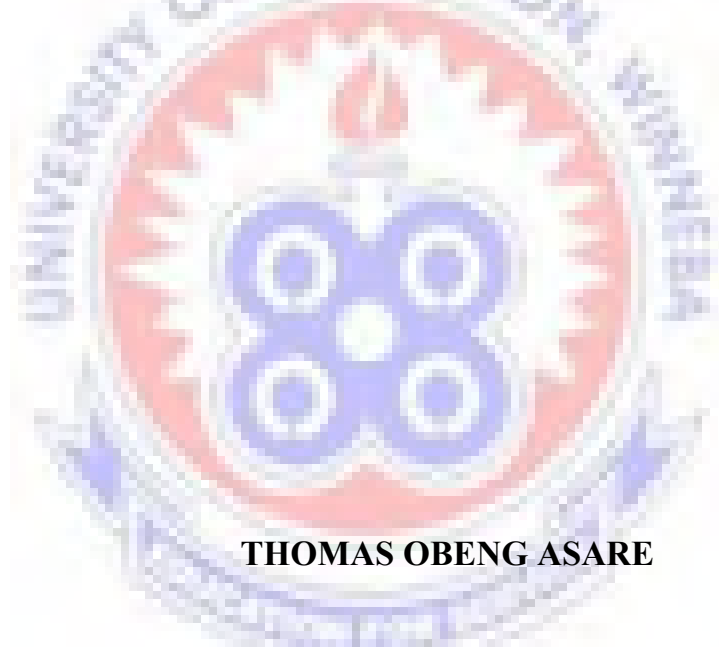# UNIVERSITY OF EDUCATION, WINNEBA

MANUFACTURING TECHNIQUES OF THE GHANAIAN SMALL GARMENT INDUSTRY IN THE GROWING GLOBAL COMPETITIVE MARKET

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DOCTOR OF PHILOSOPHY

2019

UNIVERSITY OF EDUCATION, WINNEBA

MANUFACTURING TECHNIQUES OF GHANAIAN SMALL GARMENT INDUSTRY IN THE GROWING GLOBAL COMPETITIVE MARKET

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A Dissertation in the Department of Music Education, School of Creative Arts, Submitted to the School of Graduate Studies, in Partial Fulfilment of the Requirements for The Award of The Degree of Doctor of Philosophy (Arts and Culture)

SEPTEMBER, 2019

DECLARATION

STUDENT'S DECLARATION

I, **Thomas Obeng Asare**, hereby declare that this dissertation, *Manufacturing Techniques of the Ghanaian Small-Garment Industry in the Phase of Growing Competitive Market* 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: ……….…………

SUPERVISORS' DECLARATION

We hereby declare that the preparation and presentation of thesis was supervised in accordance with the guidelines on preparation and submission of thesis laid down by the University of Education, Winneba.

Dr. Patrique deGraft-Yankson   (Principal Supervisor)

Signature ……………………………………

Date: ………………….

Prof. C.W. K. Mereku   (Co-Supervisor)

Signature ……………………………………

Date: ………………….

DEDICATION

I dedicate this thesis to my dear wife, Mrs. Diana Obeng Asare.

ACKNOWLEDGEMENTS

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ABBREVIATIONS USED IN THE STUDY

Abbreviations used in the study are explained as follows:

AGI	Association of Ghana Industries
ASSI	Association of Small-Scale Industries
CAD	Computer Aided Design
CBSE	Central Board of Secondary Education
CMP	Cut-make-pack
CMT	Cut-make-trim
COTVET	Council for Technical and Vocational Education and Training
EDI	Electronic Data Interfaces
EU	European Union
GA	Respondents from government agencies
GM	Respondents from garment merchandising
GNI	Gross National Income
GNTDA	Ghana National Tailors and Dressmakers Association
GSA	Ghana Statistical Service
ICT	Information and Communication Technology
IIMD	International Institute for Management Development

ILO	International Labour Organisation
JICA	Japan International Cooperation Agency
KNUST	Kwame Nkrumah University of Science and Technology
LGP	Respondents from large garment firms
MOTI	Ministry of Trade and Industry.
NBSS	National Board for Small Scale Industries
OECD	Organization of Economic Cooperation and Development
OECD	Organization of Economic Cooperation and Development
OSH	Occupational Safety and Health
PIMS	Profit Impact of Market Strategy
Q A	Quality Assurance
RQ	Research Question
RQ	Research Question
SAMs	Small Apparel Manufacturers
SGP	Respondents from small garment firms
TQM	Quality Management
TU	Respondents from educational institutions
UEW	University of Education, Winneba

UK	United Kingdom
UNESCO	United Nations Organisation for Education, Scientific and Cultural Organisation
USA	United States of America
WATH	West African Trade Hub
WEF	World Economic Forum
WIPO	World International Property International
WTO	World Trade Organisation

ABSTRACT

The study investigated the techniques used by the small garment manufacturing figures in Ghana in this era of technological advancement with high level of global market competition. This was vital in order to change the image of the small garment industry in Ghana to maximize productivity for sustained and optimum returns as the sub-sector struggles to survive in the local and global markets. The study employed multiple case study as the research design. Purposive and stratified random sampling techniques were engaged in selecting respondents for the study. The study focussed on selected large and small garment firms, institutions of higher learning, garment merchandisers and governmental agencies sampled from three major garment manufacturing cities, Kumasi, Accra and Tema. Interview and non-participant observation were the instruments used for data collection. Data obtained were presented using grounded theory analysis, which ensured clarity and better understanding of the discussions. The study revealed among others that low level of trained personnel in the small garment sector has led to noncompliance with quality production systems causing rejection of products. The study concluded that, the quality of assembly at the small garment firms was lower compared to international best practices since the production at the local industry was not guided by any production benchmark. The study further concluded that small garment designers were deficient in creative and imaginative abilities as manifested by the designers' dependent on design copying rather that originality. It was therefore recommended that as a matter of priority the government in collaboration with relevant stakeholders must look into formulation of policies that would ensure sustainable development of the small garment industry. Finally, the garment industry associations in collaboration with institutions of higher learning and government (COTVET) should establish training centres for the entrepreneurs in the garment industry in order to safeguard the future of the industry.

CHAPTER ONE

INTRODUCTION

1.1 Background to the Study

Managing a small garment manufacturing enterprise is an enormous responsibility in contributing to the Ghana national economy regarding the fact that people would depend on the entrepreneur in the garment industry for jobs and products. The clothing and textile industry has an overwhelming presence in the economic life of the people and remains a major contributor to the economic growth of Ghana (Quartey, 2006). Forster and Ampong (2012) state that in the first two decades of Ghana's independence that the garment sub-sector became a major key player by contributing significantly to employment and economic growth in Ghana. This is due to fashion trends being understood as a global phenomenon based on the huge economic significance of apparel production in world trade and a good source of employment, particularly for women and people with lower level of formal education (Hansen, 2004).

Globally, cosmopolitan cities such as Paris, Milan, New York, Tokyo and London have had a long history of a thriving fashion industry, which has contributed significantly to their respective nations' development. Paris is globally recognised for its fashion prowess and has therefore been dubbed the garment manufacturing capital of the world (Scott, 2004). In Italy, the fashion industry is second only to the mechanical engineering sector in terms of financial turnover (South Africa Fashion Week Report, 2005). In the fifteenth century, France fashion became an important part of the economy to the extent that Charles VII was petitioned to establish a Ministry of Fashion.

Additionally, garment manufacturing has contributed to national development in most countries by attracting fashion enthusiasts (tourists) to those places, giving jobs to

people. Rolfe and Woodwar (2005) espouses that in Africa, Madagascar is regarded as a successful case of industrialization through garment and accessories production which accounted for 35 percent of the total Madagascar exports, double that of the next largest exporting sector (fish, crustaceans, molluscs and other aquatic invertebrates). Clothing undoubtedly stands out among other creative arts industries due to its implications for poverty reduction through employment creation and economic growth (Sashs, 2005). Technology has always been important to the struggle for competitive position in the garment industry and is still largely controlled by the 'older' established industries of Japan, Europe and the USA (Taylor, 1990).

In Ghana, the garment manufacturing industry is dominated by small scale firms based on the kind of machineries and number of workers employed (Sarpong, Howard, & Osei-Ntiri, 2011). They further found that the predominance of small-scale firms in the garment industry in Ghana is characterised by low productivity as a result of apprenticeship system of skill acquisition, and financial problems couple with lack of machinery which can enhance quality garment production. As contained in its Industrial Statistics, the Ghana Statistical Service (GSS) considers firms with less than 30 employees as Micro and Small-Scale Enterprises while firms employing more than 29 workers are categorised as medium and large-scale firms (Kayanula and Quartey, 2000) and this definition has been adopted and used for the study.

In the light of the growing competitiveness of the garment industry in the global market, the Ghanaian small-scale garment sub-sector ought to do more to be abreast with the ever-changing apparel production in the world.

