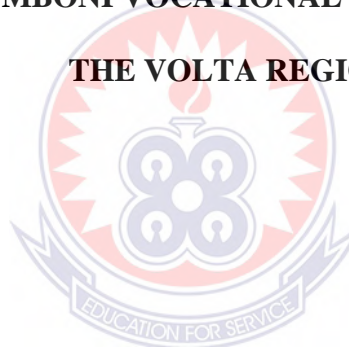


UNIVERSITY OF EDUCATION, WINNEBA
COLLEGE OF TECHNOLOGY EDUCATION, KUMASI

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GARMENT MANUFACTURING: A CASE STUDY OF ANLO TECHNICAL
INSTITUTE AND COMBONI VOCATIONAL TECHNICAL INSTITUTE IN
THE VOLTA REGION**

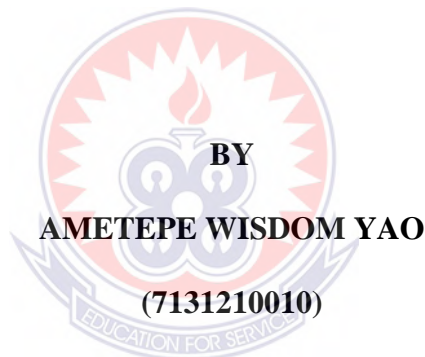


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DECEMBER, 2015

UNIVERSITY OF EDUCATION, WINNEBA
COLLEGE OF TECHNOLOGY EDUCATION, KUMASI
DEPARTMENT OF FASHION AND TEXTILE DESIGN EDUCATION

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THE VOLTA REGION**



A Dissertation in the Department of FASHION AND TEXTILE DESIGN
EDUCATION, Faculty of VOCATIONAL EDUCATION, submitted to the School of
Graduate Studies, University of Education, Winneba, in partial fulfilment of the
requirement for the award of the Master of Technology Education (Fashion and
Textile Education) degree.

DECEMBER, 2015

DECLARATION

Student's Declaration

I, Ametepe Wisdom Yao, declare that this dissertation, with the exception of quotations and references contained in published works which have all been identified and duly acknowledged, is entirely my own original work, and it has not been submitted, either in part or whole, for another degree elsewhere.

SIGNATURE:

DATE:

Supervisor's Declaration

I hereby declare that the preparation and presentation of this dissertation was supervised in accordance with the guidelines for supervision of Dissertation as laid down by the University of Education, Winneba.



NAME OF SUPERVISOR: MR. MICHAEL K. TSORGALI

SIGNATURE:

DATE:

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DEDICATION

This work is dedicated to my wife; Mad. Matilda Awuku and my children Makafui
and Erica



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ABSTRACT

Fashion designer or garment manufacturers including tailors create design without using block pattern making and modeling or dress stand to achieve exquisite result in garment manufacturing. Their negative perception was that it is a time wasting on the part of sewing. The aim of the study evaluates the effect on block pattern making and modelling on garment manufacturing at Anlo Technical Institute and Comboni Vocational Technical Institute in the Volta Region. Both quantitative and qualitative research methods were adopted. Questionnaire, interview and observation were the instruments used to collect data on the problem. A total of 155 respondents, comprising 25 instructors and 130 students were randomly sampled. The data collected were analyzed using frequency distributed tables. The study found that the instructor and students had knowledge about block and pattern making and modeling, idea as to how to block patterns and modeled toile, and knowledge on drafting and modeling tools and equipment. The study revealed that procedure for measurement taking is too long, flat pattern drafting is paper and time wasting are the challenges faced in making block pattern and modeling at Anlo Technical Institute and Comboni Technical Institute includes. Based on this conclusions were drawn and it was recommended that individual fashion designers should get closer to those colleagues who are well versed in block pattern making and modelling to help them in times of need to enable them get acquainted with skills to meet current trends in fashion and designing. Tertiary institutions that are vocational and technically inclined should encourage the use of block pattern making and modelling for trainees to progress practically and if possible academically to enable them get in-depth training in the field of fashion.

CHAPTER ONE

1.0 Introduction

This chapter dwells on the background of the study, statement of the problem, objective of the study, research questions, significance of the study and the scope for which the study is to be done.

1.1 Background to the Study

Pattern and Pattern making clothing production was originally the responsibility of women. After the advent of front-fitting clothing in the third teeth century, the responsibility expanded fourteenth century, tailors authored published works on methods for cutting and constructing clothing. 'How To' books for the home dressmaker were published by the late eighteenth century and by the 1830s, small diagrams of pattern shapes appears in various professional journals and women's magazines. Full-size patterns as free supplements with fashion periodicals emerged in the 1840s, unlike their Europeans contemporaries, American pattern manufacturers produced patterns for the retail and mail-order market, thereby establishing the commercial pattern industry.

The Tailors' Instructor by Queen and Lapsley (1809) and other journals specifically for the professional tailor proliferated in the nineteenth century. These included tailored garment for both sexes. For the home dressmaker, manuals with full-size pattern and pattern drafts written for charitable ladies sewing for the poor included instructions for cutting out Apparel for the poor (1789) and The Lady's Economical Assistant(1808). These featured full-size patterns for caps, baby lionen, and men's shirts. The workwoman's Guide 91838(contains pattern drafts of the finished piece, and pattern drafting instructions.

Fashion is a cycle that moves in a visible pattern, as it changes, the ideal body size and shape also changes, however, not all designers who are able to design and sew to meet the changes are fond of making patterns (Aldrich, 1985). Pattern making methods were developed to meet the changes of the silhouette and this later became a major aspect of the fashion world. Draping, toiling or modelling on the dress stand as it is commonly known is one aspect of pattern making methods, and an art or a skill which is indispensable to anyone wishing to be successful as a fashion designer, the three terms are known as camouflage in French. Modelling has been used for centuries as a source of inspiration and is still preferred by couturiers and high fashion houses as the most creative and a direct method of garment designing when used in conjunction with block pattern cutting (Mee & Purdy 1987). His unique among block pattern making methods in that, it is the only method that uses fabric in creating designs. It begins with a design in mind and by "playing" with fashion fabric on the dress form to make block patterns, and is the most basic block pattern making technique in fashion.

Most early clothing was constructed from simple seams, draped fabrics, and from block patterns which is still being used extensively in today's fashion. Draping is the 'Draping' of fabric around the dress stand or the human body for the purpose of designing garment components by working in three-dimensions. This form block of pattern making, when combined with block pattern, is a reliable source for creating garments. Components with varying effect and it give inspiration to professional designers (Aldrich, 1985). The combination of garment component making technique helps the dressmaker or the designer to achieve proficiency in manufacturing of well-defined garment components that cannot be made by using the direct method or free hand. Every good clothes maker must acquire the block pattern making and modelling skill so as to be competent in the task of making good, beautiful and well define clothing items. Acquisition of these skills is very

essential for any clothing constructors because it helps in coming out of patterns for intricate styles that gives perfect fit and individual figure problems are corrected while working on the dress stand as well.

1.2 Statement of the Problem

Fashion designers create design without using block pattern making and modeling to achieve exquisite result in garment manufacturing. Fashion designers perceive block pattern making and modeling to be time wasting on the part of sewing (Thomas, 2009). However, despite the importance of block pattern making and modeling, many fashion designers or dressmakers in the Anlo Technical Institute and South Tongu Municipality in the Volta Region of Ghana face huge challenge due to their inability to model, make block patterns or draft for garment components. This has an incapacitating effect on the designer's ability to create interesting designs to meet international standards and make strive in meeting clients demand for socio-economic development.

An observation at Anlo Technical Institute and Comboni Vocational/Technical made showed that, master dressmakers, tailors and fashion designers have neglected this important aspect of garment manufacturing and have stuck to the direct methods for cutting out, limiting their work to few styles for the local market only, leaving the sophisticated styles. For that matter, dressmakers and tailors in these institutions cannot compete at any appreciable level with their counterparts, be it with the industrialized nations or with fellow developing countries. To change this trend and allow dressmakers to fully benefit and participate effectively in the world economy that is emerging now, there is the need for dressmakers to be versatile and meet the needs of all clients and take advantage of the global market. Based on these facts, the study is projected to explore dressmakers' familiarity with modelling and block pattern making; methods used for

cutting out fabrics, challenges that face dressmakers when modelling and develop strategies that will help dressmakers to overcome challenges in the fashion industry.

A close look at this practice indicates that, the cloth being cut out is wasted so much before a design is gotten out of it. Designers in these institutions in the Volta Region as a whole require the blend of modelling and block pattern cutting with the direct method, which already exists in order to achieve a perfect design to meet the need of all consumers and thereby widen their scope of knowledge in terms of cutting out. This and many other indicators prompted the need to research into the effects of block pattern making and modeling on garment manufacturing at Anlo Technical Institute and Comboni Vocational Technical Institute in the Volta Region.

1.3 Purpose of the Study

The general objective of the study is to assess the effect of block pattern making and modeling on garment manufacturing in the Anlo Technical Institute and Comboni Vocational Institute to increase productivity.

The Specific objectives of the study are:

1. To assess the knowledge and significance of using block patterns and modeling on garment
2. To ascertain the challenges faced in modeling and drafting block patterns
3. To determine the strategies for improving on block pattern and modeling in fashion design and textiles

1.4 Research Questions

1. What are the knowledge and significance of using block patterns and modeling on garment?
2. What are the challenges faced in modeling and drafting block patterns?
3. What are the strategies for improving block pattern and modeling in fashion design and textiles?

1.5 Significance of the Study

The significant of the study is to encourage the use of block pattern making and modeling on garment manufacturing.

- The effect on block pattern making and modelling in garment manufacturing
- To create design for complicated styles after the research into the topic
- To erase the negative perception of block pattern making and modeling and time waste
- To encourage the designers to use block pattern making garment manufacturing also to create new designs.

1.6 Scope of the Study

The scope of the study is centered between Anlo Technical Instituted and Comboni Vocational Technical in the Volta Region of Ghana. This study is limited to garment manufacturing by fashion designers and students in Anlo Technical Institute and Comboni Vocational Technical Institute.

1.7 Definition of Terms

To help facilitate understanding of terms used in instructions for pattern making, below are some terms and what they mean by (Armstrong, 1995).

- **Apparel-** general term that includes men's, women's and children's clothing.
- **Basic Patterns** - The original pattern set, bodice front and back, skirt front and back, and sleeve. It is the base for all designs.
- **Custom pattern:** Is a pattern that fit individual measurements.
- **Commercial pattern:** Is designed to in much the same way as ready-to-wear fashions
- **Design pattern** - The finished pattern that contains all the features related to the design.
- **Drape on the dress stand** - fabric that is wrapped or hung the human the dress stand.
- **Fashion** - Is clothing that is widely popular or in vogue at any given time. It can be our way of doing things like the way we cut our hair, the car we drive, the clothes and accessories that we wear and dance we dance.
- **Haute couture** - They are firms in the high fashion industry of Paris (or elsewhere whose designer creates original, individual designed fashions.
- **Hand-me-downs** - clothes, given out to others which needed alteration before use.
- **Marker** - a long piece of paper that has drawing of the layout of all the pattern pieces for fabric cutting out in garment manufacturing. Also, apparel manufacturing or commercial pattern making company employee who makes such layouts.
- **Mass-market** - the bulk of average people who buy medium to .low priced mass-produced, ready-to-wear garments.

- **Net pattern:** Finish pattern without seam allowance.
- **Muslim** - a type of fine cotton cloth is almost transparent, used especially in the past for making clothes and curtains.
- **Master pattern:** Is a pattern without constructional lines
- **Pattern plot** -the act of placing lines on a traced copy of the working pattern relating it directly to the design features. They are used as guidelines for pattern manipulation.
- **Pattern manipulation** - The act of slashing and spreading, or pivoting the pattern sections to alter its original shape. The new pattern shapes represent design features of the garment,
- **Pivotal point** - A designated point on the pattern (for example, the bust point). The pattern is slashed to, or pivoted from, this point. This allows the pattern shape to be altered without changing its size or fit.
- **Ready-to-wear (RTW)** - apparel that is mass-produced in factories according to standard sizes as opposed to being custom-made.
- **Pattern** - any piece that is made out of a shape and in sizes that can be used on top of fabric and cut out especially with the garment industries from which exact copies can be made.
- **Pattern weight:** is any that object used on layout fabric
- **Pattern notcher:** is a device use to perforate finish pattern
- **Prototypes:** is the first full scale trial garment of a new design
- **Pattern graders:** Is to cut patterns in all of the different sizes produced by the manufacturer.
- **Pattern maker:** Is to translate an apparel design into pattern pieces that can be can be used for mass production.

- **Slopper** - an oak tag (or tag board) copy of a basic pattern with no seam allowance or style lines, it is developed from body measurements that fits a dressmakers mannequin or live model.
- **Toile** - a sample garment that is made and fitted for correction to be made on it before the actual fashion fabric is cut out.
- **Vintage** - a collection that was admired for its style in a particular year, typical of a period in the past that is of high quality.

1.8 Abbreviations

ATI	Anlo Technical Institute
CVTI	Comboni Vocational Technical Institute
CAM	Computer-Aided Design
CAD	Computer-Aided Manufacturing
G.N.A.T.D	Ghana National Association of Tailors and Dressmakers
NVTI	National Vocational Training Institute.
RTW	Ready-to-wear
3D	Three Dimensional

CHAPTER TWO

LITERATURE REVIEW

2.1 Introduction

This chapter looks at some of the related studies and opinions on fashion design, the need of flat pattern making and modeling skills for cutting out, dressmaking and dressmaker, clothing pattern making, history of clothing pattern design, modeling on the dress stand, and overcoming challenges in block pattern making and modeling skills.

2.2 Fashion Design

According to Stone (2010), fashion is a style that is accepted and used by the majority of a group at any one time, no matter how small that group. Fashion is a fact of social psychology. Its style is usually a creation from an artist or designer. A fashion is a result of social emulation and acceptance. A style may be old or new, beautiful or ugly, good or bad. A style is still a style even if it never received the slightest acceptance or even approval. A style does not become a fashion until it gains some popular acceptance. And it remains a fashion only as long as it is accepted. Miniskirt, squares-toed shoes, mustaches, and theatrical daytime makeup have all been fashion. Principles of fashion include;

- Consumers establish fashions by accepting or rejecting the styles offered
- Fashions are not based on price
- Fashions are evolutionary in nature; they are rarely revolutionary
- No amount of sales promotions can change the direction in which fashions are moving
- All fashions end in excess (Gardetti & Torres, 2013).

According to Stone (2010) design can be many various detail within a specific style. A design is particular or individual interpretation, version, or treatment of a style. A style may be expressed in great many designs all different, yet related because they are in the same style. A sweatshirt is a distinctive style, but within that style, variation may include different types of necklines, pockets and sleeve. Another is satchel handbag, which may be interpreted with different closures, locks or handles. The term style number is used rather than design number even though a design is being identified.

