduced that the apprentices were teenagers of 15 to 20 years who might have just come out of JHS. The picture as described in this study is also in line with the fact that most apprentices who finish JHS were aged 15 and 17 years. These students may opt for apprenticeship training if they decide not to further their formal education. This age range is also best period for individuals to engage in the learning of any form in preparation towards adult working life.

The study also focused on apprentice's level of education. It was found that the majority of the apprentices (65.1%) had a junior high school certificate which meant that, the apprentices held pre-tertiary qualification. This finding is in line with other studies on apprenticeship training. Forster and Ampong (2012) reported that majority of small-scale apparel producers in Ghana had formal education at different levels. Looking at their level of education in this study, one can conclude that apprenticeship training created opportunity for JHS graduates as well as those who could not afford secondary education to find formal employment.

The majority (65.1%) of the apprentices had basic school certificate which suggested that entry into informal dressmaking and tailoring does not require high levels of education. Applicants of different educational backgrounds were accepted into informal dressmaking and tailoring apprenticeship training. This is an indication that the profession accepts all people irrespective of one's level of education. The study found that the main training method apprentices received was free-hand cutting instead of pattern drafting. This revelation corroborates with earlier studies by Biney-Aidoo and Antiaye (2012) and Foster and Ampong (2012). This confirms the fact that most dressmakers and tailors preferred to use free-hand cutting compared to pattern drafting in apparel construction. This may be as a result of the fact that training in free-hand cutting does not require complex and technical skills.

Trainees or apprentices develop the skills of using free-hand cutting over time through practice, observation and good imagination. This finding calls for more training and exposure to pattern drafting skills among the informal dressmakers and tailors as a way of developing their skills and helping them to overcome perceived challenges that might be associated with the use of pattern drafting.

The study collected information on the number of years apprentices had spent on their training. The average duration of the training period was three years. It was found that most of the apprentices had spent a minimum of two years though there were a few of them who had just begun training while others were about to complete. This finding agrees with Hogarth and Hasluck (2003) who reported that the average duration of an apprenticeship training ranges from one year to five years though it may differ for the various professions. Anokye and Afranie (2014) further reiterated that there were also some instances where apprentices stay on and provide additional services to their master-craftsmen to pay off their fees or be on contract appointment.

This implies that, the longer the years spent on training, the better the apprentices would have been exposed to the constructional methods used to be able to make valuable judgements on fit and style modifications of apparel. The study looked at apprentices view on the importance of one's formal education on the current training they were undergoing. The results revealed that the respondents agreed that a good level of formal education facilitated the learning of the trade.

The finding is consistent with Larbi and Atta (2009) and Nigavekar (2006) which asserted that, youth now need to require three new skills which were the ability to learn, to change and to analyze in order to prepare for the challenges that come with employment in particular and adult life in general.

This view was found to be very important as it indicates awareness of apprentices that they need to have the basic education to be able to grasp efficiently the steps in apparel construction. Good educational background is also needed as the industry move into standardization of the apparel to meet global demands. These skills can all be achieved through formal education as revealed in this study.

5.1.2 Implication of Findings on Demographic Characteristics of Apprentices

The gender profile of the apprentices revealed that the majority were females which implied that females had a higher preference for training in apparel construction compared to males. There was no age limit as far as the profession was concerned though the majority of the apprentices in this study were found to be in the youthful age. The apprentices had acquired the basic level of education with a lot of the majority being graduates of junior high schools.

For successful training in apparel construction, certificates in secondary and other higher levels of education could be better for the growth of the informal fashion industry in the Koforidua area. Free-hand cutting was the constructional method the apprentices were learning as trainees with a few of them benefitting from the training of both pattern drafting and free-hand cutting. This implied that free-hand cutting as a method was being perpetuated in comparison with modern methods such as pattern drafting, draping and Computer Aided Designs.

It is a belief that apprentices needed more years of apprenticeship training to be fully conversant with the skills to practise. Most of the apprentices in the study had spent a minimum of two years on training which implied that they were undertaking the number of years as required for proficiency in the trade.

Finally, the study looked at how one's formal education affected the ability to grasp the skills and knowledge when one is undergoing apprenticeship training. It was confirmed by the respondents that it was necessary to have good education to be able to be successful during the training period as well as for practising the trade in the future. The implication is that the awareness is being created among respondents on the need to acquire the requisite level of education so as to operate successfully in the

job market as well as to get accustomed to other methods of the current trends in the fashion world.

5.1.3 Demographic Characteristics of Dressmakers and Tailors

The current study revealed that more females (67%) than males tend to join the apparel construction business than men in Koforidua area. The picture as portrayed here might not be different from the reasons given to the findings on the gender of the apprentices. In agreement, Biney-Aidoo, Antiaye and Oppong (2013) reported that 67.5% respondents in their study were dressmakers and tailors. Obinim and Pongo (2015) had commented in their study that men were more usually comfortable with ready-made new clothing as compared to women and this could explain why there were more dressmakers than tailors. This meant that dressmaking seemed to be more lucrative for dressmakers as many women tend to patronise the services of these dressmakers than men do for tailors.

With regard to age, it was found that the dressmakers and tailors in Koforidua were aged between 31 and 40 years which concurred with the findings of Obinim and Pongo (2015). This age range was higher as compared with the apprentices because most of these master-craftsmen would first have to finish their apprenticeship training and/or formal education before establishing themselves on the job market. Once they start off their small-scale apparel businesses, most of them work as sole practitioners before taking up apprentices to train them. Consequently, it was expected that, the dressmakers and tailors were found to be in a higher age group.

Education plays a key role in learning competency-based training. The study found that the majority of the master craftsmen had formal education. Specifically, there were 29.5% primary school leavers, 47.7%JHS graduates, SHS 18.2% certificate

holders and 2.3% who had tertiary education. There were only 2.3% of the respondents who mentioned that they had no formal education which was in agreement with the study by Forster and Ampong (2012) which reported that some of the dressmakers and tailors had no formal education.

Obinim and Pongo (2015) observing a similar trend in a study conducted in Ghana asserted that the respondents who had had secondary education also showed the willingness to upgrade themselves and improve their expertise so as to apply their academic knowledge to their trade. This finding is in a good direction because the need for formal education as a component of the current in the growth in fashion industry cannot be looked.

On the type of training received by dressmakers and tailors, it was revealed that the main apparel construction method learnt by the dressmakers and tailors in Koforidua area was free-hand cutting. The finding was consistent with the studies of Effajemue and Lilly (2012) and Obinim and Pongo (2015) who asserted most informal dressmakers and tailors in Nigeria and Ghana were trained mostly in free-hand cutting methods. This situation may have resulted from the fact that most trainers in the informal fashion industry might have perceived the problems that usually come with the use of pattern drafting.

These may include a working environment which may not be conducive to develop and practice patterns, the amount of time to be used in the practical and drafting work in patterns, lack of basic equipment and tools such as brown papers, dummies, muslin for making toiles and many more. With some of these setbacks, the informal dressmaker and tailors, tend to lend themselves to the use of free-hand cutting which seemed to be easier among the two methods.

Experience they say is the best teacher, hence, the researcher analysed the work experience of dressmakers and tailors in the Koforidua area. The intention was to find out the experience of the dressmakers and tailors per the number of years they have been in the fashion industry. It was revealed that the respondents had work experiences ranging from a year to 16 years and above with most of them clustering around a working experience of between six and 15 years. With such a rich working experience, the informal dressmakers and tailors were likely to benefit from good expertise, skills and the requisite knowledge that come with long practice of a trade such as apparel construction.

In the area of training method, it was also evident from the findings that, the majority of informal dressmakers and tailors used free-hand cutting as the preferred training method for training their apprentices. The finding concurs with the studies by Foster and Ampong (2012) which revealed that pattern drafting still remains a challenge in the informal sector because it is believed that free-hand cutting instructions were usually few and easy to memorize. In addition, since most dressmakers and tailors underwent training using free-hand cutting it was obvious that, they would have a lot of skills in free-hand than pattern drafting. Subsequently, free-hand cutting was the methods they were likely to use in training the apprentices that enrolled under them.

5.1.4 Implication of Findings on Demographic Characteristics of Apprentices of Dressmakers and Tailors

As revealed in the findings of the study, there were more dressmakers than tailors. This implies that the informal fashion industry in Koforidua area experienced some amount of female dominance. This is can be seen as good development since with little training and support, most of these females could achieve good levels in the fashion designing industry. This also has the other benefits such as becoming

gainfully employed and getting the needed exposure and recognition in the fashion world among others. It was found that most of the informal dressmakers and tailors were quite young which meant they stand the chance of practising the trade for a longer period.

This implies that there is need to put in structures and measures that would ensure that the industry becomes sustainable enough to keep them in business. One of such structures would be to expose them to current trends in apparel construction methods such as pattern drafting. In relation to the level of education, most of the respondents had academic certificates ranging from primary to tertiary education. This was seen as an advantage to the growth of the industry as formal education is very important in the learning of new skills that would help improve the trade. These master craftsmen are the current point of attention to the development of the informal fashion industry and possessing some form of formal education was a credit. Most of the informal dressmakers and tailors were trained in the use of free-hand cutting as against pattern drafting. This finding was in line with that of DiMacro (2010) who intimated that the apprenticeship system which was once regarded as a 'marginal job' is now an important determinant of the Ghanaian economy. Apprenticeship training as a way to learning a trade is beneficial and should be organized regularly with theoretical and practical components.

The implication is that they were more likely to practise and use more of what they were skilled in than other new methods. This meant that they would readily use other new methods if they were giving the needed training and skills. It was understandable that many of them used free-hand cutting in the training of the apprentices. This may be the situation as these apprentices were usually enrolled for a specific number of years and pay for the services received during the training period. Therefore, they are

trained using free-hand cutting which seemed quite easier to learn within the time set for training.

5.2 Fit Evaluation of Apparel Using Free-hand Cutting and Pattern Drafting

5.2.1 Researcher's Observation on Steps in Apparel Construction

The researcher did an observation to check on the strength and weakness of pattern drafting and free-hand cutting during the process of apparel construction by selected dressmakers and tailors. It was observed that the dressmakers and tailors had problems with taking of accurate body measurements. These included problems such as which position to measure in relation to the type of measurement required, poor calculations leading to extra fullness or sagging in some of the apparel and inability to do proper analysis of styles. These resulted in the sheath dress having a three-quarter sleeve at the end of the construction instead of the expected long sleeve and the flared peplum turning out to be like (A line style).

Another observation was that most of the apparel made using free-hand method had poor fit because they lacked the opportunity to make corrections once a mistake occurred. Thus, if dressmaker or a tailor makes a mistake while using the free-hand cutting, the fabric is usually wasted (Iloeje as cited in Shailong and Igbo, 2009). There was a great disparity between fit of apparel made with pattern drafting and free-hand cutting due to techniques involved in the use of patterns. This was seen in areas such as the interpretation and analysis of styles, differences in the way measurements were taken and recorded, as well as the assembling techniques.

Apparel fit has also been attributed to selection of right seam, good stitching and regular pressing during apparel construction (MacDonald, 2010). It was observed that, selection of the right type of stitches was not a problem among the respondents. The

researcher further observed that some apparel made using free-hand cutting showed poor seams and seam allowances. This may be due to the fact that a lot of guesswork was used in the design analysis and cutting out of fabrics when using free-hand cutting. As noted by Aldrich (2014) apparel fit is important determinant of superiority and plays an important role in the choice of apparel by clients (Dove, 2016). For apparel to be competitive in the global market, apparel constructed should fit well (Aldrich, 2014).

5.2.2 Evaluation of Fit and Style Modification of Apparel by Judges

The study further evaluated fit and style modification of five apparel the sheath dress, bustier blouse, long panel skirt, ladies' trousers and blouse with flare peplum constructed using pattern drafting and free-hand cutting techniques. Sheath dress was used to evaluate fit while the bustier blouse, the long panel skirt, ladies' trousers and blouse with flare peplum were used to evaluate both fit and style modification. Findings on sheath apparel revealed that neck, bust, nape to waist, waist and hips fitted better with the apparel constructed using pattern drafting than free-hand cutting method. The use of pattern drafting as a method of constructing apparel brought outstanding features in areas such as shoulder line, nape to waist, dress and sleeve length, sleeve bicep and arm scye compared to free-hand cutting. This was in line with the findings of Efajemue and Lily (2011) whose study found that apparel made by pattern drafting fitted better that free-hand cutting in shoulder line, nape to waist, dress and sleeve length and sleeve bicep.

Though there were discrepancies and mismatch in most of the selected fit points, these parameters were well achieved using the pattern drafting. In summary, it can be said that though the sheath dress made with pattern drafting was generally accepted by the judges to have better fit, the sheath dress made with free-hand cutting equally

had some good features in fit points such as the bust, full length and the sleeve length. The above finding on pattern drafted apparel concurs with the assertion by MacDonald (2010) and Joseph-Armstrong (2010) that when patterns are used in apparel making, it helps to bring out the good style of the apparel and makes it fit better as confirmed by the results of this study.

Bustier panel blouse was used to check fit and style modification as to how best the respondents would be able to modify the normal blouse into a strapless panel blouse using both pattern drafting and free-hand cutting. The findings revealed that the use of pattern drafting could modify style and make apparel fit better as compared to free-hand cutting. When the judges evaluated the pattern drafted bustier panel blouse it came to light the areas such as bust, waistline, nape to waist, panel positioning as well as the blouse length fitted better as compared to free-hand cutting.

The study also evaluated the fit and style modification long panel skirt on areas such as hips, panel position, ease of fullness at the hem and the length of the skirt. It found that pattern drafted panel long skirt fitted perfectly at the waist and hips as compared with that of panel long skirt of free-hand which was sagging at the abdomen as a result of extra fullness. It was further observed that pattern drafted panel skirt had perfect arrangement of the border-line design in the fabric adding more aesthetics to the hem of the skirt. Though the arrangement of the borderline design in the panel long skirt of free-hand was seen to be some form of creativity, it distorted the flow at the hem of the skirt. In comparing the positioning of the panel and length of skirt, both methods were accepted by the judges as showing good style modifications. On panel shaping and ease of fullness at the hem, the judges were in favour of pattern drafting as producing better fit and style modification than free-hand cutting. In totality, the skirt made by pattern drafting met most the expected standards of the

judges. This conquered with the study by Forster and Ampong (2012) who found that adaptation of existing patterns is now widely used by dress trade because of its accuracy of sizing and speed with which ranges can be developed. However, the author asserted that pattern cutting should be used in conjunction with dress forms which are usually not available to students in most fashion institutions

Ladies trousers were chosen to check on style modification such as modifying a skirt into trousers by positioning the zipper at the side instead of the normal fly at the front and properly introducing the crotch section of trousers. Points which were considered for evaluation included the waist, hips, thighs, ankle, trouser length, waist band and crotch. It was evident that ladies trouser made with free-hand cutting had problems with the fit points in terms of loose waistband and short crotch. Further check on points such as the waistline, hips and thighs, the pattern drafted trousers were graded as better than the trouser made with free-hand cutting by judges. It was noted that the judges recorded no differences in the ankle, the length and the fixing of the zipper in the trousers made with both methods.