1.2 Statement of the Problem

The Clothing industry has been a pivot of poverty alleviation in most developing nations based on the huge employment opportunities it offers for persons with lower level of formal education (Rajesh, Narag, and Singla, 2003; Hansen, 2004; Awuye, 2014; Stotz and Kane, 2015). Available statistics from the Ghana National Tailors and Dressmakers Association (GNTDA, 2010) indicates that the total number of garment producers in Ghana is estimated at fifty thousand (50,000) and above, with about 70% involved in small-scale production and 80% of them being women (Fianu, Biney-Aidoo, Antiaye, and Oppo, 2014). Dickerson (1999) espouses that in this era of technological advancement, buyers routinely search the globe for the suppliers who can reliably deliver high quality garments at short lead times.

Sarpong, Howard and Osei-Ntiri (2011) report that the small garment manufacturers have struggled over the years to meet global competition due to obsolete equipment, lack of capital, knowledge and key skills. Foster and Adamtey (2009) posit that clients are likely to opt for ready-made new clothes when they are not satisfied with the services they receive from informal dressmakers and tailors. Jahan (2011) recounts the unhealthy working environments of the garment industry which expose the workers to numerous occupational health risks of which they are either not aware or ignorant about the effects. Observations made by the researcher over the years in Ghana's garment industry suggest that, the sub-sector is dominated by apprenticeship trained tailors and dressmakers compared to those who acquired the training at the tertiary institutions. Most of those apprenticeship trained designers are conservative and remain stuck to their master's production technique which may contain workmanship deficiencies. There is an assumption that most of the workers in the small garment sub-sector are unable to maintain basic needs from their income.

A number of related studies have been conducted to investigate issues in Ghanaian clothing industry; for example, Asare (2012) studied "critical success factors for the revival of the textile sector in Ghana" and outlined four main factors (management, government support, marketing, collaboration with local dress makers/fashion designer) as critical for reviving the clothing and textile industry however, the focus was on the textiles industry. Sarpong, Howard and Osei-Ntiri (2011) also investigated "globalization of the fashion industry and its effects on Ghanaian independent fashion designers". Their study revealed lack of capital, knowledge and key skills, low and irregular income as the main challenges facing respondents but limited the study population to Kumasi Metropolis. Furthermore, Bakker-Edoh, Mburugu and Oigo (2018) also studied "Influence of pattern drafting and free-hand cutting technique on apparel fit among fashion designers in Koforidua, Ghana" and found that apparel with free-hand cutting had problems with the required seam allowances and the width of seams but centred the study at Koforidua, Ghana. Finally, these earlier researchers did not investigate the designing and the production techniques employed in the small-scale garment sub-sector.

Hence, a gap existed where an in-depth qualitative study was conducted within a larger population to confirm or debunk the findings made by the earlier researchers as well as identifying other manufacturing practises that have implications on the competitiveness of the small garment industry. The focus of this study has been to investigate the manufacturing techniques and safety compliance situations in the small garment industry and the possibility of repositioning the industry to gain competitive advantage in the global market.

1.3 Objectives of the Study

The objectives of the study are:

1. To examine garment design development techniques employed at the small garment industry in Ghana.

2. To examine the production techniques employed by the small garment industry in Ghana.

3. To investigate workplace health and safety compliance situation at the small garment industry in Ghana.

4. To analyse the challenges and prospects in the small garment industry in trying to meet market competitions in Ghana.

1.4 Research Questions

1. How do small Ghanaian garment firms create designs for production?

2. What are the production techniques employed in the small garment industry for assembly processes in Ghana?

3. What is the situation at the small garment workplace regarding health and safety compliance in Ghana?

4. What are the challenges and prospects of the small garment industry in trying to meet market competitions in Ghana?

1.5 Assumptions

The assumptions are that:

1. The small-scale garment industry in Ghana does not meet global market competitions.

2. Importation of used foreign clothing is a threat to the small-scale garment industry.

3. The work environment of the small-scale garment firms not conducive effective production.

4. Ghanaians would patronise locally produced clothing if they are of good quality and affordable.

5. Government's good policies would enable the small-scale garment industry to meet global competition and hence reduce unemployment.

1.6 Significance of the Study

The study would reveal the challenges and constraints in the development of the local garment industry. The outcome would help develop the local fashion industry for sustainable global competition and eventually make vital contributions to economic transformation in Ghana. Finally, the study would serve as a source of reference to students, lecturers, policy makers and entrepreneurs in the garment industry.

1.7 Delimitation

The study is centred on selected small and large-scale garment firms, garment merchandisers, tertiary institutions and government agencies in Greater Accra and Ashanti Regions.

1.8 Limitations of the Study

The main challenge encountered by the researcher was inability to get data from Ghana Exports Promotion Authority because of the tight schedule of the officer in Kumasi.

1.8 Arrangement of the Rest of the Text

Chapter two reviews literature relate to the study. Chapter three outlines the methodologies employed in undertaking the study. Chapter four presents and analyses

data collected for the study. Finally, Chapter five summarizes the results and findings, draws conclusions and makes recommendations for the study.

1.9 Definition of Terms

The terminologies in this section are defined as used in the study: i.e.

Accessories: Accessories are functional or ornamental objects wrapped, tied, twisted, inserted, carried or otherwise attached to the garment to complement an outfit.

Apparel industry: "Apparel industry" and "garment industry" is used to refer to the production and retailing activities thereof. Industry publications from the United States tend to use "apparel" whereas industry publications in Bangladesh tend to use "garment/garments." In this thesis, I primarily use "garment/garments" unless referring to a source where "apparel" is used.

Apparel: In this thesis, the researcher sometimes uses the terms "apparel" or "apparel" industry. Apparel is a somewhat more modern term, which includes garments and accessories such as, footwear, hats.

Bespoke production: Custom-made garments, usually outerwear, cut to individual measurements and requirements. Bespoke garments are made by using traditional make through methods of production.

Clothing: Clothing is the materials that cover the human body, which in turn, depend on such physical conditions as climate, religious beliefs and aesthetics.

Custom-made garment: Garment made by tailor, dressmaker or couture house for an individual customer following couturier's original design (Read, 1995).

Dressmaker: An individual who makes women clothing and possess the qualities of a fashion designer, as well as a pattern maker.

Fabric: Fabric is a subset of textile, most commonly used in reference to textiles intended for personal use (such as for garments) or home use (such as upholstery).

Fashion: Fashion is a style of consumer product that is temporarily adopted by a discernible proportion of members of a social group because that chosen style is perceived to be socially appropriate for the time and situation.

Garment: The researcher primarily uses the word, "garment," to mean the articles of clothing made from a variety of textiles, fabrics, and other materials. "Clothes" and "clothing" is sometimes used interchangeably with "garment" or "garments

Large garment firms: The researcher adopted Ghana Statistical Services' definition which states that a large garment business is one that is managed and independently owned and has 30 or more workers (Kayanula and Quartey, 2000).

Marker: A marker is a digital or paper layout of all the pattern pieces spelled out in the cutting order plan for a given production run. It is tailored to a specific style, the fabric selected for that run, the array of sizes that are to be cut and exhibits the best possible utilisation of the fabric.

Quality Assurance: Commitment to quality that permeates the entire business and requires a proactive, participatory management style where every employee is involved in trying to achieve error prevention.

Small garment firm: The researcher adopted Ghana Statistical Services' definition which states that a small garment business is one that is managed and independently owned and has less than 30 workers (Kayanula and Quartey, 2000).

Standards: Standards are technical specifications defining requirements for products, production processes, services or test-methods. They are developed by industry and market actors following some basic principles such as consensus, openness, transparency and non-discrimination. Standards ensure interoperability and safety, reduce costs and facilitate companies' integration in the value chain and trade.

Style: A particular design of apparel item defined by the distinct features that create its overall appearance.

Toile: The word 'toile' is used in this study to describe a rough trial version of a garment. It is made out of inexpensive fabric and used to experiment and test out patterns for cutting and producing the final outfit.

Tolerance: Variations from identified criteria that can be allowed during production. Tolerance establishes the standard used to determine which products could be accepted for sale as within the acceptable quality and which will be rejected.

Trims: Decorative materials meant for surface treatments or details of garment such as buttons, braid, lace, bead and applique for purposes of embellishing garment.