Barwick and Sandra (1984) mentioned that fashion design was generally considered to have started in the 19th century with Charles Fredrick Worth. He was the first designer who stitched his label into the garments that he created. Before then, academics who studied clothing articles in 1958 named them “costume design” and considered those articles created after 1958 as “Fashion Design”. History recorded before 1858 noted that, fashion clothing was made of items found from nature like leaves, back of trees and animal skins.

The Second World War generated many radical changes in the fashion industry by introducing youthful new styles; this changed the focus of fashion forever. It was noted that fashion throughout history has a great meaning which indicated people’s handicrafts skills, artistic imaginations of what they wear (Barwick & Sandra, 1984). Researchers throughout the world gave fashion different meanings according to their results. Another meaning of fashion according to Microsoft Encarta (2009) is that, “fashion involves our outward and visible life, which includes the clothing we wear, the dance we dance, the car we drive, the ways in which we cut our hair and many more. It was noted also that the first fashion magazine came out with fashion illustrations in 1912 named “La Gazette du Bon Ton” by Lucien Vogel. Talented illustrators such as Paul Iribe, George Lepage and George Barbier, drew exquisite fashion plates for the publications in the magazine.

It was noted that during the early twentieth century, all high fashion were said to have originated from Paris and London, where three designers by name Poiret, Vionnet and Chanel were said to have discovered the “body” after it has been enclosed in structures for centuries. According to Nudelman (2010), it is believed that, there was a division between haute couture (high fashion) and ready-to-wear clothes, because they were not clearly defined. The two separate modes of production coexisted in houses where seamstress moved freely between made-to measure and ready-made. At this very time factory-made fashion-based products also emerged and street shops were seen displaying fashion collections. By the late twentieth century, fashion began crossing international boundaries, western styles were adopted all over the world and many designers outside the west had a profound impact of fashion. Synthetic fabrics such as Lycara, Spandex and viscose were introduced and used widely. The body was studied and patterns were made to cut fabrics to suit it for production. The main categories of fashion design are Haute couture, Ready-to-wear and Mass Market. Currently, designers have introduced modern technology into the production of fashion collections.

According to Wolfe (1989), fashion in this modern technological age is it “the display of currently popular style of clothing. Or in other words, fashion is the prevailing type of clothing that is favored by a large segment of the public at any given time”. “Fashion is said to have a cycle”, this because styles that are fashionable this year may seem very unfashionable in a few years (Stone, 2007). Fashion reflects a continuing process of change in the styles of appeared that are accepted. According to Microsoft Encarta (2009), there were a lot of fashion designers who were in charge of these changes, notable among them were; Charles Worth, Paul Smith, Vivienne Westwood, Alexander McQueen, John Galliano, Calvin Klein, Anna Sui, Yves Saint Laurent and many more.

2.3 History of clothing pattern design in apparel industry

According to Hollen (1981) history recorded, obtaining fashionable clothing that fits properly was difficult to do. Therefore, the wealthy hired tailors or professional dressmakers to sew custom-fit fashions. However, those of lesser means muddled through with old clothes and make-shift fashion that were ill-fitting, or lived with re-made hand-medowns. The fashion industry started producing affordable women's dress in the year 1880. Some men's garments were available earlier in the century. Ebenezer Butterick invented the commercially produced graded home sewing patterns in 1963. Hollen again opined that, due to the industrial revolution, invention of the sewing machine and the demand for well fitted garments. The factory system was born, and with it come the necessity for standardized garment sizes. Patterns became essential for workers to produce the same design many times for continued experimentation, and the employment of average body measurements for pattern development led to standard size ranges. This enabled individuals to be fitted easily with a variety of designs that suits them.

According to Wolfe (1989), about the time of the Civil War, Tailor Ebenezer Butterick developed the mass-produced tissue-paper pattern sized according to a system of proportional grading. These first patterns were cut and folded by members of the Butterick family and this was how mass production of ladies dress patterns began in the year 1866. At least, women could obtain a well-fitting, and stylish garments by using clothing patterns. Innovations were made to patterns in the late nineteenth century by publishing in women's magazines, opening branch offices throughout the countries to keep them abreast with styles. There were improvement in instruction sheets, the development of different product style lines, and the addition of designer lines based on the pattern of a couture creation.

Aldrich (2006) also noted that beginners all over the world, be it students who are starting practical pattern drafting and cutting as part of Fashion Degree or Diploma courses, or City and Guilds Examinations, start with the use of the basic pattern draft and cutting for mass-production. According to Aldrich (2004), noted that some garment patterns, particularly in couture design, are constructed by draping on the dress stand. This method may be used when developing garment segments that lead themselves to this creative approach or when unusual fabrics are to be used. However, pattern cutting, drafting and Nudelman (2010) believe that it is important to the dressmaker or the designer to learn and master the basic principles of modeling and progress systematically from the simple to the more-complicated and extreme applications.

2.4 Methods of Pattern Drafting

Pattern making is the art of designing the outline of the plan or arrangement for sewing a cloth. Thomas (2009) posits that the first step in pattern making is taking of body measurements. She recommends that when taking measurements for pattern making, the person should just wear normal underclothes, and if a lady, normal pantyhose and normal bra. Steele (2008) noted that a system of sizes and patterns made it possible to fit the body, especially the male body, without resorting to custom-made clothing. Varney (1980) also indicated that patterns are needed in dress-making in order “to obtain a better fit and to save material”. Aldrich (2006) justifies the use of block patterns in the clothing industry because the blocks are constructed to standard (average) measurements for specific groups of people but could also be drafted to fit an individual figure using personal measurements.

Hollen (1972) advocated three methods of pattern making, namely: Flat-Pattern, Draping and Drafting. Flat-Pattern drafting, according to Semptress (2010) “is the art of

taking a set of measurements, a sheet of paper, and a pen, and coming away with a pattern". Flat pattern is based on commercialized basic patterns with standard measurements but when employed in designing, one makes use of fitting darts to increase garment fitting. Hollen (1972) posited 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, the ease for determining causes of mistakes and how to correct them, and flexible planning for new procedures and efficient organization of work.

Commercial Patterns are drafted patterns made by professional pattern companies or industries. They are sold in different sizes; hence Fayemi, George, Akingbemi, Abraham, Akinsete and Douglas (1989) advise that individuals should know their body measurements in order to select the correct size. To ensure accurate measurements for men's patterns, Musheno (1980) advised that the stance of the man being measured should be natural and kept away from mirrors which despite the assumption of an ideal figure (one that is too erect, and with taut rather than relaxed muscles) will cause the garment to fit improperly with normal stance. For a female, Thomas (2009) prescribes that the lady should stand straight and be relaxed in an upright posture with feet together.

Taking accurate measurement is regarded as the foundation on which drafting as a method of pattern designing is built (Clayton, 1997; Aldrich, 2006; Horton, 2008). As if to justify this point, Ezema (1996) noted that such principles of design as proportion, balance, rhythm, emphasis and harmony, all depend on accurate measurements. Kindersley (1996) also posited that accurate measurements are needed for choosing a pattern size. A perfect fit, she argued, is ensured by comparing your own measurements with those of the pattern, taking tolerance into account and thereafter making any adjustments. Pattern pieces are measured between the seam lines, not from edge to edge.

Similarly, the art elements of design such as vertical lines, horizontal lines, diagonal lines, curved lines, and shape rely on accurate measurements if they will have the desired effects in communicating emotions, ideas, feelings and mood (Ezema, 1996).

Weber (1990) and Clayton (1997) believed that custom fit of garments begins with accurate measurements. This implies that the success of any system of flat pattern drafting will depend upon the accuracy with which the measurements have been taken and the accuracy with which they are translated to the pattern. It is difficult to replicate body measurements because each person has a different 'hand' with the tape tightly. Saladino (1970) had suggested measuring with one or two fingers under the tape measure to allow ease while Weber (1990) suggested the assistance of somebody to ensure accuracy. The stance of the person being measured may vary during the measurement session or in the time from measurement to fitting.

Draping is an artistic approach in which the person makes a pattern by fitting a large rectangle of woven cloth around the body so that the folds in the fabric produce the dress pattern according to the curves of the body. Vulker and Cooper (1987) suggested that draping originated from the Greeks and the Romans. The Greeks called their draped garment a chiton whose shape was achieved by draping, girdles and pinning after which embroidery was applied. The Romans had different names for draped garments for males and females. The male garment was called Tunica while the female draped dress was called Stola. Vulker and Cooper (1987) noted that draping "required little technical skill, as no patterns or sewing were required", hence draped garments began to be replaced by clothing cut to a pattern. However, anybody who wishes to embark on large scale garment production by draping approach to pattern making could do so through line-for-line copy of already sewn garment.

Drafting is a scientific process of pattern designing that is based on a set of body measurements. Therefore, taking accurate measurements is the foundation of creativity in pattern making. Okorie (2000) regards creativity and knowledge of measurements as imperative characteristics of garment designers. Draft patterns usually rely on basic pattern as foundation or master pattern. The basic pattern for men's wear (shirt and trouser) consists of several measurements to achieve custom fit (Musheno, 1980). For shirt patterns, the needed measurements consist of neck, neckband, shoulder, chest, centre front length, centre back, back width, waist, arm length, arm circumference, and sleeve length. For trousers, the required measurements are the waist, seat (hip), high hip, thigh, knee, out-seam (side lengths), Inseam, and hemline. Aldrich (2006) recommends standard body measurements for the dresses of men of average built (about 5ft 10ins or 178cm). Musheno (1980) suggested that the actual measurement of the pattern piece for men will be larger than the body measurement for which it is designed in order to allow wearing ease. Musheno (1980) has provided Vogue's average body measurements for women with fully developed figure and height of about 5' 6" (1.60M).

There are today commercialized basic patterns of standard sizes but Vulker and Cooper (1987) insisted that their use must follow certain principles of design, namely: "Line and Direction, Shape and Proportion, Colour, and Texture". The line of a dress gives a direction to be followed by eyes. Lines may be vertical, horizontal, oblique or curved. The direction of a line can assist in creating an illusion that may camouflage a figure problem. For instance, horizontal lines could make a woman appear wider than she really is. This is because the eyes of beholders follow the lines across the person.

Shape remains significant in pattern designing because it gives the silhouette or outline of the clothing, although the shape of garment changes with fashion (Clayton, 1987; Rouse, 1989). The outline of the clothing affects its proportions which refer to the

space relationships within the design, and involves relating such measurements as size and bulk (Musheno, 1980). Good proportion is achieved when the various sections of a garment relate well to the whole garment. Different proportions suit different figures; hence, Horton (2008) advises that the type of figure, “its proportions and characteristics” should be considered when selecting the style of a garment so as to disguise figure problems. Consideration of figure type and body measurements is also necessary in order to avoid too much of pattern alterations before achieving a perfect fit. She further argued that female body shapes vary greatly, and so patterns are sized not only for direct measurements but for figure types of varying proportions.

Colour is linked with aesthetics and can affect our emotions and moods. Webber (1990) stated that colours act symbols that convey several messages. She illustrated with the colours of traffic lights without which there would be traffic jam. She noted that while some colours suggest coolness, others appear hot. According to her, red, orange, and yellow colours express excitement and simulate action while blue, green and violet have a subduing effect and convey a sense of calm and relaxation. Even our experience shows that while bright colours such as red and yellow are happy and exciting, black and grey seem to be somber and depressing to some people. Vulker and Cooper (1987) posit that dark colours tend to make people look smaller, while brighter colours could make people appear bigger. They therefore advise that women with heavy hips should choose cool colours for their skirts.

Texture is an important design element. Ezema (1996) noted that texture is associated with the sense of touch. The texture of a fabric may be rough and bulky like wool, shiny like satin or dull and soft like velvet. Musheno (1980) stated that texture contributes to an impression of size. Hence, rough and thick textures seem more bulky

than they really are. Similarly, shiny, lustrous fabrics reflect more light and thus make one to appear larger than the person really is.

2.5 Preparation for Pattern Development

Patterns are generally printed on tissue or soft paper and sold in packets containing sewing instructions and suggestions for fabric and trim. Modern patterns are available in a wide range of prices, sizes, styles and sewing skill levels to meet the needs of consumers. Sewing patterns are again graded, and redrawn to fit larger and smaller sizes than the original design shows a graded pattern in small, medium, large and extra-large as indicated, large and extra-large as indicated (Aldrich, 2006).

According to Campbell (1980), the designer sketches an idea for a new style as the preliminary design step by hand or by using a CAD or graphics system. After the design team has approved the style for development, the designer's sketch, fabric swatch, and garment specification sheet are delivered to the design development department to begin the patternmaking process. In the case of apparel manufacturers that use contractors, the first pattern may be developed by the contractor, or the pattern may be developed by the apparel manufacturer. The responsibility for developing the first pattern is fairly common for contractors who provide full-package (FP) contractor services (Campbell, 1980). Other designers prefer to drape the preliminary design idea using either muslin or a fashion fabric on a mannequin or dress form. After careful markings have been made, the fabric pieces of the draped design are removed from the mannequin. The "drape" is then ready for patternmaking.

2.5.1 Pattern Making Process

Many studies have confirmed that patterns are very important materials in garment production, it plays a central role in the fashion designers' or the dressmakers' activities. Pattern making is also known as pattern drafting or pattern cutting and finally called paper patterns. Clothing patterns according to MacDonald (2002) are used to sew stylish pattern making and stylish garments that fit well. Individual pattern pieces are used to cut fabric pieces, which are then assembled and sewn to create wearable garments. Today, clothing patterns are usually mass produced of thin tissue packaged in envelopes, and are sold according to standard body sizes such as 4, 6, 8, 10 and so on. General instructions are included in the package, and individual pattern pieces contain specific information pertaining to seam allowance and alignment of the fabric according to the grain or warp of the fabric. Sewing instructions are keyed to numbered or lettered pattern pieces so they are easy to understand. Patterns are distributed through fabric stores, in catalogs or by mail.

Roger (2001) also noted that paper pattern printing is neither time consuming nor expensive, rather, the design and draft of the pattern is the most time consuming and costly. Essentially, a designer's sketch must be translated into a standard-size pattern that must be stylish and easy to construct. A successful pattern enables a sewer to produce an article of clothing for a fraction of the cost it would take to purchase a garment ready-made in a store.

2.6 Making the First Pattern

As noted earlier, some apparel manufacturers develop the line, create the design sketches with accompanying fabric swatches, and write the garment specification sheet. Then they use either domestic or offshore contractors to manufacture the garments. According to Christensen (1977), the steps between those involving making the pattern

and cutting and sewing the prototype, or sample, may be performed by either the apparel company or the contractor.

Clayton (1987) claimed that it may be advantageous for apparel companies that use contractors to retain the capability to develop the pattern and prototype in-house because schedule delays and communication and visual interpretation problems are possible when a contractor develops the pattern and prototype. Clayton (1987) indicated that a number of factors must be considered by each apparel manufacturer regarding the patternmaking, grading and marker making responsibilities. One of the potential problem areas when using contractors for patternmaking has to do with the base pattern used. A base pattern is a non-stylized basic pattern in the sample size from which the stylized pattern is derived. Two contractors producing different styles for the same line might not use identical base patterns for patternmaking. This can cause differences in the fit of the finished stylized garments between a style produced by one contractor and another style produced by another contractor. More offshore contractors now have computer patternmaking systems that eliminate many of the problems that apparel companies previously encountered when they had contractors perform the patternmaking functions.