The last apparel considered for evaluation on fit and style modification was ladies blouse with flare peplum. As was seen in the evaluation, areas such as the neckline, nape to waist, arm scye, flare peplum, blouse length and fixing of buttons were compared using blouses made with pattern drafting and free-hand cutting methods. The pattern drafted blouse had its buttons placed too far apart and the nape to waist measurement was wrongly taken resulting in sagging at the back of the blouse. The free-hand blouse on the other hand, had a pointed shoulder line and a small neckline but had a good nape to waist fitting at the back as compared to pattern drafted blouse. The results from the judges revealed that the neckline, arm scye and the flare peplum of the pattern drafted blouse were better than the free-hand blouse. In addition, the

length of the blouses of both methods was seen by the judges as perfect. However, all the judges concluded that the blouse made with free-hand had better fixed buttons as compared with pattern drafted blouse.

In summary, the findings revealed that all the judges scored high marks for apparel constructed by the pattern drafting technique. Most of the apparel made by the pattern drafting technique was accepted as having a better fit though there were some few areas that were rejected.

Many fit points of apparel constructed using the free-hand cutting method did not meet the standard requirements. The use of pattern drafting method during construction contributed to the fit and style modification of apparel as observed in this study. Shailong and Igbo (2009) had also reported that most dressmaking industries in Nigeria were folding up mainly due to the use of free-hand cutting technique for constructing apparel that resulted in poorly fitting apparel. Generally, major differences were observed in style modification between apparel constructed with free-hand cutting and pattern drafting.

5.2.3 Implication on Fit of Apparel

Fit points such as bust, waist, hips and nape to waist were evaluated comparing apparel made with both pattern drafting and free-hand. It was seen that pattern drafted apparel came out better on all the fit points evaluated. The implication is that fit in pattern drafted apparel is more recommended as it is likely to meet the satisfaction of both informal dressmakers and tailors and the clients. This is because if apparel is ill-fitted as a result of the use of free-hand cutting method both the informal dressmaker or tailor and the clients are affected negatively. As the informal dressmaker or tailor faces a rejection of apparel made and loss of clients, the clients may also incur cost of

losing a fabric. There is the need to develop the potential that pattern drafting seemed to bring into the apparel construction industry as over-reliance on free-hand cutting could keep some dressmakers and tailors out of business with time. This reflected the views of Shin (2013) who opined that fit satisfaction of apparel is seen by clients in specific areas such as blouses, jackets, dresses and skirts. This may be seen in terms of the level of satisfaction or displeasure a client may experience with fit of clothing leading to more costs implications.

5.2.4 Implication on Style Modification of Apparel

Panel positioning, panel shaping, length of the apparel, fullness of hems and fixing of zipper and button were considered under style modification of apparel. Apparel made using Free-hand cutting apparel was superior in areas such as the length of the apparel and fixing of fasteners as compared with pattern drafted apparel. The implication is that these style points did not require any technical knowledge as compared with other style points. This calls for on job training sessions for the informal dressmakers and tailors to help them improve the skills that they have in modifying styles in both free-hand cutting and pattern drafting. In addition, this would improve their skills of transfer of learning that underscores benefit to be derived from modification of styles.

5.3 Views from Regional Executives of GNDTA, Apprentices and Clients on Fit and Style Modification with the Use of Free-hand Cutting and Pattern Drafting

5.3.1 Views from Executives of IDTA

The study sought the views of the executives of the Regional Branch of the Informal Dressmaker and Tailors Association during a face-to-face interview session. It was revealed that most of the members of the association used free-hand cutting though some of members had training in other methods like pattern drafting. Further probing on reasons why they preferred free-hand cutting to pattern drafting brought to light

that, the dressmakers and tailors' preference to free-hand cutting was influenced by the method they were trained with and the ease associated with the processes in free-hand cutting.

The study also revealed that one way of ensuring that the dressmakers and tailors use other methods of apparel construction was to review the IDTA training syllabus. This was deemed important because most trainers found it easier to use the methods they were trained in than using methods that were new to them.

The executives also agreed that there is need to intensify supervision of IDTA training to ensure compliance with the association's guidelines on apprenticeship training methods. The respondents indicated it would help to ensure some level of standardisation in the apparel industry in the Koforidua area and lead to meeting clients' needs. This finding is not far from what other researchers had alluded to. For example, Carter (2010) reported that education was the key to improving fashion especially in apparel construction. Kimathi (2004) had further commented that the gap between apparel construction by pattern drafting and free-hand cutting such as apparel fit could only be achieved by education. Responses from the executives of the GNDTA indicated that comparatively the ready-made new apparel had complete and perfect technical features which were usually lacking in the apparel of free-hand cutting. To meet the global challenge, the training trend needed to be reviewed to conform to the high standard of apparel making they added.

5.3.2 Implication on Views from Executives of IDTA

Reason why informal dressmakers and tailors were not using pattern drafting in apprenticeship training might be related to the fact that pattern skills seemed too difficult to understand and the period of training might be short to grasp the details of

the method. Taking their educational level and period of training into consideration, it would be very difficult for the apprentices to cope with the contents that come with patterns. This implies that, there is the need to inculcate the use of pattern drafting as part of training curriculum of apprentices and also increase the period of training to allow both masters and apprentices gain better grasp of the pattern drafting skills. When trainees are given adequate training skills on the use of pattern drafting, they would improve and this would in effect manifest in the high standard on fit of apparel among the dressmakers and tailors in the informal setting in the near future.

5.3.3 Views of Apprentices

The study found that all the apprentices attested to the fact that use of pattern drafting in apparel construction enhances aesthetic nature of the product and ensures perfect fit. All the respondents also indicated that the use of pattern drafting contributed to the perfect fit of an apparel. This view may have been influenced by relating ready-made apparel normally made by pattern drafting with that made by free-hand cutting. The respondents also confirmed that the use of pattern drafting changed and translated itself better on the figure, that is, when apparel is being worn by models. Apparel were easily appreciated by clients if the wearer stood out or showed clearly all the aesthetical features.

Apprentices further indicated that the use of pattern drafting in apparel construction ensured fit and modifications as well as making apparel look similar to ready-made-new clothes. In general, other researchers have reported that the use of pattern drafting for apparel making gives a better finishing of the apparel than free-hand (Efajemue& Lily, 2012; Obinim & Pong, 2015). These findings suggested that apprentices were in favour of the use of pattern drafting and may be willing to learn the technique. Furthermore, all the respondents indicated that apparel made from

pattern drafting fit comfortably on the body. This observation was quite relevant to the growth of the fashion industry because clients would be loyal to their designers to sew variety of apparel.

Generally, the responses from apprentices on the fit of apparel made from pattern drafting suggested that they are happier with the outcome on apparel made with pattern drafting than free-hand cutting. Apprentices also held a positive view about the use of pattern drafting as providing better fit of apparel as compared to free-hand cutting.

5.3.4 Implication on Views from Apprentices

Apprentices held a positive view about the use of pattern drafting as providing better fit of apparel as compared to free-hand cutting. It was revealed that although free-hand cutting was the main training method used, some styles, because of their unique features, could only be cut with pattern and comes out better than free-hand cutting. The implication is that given the opportunity, training and necessary materials, these apprentices would start using more of pattern drafting than free-hand cutting.

5.3.5 Views of Clients

Most of the clients (n=14, 93.3%) confirmed that free-hand cutting was the constructional method used by most of their informal dressmakers and tailors. The clients referred to this method as direct cutting. They also indicated that apparel made from pattern drafting looks more like ready-made new clothes. Clients revealed that they had more than one designer and that they had on some instances rejected apparel made for them by their designers as they used free-hand cutting. Reasons for the rejection included wrong measurements, inability to meet requirements, wrong choice of colour combination as well as wrong styles. The reasons for these problems might be due to improper analysis of the style details, insufficient knowledge of methods

used, wrong construction method and insufficient training which corroborates with the findings of Foster and Ampong (2014). The clients had suggestions such as having their designers undergoing in-service training on other methods in apparel making to meet their demands.

Generally, clients were found to have ideas on perfect fit of apparel in terms of good style, stitches and seams to be used on a particular style and how to modify styles to fit client figure types. It was evident that clients were aware of the differences in apparel constructed with pattern drafting and free-hand cutting. In comparing apparel constructed by their informal dressmakers and tailors and ready-made new clothes, majority of the clients pointed out that there were distinct differences between the two. The clients agreed that they changed their dressmakers and tailors due to problems of poor fit of products. It was affirmed that irrespective of the cost, if the apparel fit properly, one did not complain over high cost (Shin, 2013). According to greater number of clients, apparel fit was measured by good stitching, good seams as well as good finishing. Clients' dissatisfaction with apparel constructed with free-hand cutting suggested that they tend to buy ready-made new clothes if the trend continued. This could have negative implications on the fashion industry in the informal sector.

5.3.6 Implication on Views from Clients

It is clear that the clients had a fair knowledge of the constructional methods used by the informal dressmakers and tailors in Koforidua area. In addition, they indicated that they were aware that apparel made from patterns had better fit and style modifications that meet their satisfaction. As clearly portrayed, throughout the findings, the clients seemed to agree that education and training on new methods of apparel making would be in good direction. Clients' demand for good services is good force to bring the

needed changes in the informal fashion industry if the operators want to stay in business.

5.4 Influence of Informal Dressmakers and Tailors Demographic Characteristics on Method Used in Apparel Making

Personal characteristics such as gender, age and education level play a role in skill development. The method used by informal dressmakers and tailors could be influenced by these demographic characteristics. The current study revealed that the gender of the informal fashion designer did not have much influence on their choice of method used in constructing apparel. This was supported by the insignificant Chi-square results (X^2 = 13.78$, p > 0.05)$. Both females and males used more of free-hand cutting than pattern drafting. This finding is in agreement with the study of Obinim and Pongo (2015) who found that the participants used free-hand cutting in making apparel regardless of their gender. This may be to the fact that both females and males were trained the same way in the methods of apparel construction and therefore, their sex orientation did not have any influence on their practice.

With regard to age and method used, the study found one's age influenced the method used for apparel construction. This was supported by the Pearson's Chi-square results of the association between age of dressmakers/tailors and methods used whether freehand cutting or pattern drafting were significant (X^2 = 15.75$, p > 0.05$. It was found that both the young and the older dressmaker and tailors used more of free-hand cutting than pattern drafting. It was observed that the respondents in the low age ranges were more versatile in the use of both methods. This result is not far from the studies of Anokye (2010) and Obinim and Pongo (2015) who found that most youth in the informal fashion industry has some appreciable level of education that tend to help them have some amount of control over the use of constructional methods. This

is an indication of a gradual blend of the pattern drafting and free-hand cutting and more of the former in the future growth of the informal fashion industry.

Level of education is an important area far as apparel construction is concerned. This study revealed that education level of dressmakers and tailors in Koforidua area influenced the method used in apparel construction. This was in line with the Chi-square results of the association between level of education of dressmakers / tailors and methods used whether freehand cutting or pattern drafting were significant (X^2 = 14.85, p < 0.05). None of the respondents without education used pattern drafting while none of the respondents with tertiary education used free-hand cutting. This seemed to be the situation because while the use of free-hand cutting does not involve a lot of computations, pattern drafting required strict adherence to rules in patterns (Foster & Ampong, 2014; Biney-Aidoo et al., 2013). Dressmakers and tailors who had higher education levels used pattern drafting compared to those with lower education levels. Usually, tertiary graduates who were exposed to pattern drafting and other constructional techniques during schooling displayed a lot of self-confidence in the trade than other dressmakers and tailors with lower or no educational background.

Another variable discussed was the influence of informal dressmakers and tailors' use of a particular apparel constructional method as against the method they were trained with. It was revealed that informal dressmakers and tailors who were trained with free-hand cutting method used free-hand cutting (85.9%) in apparel construction. The findings reflected Pearson's Chi-square results of the association which revealed that the type of training dressmakers / tailors had gone through and methods used whether freehand cutting or pattern drafting were significant (X^2 = 16.23, p < 0.05). The finding corroborates with other studies that found that informal dressmakers and tailors preferred to use the method they were trained with in apparel construction

other than trying other methods (Foster & Ampong, 2012). Most of the respondents indicated they were comfortable in the use of free-hand cutting to pattern drafting. This may have resulted from the fact that the former method required less time and used less complex processes. It was concluded that the type of training the respondents received had influence on the methods they were currently using in their trade.

The last demographic that was considered among the dressmakers and tailors was their years of experience and method used. The study found that the respondents with working experience of one to five years more seemed to be using both methods for apparel construction. Further revelation of the study indicated that those with more than 16 years' experience lacked the knowledge on pattern drafting. This was consistent with the Pearson's Chi-square results of the association between years of experience of dressmakers / tailors and methods used whether freehand cutting or pattern drafting were significant ($X^2 = 12.17,\ p < 0.05$). This could be related to the fact that the most experienced informal dressmakers and tailors missed the opportunity of being exposed to some of the current methods such as the use of patterns in apparel making. It was concluded that one's working experience as dressmaker or tailor had some influence on the use of a particular method which may be due to the level of exposure and readiness to pick new knowledge.

5.4.1 Implication of Influence of Demographic Characteristics on Method Used in Apparel Making

Type of training was a major determinant of the type of method used in apparel construction among the informal dressmakers and tailors. This was as a result of replicating effects which emanated from the method they were trained with. The

informal dressmakers and tailors with higher education level used pattern drafting compared to those with lower educational level.

Education and effective training could be used to partially integrate patterns into free-hand cutting gradually as well as encourage the use of pattern drafting among informal dressmakers and tailors in the Koforidua area. Consequently, effective training targeting the younger and more educated informal dressmakers and tailors could help improve the use of other new methods as they could serve as trainers and consultants among their counterparts.

5.5 Components of Training Manual on Pattern Drafting and Free-Hand Cutting

The training manual would be used to upgrade the skills of informal dressmakers and tailors and their apprentices on the use of pattern drafting in apparel construction taking into consideration their experience in free-hand cutting. The details of findings as stated in chapter four served as guidelines for the development of the manual as phase one on integration of pattern drafting into free-hand cutting. Appendix M shows the phase one of the developed manual.

CHAPTER SIX: SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

6.1 Summary

This chapter gives a summary of the study objectives, methodology, findings and the related discussions. It also provides conclusions from the findings and recommendations for interventions by policy makers and administrators. It then spells out and further suggested research for investigation. The study sought to examine the influence of demographic characteristics on the method of apparel construction adopted and the outcome apparel. The study employed a descriptive survey study utilizing both qualitative and quantitative techniques. The data was analysed using descriptive statistics and Chi-square while thematic analysis was employed on qualitative data analysis.

6.1.1 Research Objectives
The following objectives were set to guide the study:

i. To establish the level of education, type of training, years of experience, age and gender of informal dressmakers, tailors and their apprentices in Koforidua area of Ghana.

ii. To compare fit when apparel is constructed with the use of pattern drafting and free-hand cutting technique among informal dressmakers and tailors.

iii. To assess style modification when apparel is constructed using pattern drafting and free-hand cutting techniques among informal dressmakers and tailors.

iv. To determine views of executives of the association, apprentices and clients on fit of apparel made using pattern drafting and free-hand cutting techniques.

v. To establish the extent to which demographic characteristics of informal dressmakers and tailors that can influence the use of pattern drafting and free-hand cutting in apparel making.

vi. To generate information and guidelines that would be used to develop training manual on pattern drafting and free-hand cutting for informal dressmakers and tailors.

6.1.2 Hypothesis Testing

The test of hypothesis was done and the results were:

i. The study accepted the null hypothesis that there was no significant relationship between gender and the method used to make apparel.

ii. The study rejected the null hypothesis that there was no significant relationship between age and method used to make apparel.

iii. The study rejected the null hypothesis that there was no significant relationship between level of education and method used to make apparel.

iv. The study rejected the null hypothesis that there is no significant relationship between type of training and method used to make apparel.

v. The study rejected the null hypothesis that there is no significant between years of working experience and method used to make apparel.