CHAPTER TWO

REVIEW OF RELATED LITERATURE

2.0 Overview

This chapter reviews and discusses the conceptual framework and empirical data relevant to the topic to establish the gaps in the research. The literature considers areas relevant to the study and provide enough evidence to support the analytical discussions of the study. These are:

i. Theoretical framework

ii. Overview of the garment industry

iii. Competitiveness of industries

iv. Competitiveness in the apparel industry

v. The role of the apparel industry in economic development

vi. Quality in the clothing industry

vii. The global rise of fashion centres

viii. Skills Factor in Garment Manufacturing Industry

ix. Free-Hand Cutting in Small Garment Industry

x. Creativity and Apparel Manufacture

xi. The Design Process in Fashion Firms

xii. Customer satisfaction in the fashion and textiles industry

xiii. Apparel production processes

xiv. Garment assemblage

2.1 Theoretical Framework

Theoretical framework provides a grounding base, or an anchor, for the review of related literature, the methods and analysis that underlie every research (Luse &

Townsend, 2012). The Competitive Advantage Theory (Porter's Diamond Model), developed by Michael Porter was adopted to guide this study.

2.1.1 Competitive Advantage Theory by Michael Porter

Competitiveness is the degree to which a nation can under free and fair market conditions, produce goods and services that will meet the test of international markets while simultaneously maintaining or expanding the real income of its citizens (Porter, 1990).

Michael Porter's Diamond Model (also known as the Theory of National Competitive Advantage of Industries) is a diamond-shaped framework that focuses on explaining why certain industries within a nation are competitive internationally, whereas others might not. Moreover, why is it that certain companies in certain countries are capable of consistent innovation, whereas others might not? The model was developed to help small-sized businesses to understand their competitive position in global markets (Porter, 1990; Christian, 2006). For him, the ability of a nation to create higher living standards for its citizens depends ultimately on the productivity of its industries and companies. Porter's Diamond Model has been given this name because all factors that are important in global business competition resemble the points of a diamond. The main tenet behind Porter's theory is that industries in a country are internationally competitive because of very specific national conditions. One or several determinants allow these industries to build a competitive advantage. Competitive advantage is obtained when an organization develops or acquires a set of attributes (or executes actions) that allow it to outperform its competitors (Wang, 2014). The researcher considers this theoretical framework appropriate since the aim of the study is

to position the small garment manufacturers to become competitive in the local and the global markets.

As shown in Figure 1, Porter argues that any company's ability to compete in the international arena is influenced by factors such as infrastructure, the complexity of the business, labour and goods market efficiency, financial market complexity, innovation, technology, institutions of higher education and training, and macroeconomics (Porter, 1990).
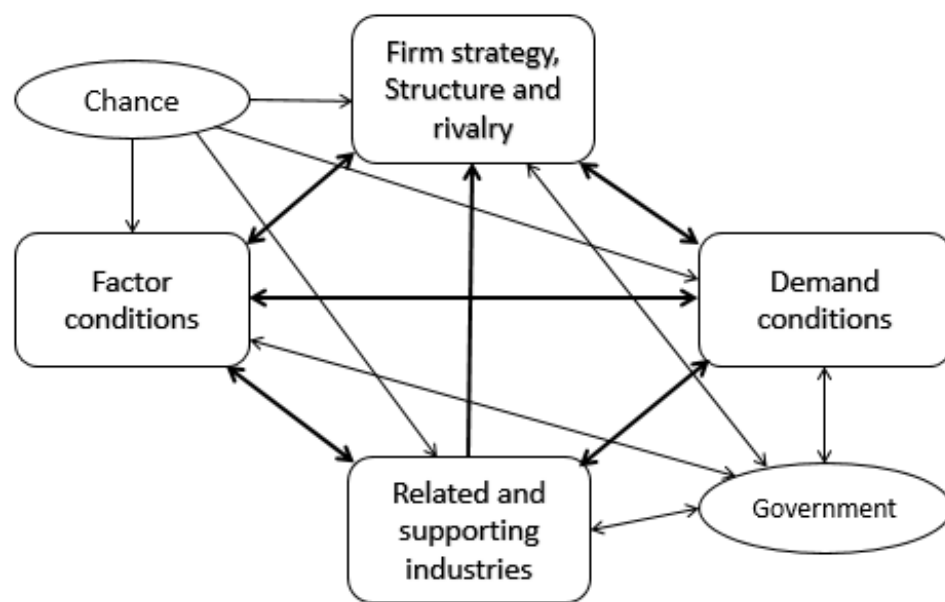
Figure 1: Porter's diamond of national advantage

Source: (Porter, 1990a)

Porter's argument is based mainly on an interrelated set of location advantages that certain industries in different nations possess. These four attributes are: (1) Firm Strategy, structure and rivalry (2) Factor Conditions such as skilled labour (3) Demand Conditions (4) Related and Supporting Industries.

Firm's strategy, structure and rivalry: Porter argues that when there are more firms, geographically close together, the more rivalry there would be, hence resulting in more innovation and a better competitive position. The higher the rivalry, the better (Mehrizi, 2008). Technological change may, according to Krugman (1993) lead to an effect called leapfrogging thus, firms that are falling behind may catch up with the leading companies.

Factor conditions: Porter (1990) divides factor conditions into two types, basic factors, and advanced factors. Resources, both human and physical, infrastructure and capital resources are all considered factor conditions. Infrastructure includes both physical infrastructure and regulatory infrastructure; this regulatory infrastructure includes government policies and programmes.

Demand conditions: The quality of the product is more important than the quantity. If the quality of the product is high, the products must be more innovative thereby enhancing the competitiveness of the firm.

Related and supporting industries: Related and supporting industries are those whereby firms coordinate or share activities in the value chain or those which involve products that are complementary to the firms of a given nation (Moon, Rugman, & Verbeke, 1998). These supporting industries must be in reach for the sector. They provide complementary services, technological advantages, buyers' information among others, which may help the industry to gain a competitive advantage (Porter, 1990).

The general role of the government is to influence the four determinants; it can upgrade the national attributes that will create an environment in which companies can

become successful. A government is not directly involved in the process in making a nation's industry competitive.

Government: Porter argues that government must be a stable factor to lowers the risk for a business to invest in a country. In other words, there is less risk when it is foreseeable how the government will behave when certain changes occur.

Chance: Chance is an external determinant; it represents events that just occur. An economic crisis, for instance, can influence the competitive position of a country or industry.

The reason for situating this study on Porter's Diamond Model is that it would help reveal how the small garment manufacturers can regularly monitor the target competitors' strategies. This would enable them respond quickly to their actions in order to determine how to overcome them and find themselves in the leadership position to survive and conquer the market (Porter, 1990).

2.2 Overview of the Garment Industry

The apparel sector has seen growth since the early acceptance of crudely produced ready-to-wear clothing of the 1800s to high quality, fashion forward ready-to-wear garments of the 1990s. Historically, as well as currently, the apparel industry has been noted for its low barriers of entry. Viable apparel manufacturing firms can be established with a small amount of simple equipment, little capital investment, and relatively unskilled but trainable labour (Glock & Kunz, 1990). This ease of entry may explain the fact that approximately 80 percent of the number of apparel firms are small firms, those with less than 50 employees (US Census Bureau, 1995).

Technological advances have made significant improvements in reducing the amount of human interventions in the production of apparel, but most of the advancements have been realized in textile manufacturing. The manual intervention required to manufacture two-dimensional pieces of fabric into a three-dimensional product for the body has made advances for the apparel industry minimal (Dickerson, 1999). Those producers which have benefited the most from technological advancements are large apparel manufacturers who have invested in specialized equipment that perform automated functions that replace manual repetitive processes (e.g., button-hole makers, blind hem machine, hemming machine) (Glock & Kunz, 1990). They have implemented automation or mass production paradigms typically producing basic items that are ordered in large quantities, which require little flexibility, and have long lead times (e.g., jeans, men's business shirts, T-shirts). These apparel manufacturers reap the benefits of economies of scale and can benefit from reduced labour costs through offshore production. Small apparel manufacturers (SAMs) typically do not have large orders that would warrant the investment of large specialized equipment or which could spread the overhead costs from shipping to off-shore facilities.

The apparel industry can be divided into four major markets: women's, men's and boys', children's and miscellaneous apparel including accessories. An analysis of the total number of firms reveals that each market represents approximately 68%, 17%, 10%, and 5% respectively (US Census Bureau, 1995). SAMs are more concentrated in the women's wear industry, which consists of high fashion, characterized by rapid change, differentiated styles and multiple product lines. Larger manufacturers typically produce standard or basic items with long runs, limited style changes, and large lot sizes, which are products associated with men's and boy's wear. Christerson and Appelbaum

(1995) also suggest that product meant for SAMs are varied and they undergo quick style changes. In analysing the shift of the proportion, the miscellaneous apparel and accessories market also increases for firms with less than 50 employees. These products are also considered to have rapid style changes and are often small items and/or customized products (e.g., bags, hats, belts) that require human manipulation. The differences between SAMs and large apparel manufacturers in terms of the concentration of the firms within the industry may be indicative of other differences between these two segments. SAMs are typically geographically close to the market for which they produce (Christerson & Appelbaum, 1995).