At some companies, the designer is also the first patternmaker. This tends to be the case in very small companies or in some specialty areas, such as children's wear. Some designers enjoy being involved in the development of their design ideas from sketches into patterns and then prototypes. For designers who also are responsible for making the first pattern and prototype, their design ideas or the construction procedure might evolve during the development process. Thus, they might modify the design during the process of making the pattern and/or sewing the prototype. From the designer's sketch, the assistant designer or patternmaker begins the patternmaking process, called flat

pattern designer's idea (Clayton, 1987). It is important that the patternmaker accurately assesses from the sketch the following information:

- The overall silhouette desired
- The amount of ease (from very snug to very oversized)
- The designer's desired proportions for the design details

According to Rydell (1972), an existing pattern is used to begin the new design. This pattern could be a base pattern (also called a block or a slopper) in the company's sample size. For example, a basic shirt block might be used as the base pattern for a new shirt style. The patternmaker creates the new pattern by adding pattern design details such as a collar, pocket, button band, back yoke, and sleeve pleats to the base pattern, as indicated in the designer's sketch or tech drawing.

Another process frequently used by the patternmaker is to select a similar style from a previous season. For example, a shirt style for a new season might be similar to a pattern that has already been made for the previous season. Modifying an existing pattern can be the fastest way to create the pattern for the new style. Selecting the most appropriate previous style for the starting point of a new style may require some discussion between patternmaker (or assistant designer) and the designer (Igbo, 2001). Alternatively, Kindersley (1996) emphasized that the designer might make a note to the patternmaker on the design sketch or tech drawing suggesting a previous style from which to begin.

The intended fabric for the final garment is an important consideration during patternmaking. For example, the amount of gathers to incorporate into a sleeve depends on the hand or tactile qualities, of the fabric specified by the designer. The patternmaker may experiment by gathering a section of the intended fabric or a facsimile fabric to better determine the ideal quantity of gathers. To develop patterns for garments made from

stretch fabrics, it is necessary to know the exact amount of stretch of the fabric in all directions (Igbo & Iloeje, 2003). The patternmaker selects the base pattern or previous style pattern to correspond to the specific stretch factor of the intended fabric for the new style (Musheno, 1980).

Fabric shrinkage is another patternmaking consideration. After the fabric sample has been wash tested to determine accurately its shrinkage in all directions, the pattern is made sufficiently larger to account for the shrinkage factor. All pattern pieces are expanded, based on accurate length and width shrinkage ratios (Musheno, 1980). The pattern maker needs expertise/knowledge in the following areas:

- Patternmaking, so that a garment illustration can be translated into a pattern.
- Understanding of fit and the ways in which shape and fullness are incorporated into the design.
- Textiles, so that fiber and fabric characteristics are accounted for in the design development.
- Production aspects, such as the sequence of sewing operations used by a production facility that affect how the pattern is built, so the style can be made easily and cost effectively in the factory.
- The types of equipment at the production facility, in order to produce a pattern that can be sewn satisfactorily by the factory (Musheno, 1980).

Rydell (1972) emphasized that the patternmaker may work with traditional paper patterns, or the pattern might be created using a computer-aided design system.

2.6.1 Traditional patternmaking

The base patterns, as well as stylized patterns, are often made of a heavy paper called tagboard, oak tag, or hand paper. Tagboard is similar in weight to the paper used for

file folders. This heavy paper is study, and the edges can be traced rapidly to copy a pattern as the beginning point for the new pattern. Traditional patternmaking procedures require either that the pattern-maker trace the based pattern onto new tagboard. Style details are developed, collars can be created, new sleeves designed and pleats or gathers added in order to create the pattern pieces for the new style (Rydell, 1972).

2.6.2 Computer patternmaking

Computer patternmaking was developed for use in the apparel industry in the early 1980's. The use of computers has become essential in all steps of a design's development. Companies such as Gerber Technology and Lectra, have led much of the industry in developing and providing software to handle almost every step of a garment's production. Today, the computer-aided design has become part of the product lifecycle management (PLM). By using computer pattern design software, the pattern can be communicated electronically among all departments to integrate the business and manufacturing systems seamlessly. This, in turn, speeds the product through production and reduces the possibility of errors (Rydell, 1972).

According to Rydell (1972), many apparel companies use pattern design system (PDS) for some or all of the patternmaking functions. The computer patternmaking process is similar to the flat-pattern process previously discussed. The base patterns and all previous style patterns are stored in the computer's files or on a server. To begin a new style, either a base pattern nor the pattern pieces for a similar style from a previous season is pulled from the computer's file and appears on the screen. The patternmaker uses a mouse, or stylus (which looks similar to a pen) to select specific areas to change on the pattern. Patternmaking commands are either selected from a menu shown on the screen or

typed on keyboard. Once the patternmaking is completed, the pattern can be plotted (drawn) in full size.

Musheno (1980) reviewed that computer technology continues to bring remarkable advances in ease of use, adaptability, and cost effectiveness of PDS. Some of the advantages of PDS include the following:

- **Speed:** since the base patterns and patterns from previous styles are stored in the computer system and used to begin the pattern for a new style, no time is spent tracing an existing pattern to begin patternmaking. To add seam and hem allowances, the patternmaker specifies the amount of seam and hem allowances to add to selected edges, and the cutting lines are added in an instant. The length of two seam lines that need to match can be compared for accuracy with a computer command.
- **Accuracy:** Using PDS eliminates the incremental growth that can occur when hand tracing a pattern due to the thickness of the pencil lead. Seam lengths and seam allowance widths are more exact than is possible by hand.
- **Integration with spec sheets:** Some computer software programs provide an interface between the patternmaking process and the garment specification sheet as the patternmaker to write parts of the spec sheet as the pattern is being made PDS.
- **Integration with production:** Later in the product development process, production is faster if the pattern pieces have been stored in the computer than if it is necessary to input the pattern pieces for computerized grading and marker making.
- **Cost:** The initial cost PDS is high, although some of the new technology systems cost less than earlier versions. Some apparel manufacturers, especially smaller companies, may not see a substantial return on their investment for some years.

- **Time:** Another aspect of cost has to do with time involved in training patternmakers. One of the hurdles with learning a computer software system is learning the operating system and memorizing the commands and the various steps needed to complete a process. Typically, patternmakers are sent to the computer software company's headquarters for a week or two of intensive training on the system. In addition to the dollar cost of the training, there is the cost of lost time while training occurs and the greater time required to make patterns while the new system is being mastered.
- **Technical support:** If the system goes down, the delay can cause great problems and affect the subsequent productions steps. Any delays can be extremely costly to the manufacturer and retailer. Fortunately, most PDS companies have excellent technical support by phone and online, easing the time loss and stress.

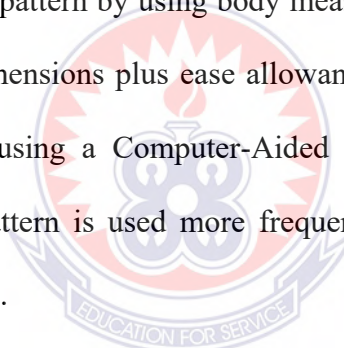
Visualization difficulties: For patternmakers who are used to working with full-size patterns, the use of PDS requires an adjustment because they are looking at a reduced-size pattern pieces on the computer screen. When working by hand, the patternmaker slashes the pattern for gathers and spreads the pattern the desired amount. These decisions often are based on what looks correct. When patternmakers use PDS, they select the quantity of gathers to add. The new pattern piece, with the selected quantity of gathers, then appears on the screen. In other words, the patternmaker must choose the quantity before seeing how the pattern looks. However, if the quantity of gathers seems too great or too small, it takes very little time with PDS to undo the maneuver and request a different quantity of gathers. With experience, it becomes easier for patternmakers to visualize scale using Plant Design Software (PDS).

In the future, an increasing number of apparel companies use Plant Design Software (PDS). Costs of Plant Design Software (PDS) programs have been reduced as

more price competition among Computer-aided design (CAD) companies has developed and technology costs have decreased. Many CAD systems operate with standard computer industry PCs, providing additional price competition in the huge PC market. Most large apparel manufacturers already rely completely on computer-generated patternmaking. An increasing number of small apparel companies use Computer-Aided Design (CAD) systems in order to be fully integrated with their manufacturers (Fashion Encyclopedia, 2008).

2.6.3 Patternmaking by Drafting

Rather than beginning the patternmaking process with a base pattern, some companies prefer to draft the pattern by using body measurements. The pattern shapes are drawn based on the body dimensions plus ease allowances. Pattern drafting can be done using paper and pencil, or using a Computer-Aided Design (CAD) program. Pattern drafting to create stylized pattern is used more frequently in Asia than North America (Fashion Encyclopedia, 2008).



2.7 Making the Prototype or Sample Garment

The next step in the design development process is to cut and sew the prototype or sample garment. Some apparel companies use computer software systems to create three-dimensional replicas of the styles in the line that show simulated fabrics draped on the mannequin viewed on the computer screen rather than continuing the development process by cutting and sewing the sample, some companies use these computer-generated images to sell the styles to the retail buyers. This marketing process will be discussed later as well. Most companies produce a sewn prototype. This provides the opportunity for the following:

- To test the design in the selected fabric(s)
- To evaluate the style on a live fit model
- To test the construction sequence
- To sue a physical sample to perform a cost analysis for materials and labor costs
- To see all the styles in the line as a whole (Towers, 1978).

According to Joseph - Armstrong (2010), prototype made from the first pattern for the new style may be cut and sewn by an in-house sample or sewing department, or it might be made by a contractor. If the contractor has a compatible computer system, the pattern can be sent electronically to the contractor. Many contractors, especially those located in Asia, realize that their business opportunities expand greatly if they invest in computer system.

2.7.1 Sample Cutting and Sewing

Shoben and Ward (1999) emphasized that the completed pattern is delivered to the sample sewing department, accompanied by a swatch of the intended fabric for the actual garment and the garment specification sheet. If the intended fabric is available (sometimes as a sample cut ordered from the textile mill), it is used to make the prototype garment. Sometimes the intended fabric is not yet available, so a substitute or facsimile fabric, as similar as possible to the intended fabric is used (Towers, 1978).

According to Towers (1978), garment spec sheet indicate any special cutting instructions. For example, a shirt with back yoke may require that the shirts striped fabric be cut on the lengthwise grain for the body, sleeve, and collar, and on the crosswise grain for the yoke. Stretch fabrics for swimwear and body wear may require some pattern pieces to be cut with the greatest stretch in the vertical direction. Towers (1978) indicated that sample cutter match plaids where specified and make other decisions about how the

pattern pieces are laid on the fabric (layout). The sample cutter cut all pieces needed for the prototype. A sample room may use a cutter that cuts directly from a Plant Design Software (PDS) program from which the pattern was developed. The pattern is removed from the fabric after cutting; then the pattern is usually returned to the design development department rather than accompanying the fabric pieces of the prototype through the sample sewing process (Towers, 1978).

The sample sewer is highly skilled in the use of a variety of sewing machines as well as in the production processes used in factories. Without an instruction sheet and rarely consulting the pattern pieces, the sample sewer sews the entire prototype garment.

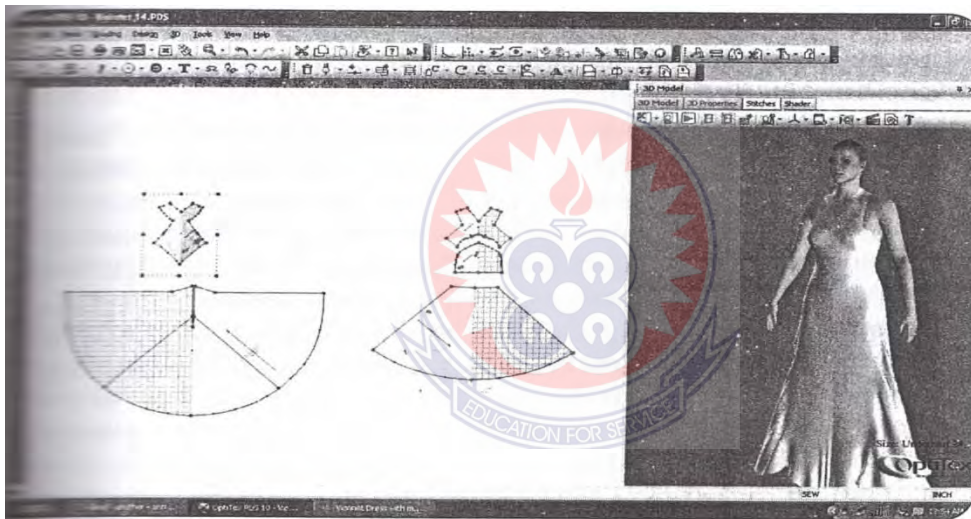


Plate 2.1: Computer Generated Sample Garment

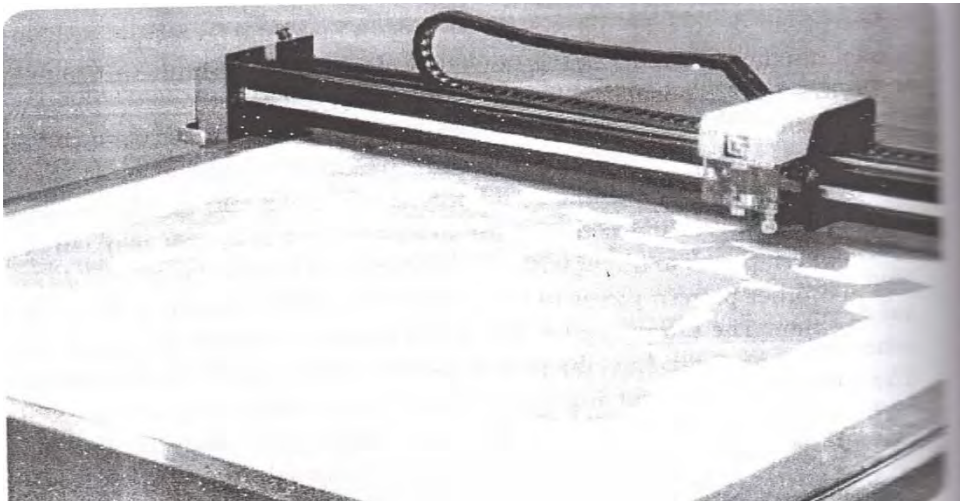


Plate 2.2: The Sample Cutter is used to cut the Garment for the Sample or Prototype

According to Towers (1978), sample sewer need to send a section of a prototype to another area for work. For example, it may be necessary to embroider a logo onto a shirt front after it is cut out and before the shirt is sewn. Keeping the work flowing smoothly is also part of the process. Generally, for companies that produce prototypes in-house, the prototype is completed within a few days after cutting. Towers (1978) reviewed that if the design development department is located near the sample sewing room, the sample sewer might consult with the patternmaker regarding a specific sewing process or technique, or they may discuss possible alternative solutions to a pattern or construction problem. A team approach among patternmaker, cutter and sample sewer is an advantage. After the sample sewer finishes making the prototype, it is sent back to the design development department for evaluation. Often the patternmaker reviews the prototype first to assess whether any changes need to be made before the style is reviewed by the designer and merchandiser.