6.1.3 Methodology

A cross-sectional descriptive survey design was used to collect data from 281 made up apprentices, informal dressmakers, tailors, five judges, and clients sampled from a population of 843 informal dressmakers and tailors in Koforidua area in the Eastern Region of Ghana. Both quantitative and qualitative techniques were adopted in the study. Questionnaires, semi-structured interview schedule, focus group discussion and observation checklist and evaluation criterion were used.

A pre-testing was done using 20 participants to check on the reliability and validity of the instruments. Collected data were analysed using the SPSS Version 20. The quantitative data were summarised using frequencies, figures and tables while qualitative data were analysed based on themes and presented in narratives.

6.2. Major Findings of the Study

6.2.1 Demographic Characteristics of Apprentices, Informal Dressmakers and Tailors

The first objective sought to find out the demographics of the apprentices and informal dressmakers and tailors. The study found that there were more females than males pursuing apprenticeship training in dressmaking and tailoring in Koforidua area. It was also found that majority of the apprentices were below 20 years. It was found most of the respondents had a junior high school education with a few who had no education. The apprentices received training on free-hand cutting method while a few were privileged to be trained with both methods. With regard to the number of years in training, most of them had been in apprenticeship training for more than a year. The dressmakers and tailors were aged between 21 and above 41 years. It was revealed that most respondents were holders of junior high school certificate with a few who had no education and tertiary education respectively.

In addition, most of the dressmakers and tailors were trained in free-hand cutting as opposed to both methods. The type of training used in teaching the apprentices was mainly free-hand cutting. Besides, the respondents had working experience ranging between one and 16 years and above

6.2.2 Apparel Evaluation on Fit of apparel

The focus of the second objective was to compare fit when apparel was made with pattern drafting and free-hand cutting. The apparel sewn with free-hand cutting

techniques had peculiar problems such as puckering at the back, neck too high, waistline dropped, shoulder line too long and sagging at the back of the blouse, extra fullness at the abdomen and loose waist. Apparently, the apparel that were sewn with pattern were able to control some of these faults realized from the free-hand cutting. Though the pattern drafted apparel had some errors such as sagging at the back of a blouse and nape to waist being longer than required, there were great disparities on the fit of apparel made using pattern drafting and free-hand cutting techniques among informal dressmakers and tailors in apparel construction in Ghana. The apparel made using patterning drafting was seen to have a better fit.

6.2.3 Style Modification

The third objective aimed at comparing style modification when apparel was made with pattern drafting and free-hand cutting. Styles that were considered were the modification ladies blouses and skirts. The findings revealed that pattern drafting gave room to modification of styles into unique designs than cutting directly on the fabric. The motifs in the apparel, panel shaping and positioning, and flare peplum modifications came out better with pattern drafting on the bust, waist and hips. However, there were no differences in areas such as length of sleeves, skirts, blouses and trousers for both methods.

6.2.4 Views of Executive Members of the Association, Apprentices and Clients on Fit and Style Modification Using Pattern Drafting and Free-Hand Cutting

The focus of the fourth objective was to seek the views of the executive members of the association, the apprentices and the clients using both quantitative and qualitative methods. The study established that all the respondents were of the view that apparel constructed using pattern drafting had better fit and good style modification features. In particular, the apprentices agreed that the use of pattern drafting ensured fit,

improved aesthetic nature of apparel, ensure even fullness and created comfort in wearing. Also, it facilitated the variation and modification of styles, ensured clients satisfaction and showed similar features of ready-made new clothes.

The executive members confirmed that most of the members used free-hand cutting in the training of the apprentices and therefore were of the view that there was the need to review their training syllabus to incorporate pattern drafting skills. Findings from the study showed that clients were more concerned with apparel quality fit than anything from their service providers.

The clients were aware of the methods employed by their fashion designers and had experienced some situations where they had rejected poorly made clothes. They also called for the education of the informal dressmakers and tailors to improve their skills to enable them to sew apparel that would look similar to ready-made new clothes.

6.2.5 Influence of Dressmakers and Tailors' Demographic Characteristics on Method Used

The fifth objective sought to establish the influence of the demographic characteristics of informal dressmakers, tailors and methods. Gender, age, level of education, type of training received, type of training used in teaching apprentices and number of years of experience of dressmakers and tailors. These demographics were analysed with the aim of cross-checking to find if any of them influenced the respondents' use of pattern drafting and free-hand cutting techniques in apparel construction. The findings revealed the gender of the respondents had no influence on the methods used in apparel construction. However, the study found that type of training received, level of education, age, and number of years of working experience influenced the methods used by the respondents. This was in line with Pearson's Chi-square results which revealed the association between years of experience of dressmakers / tailors and

methods used whether freehand cutting or pattern drafting were significant (X^2 = 12.17, $p < 0.05$). This suggested that one's working experience as dressmaker or tailor had some influence on the use of a particular method. Additionally, Pearson's Chi-square results of the association between gender of dressmakers/tailors and methods used whether freehand cutting or pattern drafting were not significant (X^2 = 13.78, $p > 0.05$). This result meant that the gender of the informal dressmakers and tailors had no association with the type of methods they used. In other words, gender was not an influence on the methods dressmakers and tailors used when constructing apparels. The study revealed that gender had no significant influence on the choice of method of apparel construction. Further, it was revealed that Pearson's Chi-square results of the association between age of dressmakers/tailors and methods used either freehand cutting or pattern drafting were significant (X^2 = 15.75, $p > 0.05$) demonstrating that, age could influence the method used by dressmakers and tailors.

Further results showed that Chi-square results for association between level of education of dressmakers / tailors and methods used whether freehand cutting or pattern drafting were significant (X^2 = 14.85, $p < 0.05$). This suggested that education had some influence on the method used in apparel construction. Respondents with a low level of education used free-hand cutting most, those with higher education used only pattern drafting or both. Also, Pearson's Chi-square which revealed the association between type of training dressmakers / tailors had gone through and methods used whether freehand cutting or pattern drafting were significant (X^2 = 16.23, $p < 0.05$). This demonstrated that, type of training and methods used by dressmakers and tailors could be influenced by type of training.

6.2.6 Component of Training Manual on Pattern Drafting and Free-Hand Cutting for Informal Dressmaker and Tailors

The last objective of the study sought to generate information and guidelines for a training manual for informal dressmakers and tailors. The following were among some areas that were incorporated in the training manual: differences between pattern drafting and free-hand cutting, position and processes in taking and recording of body measurements accurately, pattern drafting instructions and symbols, integrating of pattern drafting into free-hand cutting to draft the bodice block as phase one for the manual.

6.3 Conclusions

The following conclusions were made based on the findings of the study.

   i. Most of the apprentices were below 20 years and had acquired junior high school certificate.

  ii. There were more females than males among apprentices, dressmakers and tailors.

 iii. Most of the informal dressmakers and tailors had been trained in and practised free-hand cutting more than pattern drafting.

 iv. The dressmakers and tailors were aged between 21 and 41years and had working experiences ranging from one to sixteen years.

  v. Pattern drafting was a better method for generating more variations in styles during apparel construction.

 vi. Clients were willing to spend more if they were satisfied with the style and fit of apparel.

 vii. Level of education, age, type of training received and method of training influenced method used in apparel construction by the informal dressmakers and tailors.

viii.   Informal dressmakers and tailors using pattern drafting manual will improve their apparel making skills.

6.4 Recommendations

Based on the conclusions made from the study, the following recommendations are made for policy and practice.

6.4.1 Recommendations for Policy

The study made the following recommendation for policy:

i.   The Informal Dressmakers and Tailors Association in Koforidua area should encourage more males to enrol into the informal fashion industry.

ii.   The IDTA should enact curricula to incorporate pattern drafting and other methods of apparel construction into the training of apprentices to develop interest in the use of these methods right from the onset.

iii.   The IDTA should increase the minimum entry requirements for apprenticeship training to not less than JHS education as education is related to one's ability to grasps skills involved in the used of patterns.

6.4.2 Recommendations for Practice

i.   Dressmakers and tailors should be encouraged to meet the requirements of their clients by constructing apparel to cater to their fit and style modification preference.

ii.   Dressmakers and tailors should develop guidelines for each technique or method so that they can align to the clients' preference to the fit and style modification of apparel.

6.4.3 Recommendations for Further Research

In conducting this study, the researcher upon a series of interaction with the focus group and other participants, identified that certain information was also needed to be addressed and therefore, recommends for further studies to be carried out.

i. Further research can be carried out to compare the formal and informal training and their influence on apparel fit and style modification in Ghana.

ii. There are factors that contribute lack of pattern drafting skill implementation in apparel construction among informal dressmakers and tailors. Further studies can be conducted to ascertain the causes and suggest solutions to help curb this phenomenon.

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APPENDICES

Appendix A: Questionnaire for the Apprentices of IDT

This questionnaire is meant to collect data on apprentice's use of free-hand cutting and pattern drafting in apparel construction. The responses you provide will be used solely for academic purpose and will be kept confidential.

Section A: Demographic Characteristics

1. Gender   female ( )   male ( )

2. What is your age range? Below 20 yrs ( ) 21 – 30 yrs ( )   31 – 40 years ( )

   41yrs and above ( )

3. What is your highest level of education?

   No education ( )   Primary ( )   JHS ( )   SHS ( )   Tertiary ( )

4. What type of apparel constructional method is being used in training by your

   master

   Pattern drafting ( )   Free-handing cutting ( )   both ( )

5. How many years have you been as an apprentice?

   Less than a year ( )   1 – 2years ( )   3 – 4 years ( )

6. Does your formal education have link with this profession? Yes ( ) No ( )

Section B: Use of pattern drafting and free-handing cutting in apparel making

Please indicate by tick (√) Yes or No with statements on the use of pattern drafting
and free-hand cutting in apparel construction

7. a) Which apparel construction method are you being trained with?

   Pattern drafting ( )   Free-handing cutting ( )   Both ( )

(b) Please indicate by tick (√) you strongly agree (SA), agree (A), disagree (D) or

strongly disagree (SD) with statements on the use of pattern drafting and free-hand

cutting in apparel construction.

Pattern drafting

Strong Agree (SA) Agree (A) Strongly Disagree (SD) Disagree (D)

Statement	SA	A	D	SD
1. It is necessary to have knowledge on pattern drafting				
2. Pattern drafting skills is beneficial in apparel making				
3. I find pattern drafting challenging				
4. The use of pattern drafting is interesting in apparel construction				
5. The use of pattern drafting makes the apparel unique				

Free-hand Cutting

Strong Agree (SA) Agree (A) Strongly Disagree (SD) Disagree (D)

Statement	SA	A	D	SD
1. It is necessary to have knowledge on free-hand cutting.				
2. Free-hand cutting skills is beneficial in apparel making				
3. I find free-hand cutting challenging				
4. The use of free-hand cutting is interesting in apparel construction				
5. The use of free-hand cutting makes the apparel unique				

Fit of Apparel by Pattern Drafting

Strong Agree (SA) Agree (A) Strongly Disagree (SD) Disagree (D)

Statement	SA	A	D	SD
1. Pattern drafting contributes to perfect fit of an apparel				
2. Pattern drafting perfectly changes two-dimensional object into model figure (3D object)				
3. Pattern drafting takes care of fullness and finishing in all stages of construction to enhance perfect fit				
4. The outward and inward appearance of apparel made by pattern drafting fit best than free-hand cutting?				
5. It is generally perceived that apparel made from pattern drafting feel more comfortable in wearing than any other method				

Fit of Apparel by Free-hand Cutting

Strong Agree (SA) Agree (A) Strongly Disagree (SD) Disagree (D)

Statement	SA	A	D	SD
1. Free-hand cutting contributes to perfect fit of an apparel				
2. Free-hand cutting perfectly changes two-dimensional object into model figure (3D object)				
3. Free-hand cutting takes care of fullness and finishing in all stages of construction to enhance perfect fit				
4. Do you agree with the perception that the outward and inward appearance of apparel made free-hand cutting fit best than pattern drafting				
5. It is generally perceived that apparel made from free-hand cutting feel more comfortable in wearing than any other method				

Style Modification by Pattern Drafting

Strong Agree (SA) Agree (A) Strongly Disagree (SD) Disagree (D)

Statement	SA	A	D	SD
1. Pattern drafting facilitate variations of styles				
2. Skills on pattern drafting allows more room for future modification of style				
3. Clients appreciate services provided by the use of pattern drafting than any method				
4. Use of pattern drafting gives special features to apparel				
5. Apparel made from pattern drafting has similarities to ready-made new clothes				

Style Modification by Free-hand Cutting

Strong Agree (SA) Agree (A) Not Sure (NS) Strongly Disagree (SD) Disagree (D)

Statement	SA	A	D	SD
1. Free-hand cutting facilitate variations of styles				
2. Skills on free-hand cutting allows more room for future modification of style				
3. Clients appreciate services provided by the use of free-hand cutting than any method				
4. Use of free-hand cutting gives special features to apparel				
5. Apparel made from free-hand cutting has similarities to ready-made new clothes				

Thank you for your time and good information you have provided

Appendix B: Questionnaire for Informal Dressmakers and Tailors (Masters)

This questionnaire is meant to collect data on dressmakers and tailors use of free-hand cutting and pattern drafting in apparel construction. The responses you provide will be used solely for academic purpose and will be kept confidential.