2.2 Competitiveness in Industry

Existence of a competitive advantage occurs when a firm can deliver similar benefits as those presented by competitors although at a low cost or convey benefits exceeding those of competitors' products (Porter M. E., 1985). A competitive advantage enables creation of superior value for the firm's customers and higher profits for itself. Resources and capabilities assist in making competitive advantage to achieve either a lower cost structure or a differentiation product. Through a choice of low cost or differentiation a firm places itself in its industry a decision which is a central component of the firm's competitive strategy.

Competitive advantage is classified into five categories: 1. Product advantage 2. Knowledge advantage 3. Cost advantage 4. Relationship advantage 5. Structural advantage (Wickham, 2006). Creating a superior product of higher value than competitors aids an enterprise in gaining product advantage. For those in the service sector this may be considered a service advantage. A firm's performance is critically impacted by the environment in which it operates which could be local, national,

regional and/or international subject to the firm's scope of activities. The environment is constituted of the numerous formal and informal institutions, individually and or interactions with each other.

The potential or capability of a firm to survive and grow is represented by the competitiveness at firm level, considering the competition of other firms in the same market and for the same profits (Morris, Kuratiko & Covin, 2008). Either the competition of firms for markets and resources is reflected in market shares or in the creation and accumulation rate of comparative advantages, such as innovative products, processes among others dependent on both its performance as well as direct entrepreneurial environment in which it operates and acts. Competitive advantage is also dependent on entrepreneurial competencies exhibited by the firm. Enterprises must understand the sources of such advantages and utilize them effectively and efficiently so that competitive advantage can be developed and sustained.

Owiye (1999) posits that competitive strategies are important to a firm while developing its fundamental approach to attaining competitive advantage (low price, differentiation, niche), the size or market position it plans to achieve, and its focus and method for growth (quality production processes). Profit potential and competitive attractiveness is dependent on the intensity of competition in an industry (Grant, 2002). Competitive strategy permits a firm to define its business today and in future, as well as determine the industries or markets with which to compete. If Enterprises can sustain competitive advantage by establishing protections against competitors' replications or creating cost barriers for competitors, then they consequently strengthen their long-term competitive position (Thompson and Strickland, 2002). Competitive strategy is intended to give the business a competitive advantage, which is a relative competitive position

that an enterprise establishes, and implements by offering superior value to customers. It also endures its competitive edge in the end by encouraging barriers to duplications. Corporations create unique competitiveness because of fluctuations in business phenomena and competitive situations.

2.4 Competitiveness in the Apparel Industry

Competitiveness in the apparel industry includes Total Quality Management (TQM), Quick Response (QR) and Just-in-Time (JIT) which have mainly been associated with large apparel manufacturers. Researchers account that SAMs may not be implementing the strategies in the same way as large manufacturers and that some strategies as defined for the larger producers are not favourable to the small producers. TQM has been defined as, "managing the entire organization so that it excels on all dimensions of products and services that are important to the customer" and "conformance to specifications" (Chase and Aquilano, 1995 p.163). QR is defined as the cooperative and coordinative effort of the supplier and retailer such that products are produced more efficiently with greater quality and are delivered to the retailer or wholesaler in a timely manner (Chase and Aquilano, 1995; Glock and Kunz, 1990; Kincade, Cassill and Williamson, 1993). QR can be realised by apparel manufacturers using computerized sewing or cutting machines and/or electronic data interfaces (EDI) where retailers can feed manufacturers' data on the retailer's inventory for products. The principles of JIT follow a situation in which manufacturers are to produce only the amount of goods needed to satisfy an order and to create products right the first time so that extra inventory is not needed and wasted goods and excess products are not made (Chase and Aquilano, 1995; Glock and Kunz, 1990). Regardless of the strategy, investment on behalf of the firm must be made (e.g., time, capital, education, training, technology).

Small apparel manufacturers (SAMs) may be operating on modified versions of these approaches used by larger firms. Glock and Kunz (1990), define marketing strategies as a way of improving growth and profitability of the firm by manipulating the firm's market composition and/or products. They provide four generic strategies: (a) market penetration - increasing sales in its existing markets by increasing visibility, (b) market development - securing new markets or developing alternative uses for existing products, (c) product development - developing new products or modifying existing products for existing markets, and (d) diversification - developing new products for new markets (Glock and Kunz, 1990). In the apparel industry's effort to produce goods faster with better quality and in smaller lot sizes, all with the inclusion of the employees, several components have been overlooked. These include (a) the transitions from producing one product to producing another or the transitions of moving from process to process and (b) the flexibility of inventory capacity. The manufacturers believe that the market exists for sewn products and that consumers would be willing to pay higher prices to receive high quality, diversified goods. Christerson and Appelbaum (1995) suggest that apparel producers of high value goods are better located in developed countries despite the higher wages required for labour. The premise behind this suggestion is that proximity to quality suppliers and customers who have the income to pay for the goods outweighs the cost of labour. Small manufacturers are using innovative methods to reduce the barriers to profit (e.g., lack of capital for equipment, bulk purchases from suppliers, facilities) by using a collaborative effort, one in which the small apparel manufacturers and designers are using shared resources.

Kincade and Vass (1998) stated that information transfer by computer is a key component to competitive strategies such as QR They suggest the slow response to the adoption of QR information technologies (e.g., POS, EDI, bar coding) is associated with

the barriers perceived by apparel manufacturers. Barriers include high cost of equipment, lack of trained employees, lack of capital funds, uncertain sales volume and retailers in bankruptcy.

2.5 The Role of the Apparel Industry in Economic Development in the World

Measuring of employment in the garments and textiles sub-sectors is difficult because of the large number of small firms and numerous home-workers. Approximately 40 million workers are employed directly in the global textile and garment manufacturing industry, of whom about 19 million are found in China. The textiles and garments sectors account for a very high proportion of total manufacturing jobs in several countries where poverty-alleviation is a chief concern. These include Cambodia (80.1% of total manufacturing jobs), Mauritius (72.8%), Sri Lanka (49.2%), Bangladesh (35%), Turkey (34.3%), Pakistan (42.9%), Madagascar (45%), Morocco (27.3%), Guatemala (27.1%), India (21.9%), China (18.9%) and Romania (25.3%). The fast growth of textiles and garments manufacturing in Asia and other developing countries has had a dramatic effect on employment in the industry in developed countries. It is estimated by the World Bank and IMF that barriers to textile and clothing trade have cost 35 jobs in developing countries for every job saved in rich nations (Jonquières, 2004). Quota removal and reduction offer the scope for job creation in poorer countries, which will no longer be restricted by quotas.

The fashion industry employs people across occupations including fashion designers, computer programmers, lawyers, accountants, copywriters, social media directors and project managers. California Fashion Association explicates that manufacturing is only a fraction of the modern apparel industry as being a highly sophisticated industry involving fashion and market research, brand

licensing/intellectual property rights, design, materials engineering, product manufacturing, marketing and finally, distribution. Industrialization has been identified as an avenue for national development. (Califonia Fashion Association, 2011). The fashion and textiles industry one of the oldest, and largest in the world. It is the typical 'starter' industry for countries engaged in export-orientated industrialisation and is labour-intensive (Gereffi, 2002). The apparel industry offers a range of opportunities including entry-level jobs for unskilled labour in developing countries. The technological features of the industry have made it suitable as the first step on the 'industrialisation ladder' in poor countries some of which have experienced a very high output growth rate in the sector. For example, Bangladesh, Sri Lanka, Vietnam and Mauritius have since become middle income countries (Gereffi, 2002).

The garment sub-sector has played such an important role in economic development based on several reasons. The sector absorbs large numbers of unskilled labour, typically drawing them from rural agricultural households to rural locations. Despite relatively low start-up investment costs, expansion of the sector provides a base upon which to build capital for more demanding technologically activities in other sectors. Growth of the sector allows imports of more advanced technologies to be financed through revenues gained from garment exports (Breton & Hoppe, 2007). However, the characteristics of the industry (relatively low capital intensity; low Investment costs; and use of low skilled labour), also mean that the industry is relatively footloose and able to adjust to changing market conditions quickly (Nordas, 2004).

Today's fashion industry looks very different from that of about 25 years ago. Fashion design schools are arming graduates with advertising, design, Web, and other skills needed to compete in the rapidly changing global fashion industry. With the

growing number of high-paying jobs in the industry, the United States should look to extend its leadership in the fashion world. The clothing and textiles sector is a major part of world trade. It is a significant part of the world's economy. In 2000, the world's consumers spent about US$1 trillion on clothing – split roughly one third in Western Europe, one third in North America, one quarter in Asia. Seven per cent of total world exports are in clothing and textiles. Significant parts of the sector are dominated by developing countries, particularly in Asia, and above all China. Industrialised countries are still important exporters of clothing and textiles, especially Germany and Italy in clothing and the United States in textiles. Developing countries now account for half of the world's garment and textile exports and almost three quarters of world's clothing exports (Weber, 2008).