2.8 Patternmaking from a Draped Design

Some designers, especially in the designer and bridge price zones, create initial garment by draping the design on a mannequin (MacDonald, 2002). The fabric, either fashion or muslin, is draped onto the sample size mannequin. The design is developed by cutting into the fabric, molding the fabric to the desired shape, and then pinning the fabric in place. After finalizing all aspects of the design, the style lines and construction details of the drape are very carefully marked in preparation for removal from the mannequin. The fabric pieces are removed and laid flat over pattern paper. The shapes of the pieces are traced onto paper; then the pattern is perfected, and markings such as grain lines, notches, buttonholes, seam and he, allowances, and facings are added (Burke, 2011).

2.8.1 Three-Dimensional Tools

Three-dimensional technology provides the ability to move from the two-dimensional pattern to a three-dimensional image of garment draped onto a body form (Burke, 2011). When using 3D for patternmaking, a designer can construct garments over a digital image, rotate them, zoom in, and visualize how the piece garment is hanged. Originally developed as a “virtual dressing” tool at the retail level, the customer could envision how a garment might look on them. Lands’ End was one of the first retailers to introduce online shoppers to the software My Virtual Model. The customer inputs personal data such as coloring, body build, and favorite colors. The program shows the virtual model on the computer screen wearing suggested styles in colors from the catalog.

Burke (2011) stated that three-dimensional technology has many applications in the apparel industry in addition to allowing designers and product developers to view a design three-dimensional before the pattern is made, sample cut and sewn. The concept of designing entirely on the computer may seem far off, but the reality is that not only can we create the three-dimensional image of the garment style with replica fabric on the computer screen, but retail buyers can write their orders from the garments viewed on the screen. No prototype samples need to be sewn. The cost savings related to design development are substantial (Towers, 1978; MacDonald, 2002; Burke, 2011).

MacDonald (2002) opined that the advances in computer technology allow the three-dimensional virtual garment to be transferred into a two-dimensional pattern. Other advances include the technology to compute the cost differences (in material usage and time to sew) between slightly different versions of a design.

2.9 Modelling as a form of Toile Patternmaking

According to Steele (2006), modeling is the fitting or moulding into the figure of pieces of material cut to approximately the size and then shaped by the eye on the dress stand or wearer. Another definition by Vulker and Cooper (1987) explained that modeling is the draping and skillful manipulation of muslin on the model stand. This is a complete contrast to that of paper pattern cutting where one has to visualize the paper on the figure. Steele (2006) mentioned that modelling provides admirable eye training for advanced students, but in the ordinary way it is most usefully employed to loose drapery and very draped whole garments. Drapery is suspended from a point or series of points. In its advanced stages it aims at decorative system of lines, which serves as a foil to the figure, setting it off, explaining it, underlining its beauty, giving it amplitude, emphasizing or improving its natural proportions. All good dressmaking has its foundation is skillful draping. The principle on which folds are produced is simplicity itself. Gravity makes and shapes the folds. Modelling is subtle. It is fascinating. It takes more time, more material, but it is individual (Steele, 2006). The Main Principles of Modeling are:-

- 1) Grain
- 2) Line (Vulker & Cooper, 1987)

2.10 Dressmaker and dressmaking

Barwick & Sandra, (1984) stated that the Oxford Advanced Learner's English Dictionary (2007) first recorded dressmaker in 18-3 as a person who makes custom clothing for women such as dresses, blouses, shirts and evening gowns. It was noted again by Barwick & Sandra (1984) that an academic literature recorded that, "a dressmaker is also known as a mantua-Kaker it was also revealed that, throughout the nineteenth century and until the rise of ready-to-wear clothes, most women who did not make their own

clothes at home but employed a dressmaker, who copied or adapted the latest clothing ideas from Paris, London or other fashion centers based on printed illustrations called fashion plates.

According to Aldrich (2002), dressmaker is often professionally trained many of them learn in an apprentice role, under the tutelage of an established dressmaker, while some learn in formal school settings. Others also learn through years of trial and error and some also are simply gifted. Dressmaking methods involve measurements, a trial garment called “muslin” or “toile” and several fittings for the final garment. Today, custom dressmakers, according to Wikipedia on dressmaking is that, dressmakers function between haute couture and ready-to-wear, and are often employed for one-of-a kind special occasion dresses, such as wedding gowns and prom dresses. Custom dressmakers also create clothing for clients with unique needs, such as performers, artists, disabled or wheelchair-bound, wears of prosthetic devices, classic of fashion-forward and historical enactors. They also recreate, redesign and reinvent existing garment such as updating a great-grandmother’s gown for a modern day use. Some have very specific specialties such as embroidery, reweaving and restoring garments.

2.11 Tailor and Tailoring

Tailoring is the art of designing, cutting, fitting, and finishing clothes. The word tailor come the French tailor, to cut and appears in the English language during the fourteenth century. In Latin, the word for tailor was sartor, meaning patcher or mender, hence the English ‘sarterial’ or relating to the tailor, tailoring or tailored clothing. The term bespoke, or custom, tailoring describes garments made to measure for specific client. Bespoke tailoring signals that these items are already ‘spoken for’ rather than made on speculation (Varney, 1980).

As a craft, tailoring dates back to the early Middle Ages, when tailors, guide were established in major European towns. Tailoring had its beginnings in the trade of linen armorers who skillfully-fitted men with padded linen undergarments to protect their bodies against the chating of chain mail and later plate armor (MacDonald, 2010). In London, the Guide of Taylors and Linen Armorers were granted arms in (1299). They became a company in 1466 and were incorporated into the company of Merchant Taylors in 1503. In France, the tailors of Paris (Tailleurs de Robes) received a charters in 1293, but there were separate guilds for French tailors were united as the powerful. Tailoring has traditionally been and remains a hierarchical and mace-dominated trade, though some women tailoresses have learned the trade.

2.12 The need for modeling and block patter making skills for cutting out

Many studies such as Block patter cutting and Modelling have reported a significant association between modeling and Block Pattern Making, Pattern drafting or patter cutting which are all aspects of the art of designing patterns. It was noted again that a custom fitted pattern from which patterns for many different styles are created is the most primitive form of garment type which is referred to as slopper, block, foundation or master pattern. Semptress (2010) opined that, pattern cutting on the block were based directly on results obtained by modeling patterns on the figure or the dress stand. All designers or dressmakers need a block or a slopper to create styles or designs to make them more efficient in their field.

As dressmakers or fashion designers in other parts of the world make use of sloppers or blocks for their garments, dressmakers in Ghana as a whole also need sloppers or blocks to create designs for their clients. The basic method for all custom dressmakers is the block pattern and modeling method. Basic patterns for a fitted, jewel-neck bodice,

sleeve and narrow skirt made to the wear's measurement are sloppers usually make without seam allowances or style details. Knowles (2005) opined that when the shape has been defined by making series of make-up garments called toile as it pertains, in United Kingdom (UK) and muslins in the United States (US). The final slopper can be used in turn to create patterns for many style of garment with varying neckline, sleeve, dart placement and many design.

2.13 Challenging factors in block pattern making and modeling

According to Knowles (2005), prominent fashion designers have accepted the fact that there are challenges associated with pattern making and modeling on the dress stand. These challenges according to Knowles must be tackled by all learners to overcome them so as to work effectively by taking accurate measurement from body forms and live models. Measurement taking is an important skill that all patternmakers must learn and master well. Also, understanding instructions for patternmaking is another factor that will give the pattern maker the knowledge of proportioning pattern styles to the size they are working with. Knowles again said that measurements taken from live models, that are used to draft flat patterns for sloppers and modeled fabrics for toils must be well calculated and plotted so well that, final patterns can be used to make unlimited styles. According to Knowles most pattern makers do not know what a slopper is, therefore, defined a slopper as an oak tag (or tag board) of a basic pattern with no seam allowances or style lines.

Like every other thing, the use of patterns, be they commercial or drafted, has its advantages and disadvantages. While the advantages will favour large scale garment production in Nigeria, the disadvantages would constitute challenges to be overcome if any success will be achieved. On the vantage side, the use of patterns saves time, energy, anxiety and money. Patterns are accurate to a point; therefore good fitting is likely to be

achieved. They are available in different sizes to suit different figures. If the accompanying instructions are carefully followed, the results are satisfactory (Christensen, 1977). Patterns are inexpensive in the long run in that several dresses could be made from one pattern. They give dresses a tinge of professional touch. Finally, printed pattern process can be easily used by inexperienced dressmakers.

However, there are challenges to be faced by anyone that wishes to embark on garment production. Some of the challenges relate to the socio- economic and political environment while other challenges centre on the clothing choices or fashion desires of the potential buyers of garments to be manufactured (Rydell, 1972). Below are some of the challenges.

The challenges of poor infrastructure and safe business environment - The poor state of infrastructure and tools does not encourage pattern making in the production of goods.

The challenge of availability and affordability - The commercial patterns to rely upon in large scale garment production are not available in most parts of the country. One has to wait for a considerable length of time for an order to be sent through to companies or their agents. Furthermore, some dressmakers may find the patterns expensive to buy. Again, the patterns may require adjustments or alterations if the figure is not proportionate; and this might be difficult for an inexperienced dressmaker (Rydell, 1972). As yet another challenge is the danger that use of commercial patterns may tend to make the dressmakers dependent on them. This implies that generating what could be called indigenous patterns may become a road that is never taken.

The challenge of pattern measurements - Perhaps the most formidable challenge is connected with evolution of average body measurements for target consumers of the garments to be produced on a commercial scale. The importance of accurate

measurements in commercial garment production was brought to the fore by the outcome of Iloeje's research in 1995. Iloeje (1995) experimented on the establishment of average body measurements of female adolescent students for use in drafting block patterns for them. She involved 600 female adolescents randomly drawn from 55 girls' junior secondary schools in Enugu State. She took measurements of 18 parts of the body using a fibre-steel tape. After statistical analysis of obtained data, she found no significant difference in the mean body measurements of adolescent females aged 12 to 14 years for bust, waist, and hip and back waist length. On the basis of the findings, the researcher drafted one set of sloper comprising front bodice master pattern, back bodice master pattern, front shirt, back shirt and sleeve patterns for the target group. Iloeje concluded from the outcome of the study that "patterns are basic essentials in the construction of perfectly fitted garments". But the question remains: How many patterns have been developed by indigenous pattern makers for different categories of individuals in terms of age, sex and body size and/or shape)? Generally, patterns are made for three common groups of sizes (not ages) based on standard measurements. These three major groups based on body somatotype are the endomorph for the largest category; mesomorph for the middle category and ectomorph for slim lanky figures (Anikweze, 2003).

The challenge of colour separation in designs - Manipulation of colour through dyeing of fabrics may constitute another challenge for large scale garment production in Nigeria. Colour is linked with aesthetics and can affect our emotions and moods. Dyeing and applied design are progressively being perfected by textile industries in order to satisfy man's unquenchable decorative instinct (Musheno, 1980). Experience shows that blue and green colours are cool and serene, bright colours such as red and yellow are happy and exciting while black and grey are somber and depressing to some people. However, people's emotions and taste could change with time. There is therefore the

challenge of embarking on continuous research to find out the changes in people's fashion desires. For instance, black colour used to be the colour for mourning dress but Christians nowadays prefer white. In spite of this emotional attachment to colour differences, Vulker and Cooper (1987) had posited that dark colours tend to make people look smaller, while brighter colours could make people appear bigger. They therefore advise that women with heavy hips should choose cool colours for their skirts.

The challenge of choice of texture of fabrics - It has been noted that texture contributes to an impression of size. Hence, there is the challenge of selecting fabrics with textures that would reflect the needs or fashion desires of potential buyers of garments produced on a large scale. Perhaps the climate or seasons of the year may assist in determining whether rough and thick textures or shiny and lustrous fabrics would be selected for garments. This is because rough and thick textures seem to give more bulky impression than they really are while shiny and lustrous fabrics reflect more light and thus make one to appear larger than the person really is. More importantly, the practice of not wearing the right texture of material in line with the weather condition could predispose the individual to the attack of pneumonia or heat rashes (Ezema, 2001). Garment makers on a large scale must give consideration to these factors.

The challenge of figure and styles - Figure type is the different shapes seen on human beings or a representation of a person (Spenser, 1998). Adult figure types are grouped according to height and proportion. Olaitan and Mbah (1991) had analyzed figure types into four categories, namely: short and slender, short and plump, tall and slender, tall and plump. But Anyakoha and Eluwa (1999) provides a more comprehensive analysis as she identified seven figure types that are easily recognizable among women. She went further to recommend the corresponding styles of garment to choose and to avoid. The figure types, according to her, are the proportionate tall and slender, short and plump, flat

chest, large bust, short neck, long neck and large hips. The best of the figure types is the proportionate. Any individual who does not fall into the proportionate figure type can be said to have a figure problem. Figure problems according to Anyakoha and Eluwa (1999) include flat chest, large bust, short neck, long neck and large hips.

The challenge of advertisement and control of market - Large scale garment production implies entrepreneurial investment and the success of any such business depends on popular demand for the products. In most cases advertisement in television, radios, newspapers and magazines is involved to sway the choice of consumers to particular brands especially in the face of competition with other producers of similar products. According to Fashion Encyclopedia (2008), Charles Frederick Worth (1825–1895) became the first world famous French fashion designer partly because he was also the first to create and employ the principles of design and fashion that would be called "haute couture," or "high fashion", and partly because he changed the way dresses were shown to customers by being the first designer to use living women as models, and the first to have fashion shows to reveal his new designs to customers. Evolution of innovations in advertisement of products is therefore an inevitable challenge to large scale garment producers.

CHAPTER THREE

METHODOLOGY

3.1 Introduction

The methodology employed to carry out the study deals with the research design, population of the study, sampling technique and sample size, data collection instrument and data analysis

3.2 Research Design

In order to adequately address the research questions and to meet the deliverable of the study, both quantitative and qualitative research methods were adopted. The research adopted the descriptive type of research because it helps in collecting data from selected group of people but generalizes the result to a large from which a smaller group was chosen. Leedy (1999) believed that many research studies are enhanced by combining quantitative and qualitative methods of research.

3.3 Population for the Study

The study was conducted in Anlo Technical Institute and Comboni Vocational Technical Institute of the Volta Region of Ghana which involved various classification of apparel designers namely master and mistress dressmakers, fashion lecturers and instructors of dressmaking and tailors all from Anlo Technical Institute and Comboni Vocational Technical Institute of Volta Region of Ghana. In all, target population was 250 respondents comprising; 30 instructors and 220 students.