SECTION A: Demographics

1. What is your gender?   Female ( )   Male ( )

2. What is your age range? Below 20 yrs (   )   21 – 30 yrs ( )   31 – 40 years ( )
   41yrs and above ( )

3. What is your highest level of education?
   No education ( )   Primary ( )   JHS ( ) SHS ( )   Tertiary ( )

4. What type of apparel constructional method were you trained with?
   Pattern drafting ( )   Free-handing cutting ( )   Both ( )

5. How many years have you been sewing?
   1 – 5years ( )   6 – 10 years ( )   11 – 15 years ( )   16years and
   above ( )

6. What type of training are you giving to your apprentices?
   Pattern drafting ( )   Free-handing cutting ( )   Both ( )

SECTION B:

Influence of demographics of informal dressmakers and tailors on methods used

1. What is your gender? Please indicate…………….

2. Which apparel construction method are you comfortable in using?
   Pattern drafting ( )   Free-handing cutting ( )   Both ( )

3. Please indicate your age range …………………..

4. Which apparel construction method are you comfortable in using?
   Pattern drafting ( )   Free-handing cutting ( )   Both ( )

5. What is your level of education? Please indicate………………

6. Which apparel construction method are you comfortable in using
   Pattern drafting ( )   Free-handing cutting ( ) Both ( )

7. What type of method did your master used during your training as an apprentice?

   Pattern drafting ( )   Free-handing cutting ( ) Both ( )

8. What type of method are you using currently as a dressmaker of tailor?

   Pattern drafting ( )   Free-handing cutting ( ) Both ( )

9. What is your number of years of experience as a dressmaker of tailor? Please indicate……………………

10. Which apparel construction method are you comfortable in using

   Pattern drafting ( )   Free-handing cutting ( ) Both ( )

Please indicate any additional suggestions you have. _____

_____

_____

_____

Thank you for your time and good information you have provided

Appendix C: Interview Guide for Executives of Informal Dressmakers and Tailors

1. What method do dressmakers and tailors like to use most in sewing apparel?

   _____

2. Do you have any idea of other methods?_____

3. What is your preferred method and why?_____

   _____

4. What is the scope of the training for apprentices?_____

   _____

5. Does education level influence the type of method used?_____

   _____

6. What is your opinion about apparel sewn by the IDT as compared to pattern drafting and ready-made new cloths? _____

   _____

7. Do you have any other contribution?_____

   _____

   Thank you for your time and good information you have provided

Appendix D: Focus Group Discussion Guide for Clients of Informal Dressmakers and Tailors

Section A: Demographic information

1. Age: 18-25 (   )   26-30 (   )   31-35 (   ) 36 and above (   )
2. Gender: Male   (   )   Female (   )

Section B: Constructional Method of Apparel

3. Tell me the constructional method use by your dressmaker or tailors in apparel making? _____

4. What other constructional methods do you know used by your designers?

   _____

5. Would you like your dressmaker or tailor to use another method in addition to what they already know and why?_____

Section C: Style Modification

6. How many designers do you have? _____

7. Any reason, please explain?   _____

8. Why do sometime clients reject apparel made by their dressmakers or tailors?

   _____

9. What do you think is the cause? _____

10. In your own view what would you suggest to be done? _____

   _____

Section D: Perception on fit comparing free-hand cutting and pattern drafting

11. How do you see the general outlook of the final apparel made by your dressmaker or tailor?_____

12. Comparing apparel made by your designers and that of already-made new clothes, what is so unique about the two?_____

13. How many years have you been sewing with your dressmaker or tailor?

   _____

   _____

14. What are your general conclusion about your designer(s)? _____

   _____

Thank you for your time and good information you have provided

Appendix E: Observation Checklist for Steps in Construction of the selected apparel

Good=50-100   Poor= 01-49

Areas to observe	Sheath dress		Bustier blouse		Long skirt		Ladies trousers		Peplum blouse	
	Good	Poor	Good	Poor	Good	Poor	Good	Poor	Good	Poor
MEASUREMENT TAKEN										
Shoulder										
Waist										
Hips										
Nape to waist										
Sleeve Bicep										
Sleeve length										
Full length										
Blouse length										
Ankle										
Thighs										
DESIGN /STYLE ANALYSIS										
Interpretation of styles										
Grain line										
Crotch										
Darting manipulation										
Panel positioning										
PREPARATION OF FABRIC FOR CUTTING										
Folding of fabric										
Ease of fullness										
Marking out design										
Layout										
ASSEMBLING OF APPAREL										
Fixing of Fastenings										
Types of stitches used										
Types of seam										
Seam allowance										

Appendix F: Apparel Evaluation Criterion for Judges

Checklist for Selected Apparel Sheath Dress, Bustier Blouse, Long Panel Skirt, Ladies Trousers and Peplum Blouse

Role: Official ( )   Tailor ( )   Dressmaker ( )

Type of method				
Fit Point	**Observation**	**Pattern drafting Fit problem**	**Free-hand cutting Fit problem**	**Remarks**
Neckline	Too low	[　]	[　]	
	Too high	[　]	[　]	
	No problem on fit	[　]	[　]	
Shoulder	Too far away from neck	[　]	[　]	
	Too close to the neck	[　]	[　]	
	Too sloppy	[　]	[　]	
	No Problem on fit	[　]	[　]	
Bust	Too tight	[　]	[　]	
	Too loose	[　]	[　]	
	Off the fullest part	[　]	[　]	
	No Problem on fit	[　]	[　]	
Waist	Waistline raised	[　]	[　]	
	Waistline drop	[　]	[　]	
	Sagging at the back	[　]	[　]	
	No Problem on fit	[　]	[　]	
Nape to Waist	Too high	[　]	[　]	
	Too low	[　]	[　]	
	No Problem on fit	[　]	[　]	
Dart	Wrong location	[　]	[　]	
	Too long	[　]	[　]	
	Too short	[　]	[　]	
	No Problem on fit	[　]	[　]	
Hips	Too tight	[　]	[　]	
	Too loose	[　]	[　]	
	Not on the fullest part	[　]	[　]	
	No Problem on fit	[　]	[　]	
Full length	Too short	[　]	[　]	
	Too long	[　]	[　]	
	No Problem on fit	[　]	[　]	
Hem level	Too sloppy	[　]	[　]	
	Too cru curd	[　]	[　]	
	No Problem on fit	[　]	[　]	
Sleeve length	Too tight	[　]	[　]	
	Too loose	[　]	[　]	
	Centre not notched	[　]	[　]	
	No Problem on fit	[　]	[　]	
Sleeve Bicep (Around arm)	Too tight	[　]	[　]	
	Too loose	[　]	[　]	
	No Problem on fit	[　]	[　]	
Arm scye (Armhole)	Too tight	[　]	[　]	
	Too loose	[　]	[　]	
	No Problem on fit	[　]	[　]	

Appendix G: Participant Information and Consent Letter

Researcher's Contact:
Dymphna Bakker-Edoh (PhD. Student)
Department of Fashion Design and Marketing
Kenyatta University
P. O. Box 43844-00100 Nairobi, Kenya
Email: dymphnaedoh@gmail.com

Cell phone: +233-244513135

INTRODUCTION

I am a Ph.D. student of Kenyatta University in the Department of Fashion Design and Marketing. I am currently conducting a research on the use of free-hand cutting and pattern drafting in apparel construction among informal dressmakers and tailors in the Koforidua Municipality. You are being kindly requested to participate in this study because you are part of the association of which the study is concerned. Your participation is wholly voluntary. Please, truthfully answer the set of questions and be informed that all responses will be given the utmost confidentiality and anonymity and used only for the purpose of the study.

DECLARATION

I understand the purpose and the procedure of this study as stated above and I voluntarily agree to participate. I understand that anytime during the investigation I will freely avail myself or withdraw without jeopardizing any opportunities.

TO BE COMPLETED BY THE INTERVIEWER

I certify that I have read the above consent procedure to the participant.

Signature of Investigator: _____ Date: _____

TO BE COMPLETED BY RESPONDENT

Signature of Respondent: _____ Date: _____

Appendix H: Permission Letter from the Office of the Informal Dressmakers and Tailors Association

GHANA NATIONAL TAILORS & DRESSMARKERS ASSOCIATION

P. O. BOX 1398
KOFORIDUA.
Tel.: +233 (0) 24 453 2262

Bankers:

REGIONAL OFFICES:

Our Ref _____   Your Ref: _____

Date 23/9/2015

● BOLGA

● WA

● TEMALE

THE REGIONAL COORDINATOR
GHANA NATIONAL TAILORS AND DRRESSMAKERS ASSOCIATION
KOFORIDUA
EASTERN REGION.

Dear Sir,

● SUNYANI

RE: PERMISSION TO COLLECT RESEACH DATA
Following your letter from your university seeking for authority to carry out research on fit and style modification of apparel using pattern drafting and free-hand cutting.
I am pleased to inform you that, you have been authorized to carry on with the said research among Ghana National Tailors and Dressmakers Association within the selected five zones in Koforidua Municipalities.

● KUMASI

Mrs. Dymphna Bakker-Edoh is a postgraduate student from Kenyatta University, Kenya conducting a research on "Fit and Style modification of apparel among the informal Tailors and Dressmakers in Ghana.

● KOFORIDUA

Kindly extend to her your possible assistance.

● HO

● TEMA
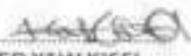
ALFRED YAW KISSI
(Regional Administrator)
Eastern Region

CC: THE REGIONAL COORDINATOR
IDTA
EASTERN REGION

● ACCRA

THE ZONAL COORDINATORS
IDTA

● CAPE COAST

DYMPHNA BAKKER-EDOH

● SEKONDAH

Appendix I: Letter of Introduction to the Office of Dressmakers and Tailors Association

<u>LETTER OF INTRODUCTION TO THE OFFICE OF</u>
<u>GHANA NATIONAL TAILORS AND DRESSMAKERS ASSOCIATION</u>

DYMPHNA BAKKER-EDOH
DEPARTMENT OF FASHION DESIGN
AND MARKETING
KENYATTA UNIVERSITY
P. O. BOX 43844-00100
NAIROBI, KENYA.

THE PRESIDENT
GHANA NATIONAL TAILORS AND DRESSMAKERS ASSOCIATION
KOFORIDUA MUNICIPALITY
KOFORIDUA.

Dear Sir/Madam,

<u>REF: INTRODUCTION</u>

I am a PhD student at Kenyatta University in the department of Fashion Design and Marketing. I am carrying out research on Fit and Style Modification on the use of Pattern Drafting and Freehand cutting in apparel construction among Ghana's informal tailors and dressmakers association in Koforidua Municipality. In the study, the term dress/garment will be refer to as apparel.

This letter is to inform the executive and all the members of the association about the researcher's intention and the purpose of the study. It is hoped that through this study, the association will gain more in-depth understanding of pattern techniques in apparel construction, and give to their clients style variations, good fit and quality of a finished product to maximize on your business opportunities to meet the challenges in the global fashion world.

Thank you

Dymphna Bakker-Edoh.

Appendix J: Approval Letter for Data Collection From Graduate School

KENYATTA UNIVERSITY
GRADUATE SCHOOL

E-mail: kubps@yahoo.com
dean-graduate@ku.ac.ke
Website: www.ku.ac.ke

P.O. Box 43844, 00100
NAIROBI, KENYA
Tel. 8710901 Ext. 57550

Our Ref: H87F/27659/14

Date: 2nd September, 2016

The President,
Ghana Dressmakers & Tailors Association
Koforidua Municipality
KOFIRIDUA/GHANA

Dear Sir/Madam,

RE: RESEARCH AUTHORIZATION FOR MS.DYMPHNA B. EDOH - REG. NO. H87F/27659/14

I write to introduce Ms. Edoh who is a Postgraduate Student of this University. She is registered for a Ph.D. degree programme in the **Department of Fashion Design & Marketing** in the School of Applied Human Sciences.

Ms. Edoh intends to conduct research for Ph.D. thesis entitled, **"Fit and Style Modification of Apparel using Pattern Drafting and Free-Hand Cutting among Informal Dressmakers and Tailors in Ghana"**.

Any assistance given will be highly appreciated.

Yours

LUCY N. MBAABU
FOR DEAN, GRADUATE SCHOOL

RM/cno

Appendix K: Points to Note When Taking Measurements

C.F.
Center Front

C.B.
Center Back

Shoulder

Neck size
Armscye depth

C - Chest

Back width

Bust

Top arm

Front shoulder
to waist

Nape to
waist

W - Waist

Waist to hip
Sleeve length

Wrist

H - Hips

Body rise

Crutch depth
line

Waist to knee

Waist to floor

knee line

S - Side

High ankle
Ankle
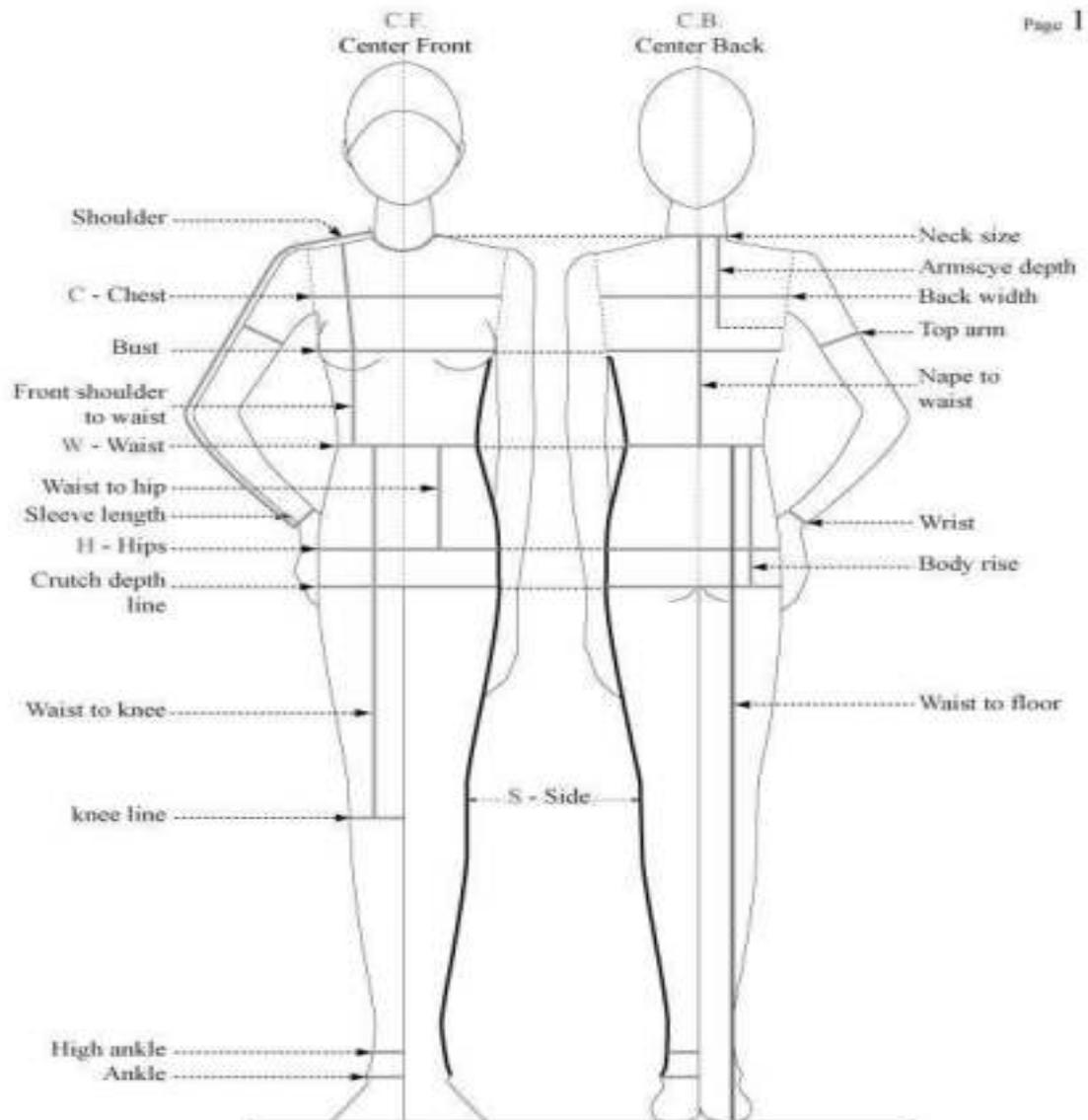
Source: Aldrich, (2014).

Appendix L: Map showing the Study Area Koforidua, Ghana

Appendix M: Training Manual for Dressmakers and Tailors

CUT TO FIT

Integrating Pattern Drafting into Freehand Cutting

A Training Manual
for
Dressmakers & Tailors

PREFACE

Technology is always changing, and so it is necessary to be abreast with the current changing trend in the field of fashion. The generation of enough revenue for any country depends on its industries, both formal and informal. In this vein, fashion designers need to upgrade their skills and constructional methods in coming out with apparel that meet the preferences of their clients and the standards of the global fashion industry.

This manual is a guidebook for all who have interest in sewing. It most especially focuses on informal dressmakers and tailors who may need to advance their skills and market their products in the fashion industry globally. In fact, it gives lots of insight on ways to integrate pattern drafting into free-hand or drafting in direct cutting in the simplest way.

Free-hand cutting is one of the methods used in cutting out apparels by practitioners in both formal and small scale sector of the fashion industry. In schools normally, the syllabus moots how to sew with commercial patterns or self-made patterns but there is the need to integrate other methods in formal and informal fashion set-ups.

Many researchers have been writing books and publications on methods of making apparel but currently only few are written on free-hand cutting. Since there is lack of information on free-hand cutting for teaching especially among informal sectors it does not make them explore in the training. The purpose of this manual is to integrate pattern drafting into free-hand method in the simplest way. This will help the informal sector of the fashion industry become more employable as they improve on their skills to meet the standard of the global market as well making the up- coming designers appreciate and enjoy sewing.