2.6 Quality in the Clothing Industry

The ability to source partners to produce quality goods consistently depends on several factors including highly skilled workforce and calibre of management personnel (Keiser & Garner, 2015). In the clothing industry, quality is underpinned by different concepts, including quality assurance, quality control and total quality management. Requirements of quality are achieved by satisfying the specifications and sample requirements, which companies use as benchmarks. Peace (1993) explains Taguchi's techniques as consisting of on-line and off-line quality control. The two techniques are extremely important to the clothing industry since most of the concepts used in industry are based on such technique.

On-line quality control refers to checkers who are responsible for ensuring that acceptable works are produced on the production floor. Off-line quality control refers to the inspection of completed garments to ensure that the specifications set by the

customer, have been met. Aspects of such quality control include examining and measuring to identify production problems to maximise product and process design (Peace, 1993). Large manufacturers share details relating to specification and customer requirements and produce samples for approval. After the approval of the samples, they are sent to small manufacturing companies. The companies would then be required to produce two to three garments, which replicate the approved samples. Large manufacturers apply the principles of quality assurance (QA) and use quality manuals and quality control systems to ensure that garments produced meet customer specifications. As these samples are approved, the small manufacturing company would receive the fabric, trims and other details required for completion.

Glock and Kunz (2005) categorise quality assurance into three phases i.e, pre-production phase, production phase and post production phase. The most important element in the pre-production phase is planning. Decision-making includes designers, work study personnel, quality personnel and the production processes. Measurement includes fabric inspection, testing (sample fabric, production fabric and finished garments) fabric evaluation for quality and performance, verification of fibre content and wash care instructions, impact of storage, spreading, cutting, sewing and finishing. QA in the production process covers the use of quality manuals, specifications and samples to ensure that standards are communicated to everyone on the production floor. Quality personnel evaluate the specification sheet as well as samples received through an inspection process. Lastly, QA in post-production focuses largely on quality audits by analysing finished garments in the despatch area as a means of evaluating the level of defects. Finally, an analysis of returned garments assists the company to continually improve the quality processes employed (Glock and Kunz, 2005). In a dynamic environment where everything is changing rapidly, the importance

of quality is undisputed. One of the competitive strategies for improving the performance of a business in the global market has been identified as quality (Gurnani, 1999). Quality may be defined as the level of acceptance of goods or services. Quality is based on customer satisfaction which is the supreme importance in garment business (Blogspot, Fashion2Apparel, 2018). Quality is a mark of uncompromising standards and high achievement that has a timeless and enduring element that rises above changes in tastes and styles (Koskennurmi-Sivonen & Päivikki, 2003). According to Garvin (1988) transcendent definition of quality is synonymous with "innate excellence." It is a mark of uncompromising standards and high achievement that has a timeless and enduring element that rises above changes in tastes and styles. In that regard, customers are close to producers and are aware of who is responsible for quality. The product-based definition sees quality as a precise and measurable variable. Goods can be ranked according to the amount of the desired attribute they possess. However, a fair ranking is possible only if the attributes are ranked in the same order by virtually all buyers. The user-based definition suggests that consumers have different needs and wants. The goods that best satisfy their preferences are the ones they regard as having the highest quality. The user-based definition is akin to the customer-based definition. The user and customer or client, as preferred in this context is not always the same person as people (customers) acquire products for other people (users). People who order customized clothes are virtually always clients and users of the clothes at the same time. The manufacturing-based definition identifies quality as "conformance to requirements." Excellence is equated with meeting specifications and with "making it right the first time." In service settings, this means accuracy and timeliness. The value-based definition sees quality in terms of costs and prices. A quality product is one that provides

performance and conformance at an acceptable price or cost. Price is no doubt an important issue (Lecklin, 1997).

Dimensions of quality: Garvin (1998) further suggests eight dimensions of quality. These dimensions are self-contained and distinct so that a product or service can be ranked high on one and low on another. Yet they are interrelated. They are:

Performance: This refers to the primary operating characteristics of a product (Garvin, 1988). In clothes, this approximates functionality and fluency in services.

Features: This refers to the secondary characteristics that supplement the product's basic function. It may include almost any kind of features whether hidden or visible according to a user's preference. Features might be the primary reason for selecting clothes (Weber, 2008).

Reliability: This reflects products' functioning and malfunctioning within a specific period. In principle, this is more relevant to durable goods than to products and services that are consumed immediately. In the case of clothing, reliability is equally important for short- and long-term use. Whenever clothes are made for one use only, it is likely that the occasion is extremely important, such as a wedding (Garvin, 1988).

Durability: Durability is a measure of product life. It is akin to reliability but not quite the same. Durability is considered to have both economic and technical dimensions. Regarding clothes, however, it would be appropriate to consider at least stylistic durability as well as technical (material and structural) durability (Weber, 2008; Garvin, 1988).

Conformance: This quality is also in relation to reliability but in a different sense. It refers to the degree to which a product's design and operating characteristics

meet industry as well as pre-established standards specifications. In small clothing businesses, standards can be understood only metaphorically, yet conformance may be expected when products are compared to other clothes from the same maker and to reputation, which is a promise of quality (Garvin, 1988).

Serviceability: Serviceability deals with speed, courtesy, competence, and ease of repair. It must be noted that consumers are concerned not only about product failure but also about service appointments, timeliness, relations with service personnel, and similar situations (Garvin,1988).

Aesthetics: Aesthetics is often closely related to the user-based approach to quality. It is certain that how a product looks, feels, sounds, etc. is clearly a matter of personal judgment and a reflection of individual preference. Aesthetics is however not always a matter of the user. A maker may be highly ambitious regarding aesthetics, and a client may seek his/her way to a certain maker just because of his/her trustworthy in aesthetic (Keiser & Garner, 2015).

Perceived quality: Perceived quality is closely related to the user-based approach. Some of these quality characteristics are inherent, while others are ascribed to the products. While some real quality characteristics are difficult or impossible to observe directly, other cues become important for drawing inferences about quality. Images, advertisement and brand names can be critical in in perceived quality. A firm's reputation is also one of the primary contributors to perceived quality. In the clothing industry, quality control is practised right from the initial stage of sourcing raw materials to the stage of final finished garment (Quality-systems, 2016; Das S. , 2009). Below are the several stages for controlling quality in clothes manufacturing:

i.   Pre-production quality control

ii. Quality control during production

iii. Final inspection

iv. Quality control to developing a sampling plan

v. Post-production quality evaluation

vi. Competitiveness in the Apparel Industry

vii. The Role of the Apparel Industry in Economic Development

viii. Quality in the Clothing Industry

2.6.1 Pre-Production Quality Control

In pre-production quality control, each component of a garment is tested prior to assembling. Garment trims (closures, interlinings, sewing threads and other design elements) are tested for their quality and durability. Fabrics or closures that do not work properly can be detected prior to construction (Hayes, McLoughlin, & Fairclough, 2012).

Fabric quality is of utmost importance to the overall quality clothing product. Regardless of how well a product is designed or constructed, if the fabric is of poor quality, the product will most likely fail with the consumer (Thomas, 2008; Cole & Czachor, 2009). Comfort is a very important clothing property. It is about looking at fabric in terms of elongation and elasticity, heat retention and conduction, moisture absorbency, water repellency, waterproofing, hand and skin contact, drape, and air permeability (Hayes, McLoughlin, & Fairclough, 2012). Often, colour matching of materials is required; the matching of thread or other components to fabric is a difficult process and require equipment, experience and skill (Carr & Latham, 2008).

Fabric with too many defects or closures that do not work properly can be detected prior to construction, which saves time and money in the end.

Fabric Quality

Fabric quality is of utmost importance to the overall quality of apparel and textile products. Irrespective of how well a product is designed and or constructed, if the fabric used is of poor quality, the product will most likely fail with the consumer. Since fibres are the building blocks of all apparel and textile products, it is important to start with quality fibres regardless if they are natural, manufactured, regenerated or synthetic. Fabric used for garment production should possess the following properties:

Comfort: Comfort is an important fabric property. Comfort is studied by looking at fabric in terms of elongation and elasticity, heat retention and conduction, moisture absorbency, water repellency, waterproofing, hand and skin contact, drape, and air permeability (Weber, 2008; Keiser & Garner, 2015).

Colourfastness: Colourfastness relates to appearance retention and can be described as "how consumers use textile products and include factors that may cause colorants to change colour or migrate from one material to another". Colourfastness is determined by exposing the fabric to different conditions including acids and alkalis, crocking, environmental conditions, frosting, heat, light, perspiration or water (Keiser & Garner, 2015; Weber, 2008).

Durability: Durability investigates how various materials used in a product perform when subjected to different condition. Different aspects of fabric durability that are assessed include strength (tensile, tear, and bursting), abrasion, pilling, snagging and dimensional stability (Weber, 2008).