3.4 Sampling Technique and Sample Size

Sampling is a practical way to collect data when the population is extremely large, thus, making a study of all its elements impossible. The main advantage is that it is less costly and less time consuming (Bless & Higson –Smith, 1993). Simple random sampling

technique was employed for the study where all instructors and students had equal opportunities of being selected. Care was taken to ensure that the selection of respondents covered a wide range of areas within the municipality and the other institution.

Samples were not influenced by anything, they were independent and clearly defined and identified, chosen objectively and systematically to avoid errors. Thirty (30) instructors and 220 students from Anlo Technical Institute and Comboni Vocational Technical Institute formed the population, and from this, sample size of 25 instructors and 130 students were chosen. Table 3.1 shows the determination of the sample size

Table 3.1 illustrates the population and sample

No	Institution	Population	Sample size	Percentage (%)
1	Instructors	30	25	83.3
2	Students	220	130	59.1
	Total	250	155	62.0

Source: Field Construct, 2015

3.5 Data collecting instrument

Questionnaire, interview and observation were employed in gathering data from the subjects. The data and finding were gathered and assimilated according to the profiling indicators set forth in the questionnaire guidelines.

3.5.1 Questionnaire

Questionnaires were also administered to the instructors and the students. The issues considered in the questionnaire included; the knowledge and significance of using block patterns and modeling on garment, challenges faced in modeling and drafting block patterns and the strategies for improving on block pattern and modeling in fashion design and textiles

3.5.2 Interview

The researcher interviewed 10 respondents. The interviews schedules were designed for the instructors at Anlo Technical Institute fashion designers and Combini Technical Institute in the Volta Region of Ghana. The schedule for the interview was based on the research question and this enable data to be collected on the knowledge and significance of using block patterns and modeling on garment, challenges faced in modeling and drafting block patterns and the strategies for improving on block pattern and modeling in fashion design and textiles.

3.5.3 Observation

Regular observations were conducted by the researcher to know how the fashion designers felt and behaved to ensure the effect on block pattern making and modelling on the dress form or were using free-hand cutting method in manufacturing garment. Observation was also done to see the physical setting of the production unit to find out about the requisite tools and equipment and the sequence in which garment manufacturing was done and effective use of block pattern and modelling, also cutting is done to produce quality garment in the Volta Region.

3.6 Data Analysis

Data collected from the respondents was first sorted, coded to check and correct errors; Statistical Package for Social Science (SPSS) was used for the data entry, analysis and discussion for primary data. Each question was analyzed and the number of respondents who gave particular responses was qualified into percentages and presented in tables and figure to present the findings. The opinion or responses with the highest percentages was considered as the general opinion of people with regard to that point.

CHAPTER FOUR

RESULTS AND DISCUSSION OF THE STUDY

4.1 Introduction

This chapter presents the results of the study and the discussion of the results which was based on data collected from questionnaires, interview and observation. Results were discussed to reflect the clarity of the study by the use of tables, histograms and charts.

4.2 Results and Discussion of Questionnaire

4.2.1 Results and Discussion of Questionnaire from Instructors

The questionnaire designed for instructors of Anlo Technical Institute and Comboni Technical Institute comprises both closed and opened ended questions where respondents were made to choose from possible answers provided in the case of closed questions whilst they expressed their views in written forms to the open ended questions. The questionnaire was designed according to the research question.

Background Information of Respondents

This section concentrates on the gender, age and educational background of the instructors.

Based on the data collected from the questionnaires distributed to instructors with regards to gender distribution, a total of 11 respondents representing 36.7% were made up of males while a total 19 respondents representing 63.3% were female instructors. This representation depicts how the trade is dominated by more females than males. This result is represented in Table 4.1.

Table 4.1: Gender of Respondents

	Frequency	Percent	Valid Percent	Cumulative Percent
Male	11	36.7	36.7	36.7
Valid Female	19	63.3	63.3	100.0
Total	30	100.0	100.0	

Source: Field Work, 2015

Results on the data collected from the questionnaires distributed to instructors with regard to age distribution revealed that a total of 11 respondents representing 36.7% were between 25 – 35years, a total of 16 respondents representing 53.3% were between the ages of 36 – 45years. However, 3 of them forming 10.0% were between the ages of 46 – 55years (Table 4.2). This suggests that majority of the respondents were mature and therefore could be captured in an academic study such as this.

Table 4.2: Age of Respondents

	Frequency	Percent	Valid Percent	Cumulative Percent
25 - 35 years	11	36.7	36.7	36.7
Valid 36 - 45 years	16	53.3	53.3	90.0
46 - 55years	3	10.0	10.0	100.0
Total	30	100.0	100.0	

Source: Field Work, 2015

This item of the questionnaire seeks to find out the educational levels of the respondents. The data gathered from the instructors showed that majority (n=17) of the respondents representing 56.7% were first degree holders. Moreover, 10 respondents representing 33.3% were Diploma/HND holders. However, 3 respondents representing 10.0% were masters holders as indicated in Table 4.3. This implies that instructors of Anlo Technical Institute and Comboni Technical Institute have very good educational backgrounds. They are therefore in good standing to argue professionally on the issues being considered in the study.

Table 4.3: Educational Level of Respondents

	Frequency	Percent	Valid Percent	Cumulative Percent
Diploma/HND	10	33.3	33.3	33.3
First Degree	17	56.7	56.7	90.0
Masters	3	10.0	10.0	100.0
Total	30	100.0	100.0	

Source: Field Work, 2015

Knowledge and significance of using block patterns and modeling

Table 4.4 displayed the knowledge of instructors of using block pattern and modeling on garment. Out of 30 respondents responded for quantitative study, 27 respondents representing 90.0% had knowledge in block pattern making and modeling. The remaining 3 of them constituting 10.0% do not have knowledge in block pattern making and modeling. The results indicate that instructors have knowledge in block pattern making and modeling. Concerning the respondent's knowledge about how to block pattern and modeled toiled, all (n=30) the respondents forming 100.0% had knowledge on how to block patterns and modeled toiled.

In response to the question whether respondents have knowledge on drafting and modelling tools and equipment for block pattern making and modeling, 28 respondents representing 93.3% were in the affirmative, thus; the instructors had knowledge on drafting and modeling tools and equipment. The remaining 2 of the constituting 6.7% cited "No" to the statement, meaning they do not have have knowledge on drafting and modeling tools and equipment. This information is represented in Table 4.4. The result reveals that the instructors have knowledge about block and pattern making and modeling. They have idea as to how to block patterns and modeled toile, and have knowledge on drafting and modeling tools and equipment. This implies that the instructor have knowledge to help the students to be good dressmaking by developing skills in modeling and draping.

Table 4.4: Knowledge of using block pattern and modeling

S/N	Question	Yes		No		Total
		N	%	N	%	
1.	Do you have knowledge about block and pattern making and modeling	27	90.0	3	10.0	30(100.0%)
2.	Do you have any idea as to how to block patterns and modeled toiled	30	100.0	--	--	30(100.0%)
3.	Do you have knowledge on drafting and modeling tools and equipment	28	93.3	2	6.7	30(100.0%)

Source: Field Work, 2015

Figure 4.2 recorded the findings on the commercial pattern used by the instructors. Out of the 30 respondents surveyed, 4 respondents representing 13.3% revealed that they use vogue. The majority (n=20) of the respondents representing 66.7% affirmed that they burda cutting is used, whereas the remaining 6 of them forming 20.0% indicated that they use simplicity. This shows that burda cutting is used by the instructors in pattern.

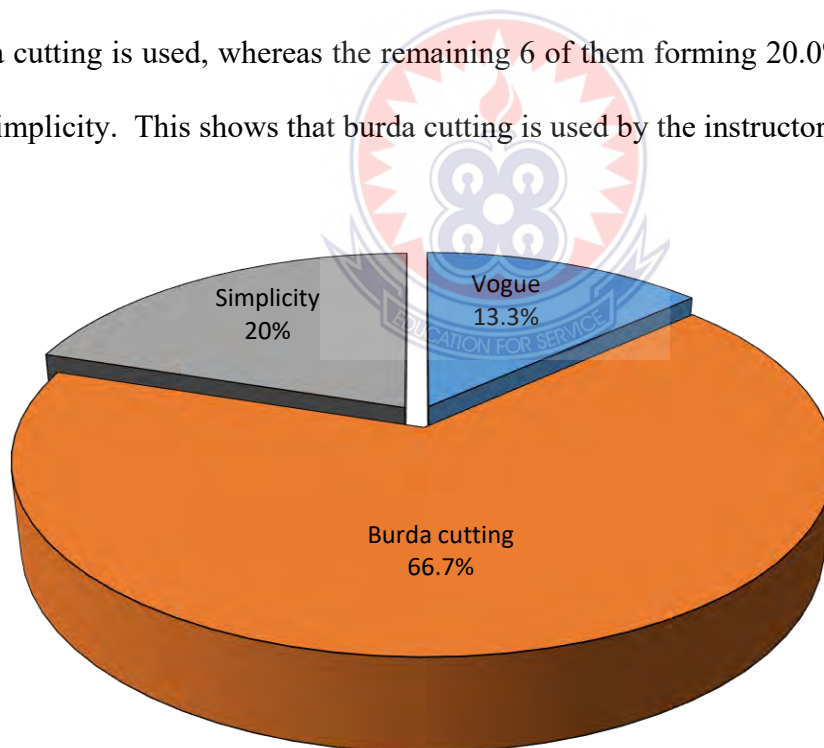


Figure 4.1: Commercial pattern used

Source: Field Work, 2015

With regards to the significance of pattern making and modeling skills, a clear indication was that 16 instructors representing 53.3% and 10 of them constituting 33.3% agreed and strongly agreed respectively that styles that are difficult adopted and modeled into different sizes by using patterns and toile. However, the remaining 4 of them constituting 13.3% were not sure on the statement that styles that are difficult are adapted and modeled into different sizes by using patterns and toile. None of the respondents disagreed nor strongly disagreed to the statement.

On the issue that saving time and energy is achieved by using block patterns and modeling, 11 respondents constituting 36.7% and 8 respondents representing 26.7% agreed and strongly agreed respectively that block patterns and modeling saves time and energy. However, 2 respondents constituting 6.7% were not sure. On the contrary, 3 respondents representing 10.0% and 6 of them constituting 20.0% strongly disagreed and disagreed respectively to the statement that block patterns and modeling saves time and energy.

Concerning whether block patterns and modeling gives a definite style design for cutting out for construction, 13 respondents representing 43.3% and 17 respondents constituting 56.7% agreed and strongly agreed respectively to the statement. None of the respondents strongly disagreed nor disagreed to the statement that block patterns and modeling gives definite style design for cutting out for construction.

Moreover, on the issue that block pattern and modeling gives perfect shape, 10 respondents constituting 33.3% and 14 of them forming 46.7% agreed and strongly agreed respectively to the statement. Interestingly, 4 respondents constituting 13.3% were not sure as to whether block patterns and modeling gives perfect shape. On the contrary, 2 respondents representing 6.7% disagreed to the statement that using block patterns and modeling gives perfect shape.

On the statement that using block patterns and modeling does not encourage alteration, 13 respondents forming 43.3% and 15 respondents constituting 50.0% agreed and strongly agreed respectively to the statement. On the other hand, 2 respondents constituting 6.7% were undecided on the issue the statement that using block patterns and modeling does not encourage alteration. In addition, none of the respondents strongly agreed and disagreed that using block patterns and modeling does not encourage alteration.

It can be concluded that by using block patterns and modeling, styles that are difficult are adapted and modeled into different sizes, time savings and energy is achieved, definite style design for cutting out for construction is assured, perfect shape is achieved, alteration is not encouraged.

Table 4.5: Significance of using block patterns and modeling

Statement	Responses					Mean	Std. Dev.
	SD	D	U	A	SA		
Styles that are difficult are adapted and modeled into different sizes by using patterns and toile	--	--	4(13.3%)	16(53.3%)	10(33.3%)	4.20	.664
Saving time and energy is achieved	3(10.0%)	6(20.0%)	2(6.7%)	11(36.7%)	8(26.7%)	3.50	1.358
It gives a definite style design for cutting out for construction	--	--	--	13(43.3%)	17(56.7%)	4.57	.504
Perfect shape is achieved	--	2(6.7%)	4(13.3%)	10(33.3%)	14(46.7%)	4.20	.925
It does not encourage alteration	--	--	2(6.7%)	13(43.3%)	15(50.0%)	4.43	.626

Source: Field Work, 2015

Key: SD=Strongly disagree, D=Disagree, U = Uncertain, A=Agree, SA = Strongly agree

Challenges faced in modeling and drafting block patterns

Table 4.6 records the degree of difficulty in drafting block pattern and modelling. From Table 4.6, it is obvious that 3 respondents representing 10.0% mentioned that how muslin is drape on the (dummy) dress stand is not difficult at all. However, 18 respondents affirmed that how muslin drape on the (dummy) dress stand is not difficult. On the

contrary, 8 respondents constituting 26.7% and 1 respondent representing 3.3% indicated that how muslin is drape on the (dummy) dress stand is difficult and very difficult respectively. The percentage shows that how muslin is drape on the (dummy) dress stand is not difficult.

Moreover, on marking the various areas on the toile on the dress stand, 6 respondents constituting 20.0% affirmed that marking the various areas on the toile on the dress stand is not difficult at all. Also, 17 of them forming 56.7% revealed that marking the various areas on the toile on the dress hand is not difficult. Meanwhile, 7 respondents representing 23.8% opined that marking the various areas on the toile on the dress is difficult. This indicates that marking the various areas on the toile on the dress stand is not difficult.

It was found that 9 respondents representing 30.0% viewed trueing the toile on the working table to be not difficult at all, 20 respondents representing 66.7% viewed trueing the toile on the working table to be not difficult, whereas 1 of them constituting 3.3% viewed trueing the toile on the working table to be difficult. The results reveal that trueing the toile on the working table is not difficult.

The results in Table 4.6 further shows that grading the toil before layering out for cutting is not difficult at all, 19 respondents representing 63.3% indicated that grading toile before layering out for cutting is not difficult. None of the respondents affirmed that grading the toil before layering out for cutting is neither difficult nor very difficult. The percentage indicates that grading the toil before layering out for cutting is not difficult.

Concerning taking measurement for block pattern and modelling, 9 respondents representing 30.0% gave a response of “Not at all”, 17 respondents constituting 56.7% cited “Not difficult”. Meanwhile, 4 respondents representing 13.3% gave a response of

“Very difficult”. This indicates that taking measurement for block pattern and modelling is not difficult.

On locating the construction areas on the dummy and on the basic slopers, 10 respondents representing 33.3% cited “Not at all” and 17 of them constituting 56.7% answered “Not difficult”. On the other hand, 3 respondents constituting 10.0% opined that locating the construction areas on the dummy and on the basic slopers is difficult. The results confirm that locating the construction areas on the dummy and on the basic slopers is not difficult.