The manual will be used in schools by integrating teaching of pattern drafting into free-hand cutting in apparel construction from primary schools to tertiary levels. It will help boost up students' skills at any stage of learning the trade be it formal or informal. Furthermore, this document may be adopted by western fashion designers who may like to incorporate Ghanaian or African way of making apparel into their designs. This is because the manual has aspects of Ghanaian or African styles and adaptions using pattern drafting and free-hand cutting.

INTRODUCTION

The mere fact that you can cut and sew is not enough. It is very much important to know how to select styles or designs for your clients and the right pattern as well as the cut and how to assemble it on a figure.

Many clients or people have certain apparel expectations or believed about how people in a different roles and levels should dress which represent or show their status. In the same vein the choice of styles, fabric, colours and the cut must also be taken into consideration in every step of designing to enable the finished products look well on the wearer, attract many as well as meet the standard of global market.

This book has been planned to help every designers just to do simply that. It takes you through step by step how to come out with the integration of pattern drafting into free-hand cutting in apparel construction to produce quality apparel for client's satisfaction. Novice will find out this simple outlined pattern drafting into free-hand cutting methods very interesting and put their neophyte mind to turn out into professional-looking apparel. Again, more experienced dressmakers and tailors will welcome details on this drafting integration into free-hand constructional techniques. Even those who seldom sew will still find this gen very useful as more advanced designers will also discover more complex designs.

It is said that sewing can be very exciting, enjoyable and easy to do if you carefully explore on one detail at a time. You can simply make it, just keep the fundamental steps in mind you will appreciate being able to work. Make for yourself the outcomes of your inspiration, vision and creativity with pride.

UNIT ONE: DEFINITION OF TOOLS AND EQUIPMENT USED IN APPAREL CONSTRUCTION

Specific objective:

At the end of the study, the participant/ learner will be able to:

1. Know types of tools used in apparel construction

2. Know types of equipment used in apparel construction

3. Apply and use tools and equipment in apparel construction

4. Care, maintenance and storage of tools and equipment

Introduction

In apparel construction tools are defined as the smaller items or those items that can easily be move about to achieve a goal. In other words, equipment is those big items that cannot be move about easily. Those tools and equipment come in different sizes and have their own specifications in use. Every tailor or dressmaker needs quit a number of tools and equipment to work with and these should be of a good quality enough to stand the pressure in the industry. There are lots and lots of tools and equipment in dressmaker's room but some are very essential. As a beginner thinks of making apparel there is the need to think of essential tools and equipment. Again, it is important to invest in quality tools and equipment in order to ensure quality of end products.

Example of essential tools

Scissors, tape measure, needles, sewing machine, tacking threads, tailors chalk.

Example of essential equipment:

Sewing machine, meter stick

These tools and equipment in garment making are again grouped into the following categories

Measuring tools, marking out tools and equipment, cutting out tools and equipment, sewing tools and equipment, pressing tools and equipment, and making-up tools.

MEASURING TOOLS AND EQUIPMENT;

Always remember smaller items are tools and the bigger ones are equipment.

Measuring tools in clothing technology includes tape measure, meter rule/yard stick and T square among others.

Measuring equipment includes; Hem gauge, hem marker/skirt marker.

MEASURING TOOLS

Tape measure

This is used in measuring lengths. A good measuring tape should be clearly marked on both sides in centimetres on one side and inches on the other. It should be rolled down and be kept in its case when not in use. Avoid cuts, creases and pinholes that could alter accuracy of the measurements

Meter rule or meter stick

This is used in measuring long straight lengths as well as marking bottom hems. It is also used for checking the straight grain when laying out patterns on fabrics. It may be wooden, metallic or plastic.
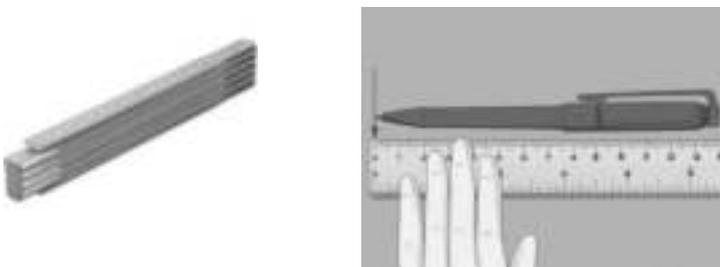
MARKING EQUIPMENT

Hem marker/ skirt marker

The hem or skirt marker mostly comes in aluminium rod mostly stands on a plastic. It is used to ensure that perfect hems are achieved. It mostly comes with a ruler on the arm measuring 90cm (24 inches), a clump on the rod and an attached chalk puffer. Powered chalk is puffed out onto the apparel in a thin line at the required hem as the arm of the dummy is being turned around. This is very useful when there is no one to help in pinning up a bigger hem.
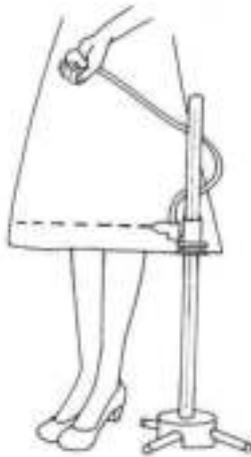
Squares and T square

This is used to check and also straightening ends and grain of fabrics. It is also used to square vertical and horizontal lines when drafting patterns.
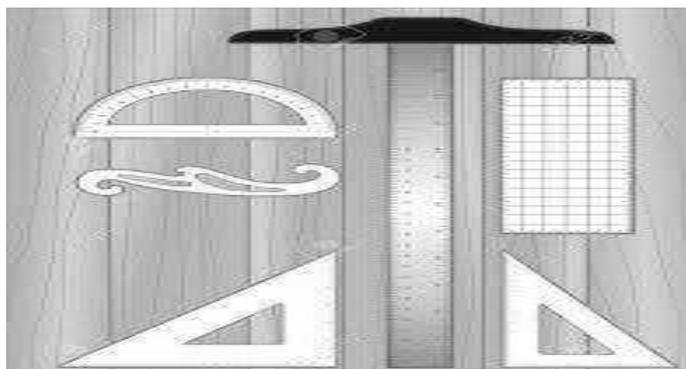
MARKING TOOLS

Tailor's chalk

This is used for marking out details of designs on fabric and also for transferring patterns marking and alterations on fabrics. It can be found in several colours and shapes or pencils.

Tracing wheel; this is use for marking or transferring patterns unto fabric. They mostly work together with dressmakers' carbon papers. Tracing wheel can be found in metal, plastics or wood handles. They also come consisting of shaped shaft often of steel at end of the twin. The design outline is usually traced onto thin cloth, tracing paper or tracing tissue. The outward points of the rowel now form a series of holes into the fabric underneath. These holes are then joined with dressmakers pencil to make it more visible to work with.
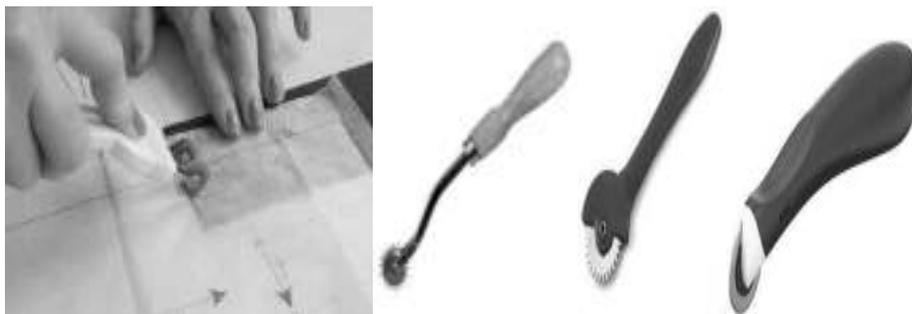
CUTTING OUT TOOLS:

These include paper cutting out scissors, shears clippers/snipers, pinking shears, buttonhole scissors, seam rippers/stitch ripper.

Paper cutting scissors

This is a small sized scissors normally for cutting papers as the name suggest. They come in different sizes but mostly approximately 7.5 cm long.

Cutting out scissors or Shears

A good cutting out scissors or shear should be 20-25 cm and should have one side of blade resting flat on the cutting out surface Shears are exclusively for cutting fabric. Left handed cutters should buy left handed shears. The handles are of two different sizes with one of the handles a bit bigger which fit the thumb and fingers.

Clippers/snipers

These are mostly use for snipping into curves and cutting sewing threads when machine stitching. It can be found in deferent shapes.

Pinking shears; this have saw-toothed blades, they are purposely used to trim or neaten seam allowances or edges on non-fraying fabrics. They are also useful for neatening raw edges of samples seams of garments.

Button hole scissors

This has adjustable screw set to cut specific shape or sizes of buttonholes.
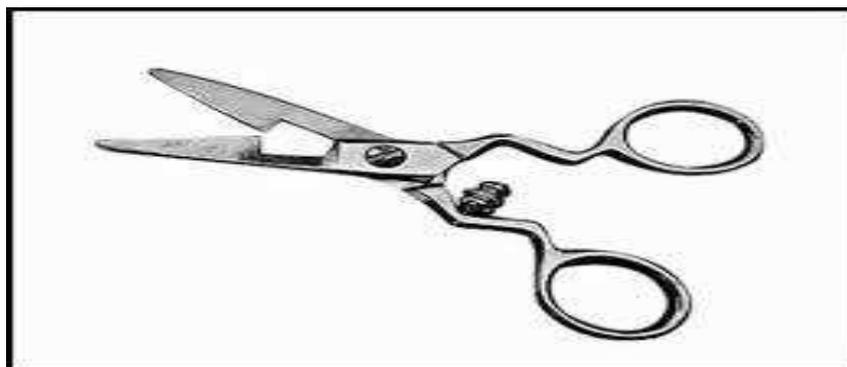
Seam ripper/ stitch ripper

This is a sharp pointed y shaped tool useful for removing unwanted stitches and can also be used to cut buttonholes but its main purpose is for ripping off unwanted stiches.
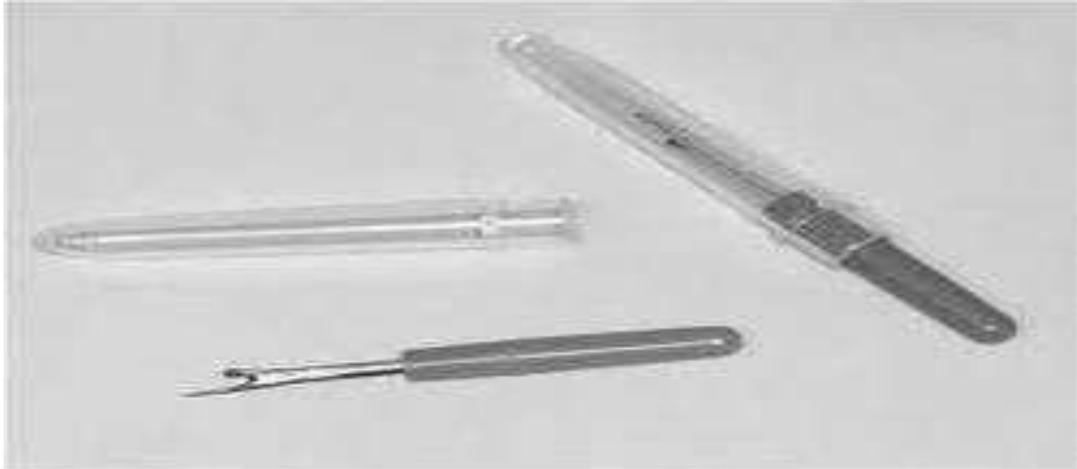
MAKING-UP TOOLS AND EQUIPMENT

These include: Sewing Equipment, Special Needles and Sewing Threads
Making-up Equipment
Sewing machine normally comes in varieties of hand, treadle or electric

Cutting out table or Work table: The height should be comfortable enough to sit and stand at it. The surface should also be smooth enough to enable smooth cutting. It should not be rough as it can scratch and distort the fabric. Again, the table should not too be smooth as fabrics can easily slip off during cutting.

Making-up Tools

Special hand needles: The sizes and shapes of the needle depend on the worker as well as the purposes.

Types of hand needles; Betweens, Sharps, Milliner, Darners, Eyelet, Crewel, Beading Needles
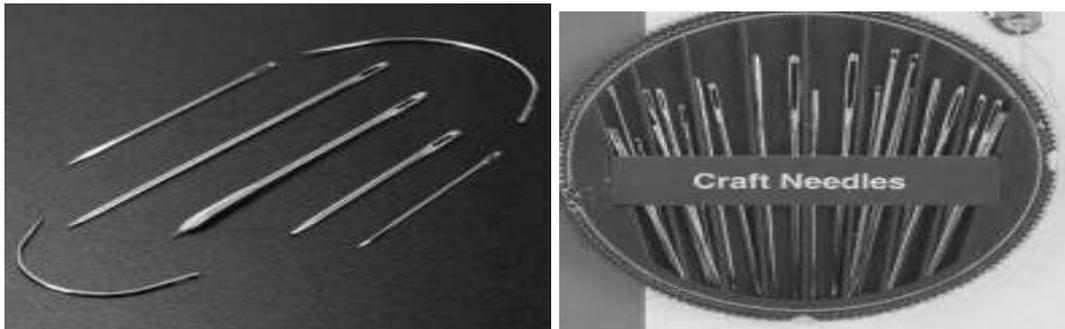
*Betweens***:** these are mostly shorter than sharps and have small eye used for fine sewing

Sharps: these are long oval eyed needles and can be obtained in many sizes.

Milliner: these are long and round eyed thin needles. It is comfortably used for basting, hand gathering or shirring. As the name suggest milliners finds it comfortable to work with during hat making.

Darners: this is a long needle which enables thread to be carried from one side to another. They come in various sizes.

Eyelet: the eye is long enough to take wool or thick cotton thread.

Crewel: these are mostly used for embroidery. The eye is long to take embroidery thread but the length is similar to that of sharps.

Beading needle: this is a straight fine needle with a long eye. As the name suggest it is used for bead making.

Sewing threads

They come in different colours. It is advisable to use a matching thread for the colour of the fabric being work with.

Pin cushions
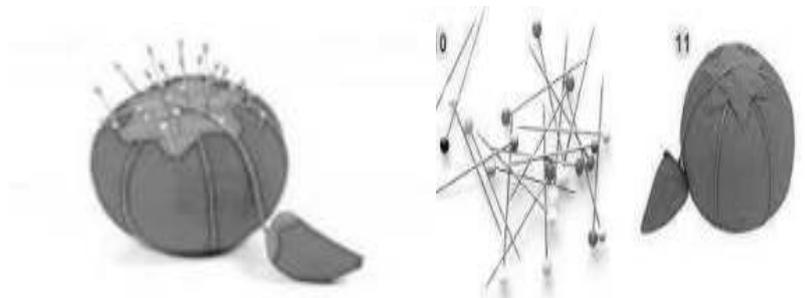
This is use for holding pins and needles to avoid them from getting lost easily. It also helps the worker to work comfortably especially when attached on elastic and put on the left wrist while working.