2.6.2 Quality Inspection of Trims

Garment trims are inspected in the same manner as other textile and apparel products. Trims and accessories are checked during preproduction, production and post production with a final inspection. Various fashion trims include closures, interlinings, sewing threads, elastic waistband and other design elements. Such trims should be able to conform the care and maintenance procedures devised for the clothing.

Inspection procedure designed for trims are described below:

Closures: Closure strength and durability is extremely important to garment construction and consumer satisfaction. Closures for apparel and textiles products include zippers, buttons, hooks, snap fasteners, drawstrings and hook-and-loop fasteners among others.

Interfacings: Interfacings are generally nonwoven materials that adds more structure and body to garment components like collars, button plackets, waistbands and cuffs. An interfacing may be fusible or sew-on. Interlining durability is important for garment construction.

Sewing Threads: A sewing thread is the thread used to make fabric seams in garments, accessories, and other textile products. Thread consists of much of the strain and stress from movement and needs to be strong and durable. It must resist breaking and be compatible with the rest of the garment in terms of colour, care instructions and construction. Sewing threads should be free from imperfections such as knots, slabs, thick and thin places (Cole & Czachor, 2009).

Elastic waistband: Elastic waistbands are tested for fit (as per size) and durability (loss of elasticity). The fit is measured by the force needed to stretch the waistband about 200 more than the hip size (as per the size label) and bringing back to the waist size. The durability can be measured by stretching the waistband by 50% and measuring the force needed to stretch it. The loss of force in the two cases should be less than 10% for the waistband to be acceptable (Cole & Czachor, 2009).

Other design elements include beads, sequins, braids and fringes. They are tested for quality in similar ways as closures. Beads are like buttons and are tested for their impact resistance against creaking, chipping or breaking during sudden external force. Sequins are assessed for their strength and resistance to breaking or tearing. Braids and fringes are checked for their quality in terms of durability from fraying, unravelling, tearing and ripping (Cole & Czachor, 2009).

2.6.3 Quality Control during Production

Poor attention to detail, or carelessness when sewing, could have the domino effect on other components. For example, skewed fabric pieces will not fit together easily. Proper care should be taken to avoid any mistakes during spreading to avoid improperly cut components. Patterns should be aligned with respect to the fabric grain, or else may not fit or drape properly. Spread may be distorted by the attraction or repulsion of plies caused by excessive static electricity (Das S. , 2009).

Cutting which is an important stage of the garment production process requires precision to cut pieces that will fit together during the assembly process. Cutting defects include frayed edges; fuzzy, ragged, or serrated edges; ply-to-ply fusion; single-edge fusion; pattern imprecision; inappropriate notches; and inappropriate drilling (Glock and Kunz, 1990; Carr and Latham, 2008).

Garment defects occur because of garment parts having bits missing at the edge of lay. If garment parts happen to be too tight or too loose then the garment would be distorted (Keiser & Garner, 2015). There could be inaccurate slit openings or omissions.

During assembling, many defects can arise during the sewing process, which include stitching defects arising from needle damage, feed damage, skipped stitches, broken stitches, wrong or uneven stitch density, balloon stitches, broken threads, clogged stitches, hangnail, and improperly formed stitches. Seam defects include seam grin, seam pucker, incorrect or uneven width, irregular or incorrect shape, insecure back-stitching, twisted seam, mismatched seam, extra material caught in seam, reversed garment part, wrong seam type used, slipping seam, and wrong thread used (Hayes, McLoughlin, & Fairclough, 2012).

After garments are constructed, final preparations are administered which include pressing garments to help set seams and finish garment shaping. Defects during pressing and finishing include burned garments, water spots, change in original colour, flattened surface or nap, creases not correctly formed, fabric of finished garment not smooth, edges stretched or rippled, pockets not smooth, garment not correctly shaped, and shrinkage from moisture and heat (Cole & Czachor, 2009).

a. Spreading and Cutting Defects

Proper care should be taken to avoid any mistakes during spreading. The major parameters such as ply alignment, ply tension, bowing, and splicing should be done with a great care. Not many plies to cover the quantity of garment components required should also be thought of. Misaligned plies will result in garment parts cut with bits missing in some plies at the edge of the spread. Incorrect tension of plies results in fabric spread being too tight or too loose. This results in parts not fitting in sewing, and finished

garments do not meet size tolerance. Not all plies facing incorrect direction (whether "one way" as with nap, or "either way" as with some check designs), may create in pattern misalignment or mismatch. This happens when the fabric is not spread face down, face up, or face to face as required. The patterns should be aligned with respect to the fabric grain, or else would not fit or drape properly. Spread may be distorted by the attraction or repulsion of plies caused by excessive static electricity (Hayes, McLoughlin, & Fairclough, 2012).

Keiser & Garner (2015) espouse that cutting is an important stage of the garment production process. Precision is needed to cut accurate pieces that will fit together during the assembly process. Cutting defects include frayed edges; fuzzy, ragged, or serrated edges; ply-to-ply fusion; single-edge fusion; pattern imprecision; inappropriate notches; and inappropriate drilling. In this regard, Garment defects occur by careless use of knife, perhaps overrunning previously cut piece. Garment parts have bits missing at the edge of lay. If the parts are too tight or too loose then the parts are distorted, slits open inaccurately or are omitted (Keiser & Garner, 2015).

b. Defects during assemblage

The pattern pieces are assembled after they have been cut. Many issues and defects can arise during the sewing process. Defects during assembling include defects associated with both stitches and seams. Possible stitching defects include needle damage, feed damage, skipped stitches, broken stitches, wrong or uneven stitch density, balloon stitches, broken threads, clogged stitches, hangnail, and improperly formed stitches. Seam defects include seam grin, seam pucker, incorrect or uneven width, irregular or incorrect shape, insecure back-stitching, twisted seam, mismatched seam, extra material caught in seam, reversed garment part, wrong seam type used,

slipping seam, and wrong thread used (Fashion2apparel, 2018; Hayes, McLoughlin, & Fairclough, 2012).

c. Defects during pressing and finishing

After garments have constructed, final preparations are done. Such final preparations include pressing garments to help set seams and finish garment shaping. Defects during pressing and finishing include burned garments, water spots, change in original colour, flattened surface or nap, creases not correctly formed, finished garment not smooth, edges stretched or rippled, pockets not smooth, garment not correctly shaped, and shrinkage resulting from moisture and heat.

2.6.4 Final inspection

After garments have been manufactured, products are tested for their performance requirements, overall appearance, sizing and fit. Although each component of a garment is tested individually, in pre-production quality control, products are tested for a final time to assess the compatibility of materials used together and any noticeable fault. Hence, the quality of stitching, joining of garment components and accessories are inspected. Garments are inspected for off-grain fabric, poor or uneven stitching, mismatched plaids or stripes along seams, puckered or extra material caught in seams, and uneven seams along hems, among many other problems that can occur in the apparel industry (Periyasamy, 2014).

During inspection, some parts of a product are more important than other parts in terms of allowable defects. Every garment manufacturer defines its own product zones, as there is no industry standard. They will also define what they deem as critical, major and minor defects. A critical defect results in a flaw that produces an unsafe or hazardous

situation like a hole in a latex glove that would compromise the safety of the wearer. A major defect is a flaw that often contributes to product failure or lack of usability for a product. Examples of major defects could be a broken zipper, broken stitches or tears in the fabric. A minor defect is a flaw that does not reduce the usability of a product, but still deviates from standards and specifications. Examples of minor defects could be an unclipped thread, untrimmed seam allowance or slabbed yarns in the fabric. Islam (2015) explains that quality inspection of garments or fabrics can be done by maintaining four systems, which are 4-point system, 10-point system, Granville "78″ system and Dallas system.

The 4-Point System, also called the American Apparel Manufacturers (AAMA) point-grading system for determining fabric quality, is widely used by garment producers. The 4-Point System assigns 1, 2, 3 and 4 penalty points according to the size and significance of the defect. Not more than 4 penalty points can be assigned for any single defect (Das, 2009).

In the Four-Point System, at least 10 percent of the total rolls of fabric is inspected ensuring that each colour way is inspected. The penalty points are assigned as follows:

Defect Range	*Points Evaluation*
3 inches or less	1-point penalty.
Over 3 inches but not over 6 inches	2-point penalty.
Over 6 inches but not over 9 inches	3-point penalty.
Over 9 inches	4-point penalty.