On the issue of transferring of styles into patterns on brown paper and toile, 14 respondents representing 46.7% each indicated that transferring of style into pattern on brown paper and toile is not difficult at all and not difficult. Conversely, the smaller section (n=5) respondents constituting 16.7% opined that transferring of style into pattern on brown paper and toile is difficult. The percentage indicates that transferring of styles into patterns on brown paper and toile is not difficult.

On whether handling of tools and equipment for block pattern and modelling, 6 of them forming 20.0% opined that handling of tools and equipment for block pattern and modelling is not difficult at all, 22 respondents representing 73.3% revealed that handling of tools and equipment for block pattern and modelling is not difficult. The remaining 2 of them constituting 6.7% affirmed that handling of tools and equipment for block pattern and modelling is difficult. This clearly shows that handling of tools and equipment for block pattern is not difficult.

It can therefore be concluded that the statements displayed in Table 4.6 in drafting block patterns and modelling are not difficult. All this may be primarily due to the fact that the instructors had knowledge on the use of block pattern and modelling.

Table 4.6: Frequency of the degree of difficulty in drafting block pattern and modeling

Statement	Response				Mean	Std. Dev.
	Not at all	Not difficult	Difficult	Very Difficult		
How muslin is drape on the (dummy) dress stand	3(10.0%)	18(60.0%)	8(26.7%)	1(3.3%)	2.23	.679
Marking the various areas on the toile on the dress stand	6(20.0%)	17(56.7%)	7(23.8%)	--	2.03	.669
Trueing the toile on the working table	9(30.0%)	20(66.7%)	1(3.3%)	--	1.73	.521
Grading the toile before layering out for cutting	11(36.7%)	19(63.3%)	--	--	1.63	.490
Taking measurement for block pattern and modeling	9(30.0%)	17(56.7%)	4(13.3%)	--	1.83	.648
Locating the construction areas on the dummy and on the basic slopers	10(33.3%)	17(56.7%)	3(10.0%)	--	1.77	.626
Transferring of styles into patterns on brown paper and toile	14(46.7%)	14(46.7%)	5(16.7%)	--	1.70	.750
Handling of tools and equipment for block pattern and modeling	6(20.0%)	22(73.3%)	2(6.7%)	--	1.87	.507

Source: Field Work, 2015

Table 4.7 depicted the challenges that are faced by the instructors regarding drafting and modelling block patterns. Statistically, 11 respondents representing 36.7% and 15 of them constituting 50.0% agreed and strongly agreed respectively that procedures for measurement taking is too long, whereas 4 respondents representing 13.3% disagreed to the statement that procedures for measurement taking is too long. On the other hand, 11 respondents representing 36.7% and 18 of them constituting 60.0% agreed and strongly agreed that flat pattern drafting is paper and time wasting, while only 1 respondent representing 3.3% disagreed to the statement that procedure for measurement taking is too long.

Moreover, 18 respondents forming 60.0% agreed and 1 of them constituting 3.3% strongly agreed that tools are not common, making it difficult to make certain block pattern and modeling. However, 11 of them representing 36.7% disagreed to the statement that tools are not common at Anlo Technical Institute and Comboni Technical Institute. In

addition, 11 respondents representing 36.7% and 15 of the constituting 50.0% agreed and strongly agreed respectively that bought patterns are difficult to read and trace out, whereas, 1 of them representing 3.3% and 3 respondents constituting 10.0% strongly disagreed and disagreed that bought patterns are difficult to read and trace out.

The results indicates that procedure for measurement taking is too long, flat pattern drafting is paper and time wasting, tools are not common and bought patterns are difficult to read and trace out are the challenges faced in making block pattern and modeling at Anlo Technical Institute and Comboni Technical Institute. Some garment patterns, particularly in couture design, are constructed by draping on the dress form. However, pattern cutting from blocks or adaptation of existing patterns is now widely used in the fashion trade because of its accuracy of sizing and the speed with which ranges can be developed (Aldrich, 2008).

Table 4.7: Difficulties regarding procedure for drafting and modelling block patterns

Statement	Responses					Mean	Std. Dev.
	SD	D	U	A	SA		
Procedure for measurement taking is too long	--	4(13.3%)	--	11(36.7%)	15(50.0%)	4.23	1.006
Flat pattern drafting is paper and time wasting	--	3(10.0%)	--	15(50.0%)	12(40.0%)	4.20	.887
Tools are not common	--	11(36.7%)	--	18(60.0%)	1(3.3%)	4.53	.681
Bought patterns are difficult to read and trace out	1(3.3%)	3(10.0%)	--	11(36.7%)	15(50.0%)	4.20	1.095

Source: Field Work, 2015

Key: SD=Strongly disagree, D=Disagree, U = Uncertain, A=Agree, SA = Strongly agree

Strategies for improving on block pattern and modeling

In Table 4.8, responses given on strategies adopted to improve on block pattern and modeling is displayed. The respondents were requested to indicate the extent to which they agree or disagree to the statement in a scale, ranging from 1(strongly disagree) to 5 (strongly agree) and the results are presented in Table 4.8.

On the statement of attending workshop and seminars 12 respondents representing 40.0% and 11 respondents representing 36.7% agreed and strongly agreed that attending workshop and seminars can help to improve on block pattern and modeling. However, 3 respondents representing 10.0% were not decided on the statement. Meanwhile, 2 respondents representing 6.7% each strongly disagreed and disagreed that attending workshops and seminars can improve block pattern and modeling at Anlo Technical Institute and Comboni Technical Institute.

Concerning the issue that availability of tools and equipment for block pattern making and modeling can improve block pattern and modeling, 14 respondents representing 46.7% and 13 of them constituting 43.3% agreed and strongly agreed to the statement. However, 2 of them constituting 6.7% disagreed to the statement that availability of tools and equipment for block pattern and modeling can improve block pattern and modeling. Also, 1 respondent representing 3.3% were undecided on the statement.

On the issue of acquiring skills on block pattern making and modeling 11 respondents forming 36.7% agreed and 14 of them constituting 46.7% strongly agreed that acquiring skills on block pattern making and modeling can improve pattern making and modeling. Notwithstanding, 4 respondents representing 13.3% disagreed to the statement that acquiring skills on block pattern and modeling can improve pattern making and modeling. However, 1 respondent constituting 3.3% remained undecided on the statement.

On the part of proper allocation of time for block pattern and modeling 14 respondents representing 46.7% each agreed and strongly agreed that allocating time properly when making block pattern and modeling can improve pattern making and modeling. Conversely, 2 respondents representing 6.7% disagreed to the statement.

On the issue of using drafting of pattern as a strategy to block pattern and modeling, 6 respondents representing 20.0% agreed and 22 of them forming 73.3% agreed and strongly agreed to the statement, whereas 2 respondents constituting 6.7% disagreed to the statement that using drafting of pattern for cutting out is a strategy for block to block pattern and modeling.

The results of the study indicate that Attending workshop and seminars, availability of tools and equipment for block pattern making and modeling, acquiring skills on block pattern making and modeling, proper allocation of time for block pattern making and modeling and using drafting of pattern for cutting out can improve block pattern and modeling. In a study conducted by Obinnim & Pongo (2015), the respondents showed interest and willingness to learn how to make patterns. As this will keep them abreast with the changing trends in fashion and also enable them keep their ready-to-pay/dressed-to-kill clients for continuous flow of business. Hence there will be the need for them to work with celebrated instructors in flat pattern making in fully-equipped studios, as this will inspire them to learn all they need to know about flat pattern making. Again, the indicated that the dressmakers agreed that learning how to make patterns would help solve the problem of fabric wasting thereby boosting productivity while raising their income levels. So they would have to work through the process of measuring the body accurately, creating a flat paper pattern, mocking the draft out of calico and fitting on a three dimensional figure. Through both $\frac{1}{4}$ and full-scale exercises, this will help them understand the transition from two-dimensional patterns to three-dimensional designs.

The study confirms with Obininim and Pongo (2015) analysis made from the data gathered that, 67.86% of the respondents would like to use patterns for cutting out whereas 32.14% of respondents prefer using freehand cutting method. Another 76.43% are willing to learn how to make pattern themselves, 23.57% are not interested at all.

Table 4.8: Ways of improving on block pattern and modeling

Statement	Responses					Mean	Std. Dev.
	SD	D	U	A	SA		
Attending workshop and seminars	2(6.7%)	2(6.7%)	3(10.0%)	12(40.0%)	11(36.7%)	3.93	1.172
Availability of tools and equipment for block pattern making and modeling	--	2(6.7%)	1(3.3%)	14(46.7%)	13(43.3%)	4.27	.828
Acquire skills on block pattern making and modeling	--	4(13.3%)	1(3.3%)	11(36.7%)	14(46.7%)	4.17	1.020
Proper allocation of time for block pattern making and modeling	--	2(6.7%)	--	14(46.7%)	14(46.7%)	4.33	.802
Using drafting of pattern for cutting out	--	--	2(6.7%)	6(20.0%)	22(73.3%)	4.67	.606

Source: Field Work, 2015

Key: SD=Strongly disagree, D=Disagree, U = Uncertain, A=Agree, SA = Strongly agree

4.2.1 Results and Discussion of Questionnaire from Students

A questionnaire consisting of closed ended and open ended items were designed items for the students at Anlo Technical Institute and Combini Technical Institute in the Volta Region of Ghana. The items on the questionnaires had options from which respondents selected the options that best suited the extent to which they agreed with the statement. The questionnaires were used for students and address the research questions.

Demographic Information of Respondents

This section concentrates on the gender of students, age of the students, and the educational background of the students

Table 4.9 depicted gender of the respondents. Statistically, 40 respondents representing 30.8% were males, while 90 were females constituting 69.2%. This indicates that there were more female respondents than male respondents. This depicted how trade is dominated by women especially.

Table 4.9: Gender of Respondents

	Frequency	Percent	Valid Percent	Cumulative Percent
Male	40	30.8	30.8	30.8
Valid Female	90	69.2	69.2	100.0
Total	130	100.0	100.0	

Source: Field Work, 2015

Table 4.10 displayed the age category of the respondents. Majority (n=73) of the respondents representing 56.2% were between the ages below 25years. Moreover, 51 respondents constituting 39.2% were between the age group of 25 – 35years. The smaller section (n=6) of the respondents forming 4.6% were between the age group of 36-45years. This indicates that the majority of the students are their youthful ages with an average mean score of 1.48.

Table 4.10: Age of Respondents

	Frequency	Percent	Valid Percent	Cumulative Percent
Below 25 years	73	56.2	56.2	56.2
Valid 25 - 35 years	51	39.2	39.2	95.4
36 - 45 years	6	4.6	4.6	100.0
Total	130	100.0	100.0	

Source: Field Work, 2015

Table 4.11 recorded the educational backgrounds of the respondents. The qualifications recorded in the figure ranges from masters to the least one such as the SHS qualifications. Majority (n=113) of the students representing 86.9% were in the category of SHS/VOTECH and the remaining 17 respondents representing 13.1% were Diploma/HND, whereas none of the students had first degree nor masters.

Table 4.11: Educational Level of Respondents

	Frequency	Percent	Valid Percent	Cumulative Percent
SHS/VOTECH	113	86.9	86.9	86.9
Diploma/HND	17	13.1	13.1	100.0
Valid First degree	0	0.0	0.0	0.0
Masters	0	0.0	0.0	0.0
Total	130	100.0	100.0	

Source: Field Work, 2015

Knowledge and significance of using block patterns and modeling

In Table 4.12 the respondent's knowledge of using block pattern and modeling were determined. To the statement "Do you have knowledge about block and pattern making and modelling", 107 respondents forming 82.3% answered "Yes", 23 respondents representing 17.7% said "No". This percentage shows that students have knowledge about block and pattern making and modelling. To statement which is "Do you have any idea as to how to block patterns and modelled toiled", 93 respondents forming 71.5% answered "Yes", while 37 of them representing 28.5% cited "No". This clearly shows that students have idea as to how to block pattern and modelled toiled. One hundred (100) respondents representing 76.9% responded "Yes" while 30 of them constituting 23.1% responded "No". This shows that the students have knowledge on drafting and modeling tools and equipment.

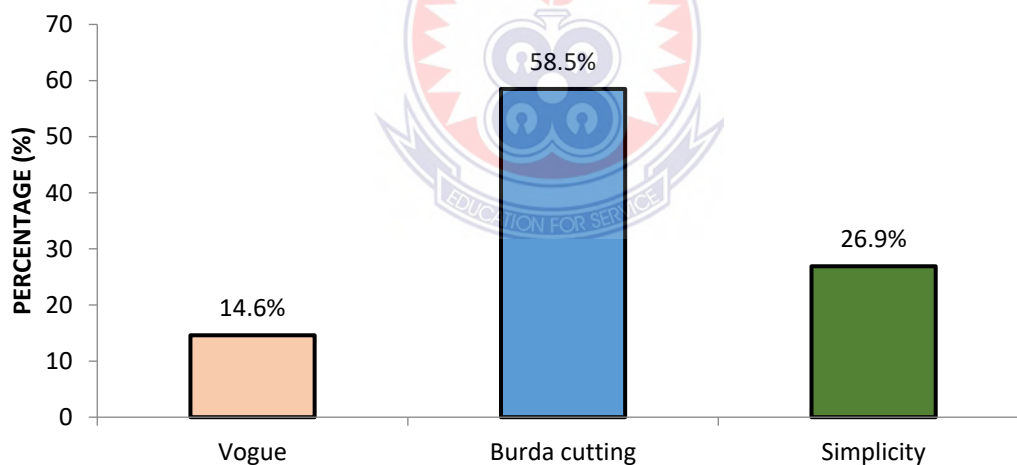
It can be concluded that students at Anlo Technical Institute and Combini Technical Institute in the Volta Region of Ghana have knowledge of using block pattern and modelling.

Table 4.12: Knowledge of using block pattern and modeling

S/N	Question	Yes		No		Total
		N	%	N	%	
1.	Do you have knowledge about block and pattern making and modeling	107	82.3	23	17.7	130(100.0%)
2.	Do you have any idea as to how to block patterns and modeled toiled	93	71.5	37	28.5	130(100.0%)
3.	Do you have knowledge on drafting and modeling tools and equipment	100	76.9	30	23.1	130(100.0%)

Source: Field Work, 2015

Figure 4.2, shows the varying views of respondents on the commercial pattern used. Statistically, 19 respondents constituting 14.5% used vogue to cut the fabric and sew, whereas the more than half 76(58.5%) of the respondents said they use Burda cutting. In addition, 35 respondents representing 26.9% mentioned that simplicity is used to cut the fabric and sew. This clearly indicates that the respondents used burda for cutting.