Dressmakers pin

Pins are long sharp stainless-steel pieces with a stopper on one end. The stopper can be plastics or metal. They are used for holding papers in place when drafting out patterns, also for holding patterns onto fabric especially when cutting out and again for holding garments pieces together when stitching. Pins should always be kept in pin cushion made with stuffing that can prevent it from being blunt or rust and this will allow for safe keeping.
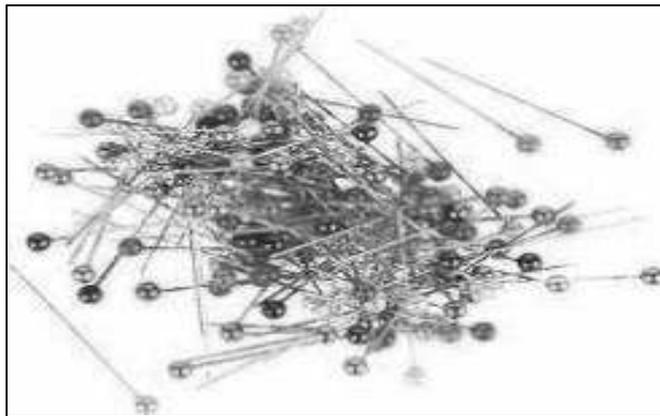
Thimble

This can be bone, plastic, metal, leather or steel. However the most commonly used is steel. Thimbles are mostly used for protecting the middle finger from rubbing off sore when sewing with hand needles.

(1) Bone   (2)Plastic,   (3) Leather,   (4) Steel,

STORAGE EQUIPMENT

Storage space is very essential for storing tools and equipment like, paper patterns, threads, fabrics and finished products. Wardrobes and drawers are most commonly known storage equipment.

Wardrobes

This is mostly used for storing finished garments. It has spaces for keeping folded cloths and spaces for hangs.

Drawers

Deep and shallow drawers are necessary in a clothing workshop for the storage of paper patterns, cut outs garments pieces and unused fabric. Tools and accessories are kept in the drawers.

PRESSING EQUIPMENT; Pressing tool helps to get the best result in apparel making. Examples are, Iron Boxes or Pressing Iron, Sleeve Board, Ironing Board, Seam Roll, Tailors Ham, Clapper or Pounding Block.

Pressing is a process of alternately pressing down and lifting up a heated iron to open seams and details of the apparel during construction process in order words it is used to remove creases which is termed as THE GOLDEN RULE IN SEWING. It is advisable to test the right temperature to the fabric being used. This is deemed important to achieve best results and to avoid damage on fabric.

Iron box

Iron boxes are used for ironing or pressing garments. Iron boxes comes in different types which include charcoal iron, electric dry iron or electric steam iron

Charcoal Iron	**Electric industrial Iron**	**Electric Steam Iron**

Sleeve board; as the name suggests it is specially designed for pressing small shaped parts like sleeves and necklines. It is also best for pressing inside leg seams of trousers and shorts. The sleeve board can be detach or attached to a pressing unit.
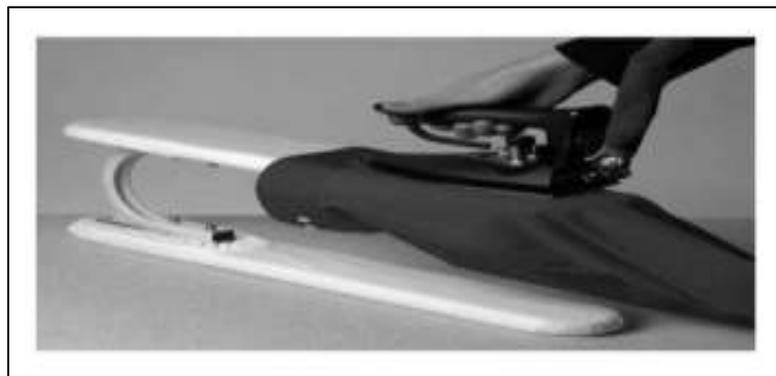
Ironing board or Skirt board; this is an oval padded shaped board. It can be adjustable and mostly comes in wooden or metallic. It is used for pressing purposes with the help of iron box.

Seam roll

This is a pressing aid used in place of a sleeve board. It is ideal for pressing tapered seams and hard to reach areas in apparel. This is done to remove ridge marks in seam allowances. It is usually about 43 cm and 18 inches.

Tailors ham

This is a tightly oval shaped stuffed cushion. It is purposely used for pressing curved seam darts and shaped areas of apparel.

Clapper or pounding block

This comes mostly in wooden block and easily fits in the hand, it is used during sewing. This is purposely used to help flatten out seam of apparel and prevent throw

back heat when pressing adhesive interfacing. Always damp or steam the area to achieve the best results, then press and pound the area using the clapper. This will force the steam and heat to retain in the fabric thus giving it a good smooth and a professional finish to attain the needed skills.

Note: the clapper must be held on spot being pressed for few minute allowing the heat and moisture to settle. Other pressing items include pressing mitt, damping cloth point pressers and pressing sponge.

Pressing sponge; used to remove stains from apparel.

Dapping cloth; used to prevent the apparel being pressed from sheen during pressing.

Revision Questions:

1. Define tools and equipment
2. Give three examples each with illustrations and their names for the following tools and equipment:

   Measuring tools, marking tools, cutting out tools, pressing tools, pressing equipment, sewing equipment

UNIT TWO: UNDERSTANDING PATTERN DRAFTING AND ADAPTATION

INTRODUCTION

Unit Objectives:

At the end of the study the participant/ the learner will be able to:

1. Know type of pattern making.

2. Understand methods of developing patterns.

3. Integrate free-hand cutting into pattern drafting.

4. Apply pattern instructions in pattern drafting.

Introduction: Pattern making involve the following; Free-hand cutting, Pattern Drafting, Draping or Modelling on the standard existing pattern making.

Drafting: is a process of drawing patterns onto paper with accurate body measurements at hand.

Patterns: they are the pieces of paper template from drafting or component of design from drafting. It can also be said that, they are prototype of design from which the parts of apparel are transferred onto fashion fabric for cutting out and assembled.

Basic block pattern: this is mostly known as sloppers which is the starting point or foundation of all types of patterns. This can be prepared by either free-hand, drafting, draping or CAD to a specific body measurements.

Adaptation; this is the process of changing the original style by the use of the basic block.

Pattern adaptation; is the modification of the basic block into variations of new style. This is done by altering and developing the basic block.

Pattern cutting; this is cutting out the drafted pattern pieces for assembling.

METHODS OF DEVELOPING PATTERNS;

Free-hand cutting, Pattern drafting, existing pattern, draping or modelling, CAD and commercial patterns

Free-hand cutting; is a process of marking styles to be cut directly on fabric. Detailed measurement is taken to develop the style details directly on fabric. The cut-out fabric is used to cut out from a paper or muslin and kept as pattern for future use.

Pattern drafting; is a process of using a given measurement to project style details on paper before patterns are traced out onto fabric for cutting out. This is done to enable all mistakes to be corrected before the final apparel is made.

Draping or modelling; is a technique of using measurement of the person concerned with plain muslin step by step on a dummy to come out with the required style.

Existing pattern; this is normally from old apparel which is remove and the pieces are put on a new paper and cut out as fresh pattern.

CAD: Computerized aided design is by feeding the computer with the needed information to come out with the pattern pieces.

Commercial patterns; they are ready–made or bought patterns produce by industries and sometimes some by individuals and sold in stores in large quantities. They sometimes come with the type of styles at the back of the packed envelopes and at times with the description of the type of fabric to be used. These are mostly sold in sizes and with the step by step instructions for sewing.

SOME BRAND NAMES OF COMMERCIAL PATTERNS;

They are; Simplicity, Buttrick, Style, Vogue, Burda and MacCalls

TYPES OF COMMERCIAL PATTERNS

There are two main types of commonly known commercial patterns. They are printed pattern and perforated pattern

✦ **Printed patterns**: all pattern details are marked out or are in print as instruction.

✦ **Perforated pattern:** as the name suggests, all the instructions are made in holes.
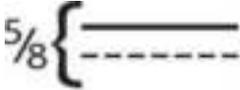
STAGES IN PATTERN MAKING:

Pattern drafting has three major steps. These are; Basic block, Working pattern and Final pattern

✦ **Basic block;** sometimes called sloppers, blueprint, outline, or fundamental shapes which are used for an intended outcome.

✦ **Working pattern**; these are the pattern pieces directly from the adaptation without seam allowances

✦ **Final pattern**; these are the pattern pieces with seam allowances ready for layout and cutting out.

COMMONLY USED PATTERN DRAFTING SYMBOLS AND MEANINGS

Sewing Pattern Symbols GUIDE – How to Read them

Sewing symbols come in different shapes and the shape has their meaning and the purpose they serve in apparel making. They help in achieving exact result during the process of cutting out and making up of the apparel. Sometimes the shapes vary a bit when found on commercial patterns depending on the brand. But the meanings are always the same in general therefore for the purpose of our study we shall learn about the most commonly used universally to get started. As one advance in sewing you will come across lots of symbols and you will get to know how to use them.

NAME AND MEANING OF PATTERN SYMBOLS		
Long black double ended arrow This shows a straight grain of the fabric either warp or weft	**Black arrow with curved ends** Place to fold on the fabric.	**Cutting line** This mostly appear on the pattern pieces to indicate where to cut out the pattern and on the fabric
Stitching line Stitch lines are made of dashes shorter by length of line segments	**Broken lines** It shows a hem or seam allowance	**Adjustment line** It indicates the best place on the pattern pieces to lengthen or shorten it
Dots connected in a triangle Position to indicate dart.	**Pleats** Vertical lines indicate where to fold the pleat in direction	**Seam allowance marking** It shows a fraction of 5/8 inches between cutting and stiching lines
Zipper placement Zipper teeth to indicate where to insert he zipper	**Button and Buttonhole**	Center back or center front indicate the middle part of the apparel **CF** Center Front **CB** Center Back **SS** Side Seam
Black diamonds along cutting line Notches or balance marks	**Squares, circles and other shapes** They are positioned at the armholes or neckline of a pattern pieces to show the position of matching two pieces	**Bust and hip indicators** Small circle with crossed lines in the centre indicate the apex of the bust. It falls at the middle of the breast. This symbol can be used to mark the position at the hip point on the pattern.
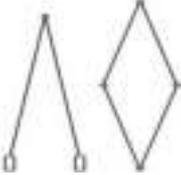
SAMPLE OF PATTERN SYMBOLS ON PATTERN PIECE
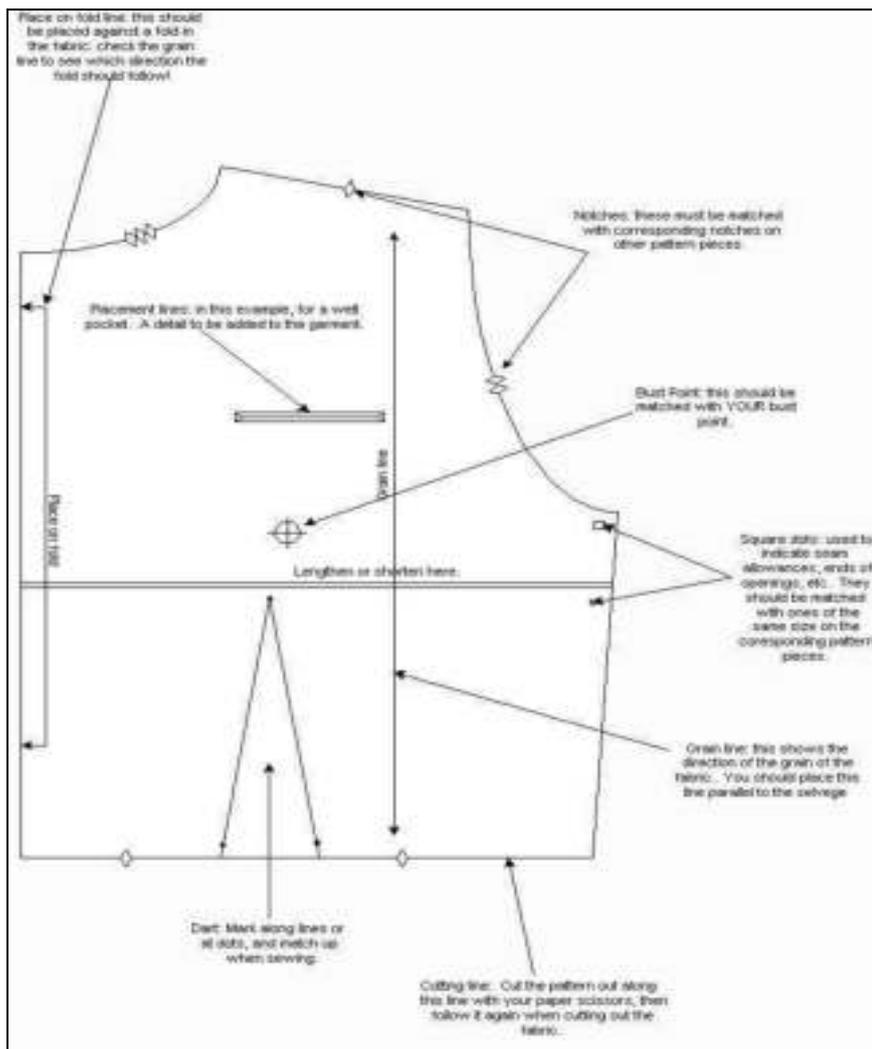
Revision Questions:

1. Sketch a blouse pattern and indicate the following sewing symbols on the pattern.

   (A) Straight grain (B) Place to fold (C) Dart (E) Notches or Balance Marks

2. Explain the following: Basic block, working pattern, final pattern.

3. State and explain four methods of developing patterns

4. Define the following: drafting, pattern, adaptation

5. State four brand names of commercial patterns

6. State and explain with sketches six pattern instructions.

UNIT THREE: MEASUREMENT TAKING

At the end of the study, the participant /leaner will:

1   Know types of figure

2   Know how to take measurement

3 Know good record keeping of clients' measurements.

4   Practice correct standing position for accurate body measurement taking.

Introduction:

To have a good fit of an end product of any apparel, taken accurate measurement and a good record keeping is of most important as a key to a good fitting. This is very essential to the basis of any type of apparel making. Therefore, recording measurements right after the measurement is taken should be done with a keen interest.

Measurements taking: these are important in pattern drafting and apparel making. It is very important for every individual to know their measurements not only for a good fitting and construction of the apparel but also for buying ready-made new apparel. It is the responsibility of the dressmaker or tailor to have an in-depth knowledge about how to take accurate body measurements as well as the individual. This will help to have good snagging apparel.

The dressmaker or tailor should have in-depth knowledge about correct standing position for measurement taking, correct methods of taking and recording body measurements, how to hold and use the tape measure and how to record the details of the measurement right after the measurement is taken.

Measurement Record keeping: get a measurement book for clients and record measurement soon as client's measurement is taken. This will help come up with a good and more acceptable product and also keep clients.