Figure 2 and Table 1 explain the 4-point quality system

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┌─────────────────────────────────┐
│     Confirmation of garments     │
└─────────────────────────────────┘
                 ⇩
┌─────────────────────────────────┐
│    Confirmation of trimmings and │
│            accessories           │
└─────────────────────────────────┘
                 ⇩
      ┌──────────────────────────┐
      │  Measurement inspection  │
      └──────────────────────────┘
                 ⇩
      ┌──────────────────────────┐
      │ Garment's inside inspection │
      └──────────────────────────┘
                 ⇩
      ┌──────────────────────────┐
      │ Garment's outside inspection │
      └──────────────────────────┘
                 ⇩
        ┌────────────────────┐
        │  Final inspection  │
        └────────────────────┘
                 ⇩
          ┌────────────────┐
          │    Packing     │
          └────────────────┘
```
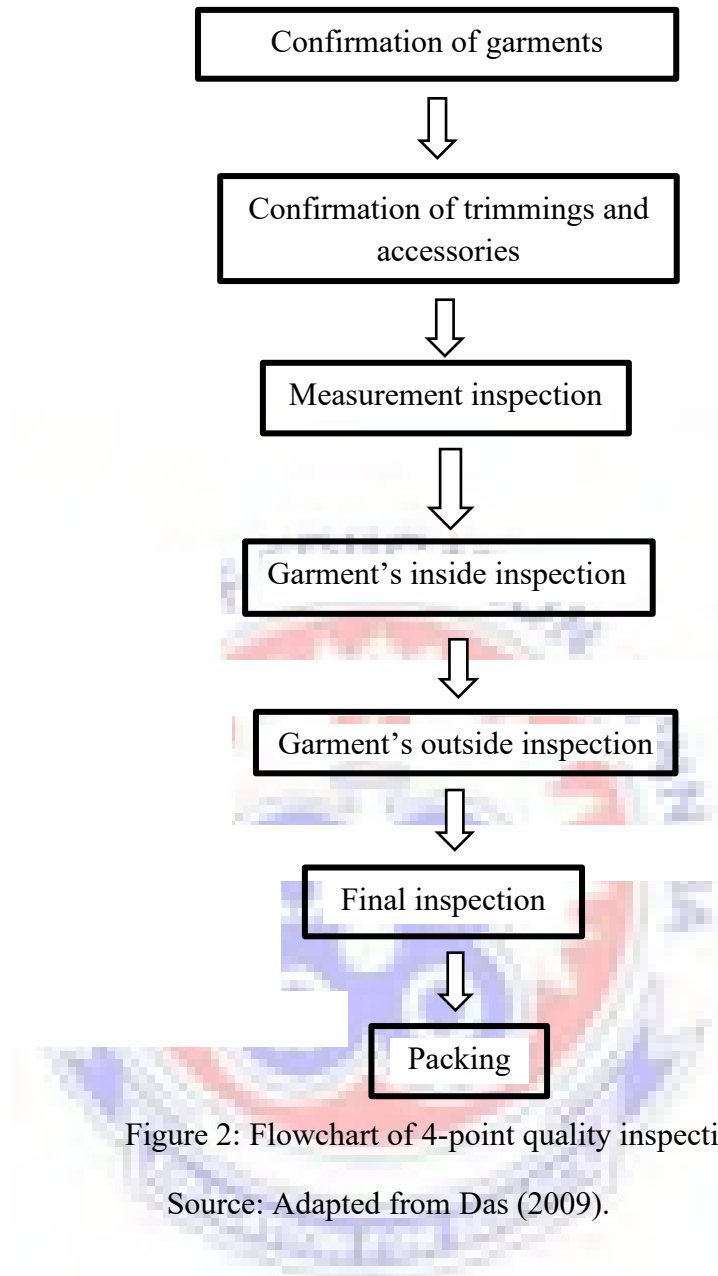
Figure 2: Flowchart of 4-point quality inspection

Source: Adapted from Das (2009).

Table 1: Details of the 4-point quality inspection

SL No.	Process	Procedure
01	Confirmation of garments quantity	At the very first step of quality inspection, quality inspector confirms the total quantity of garments according to client's requirement.
02	Confirmation of trimmings and accessories	Quality inspector checks various trimmings needed in the garments according to buyer's instruction.
03	Measurement inspection	At this stage, the inspector compares the garment measurements against the client's measurement charts such as sleeve length, garment length, etc.
04	Garment's inside inspection	Here, quality inspector checks the garment's inside part to find out various problems such as unbalanced sleeve edge, incorrect side shape, etc.
05	Garment's outside inspection	At this stage, the quality inspector examines the garments' outside part to find out different problems such as open seam, needle holes & marks and others.
06	Final inspection	Final inspection involves checking different aspects of the garments such as shade variation from one part of garment to another, correct labelling, etc.
07	Packing	Here, quality inspector examines various problems of packing in relation to buyer's instruction such as dirt, stains, correct size of poly bag, garment's quantity per carton, etc.

Source: (Das, 2009)

2.6.5 Quality Control to Developing a Sampling Plan

Although quality has been incorporated into each product up to this point, products are selected for audits and sorted into acceptable or unacceptable categories prior shipment to their destination. Different types of samples can be employed including random, representative, convenience, stratified, constant percentage and systematic samples. Random sample is where every item has an equal chance of being selected. Representative sample includes a planned variation of items in a ratio that is appropriate. A convenience sample is made up of items that are easier to inspect over others. A stratified sample is selecting a sample when a large lot of similar items exist. A constant percentage sample is sampling with a known constant percentage regardless of lot size to determine the sampling size. A systematic sample consists of items from equal intervals of time or the same location (Blogspot, 2019; Keiser & Garner, 2015).

2.6.6 Post-Production Quality Evaluation

Post-production quality evaluation in the apparel industry includes wear testing for realistic reactions to everyday scenarios and testing with a simulation study when consumer's reliability is in question. In wear testing, which is sometimes called product testing, companies provide a small group of consumers with products. Consumers are contracted to wear garments under certain stated guidelines and requirements to determine whether they meet the companies' intended performance criteria. Consumers report to the company and identify issues with the product before an entire production lot of garments are done. Appearance retention and care are other aspects of post-production quality evaluation (Hayes, McLoughlin, & Fairclough, 2012).

2.7 The Global Rise of Fashion Centres

In the past, fashion emerged from the courts and the royal patronage. The costume of a High Court judge, for example; a long robe, a full hood with a cowl covering the shoulders and a mantle (or cloak) established by the time of Edward III (1327-77) and was based on the appropriate dress for attending the royal court. (Justice-system, 2020). Several cities have been classified as fashion capitals due to the cultural power that such cities exerted in the past; These includes Milan, Rome, Venice, London, Paris, Madrid, Barcelona, Vienna etc. However, it is the aura and allure of Paris that continue to draw international designers to the French capital to show their collection and made a name. France has thus sustained the image of the actual centre of fashion. A fashion capital is hence a city which has the potential to be a major Centre for a fashion industry in which activities of production, retailing of fashion goods, hosting of fashion events and fashion related trade fairs generating significant economic output, can be held (CBSE, 2014).

A fashion capital in all its feasibility would have a strong subculture, capable of inspiring not only fashion professionals but also the citizens of the city. CBSE (2014) explains that the principal 'big four' fashion capitals of the world are London, Milan, New York and Paris. However, wider connectivity of the world at the click of a button and the easy sharing of information has led to the emergence of other major fashion centres around the globe, notably Tokyo, Shanghai, Mumbai, Toronto, Dubai, Düsseldorf etc. Undisputedly today fashion is a colossal global business, employing millions of people in either fashion industry or fashion business whose producers falling into three basic categories: haute couture; ready-to-wear designer labels; and the mass-produced ready-to-wear industry.

The haute couture producers are the highly creative design houses that produce very expensive garments made to be ordered for individual customers. The ready-to-wear designer labels are known for products designed by talented designers. Their fine quality, innovative styling is made in standardized sizes and usually manufactured in factories. The mass-produced, ready-to-wear garments are manufactured off-shore, coming out of low wage countries at much lower costs. The primary objective centres on per piece production at a competitive price.

2.7.1 Kenya Fashion Industry

There is a fashion week is described as a "unique event created to promote the best established and upcoming talent in fashion design and build a world-class fashion industry for Kenya (Kenyafashion, 2017). This is because the Kenyan fashion industry is gaining momentum. The Kenya Fashion Week was started when a designer, Sue Muraya and a marketing and events specialist, Moira Tremaine came together to promote the fashion and textile industry in Kenya. The Kenyan Fashion week has tripled in size since its inception in 2001 and the organizers aim to develop it into a Best of Kenya design fair encompassing lifestyle design, in addition to fashion. There is a growing support from the government and the private sector for the fashion week. The Kenya Tourist Board is one of the key sponsors of the event in promoting tourism in Kenya. The Kenya Tourist Board provides financial support as well as facilitating television coverage of the event and fashion shots on location in the most beautiful parts of the country. The aim of organising the Kenyan fashion week is to promote fashion to foreign audiences as well as showing people the country's beauty culture and modern styles (Kenyafashion, 2017).

2.7.2 Ghana Fashion Industry

Ghana enjoys a long tradition of custom-made clothing. Traditional apparel styles associated with Ghana include *kaba* (fitted top), *slit* (fitted long skirt), *boubou* (loose, embroidered garment), *kaftan*, and *fugu*. Contemporary designers also manufacture western-style trouser suits, skirts, shirts, coats and jackets, often incorporating indigenous African designs. Most of the Ghanaian apparels are produced from printed local African wax fabrics, batik, tie-dye and screen-printed fabrics, linens and silks (Nuruddeen, 2010).

The Garment industry is supported by Universities and National Vocational Training Institutes, which provide basic practical and theoretical training in tailoring and dressmaking. In addition to the training institutes, the Ghana National Tailors and Dressmakers Association (GNTDA) maintain offices in all the ten regional capitals. The association has a membership of 48,000 tailors and dressmakers each of whom works with between 10 –12 apprentices. It is estimated that the industry employs between 600,000 – 1,000,000 people, including the members and employees of both the GNTDA and Ghana Association of Fashion Designers (GAFD), as well as the many independent garment manufacturers (Nuruddeen, 2010). Production techniques amongst the designers include pattern drafting, multiple layers cutting, and high-volume construction and finishing methods. Apart from the custom-made clothing Ghanaians are inured to, there is significant demand for ready-to-wear apparel made with cotton-linen mixes, cotton-synthetic mixes, lycra, viscose, rayon, polyester-cotton mixes and denim. There is also a large import market for used clothing in Ghana, with value estimated at US $180 to 200 million annually. Imports of new clothing arrive mainly from China, Thailand, Indonesia, Hong Kong, India, Pakistan and Bangladesh (MOTI, A Study of the Textile Sub-Sector, 2002)..