**Figure 4.2: Commercial patterns used**

Source: Field Work, 2015

Table 4.13 indicates the Significance of using block patterns and modeling. Concerning the issue that styles that difficult are adapted and modeled into different size by using patterns and toile, 64 respondents representing 49.2% agreed and 54 of them constituting 41.5% strongly agreed to the statement. Moreover, 4 respondents representing

3.1% and 5 of them forming 3.8% strongly disagreed and disagreed respectively to the statement that styles that are difficult are adapted and modeled into different sizes by using patterns and toil. However, 3 respondents constituting 2.3% remained uncertain.

On responding to the issue that freehand cutting is more time consuming than fabric cut out in layers, 41 respondents constituting 31.5% agreed and 73 respondents constituting 56.2% strongly agreed to the statement. On the contrary, 3 respondents constituting 2.3% strongly disagreed and 5 of them representing 3.8% disagreed that freehand cutting is more time consuming than fabric cut out in layers, whereas 8 of them constituting 6.2% remained uncertain.

Concerning the issue that saving time and energy is achieved when block pattern and modeling is used, 62 respondents constituting 47.7% and 46 respondents representing 35.4% agreed and strongly agreed to the statement, whereas 8 respondents constituting 6.2% and 10 respondents forming 7.7% strongly disagreed and disagreed that saving time and energy is achieved. Interestingly, 4 respondents constituting 3.1% were uncertain.

On the issue that block patterns and modeling gives a definite style design for cutting out for construction, 42 respondents constituting 32.3% and 74 of them forming 56.9% agreed and strongly agreed to the statement, whereas 7 of them constituting 5.4% remained uncertain. On the contrary 7 respondents constituting 5.4% disagreed to the statement that pattern and modeling making gives a definite style design for cutting out for construction.

Concerning the issue that perfect shape is achieved, 51 respondents constituting 39.2% agreed and 68 of them representing 52.3% strongly agreed to the statement, whereas 5 of them constituting 3.8% remained uncertain. Meanwhile, 6 respondents constituting 4.6% disagreed to the statement perfect shape is achieved when pattern and modeling is made.

On responding to the issue that block patterns and modeling does not encourage alteration, 42 respondents forming 32.3% and 79 of them constituting 60.8% agreed and strongly agreed to the statement. Meanwhile 8 respondents constituting 6.2% remained uncertain, whereas 1 respondent forming 0.8% disagreed to the statement that block patterns and modeling does not encourage alteration.

The results indicated that using block patterns and modeling are of significant as the styles that are difficult are adapted and modeled into different sizes by using patterns and toile, free hand cutting is more time consuming than fabric cut out in layers, saving time and energy is achieved, definite style design for cutting out for construction is achieved, perfect shape is achieved and alteration encouraged.

Table 4.13: Significance of using block patterns and modeling

Statement	Responses					Mean	Std. Dev.
	SD	D	U	A	SA		
Styles that are difficult are adapted and modeled into different sizes by using patterns and toile	4(3.1%)	5(3.8%)	3(2.3%)	64(49.2%)	54(41.5%)	4.22	.909
Free hand cutting is more time consuming than fabric cut out in layers	3(2.3%)	5(3.8%)	8(6.2%)	41(31.5%)	73(56.2%)	4.35	.931
Saving time and energy is achieved	8(6.2%)	10(7.7%)	4(3.1%)	62(47.7%)	46(35.4%)	3.98	1.121
It gives a definite style design for cutting out for construction	--	7(5.4%)	7(5.4%)	42(32.3%)	74(56.9%)	4.41	.823
Perfect shape is achieved	--	6(4.6%)	5(3.8%)	51(39.2%)	68(52.3%)	4.39	.773
It does not encourage alteration	--	1(0.8%)	8(6.2%)	42(32.3%)	79(60.8%)	4.53	.649

Source: Field Work, 2015

Key: SD=Strongly disagree, D=Disagree, U = Uncertain, A=Agree, SA = Strongly agree

Challenges faced in modeling and drafting block patterns

In order to establish whether respondents encounter any challenges when modeling and drafting block patterns. As noted by Aldrich (2006) that “beginners all over the world, be it students who are starting practical pattern drafting and cutting as part of Fashion

Design or Diploma courses, or City and Guilds Examinations, encounter difficulties during basic pattern draft and cutting for individual figures.

Aldrich again noted that in garment patterns, measurement takes too long by draping on the dress stand. The following statistics were gathered in support of the author. From the questionnaire administered to students, Table 4.14 revealed that 58 respondents representing 44.6% and 52 of them forming 40.0% agreed and strongly agreed respectively that procedures for measurement taking is too long, while 4 respondents constituting 3.1% and 14 of them constituting 10.8% strongly disagreed and disagree respectively to the statement that procedure for measurement taking is too long. Meanwhile, 2 respondents representing 1.5% remained uncertain on whether procedure for measurement taking is too long. This indicates that procedure for measurement taking is too long as it was rated third (3rd) with a mean score of 4.08 ($\bar{x} \geq 3.8 = \text{agreed}$)

On the issue of flat pattern drafting is paper and time wasting, 48 respondents representing 36.9% and 54 respondents constituting 41.5% agreed and strongly agreed respectively to the statement. In addition, 6 respondents forming 4.6% and 19 of them constituting 14.6% strongly disagreed and disagreed respectively to the statement that flat pattern drafting is paper and time wasting. The smaller section (n=3) of the respondents representing 2.3% were uncertain about the statement. The results show that flat pattern drafting is paper and time wasting with a means score of 3.96.

Concerning the issue that tools are not common at the institutions, 59 respondents constituting 45.4% and 56 of them forming 43.1% agreed and strongly agreed respectively to the statement. On the contrary, 13 respondents representing 10.0% disagreed to the statement that tools are not common at the institutions. In addition, the remaining 2 respondents constituting 1.5% were undecided on the statement. The results indicate that

tools are not common at Anlo Technical Institute and Comboni Vocational Technical Institute with a mean score of 4.22.

On the issue of bought pattern are difficult to read and trace out, 49 respondents constituting 37.7% and 62 of them forming 47.7% agreed and strongly agreed respectively to the statement, whereas 2 of them forming 1.5% and 12 respondents constituting 9.2% strongly disagreed and disagreed to the statement that bought patterns are difficult to read and trace out. The remaining 5 respondents constituting 3.8% remained uncertain. This shows that bought patterns are difficult to read and trace out with a mean score 4.21. According to Knowles (2005), prominent fashion designers have accepted the fact that there are challenges associated with pattern making. Also, understanding instructions for pattern making is another factor that will give the pattern maker the knowledge of proportioning pattern styles to the size they are working with. Measurements taken from live models, that are used to draft flat patterns for slopers must be calculated and plotted so well that they can be used to create unlimited and sophisticated styles.

Table 4.14: Difficulties faced in modeling and drafting block patterns

Statement	Responses					Mean	Rating
	SD	D	U	A	SA		
Procedure for measurement taking is too long	4(3.1%)	14(10.8%)	2(1.5%)	58(44.6%)	52(40.0%)	4.08	3 rd
Flat pattern drafting is paper and time wasting	6(4.6%)	19(14.6%)	3(2.3%)	48(36.9%)	54(41.5%)	3.96	4 th
Tools are not common	--	13(10.0%)	2(1.5%)	59(45.4%)	56(43.1%)	4.22	1 st
Bought patterns are difficult to read and trace out	2(1.5%)	12(9.2%)	5(3.8%)	49(37.7%)	62(47.7%)	4.21	2 nd

Source: Field Work, 2015

$\bar{x} \geq 3.8 = \text{agreed}$

Key: SD=Strongly disagree, D=Disagree, U = Uncertain, A=Agree, SA = Strongly agree

Strategies for improving on block pattern and modeling

On strategies put in place to overcome the challenges, Table 4.15 revealed that attending workshop and seminars with a mean score of 4.25, availability of tools and equipment for block pattern making and modeling with a mean score of 4.48, and acquire skills on block pattern making and modeling when you are in school with a mean of 4.37 are the ways of improving block pattern and modeling. The respondents further revealed that proper allocation of time for block pattern making and modeling with a mean score 4.22, using of flat pattern for cutting out with a mean score of 4.21, and using drafting of pattern for cutting with a means score of 4.25 are the ways of improving block pattern and modeling as the means score exceed the cut – off point of 3.5. According to Obinnim and Pongo (2015), purchasing of pattern making tools and taking some time off busy schedules to attend workshops to learn or finesse the difficult areas of pattern making to enhance their skills are the strategies for overcoming challenges of block pattern and modeling. Analysis made from Obinnim and Pongo (2015) clearly indicates that, 67.86% of the respondents would like to use patterns for cutting out whereas 32.14% of respondents prefer using freehand cutting method. Another 76.43% are willing to learn how to make pattern themselves, 23.57% are not interested at all. On the part of acquisition of skills, it was obvious from the result that 72.86% were willing to make time to attend a workshop on patternmaking even though they acknowledged it was a waste of time. Only 27.14% thought it was not necessary, hence they were not willing to attend any workshop on patternmaking. Analysis made on drafting tools dressmakers use gave a clear indication of how dressmakers are ready and willing to adopt strategies to learn how to make patterns, even though they perceived patternmaking as challenging and would not waste time on it (Obinnim and Pongo, 2015).

Table 4.15 Ways of improving block pattern and modeling

Statement	Responses					Mean	Rating
	SD	D	U	A	SA		
Attending workshop and seminars	4(3.1%)	6(4.6%)	5(3.8%)	53(40.8%)	62(47.7%)	4.25	3 rd
Availability of tools and equipment for block pattern making and modeling	1(0.8%)	4(3.1%)	2(1.5%)	47(36.2%)	76(58.5%)	4.48	1 st
Acquire skills on block pattern making and modeling when you are in school	3(2.3%)	4(3.1%)	9(6.9%)	40(30.8%)	74(55.9%)	4.37	2 nd
Proper allocation of time for block pattern making and modeling	---	12(9.2%)	10(7.7%)	46(35.4%)	62(47.7%)	4.22	5 th
Using of flat pattern for cutting out	3(2.3%)	8(6.2%)	12(9.2%)	43(33.1%)	64(49.2%)	4.21	7 th
Using drafting of pattern for cutting out	3(2.3%)	4(3.1%)	14(10.8%)	46(35.4%)	63(48.5%)	4.25	3 rd

Key: SD=Strongly disagree, D=Disagree, U = Uncertain, A=Agree, SA = Strongly agree

4.3 Results and Discussion of Interview

4.3.1 Results and Discussion of Interview from Instructors

Ten (10) instructors from Anlo Technical Institute and Comboni Vocational Technical Institute of the Volta Region were selected. The issues of the interview conducted includes; knowledge and familiarity of block pattern and modeling, significance of pattern and modeling, challenges faced in block pattern and modeling, and the strategies for improving block pattern and modeling.

On their knowledge and familiarity of block pattern making methods, the respondents revealed that they use freehand cutting method which is the direct method even though they had a fair knowledge of block pattern making and modeling methods. This category of interviewees gave positive response and also uses already – made patterns. A participant at Anlo Technical Institute remark;

“I had little knowledge of block pattern making and modelling for cutting out, and do not also know about the existence of already – made patterns”.

Through the interview, the respondents indicated that they do not have the tools and equipment needed for pattern making and modeling. Some section of the respondents mentioned that they are looking forward and hoping that they will also be given some of the contracts to sew for school children and make money and procure some of their needs to enhance their shops, work and be able to save and through that improve their living condition.

When the interviewees were interviewed why they use free-hand cutting method, it was answered that because that was what they learnt during their schooling and apprenticeship. When asked a follow-up question on whether they are satisfied with the work that they are doing and whether it meets the needs of clients and their expectations, with the use of only one method, the most prominent response was that, at least it had occupied them and they were able to maintain their family and household through the little money they make at the end of the day. Most of them expressed interest in learning other methods to enable them meet clients' needs in terms of dress designs that are sophisticated and cannot be cut using only the free-hand method.

Seeking the views of the interviewee's on the significance of patterns and modeling, the respondents revealed that using patterns would economize the fabrics they cut out, give different designs, and would be kept for future use. The respondents indicated that they use them as markers for bulk cutting to enable them meet clients demand and satisfaction.

Concerning challenges that faced when making patterns and modelling, the participants responded that, they do not have problems when making block patterns but would like to attend any workshop to learn more but the remaining.

Moreover some respondents met at Comboni Vocational Technical Institute revealed that, the challenges they faced when making patterns, are due to the inadequate

skills acquired during schooling and lack of technical know-how when it comes to making of pattern and toile for cutting out. They were handicapped in terms of block pattern making skills and needed help to enable them do it better and use it to cut out without wasting fabric. A respondent at Comboni Vocational Technical Institute said:

“Students find it difficult to apply some of the techniques that are needed to enable them measure, draft and model effectively”.

When interviewed on the strategies put in place to overcome the challenges identified, respondents were positive as most of them showed interest in the subject and were willing to purchase the necessary tools and equipment needed and also attend any workshop to learn how to make and model patterns. They conceded to the fact that, learning the details of the skill would keep them abreast with fashion and enable them retain their clients. Skill training was a very noteworthy response, as it was noted as being essential to acquiring more to add to what they have and that if they were able to become prominent, they would receive more orders and be able to increase the value and profitability of their business. The respondents believed that learning how to make patterns would help solve problem of fabric wasting and boost productivity by keeping them busy all year round.

4.4 Results and Discussion of Observation

In order to get good generalization of the study, the researcher visited, Anlo Technical Institute and Comboni Vocational Technical Institute of the Volta Region. Visits to the two (2) vocational institutions and some technical institutions gave varied pictures in the various institutions visited.

4.4.1 Results of Observation at Comboni Vocational Institute

In the Comboni vocational institute, the designer was demonstrating how to cut out. It was observed that, the cloth was being cut out as marked with chalk to outline a design. With permission, he was asked why he used the direct method of cutting out, he explained that even though he prepares patterns and also know how to model on the dress stand, he prefers using freehand because he feels preparing the patterns before cutting out the actual fabric wastes his time. A follow-up question on whether the fabric being cut was not wasted too much before desired design is cut. There was a bit of hesitation, but answered by saying that, at least some of the fabric would be wasted. It was noted those fashion designers who were familiar with pattern making methods used freehand, also known as the direct cutting method.

It was also observed that those designers who polished up at a tertiary institution after technical institute training were also using freehand cutting method but use pattern or model whenever the need arises.

Observation on tools and equipment for pattern making revealed that there were some of the tools and equipment but there is room for improvement on drafting and modelling tools. Equipment such as dummy and very large and smooth tables was needed. The dummy in the shop was bought by the institutions and some were locally made with some deformities which would affect any modelling on it.

4.4.1 Results of Observation at Anlo Technical Institute

At Anlo Technical Institute, it was observed that student uniforms were being cut out by the use of block patterns as markers for bulk cutting, but this was used in conjunction with the freehand cutting method. When questioned on the importance of

patterns in fashion designing, it was noted that the use of patterns helped to do bulk cutting which saved a lot of time.