Adult Female Body Measurement
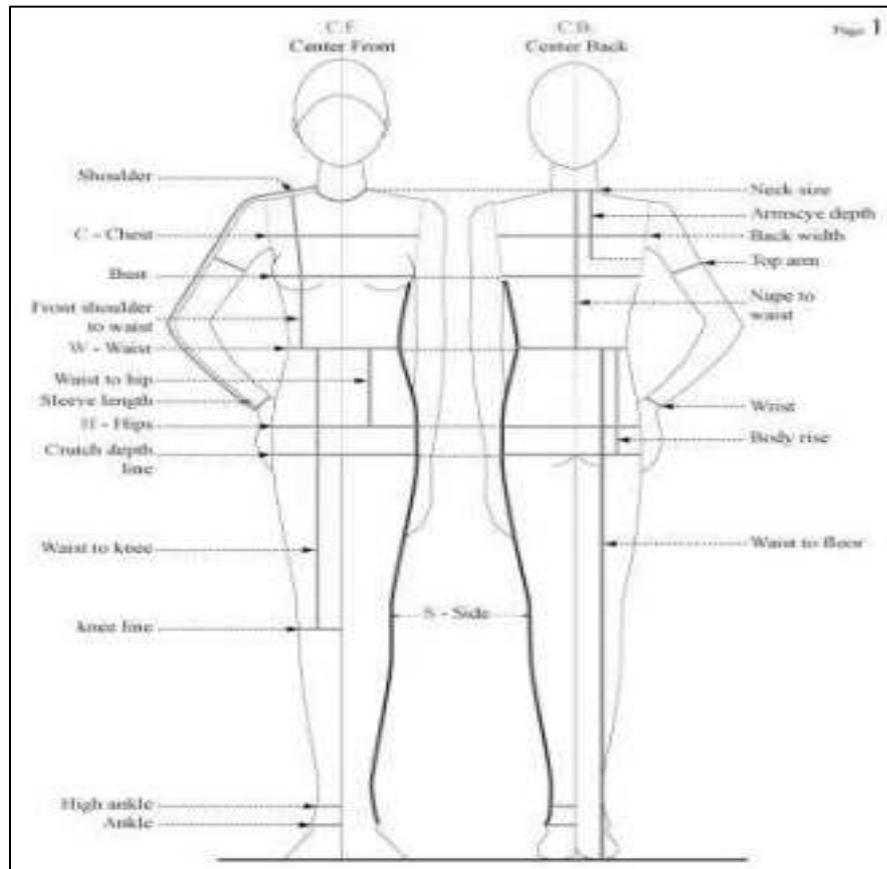
Source: Ardrich, (2014)

Points to Note When Taking Measurements

1. A good tape-measure should always be used for taking measurements.

2. A good standing posture is very much important. The person whose measurement is being taken should stand straight in a natural posture not akimbo. They should also wear well-fitting garments.

3. Each measurement should be recorded as soon as it is taken.

4. Before a client's body measurement is taken, a thread or cord should be tied around the nature waist line until all measurements are completed.

5. All vertical measurements need be taken perpendicular to the ground, while horizontal measurements are also taken parallel to the ground.

6. A proper and right sequence should be followed in measurements taking to ensure systematic process.

   (a) Always start with horizontal measurements then vertical measurements identifying the exact position of the body to be measured

   (b) Knowing the standing position of the customer is very much important not bent or stand Akimbo.

   (c) Measuring over undergarments is a key to achieve a good measurement. Also knowing the method of measuring and what measurement you want helps to achieve good result.

   (d) The tape measure should stay just on the body with two fingers between the tape measure and the body. Turn it around and ask the clients to confirm before settling on the final measurement to write down.

Body posture or alignments in measurement taking

Namely:

   1) Normal figure

   2) Stooping figure or long back balance

   3) Up- right figure or long front balance

Normal figure: this is a type of figure where almost front and back is the same.

Stooping or long back balance: this type of figure has the back longer than the front.

Up- right or long front balance: this is also a type of figure with the front longer than the back.

 Figures are again shaped in one **of three** ways. Either they are "average," which is to say not disproportionately wide in any one place; or they are full at the bust and small at the hips; or they are small in the bust and big at the hips. This gives **the three main basic types**. Therefore it is very much important to keep these in mind when taken measurement.

Measuring Body Parts

NOTE: Always remember to have two fingers in-between the body and the tape measure as shown below. This is done in order to prevent the measurement taken not to be too tight or too loose. This should apply to all measurement taken.

Height: Stand upright without shoes with your heels flat on the floor and back against a wall. Let a friend take your height and measure the distance with meter stick.

Bust: Place the tape measure around the fullest part of the bust under the arms across the back. Do not drop the tape measure at the back as this will result in wrong measurement. Make sure to turn the measure around the figure and find out from the client if he or she is comfortable.

Waist: Measure just around the natural waist line over the natural cord by tying a cord at the waist on the smallest part. This can be located halfway between the bust and hips.

Full Hips

Measure the fullest part around the hips. To locate the hip depth this is usually about 7-9" (18-23cm) below the natural waist line. It is important to have double measurement because of the vast differences in body figures around the hips.

Upper Hips: This is normally found between waistline and hipline just over the top of the hip bone. It is advisable to measure around the fullest part of the hips 7'' or 9'' below the waistline. Then in-between the waist and the hips indicate the upper hips.
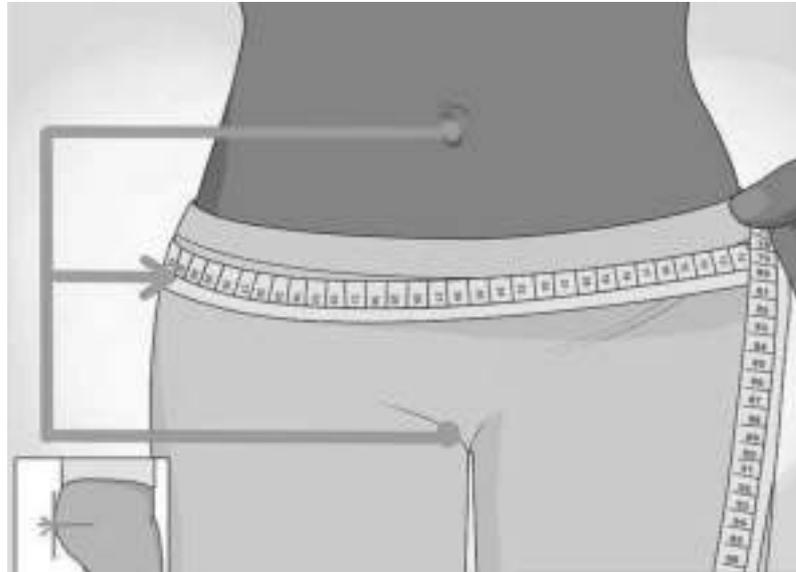
Back Neck to Waist: (back waist length) Measure from the big bone just at the base of centre back of the neck (nape) to locate the natural waistline.

Front Neck to Waist: locate this point by measuring from the gorge of the neck to the midpoint of the waistline.

Across Back Width: Measure from tip of shoulder downwards 5 1/2'' then measure from arm crease to arm crease across from the back bone.

Across Chest Width: Measure from tip of shoulder downwards 6''then measure across the chest from arm crease to arm crease across at the top of the breast.

Shoulder: Measure from base of neck to shoulder bone to locate the length of the shoulder.

Across Shoulder: Measure from shoulder bone to shoulder bone.

Skirt Length: Measure from the waistline downwards to the length required. The length depends on the style of the skirt.
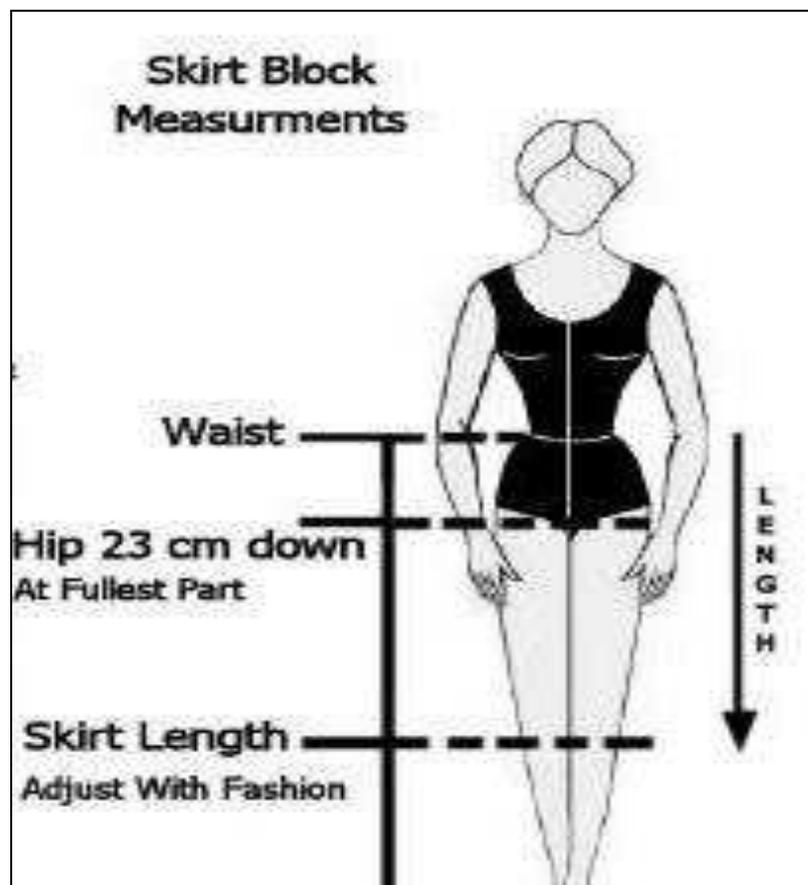
Taking measurement for Sleeve:

Place the measuring tape at the tip of the shoulder. Run the measuring tape over your shoulder, and let it hang down your arm towards the wrist. The length of sleeve depends on the style type. For long sleeve measure from the tip of the shoulder bone and with the arm bent, measure downwards to the bone at the wrist. See below to locate other parts of sleeve length.

Sleeve measurements

1 Armscye depth

2 Sleeve length

3 Sleeve round
(where you want
sleeve to end)

4 Sleeve round
(near the widest
part of arm)
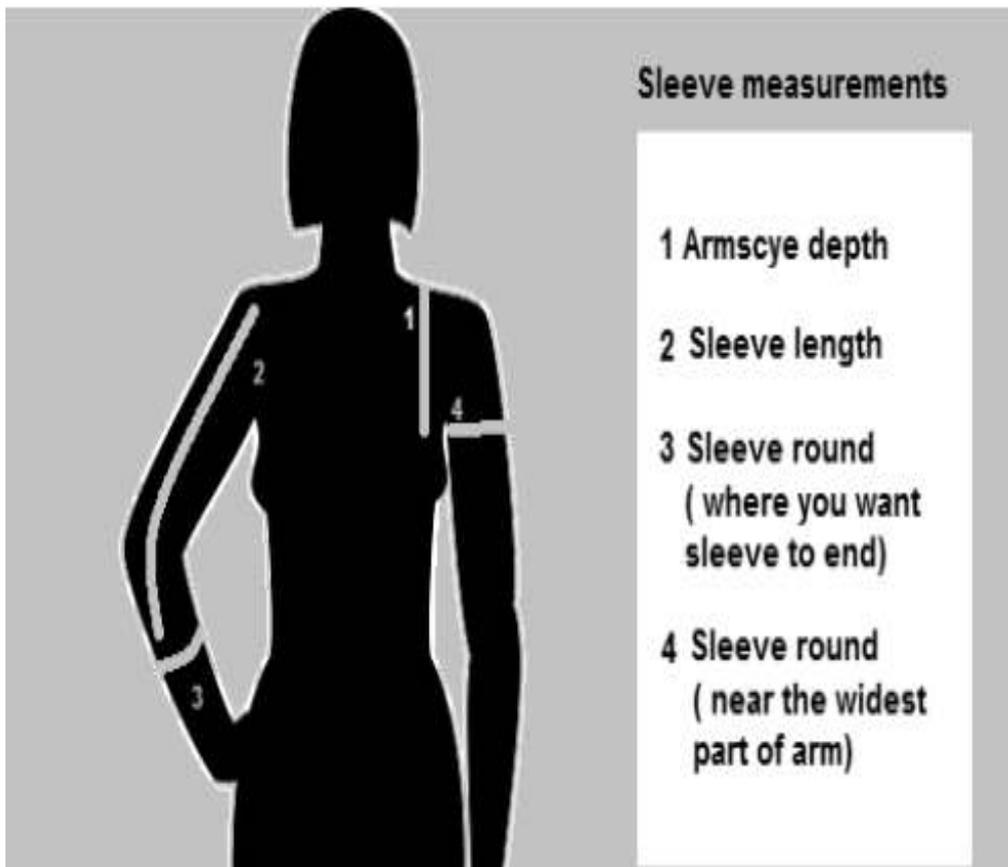
Long sleeve   bicep
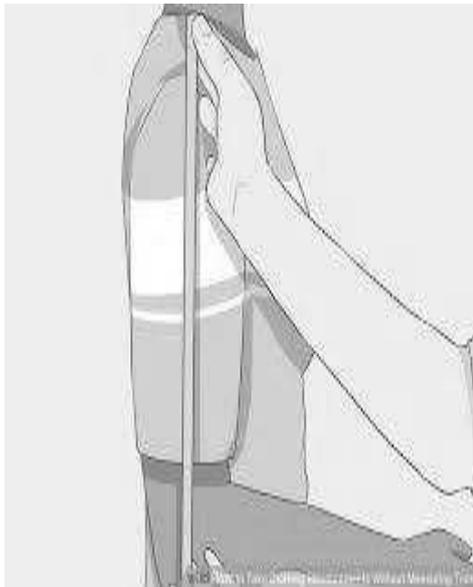
Elbow length   Wrist

SLEEVE MEASUREMENT DETAILS
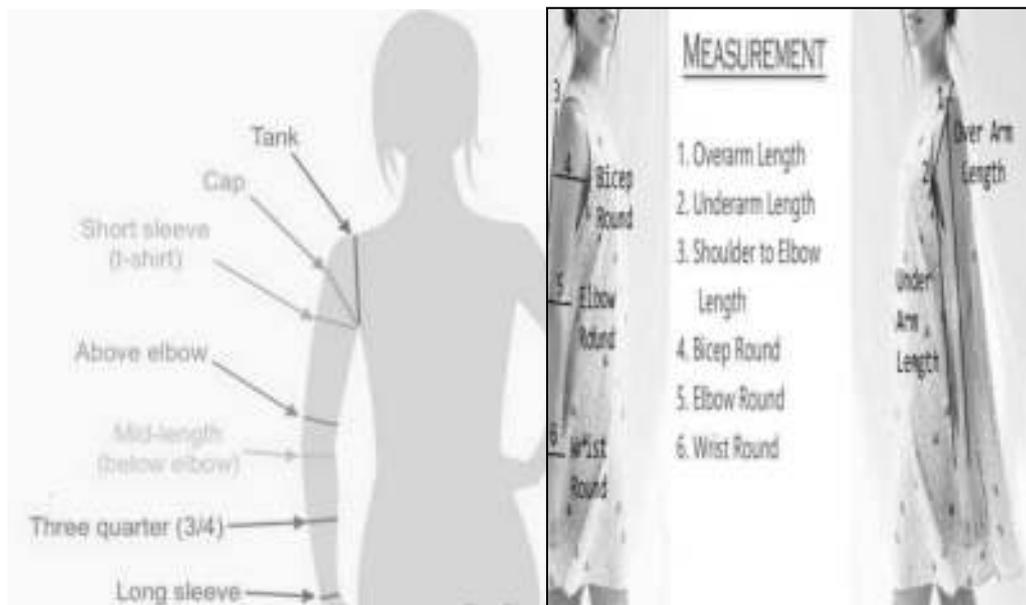
Revision Questions

1) Get a friend and practice taking measurement and keeping record of the following: Bust, waist, hips, and shoulder to waist, blouse length, across back and across chest.

2) State and explain five points to note when taking measurements.

3) State and explain points to note when taking measurements for the following: Blouse length, skirt length and sleeve length.

UNIT FOUR: INTEGRATING PATTERN DRAFTING INTO FREE-HAND CUTTING

At the end of the study the participant/ the learner will be able to:

1. Know free hand cutting :

2. Understand free- hand cutting:

<u>INTRODUCTION</u>

Free-hand cutting does not use patterns and it is achieved by cutting a style of the apparel directly on the fabric with clients measurement. Among the informal dressmakers and tailors sewing industry, the main method of cutting apparel is free-hand. This method has no strict procedure to follow when cutting out yet there are so many ways used by free-hand users to come out with the end product.

In using free-hand cutting all allowances like seems and hems and other style details are added and marked out directly on the fabric before cutting out.

Many people who go through apprenticeship training in dressmaking and tailoring aside formal training system are taught on how to cut and sew by the free-hand cutting method.

UNDERSTANDING FREE-HAND CUTTING

Free-hand cutting deals with apparel making without the use of drafting, bought pattern or commercial patterns. This is done by taking detailed measurements from the client and used to mark out the design directly onto fabric. Apart from free-hand and pattern making methods, there are other method to be used in making apparel. Free-hand cutting was originally known to be used in apparel making throughout the world before commercial patterns invention was formally introduce.

FREE-HAND INTO DRAFTING THE BASIC BLOCKS

At the end of the study, the participant will be able to:

1) Understand ways of integrating free-hand into pattern drafting.

2) Know how to draft the bodice block without shoulder dart.

3) Practice how to integrate free-hand cutting into drafting bodice block without shoulder dart.

Introduction

Fit is the most important aspect in the end of apparel product. This is done to accommodate the bulge of the body shapes in a flattering manner.

Bodice Front

A Blouse without Shoulder Dart (*Kaba*)

Measurement needed: Bust -40 waist-30 hips-40 shoulder to waist-16 blouse length-24 across back-8 across chest-7.

Constructing the Rectangle for the Bodice Block front

Fold fabric with ¼ hips measurement plus 2''for ease. That is ½'' for construction allowance and 1 ½'' for seam allowance. This ease is for beginners, as you progress you can decide how many ease to add depending on the style type and fabric, but not more than 2'' it could be less.

For example, if the full hip is 40'' divide it by 4 and add 2'' Use it to fold the fabric, i.e. 10+2=12. Indicate as follow from the top left to right 1a and 2a

Measure the length of the blouse plus hem. For example, if the length is 24'' add 2'' for hem allowance. So, it becomes 26.ie ½'' for lay and 1 ½'' for hem , and from left down to right mark 3a and 4a then square across to close the rectangle.

From the four corners indicated in the rectangle, mark 1a, 2a, 3a and 4a. Again indicate the top line as neck point and the down one as hem level.

Constructional Lines for Bodice Block Front

From 1a and 2a measure downwards shoulder to waist measurement and square across for waistline and mark 5a and 6a.

From 1a and 2a measure downwards and square across ½ way 5and 6 for burst line and mark 7a and 8a.

From 1a and 2a measure downwards and square across ½ way7and 8 for across chest line and mark 9a and 10a.

From 1a and 2a measure downwards 1'' and square across for shoulder line 11a and 12a. Now we have our constructional lines to draft the bodice block (*kaba*).
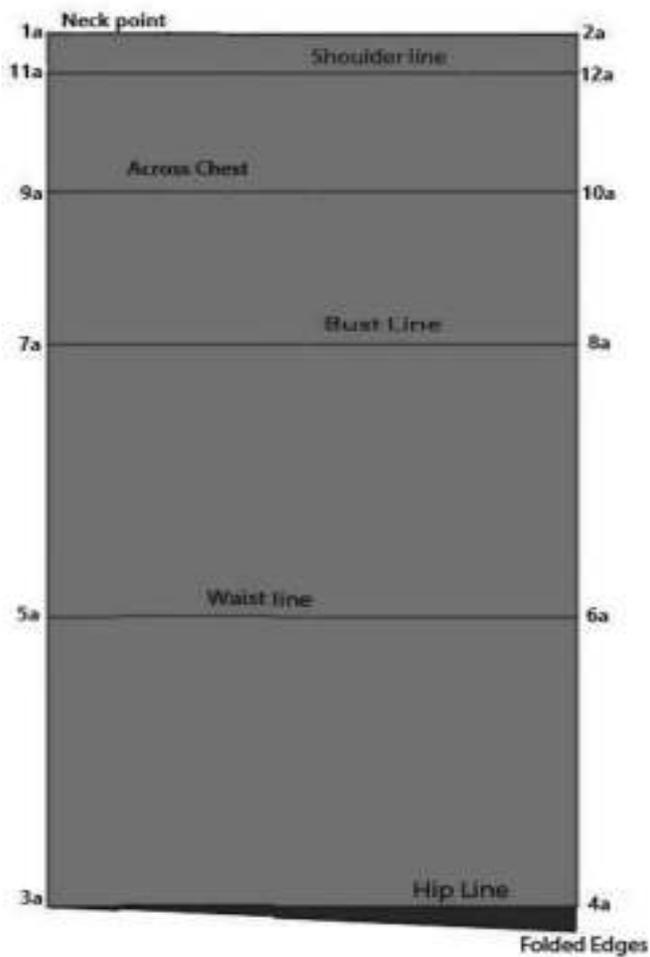
Constructing the Front Bodice

The use of abbreviations will be needed

Neck: From point 2a measure downwards, the depth of the neck. e.g. 5 downwards or depending on the neck style and mark point A.

Again, from point 2a measure towards point 1a for the width of the neckline.e.g.3'' and mark point B. now, from point B measure downwards 5'' for point C and draw a square neck from these points.ie B to C to A for a square neckline. This is the basis of any neckline; all types of neck style can be derived from this.

Round Neckline: From point C at the Conner of the square neckline measure towards point 2a diagonally ½'' and mark for point D. Now gently curve in your round neck from point B to point D, to point A. French curve can easily do the trick if you have one. Interesting types of necklines will be developing later as we progress.

Shoulder

From point B measure towards point 1a width of the shoulder 5'' and mark point E. From point E measure downwards ½'' and mark for point F, to slant the shoulder line.

Chest:

From point 10a towards point 9a measure half of chest and mark point G. Remember across chest is taken halfway not round the body so we need only half of the measurement. Continue with broken lines from point G downwards to pass through the bust line and mark point H on the bust line. Now from point H measure diagonally ½'' as point I.

Bust:

From point 8a measure towards point 7a ¼ of bust measurement and mark for point J.

Curving the Armhole:

Connect gently to shape your armhole from points F to G to I and J. Using french curves for shaping the armhole can do a great job if you have one.

Marking the Waist Line:

From point 6a towards point 5a measure ¼ waist plus 2'' and mark for point K. the 2'' is for dart allowance.

Marking the Hips:

From points 4a to 3a measure ¼ hips measurement and mark for point L.

Shaping the Side Seam:

Gently Connect points J to K to L as side seam. Make good use of your curves to get a perfect shape.

Shaping the Dart

From point 6a on the waist line, measure towards point K 4''and mark point M.

From point M measure 1''on each side and mark for point N and O respectively.

From point M measure upwards 6'' and mark for point P and downwards 5'' and mark Q. connect points P to N and Q and again P to O and Q neatly shape the dart as shown.
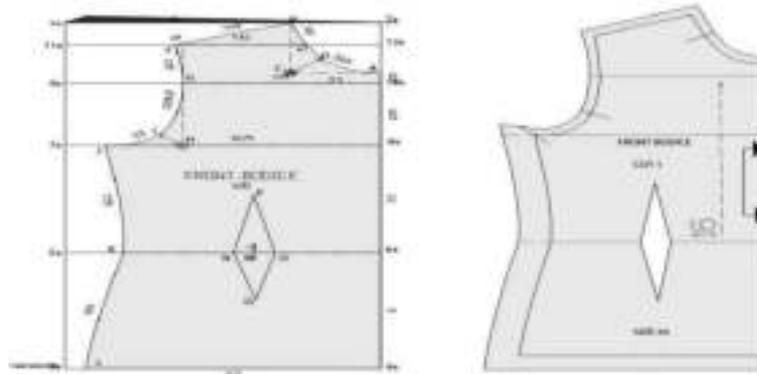
**Front Bodice**

The Back Bodice

Constructing the Rectangle

To construct the rectangle for the back bodice, follow the same procedure for the front plus 2'' allowance for the zipper at the back.

Fold fabric and measure ¼ hips plus 2'' ease plus 2'' for zip allowance. 10+3+2=14

Measure the ¼ width of the blouse plus 2'' and fold 2'' under and mark point 1b on the left side and 2b on the right side.

Measure the length of the blouse plus 2'' ease for hem and square downwards and mark 3b at the left-hand side down and 4b right hand side to close the rectangle for drafting.
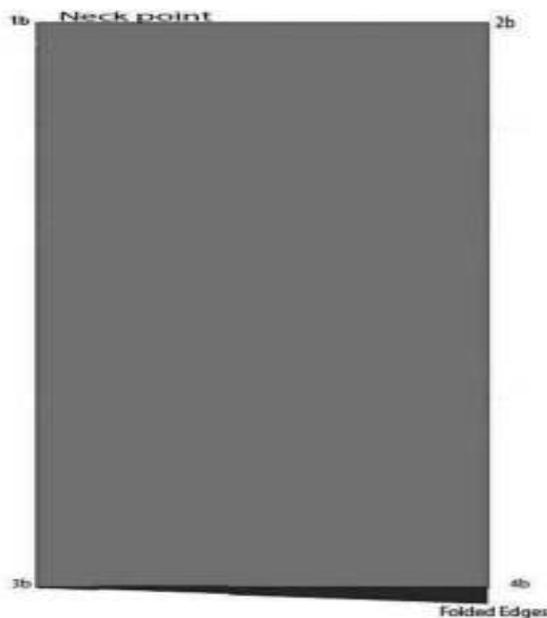

Constructional Lines for the Back-Bodice Block

From 1b and 2b measure downwards shoulder to waist measurement and square across for waistline and mark 5b and 6b.

From 1b and 2b measure downwards 5b and 6b square across ½ way for burst line and mark 7b and 8b.

From 1b and 2b measure downwards 7b and 8b and square across ½ way for across chest line and mark 9b and 10b.

From 1b and 2b measure downwards 1'' and square across for shoulder line. Now we have our constructional lines to draft the back-bodice block (*kaba*).
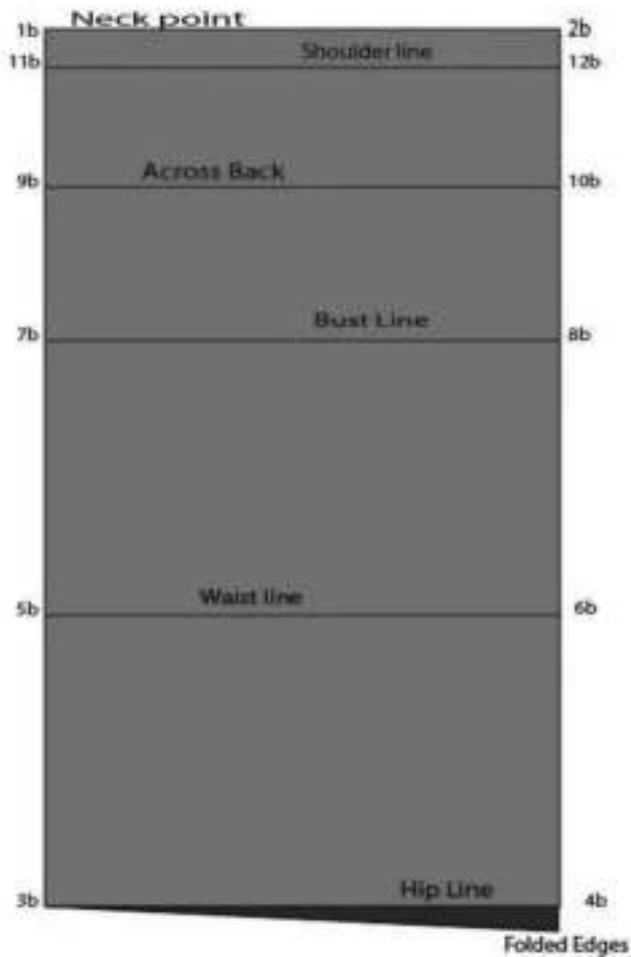
Constructing the Back Bodice

Neck Line:

From 1b measure downwards 1'' for the depth of back neck and mark point A. Then measure again from point 1b towards 2b width of neck 3''and mark point B. gently curve in the neck line with your French curve.

Shoulder Line:

From point B measure towards point 2b width of shoulder 5'' and mark point C. From C measure downwards 1'' and slant it for shoulder line.

Across Chest:

Measure half across chest from 9b towards 10b and mark point D and rule a broken lines upwards to point C. from point D rule a broken line downwards to pass through the bust line and mark point E. from point E measure diagonally ½'' and mark point F as shown.

Bust Line:

From 7b to 8b measure ¼ bust measurement and mark point G.

Curving the Armhole:

With your French curve connect from C to D to F to G, shape gently for the armhole.

Shaping Waist Line:

From point 5b measure towards 6b ¼ of waist measurement plus 2'' ease for dart and mark point H.

Shaping of Hips:
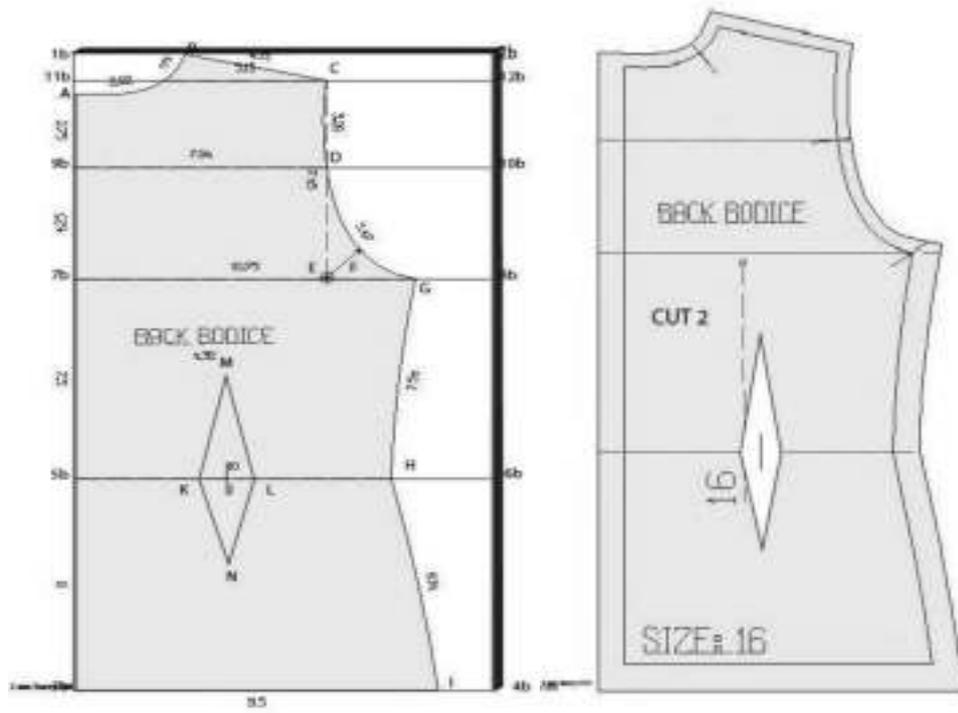
Measure from point 3b towards 4b ¼ hips and mark for point I.

Shaping the Side Seam:

Connect from point G through to point H to point I making use of your french curves at every point.

Shaping the Dart

From point 5b on the waist line, measure towards point H 4''and mark point J. From point J measure 1''on each side and mark for point K and L respectively. From point J measure upwards 6'' and mark for point M and downwards 7'' and mark point N. connect points M and K to N and again M to L to N neatly shape the dart as shown.

Back bodice