In the department where there was ongoing cutting and sewing, it was observed that the process narrated above was prevailing throughout the Comboni Vocational Institute and Anlo Technical Institute. Students were watching how chalk was used to mark directly on the cloth before cutting out. The chalk being used was tailors chalk and different from the chalk used for writing on chalk boards or “black boards”. When asked why they were not using blackboard chalk, most of them laughed it over. They wasted so much fabric before a style is cut out. Few of them who learnt how to make and model patterns used them is cutting out by laying the patterns on top of the fabric economically. It was again noted that, most of them had in-depth knowledge in fashion designing made use of block patterns for cutting, and also used it as a marker for laying out and cutting out during bulk sewing.

Observation made during the visits gave a clear indication that challenges encountered during block pattern making such as not being able to grade patterns and work with dummy to have the feel of the (3D) three-dimensional figure, compelled fashion designers to chalk mark unto fabric instead of using patterns for cutting out. The significance or benefits of acquiring drafting skills are so overwhelming that dressmakers have to include this very important skill into students during schooling to enable them know how relevant patterns are to the fashion designers and fashionist as a whole.

CHAPTER FIVE

SUMMARY OF FINDINGS, CONCLUSIONS AND RECOMMENDATIONS

5.1 Introduction

This chapter discusses the summary of findings, conclusions and recommendations.

5.2 Summary of Findings

The following are the summary of findings of the study.

- The study indicated that the instructor and students had knowledge about block and pattern making and modeling, idea as to how to block patterns and modeled toiled, and knowledge on drafting and modeling tools and equipment.
- It was observed that by using block patterns and modeling, styles that are difficult are adapted and modeled into different sizes, time savings and energy is achieved, definite style design for cutting out for construction is assured, perfect shape is achieved, alteration is not encouraged.
- The study revealed that the challenges faced in making block pattern and modeling at Anlo Technical Institute and Comboni Technical Institute includes; procedure for measurement taking is too long, flat pattern drafting is paper and time wasting. The study further indicated that tools are not common and bought patterns are difficult to read and trace out are also the challenges faced in making block pattern and modeling at Anlo Technical Institute and Comboni Technical Institute.
- It was again found that attending workshop and seminars, availability of tools and equipment for block pattern making and modeling, acquiring skills on block pattern making and modeling, proper allocation of time for block pattern making

and modeling and using drafting of pattern for cutting out can improve block pattern and modeling.

- Data gathered from the interviews revealed that instructors and the students use block pattern and modelling onto the fabric before cutting out and used chalk to mark because that was the skills they acquired in the Technical and Vocational training, Higher National Diploma and Tertiary level.
- Observation made during the visit to the institutions indicated that the instructors and the students combine both the block pattern making method with toiles and freehand for cutting out.

5.3 Conclusions

The study showed that instructor and students had knowledge about block and pattern making and modeling, idea as to how to block patterns and modeled toiled, and knowledge on drafting and modeling tools and equipment. Attending workshop and seminars, availability of tools and equipment for block pattern making and modeling, acquiring skills on block pattern making and modeling, proper allocation of time for block pattern making and modeling and using drafting of pattern for cutting out can improve block pattern and modeling.

It can be concluded that procedure for measurement taking is too long, flat pattern drafting is paper and time wasting, tools are not common and bought patterns are difficult to read and trace out are the challenges faced in making block pattern and modeling at Anlo Technical Institute and Comboni Technical Institute.

5.4 Recommendations

The following recommendations are made to address the findings;

- The researcher recommends that Technical Institutions and NVTI take a second look at what goes into agreement and training of trainees by introducing block pattern making and modelling into the training programme for those under apprenticeship in order to broaden their scope in pattern making method especially for Ghana Association of Tailors and Dressmakers to meet the demand of clients.
- Individual fashion designers should get closer to those colleagues who are well versed in block pattern making and modelling to help them in times of need to enable them get acquainted with skills to meet current trends in fashion and designing.
- Fashion designers in the field of fashion should see to it that, all trainees are made to write skill test exams at the end of their training periods as part of awarding the certificate to enable those who can proceed from there to further their education to an advanced level.
- Instructors in the tertiary institutions that are vocational and technically inclined should encourage the use of block pattern making and modelling for trainees to progress practically and if possible academically to enable them get in-depth training in the field of fashion.
- Fashion designers must acquaint themselves very well with life and body models and learn to take mark constructional areas on dummies and the basic sloppers to facilitate accurate measurement taking to enhance their measuring skills so that future trainees will be able to pick block pattern and modelling skills from the scratch, and build on it for effective and efficient use in order to get future fashion designers in Ghana as a whole.

- Masters in fashion design must equip their workshops with modern tools and equipment to encourage the unemployed to go to apprenticeship. This will encourage constant practicing of block pattern making and modelling skills at work places and at homes after work to eliminate the entire notion associated with pattern making and modelling that it is difficult.
- Fashion designers in the technical and vocational institutions in collaboration with COTVET to organize training workshops for Ghana National Association of Tailors and Dressmakers at least twice in a year to learn the skills to enable them broaden their scope and increase their confidence level.



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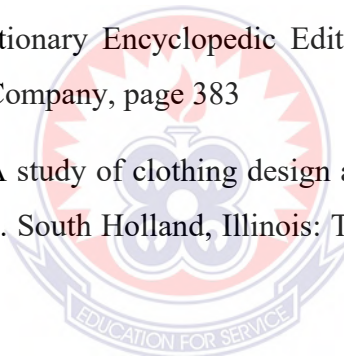
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APPENDIX A

UNIVERSITY OF EDUCATION, WINNEBA

COLLEGE OF TECHNOLOGY EDUCATION, KUMASI

QUESTIONNAIRE FOR FASHION INSTRUCTORS

PREAMBLE: This questionnaire is designed to evoke information on the topic “The effect on block pattern making and modeling on Garment Manufacturing. A case study of Anlo Technical Institute and Comboni Vocational Technical Institute (South Tongu Municipal) in the Volta Region. Your opinion is being sought to help the researcher to complete the study. Kindly respond to the following questions as brief as possible. Please be assured that your responses will be kept confidential and solely for academic purposes.

INSTRUCTIONS

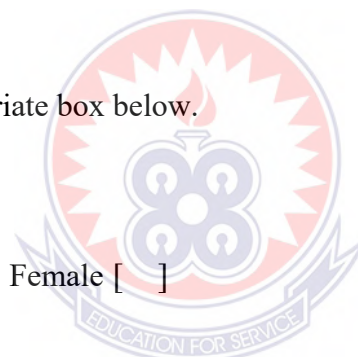
Please tick [✓] in the appropriate box below.

Bio Data

1. Gender

Male []

Female []



2. Age

Below 25 []

25 – 35 []

36 – 45 []

46 – 55 []

60+ []

3. Educational Level

SHS/VOTECH []

Diploma/HND []

1ST Degree []

Masters []

Other.....

SECTION B: Knowledge and significance of Block Pattern Making and Modelling in fashion design and textiles.

4. Do you have any knowledge about block pattern making and modelling in fashion design and textiles?
Yes [] No []
5. If you indicate yes, do you draft block or model toile yourself? Or you use commercial patterns? Please indicate.....
6. Which of these commercial patterns do you use?
Vogue [] Burda Cutting [] Simplicity []
7. Do you have any idea as to how to block patterns and modeled toile that can help in obtaining intricate designs for cutting out?
Yes [] No []
8. If yes, please write down these ideas.....
9. Do you have drafting and modeling tools and equipment?
Yes [] No []
10. If you indicate “No” in question (9), Please give reason(s) why you do not have them?
Are they not available? [] Are they expensive? []

11. Significance of using block patterns and modeling for cutting out designs

To the extent you agree or disagree to the statement. Key: SD = Strongly agree, D = Disagree, U=Undecided, A=Agree, SA=Strongly agree

Statement	SD	D	U	A	SA
Styles that are difficult are adapted and modeled into different sizes by using patterns and toile					
Free hand cutting is more time consuming than fabric cut out in layers					
Saving time and energy is achieved					
It gives a definite style design for cutting out for construction					
Perfect shape is achieved					
It does not encourage alteration					

SECTION C: Challenges faced when modeling and drafting block patterns.

12. Please respond to the following statements based on your experience by indicating the degree of difficulty in drafting block pattern and modeling by ticking the following appropriate column as shown below

Statement	Response			
	Not at all	Not difficult	Difficult	Very difficult
How muslin is drape on the (dummy) dress stand				
Marking the various areas on the toile on the dress stand				
Trueing the toile on the working table				
Grading the toile before layering out for cutting				
Taking measurement for block pattern and modeling				
Locating the construction areas on the dummy and on the basic slopers				
Transferring of styles into patterns on brown paper and toile				
Handling of tools and equipment for block pattern and modeling				

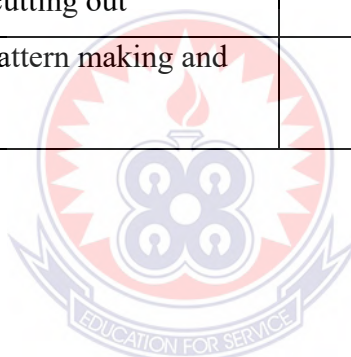
13. Please indicate the extent to which you agree on the following statements about the challenges faced when modeling and drafting block patterns. Please rate using a scale of 1 to 5 where 1 represents strongly disagree, 2 represents disagree, 3 uncertain, 4 represents agree and 5 represents strongly agree. *Please tick [√] the appropriate box below.*

Statement	SD	D	U	A	SA
Procedure for measurement taking is too long					
Flat pattern drafting is paper and time wasting					
Tools are not common					
Bought patterns are difficult to read and trace out					

SECTION D: Strategies adopted to improve on block pattern and modeling in fashion design and textiles

To the extent you agree or disagree to the statement. Key: SD = Strongly agree, D = Disagree, U=Undecided, A=Agree, SA=Strongly agree

Statement	SD	D	U	A	SA
Attending workshop and seminars					
Availability of tools and equipment for block pattern making and modeling					
Acquire skills on block pattern making and modeling when you are in school					
Proper allocation of time for block pattern making and modeling					
Using of flat pattern for cutting out					
Using drafting of pattern for cutting out					
Proper monitoring on block pattern making and modeling					



APPENDIX B

UNIVERSITY OF EDUCATION, WINNEBA

COLLEGE OF TECHNOLOGY EDUCATION, KUMASI

QUESTIONNAIRE FOR FASHION STUDENTS

PREAMBLE: This questionnaire is designed to evoke information on the topic “The effect on block pattern making and modeling on Garment Manufacturing. A case study of Anlo Technical Institute and Comboni Vocational Technical Institute (South Tongu Municipal) in the Volta Region. Your opinion is being sought to help the researcher to complete the study. Kindly respond to the following questions as brief as possible. Please be assured that your responses will be kept confidential and solely for academic purposes.

INSTRUCTIONS

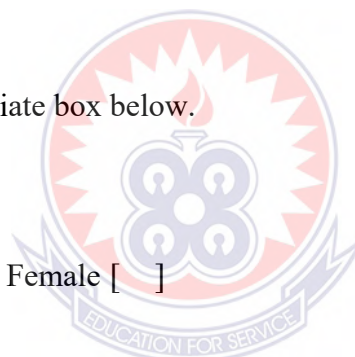
Please tick [✓] in the appropriate box below.

Bio Data

1. Gender

Male []

Female []



2. Age

Below 25 []

25 – 35 []

36 – 45 []

46 – 55 []

60+ []

3. Educational Level

SHS/VOTECH []

Diploma/HND []

1ST Degree []

Masters []

Other.....

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7. Do you have any idea as to how to block patterns and modeled toile that can help in obtaining intricate designs for cutting out?
Yes [] No []
8. If yes, please write down these ideas.....
9. Do you have drafting and modeling tools and equipment?
Yes [] No []
10. If you indicate “No” in question (9), Please give reason(s) why you do not have them?
Are they not available? [] Are they expensive? []

11. Significance of using block patterns and modeling for cutting out designs

To the extent you agree or disagree to the statement. Key: SD = Strongly agree, D = Disagree, U=Undecided, A=Agree, SA=Strongly agree

Statement	SD	D	U	A	SA
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Saving time and energy is achieved					
It gives a definite style design for cutting out for construction					
Perfect shape is achieved					
It does not encourage alteration					

SECTION C: Challenges faced when modeling and drafting block patterns.

12. Please respond to the following statements based on your experience by indicating the degree of difficulty in drafting block pattern and modeling by ticking the following appropriate column as shown below

Statement	Response			
	Not at all	Not difficult	Difficult	Very difficult
How muslin is drape on the (dummy) dress stand				
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Trueing the toile on the working table				
Grading the toile before layering out for cutting				
Taking measurement for block pattern and modeling				
Locating the construction areas on the dummy and on the basic slopers				
Transferring of styles into patterns on brown paper and toile				
Handling of tools and equipment for block pattern and modeling				

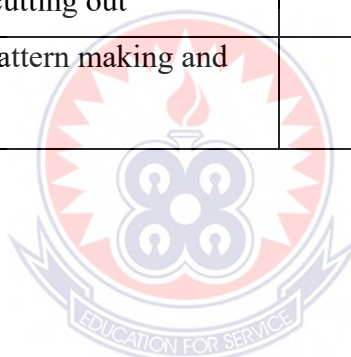
13. Please indicate the extent to which you agree on the following statements about the challenges faced when modeling and drafting block patterns. Please rate using a scale of 1 to 5 where 1 represents strongly disagree, 2 represents disagree, 3 uncertain, 4 represents agree and 5 represents strongly agree. *Please tick [√] the appropriate box below.*

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Flat pattern drafting is paper and time wasting					
Tools are not common					
Bought patterns are difficult to read and trace out					

SECTION D: Strategies adopted to improve on block pattern and modeling in fashion design and textiles

To the extent you agree or disagree to the statement. Key: SD = Strongly agree, D = Disagree, U=Undecided, A=Agree, SA=Strongly agree

Statement	SD	D	U	A	SA
Attending workshop and seminars					
Availability of tools and equipment for block pattern making and modeling					
Acquire skills on block pattern making and modeling when you are in school					
Proper allocation of time for block pattern making and modeling					
Using of flat pattern for cutting out					
Using drafting of pattern for cutting out					
Proper monitoring on block pattern making and modeling					



APPENDIX C

UNIVERSITY OF EDUCATION, WINNEBA

COLLEGE OF TECHNOLOGY EDUCATION, KUMASI

INTERVIEW GUIDE

What are your knowledge on using block pattern and modeling on garment?

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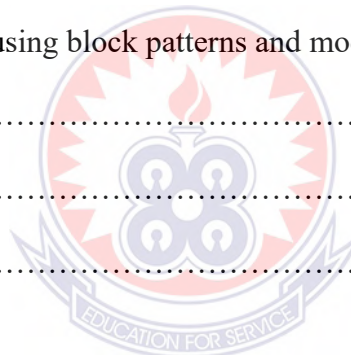
.....

What are the significance of using block patterns and modeling on garment?

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What are the challenges faced in modeling and drafting block patterns?

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What are the strategies for improving block pattern and modeling in fashion design and textiles?

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