Available data shows Ghanaian exports of cotton garments, jersey pullovers, knitted and crocheted cardigans, women's and girl's suits, and men's and boy's shirts totalling US$ 2,674,160 in 1999 (MOTI, A Study of the Textile Sub-Sector, 2002). Ghanaian apparel exports have also received a boost from preferential trading agreements. Under the GSP Multi-Fibre agreements of textile quotas, Ghana therefore enjoys duty free manufactured exports to European Union markets until 2005. In addition, the US recently passed the African Growth and Opportunities Act (AGOA), under which Ghana is one of 34 sub-Saharan countries that enjoys duty free exports to the US. The competitive firms in this industry is related to the ability to produce designs that capture tastes and preferences, and even better influence such tastes and preferences in addition to cost effectiveness. The core functions of firms servicing such market segment are largely located in developed countries and often in limited geographical areas or clusters within these countries of which Ghana is no exception.

Garment manufacture has been a profession that has gone through various stages of development. Prior to the mid-19th century, virtually all clothing was handmade for individuals, either as home production or on order from dressmakers and tailors. By the beginning of the 20th century-with the rise of new technologies such as the sewing machine, the rise of global capitalism and the development of the factory system of production, and the proliferation of retail outlets such as department stores, clothing had increasingly come to be mass-produced in standard sizes and sold at fixed prices. Although the fashion industry developed first in Europe and America, today it is an international and highly globalized industry (John, 2018).

Ampong (2004) and Zakaria (2011) establish that originally, garment manufacture was hand-made until the time of the industrial revolution in the late 17th

and early 18th centuries when there was an expansion of the hand-made system of production to mass-produced ready-to garments making garments less expensive and easier to produce. John (2018) adds that the early twentieth century saw the most significant changes in technology for garment manufacture. This paved the way for the development of market for mass manufactured clothing. Technological advancement in garment manufacture machinery further reduced the time and production cost of clothing. Ampong (2004) states that the late twentieth and early twenty-first centuries saw another wave of technological advancement with the popularisation of computer technology in garment manufacture. The computer technology made product development cycle of new designs more efficient and effective. New software based on Computer Aided Design (CAD) made patterns making, pattern grading and marker-making easier to create, edit and process (Taylor, 1990). The manufacture of garments continues to be one of the driving forces of industrialisation throughout the developing world. The clothing industries of many developed consumer countries are struggling to maintain their share of the total value which is created throughout the entire chain of apparel design, production and distribution. The predominance of small-scale set ups in the garment industry in Ghana is characterised by low productivity as a result of the source of skill acquisition, financial problems and lack of machinery required for quality product production among others (Sarpong, Howard, & Osei-Ntiri, 2011).

Clothes made by fashion designers and fashion industries need to fit well and look attractive on the prospective users (Nzula & Opoti, 2014). However, in Ghana, this concept is woefully ignored resulting in poor fit in apparel making among the informal garment producers (Obinnim & Pongo, 2015). It has been observed that in Ghana, the informal dressmakers and tailors are operating under limited technical know-how on the skills with regard to pattern drafting which ensures improved fit of apparel (Efajemue & Lily, 2011; Foster & Ampong, 2012). Mangieri (2016) espouses that, the input cost,

including labour and energy, poor product quality, unpredictability of prices and lack of market outlet are some of the setbacks in the garment industries in Ghana. Parkins (2013) asserts that a viable garment firm should have the capacity of accommodating a large number of people for designing, illustration, marketing, media and many more to bring the garment product to the final user. Government was to make the apparel firms become a leading export earner and also serve as a primary source of employment generation in Ghana but this aim has not been fully achieved (Ampofo, 2011).

2.8 Skills Factor in Garment Manufacturing Industry

Ghana's garment manufacturing is dominated by small scale firms based on the kind of machineries and number of firms' employees. Studies show that the Ghanaian fashion industry has been globalized, and as a result Ghanaian fashion producer, particularly, the semi-skilled ones operate in big challenging and competitive businesses. Sarpong, Howard and Osei-Ntiri (2011) espouse that most of the small-scale seamstresses and tailors may not have in depth knowledge in the application of new technologies for garment production. They further indicate that hardly can unskilled labourer produce quality garment.

Conway and Loker (1999) assert that apparel production jobs include everything from accepting fabric Apparel production jobs include everything from accepting fabric delivery, cutting, sewing, and finishing, to shipping to the retailer. Unskilled work that are usually learned on the job includes receiving, shipping, fabric and apparel inspection positions. Sewing machine operator positions, which employ the largest numbers of workers, are classified **as** semi-skilled positions that generally require either training or prior experience. Designers, managers, production engineers and logistics specialists are

generally required to have higher education degrees in their specialty area (Conway & Loker, 1999).

In Ghana, however, the typical small and family-owned garment production shops offer limited advancement opportunities to employees. Thus, there is a significant amount of entrepreneurship in the industry; becoming a shop owner is another avenue for advancement open to Ghanaian small garment workers. For pattern makers, learning the computer-assisted design (CAD) system can be a path to broadening opportunities (Conway & Loker, 1999). A clear indication of tough competition in the Ghanaian garment industry is seen in many Ghanaian fashion consumers who mostly go in for second-hand and imported ready-made clothes. They find these clothes to be cheaper, interestingly designed and sewn (Sarpong, Howard & Osei-Ntiri, 2011).

Studies conducted by Chichester and Pluess (2017) revealed that garment workers earnestly needed additional education to advance in their careers in apparel and that existing on-the-job training was insufficient. Moreover, Sud-Saharan Africa's apparel manufacturing industry experienced a steep decline after the 1980s, however, in recent times, East Africa, mainly Ethiopia, Kenya, and to a lesser extent, Tanzania, has received a boost from international brands that are interested in expanding sourcing from the region. In other countries, such as Ghana, the garment industry continues to struggle to attract international buyers (Chichester & Pluess, 2017).

The manufacturing sector of Ghana, as in most developing countries, is dominated by garment manufacturing firms. Official government statistics report indicate that more people are engaged in the garment industry than in any other sector of the manufacturing companies (JICA, 2008). Precisely, over 242,000 people are engaged in the garment manufacturing industry. The reason being that four out of every

five females that choose vocational education opt for training in garment manufacturing (GSA, 2016). The majority of these firms, however, are micro or small enterprises with low capitalization. These mostly operate in the informal sector with standard equipment. Such enterprises are unable to compete globally (Quartey, 2006).

Some reasons were put forward to explain the inability of the garment sector to compete globally which include importation of second-hand clothes (JICA, 2008; Rodgers, 2018), lack of added value of garment manufacturing, low skills (Hinshaw, 2018), and others such as gross under capitalization, unstable government policies, high manufacturing cost and difficulty in accessing financial support from financial institutions (Quartey, 2006). Admittedly, the garment industry in Ghana is faced with these challenges at the time when the level of global garment production is very competitive. Tyler (2008) espouses that garment manufacturing is a process led by the need for skilled labour in order to deal with a range of raw materials, product types, production technologies, production volumes, retail markets and brands. Apart from the cost of labour, the competence of labour in the manufacturing industry is a major factor in maintaining manufacturing jobs. In Europe and some developed countries, for example, because of high labour skills, some garment firms have been able to reposition labour towards niche and exclusive brands. This has helped those garment manufacturing companies to reduce the flow of job opportunities that were fast moving to developing countries due to cheap labour (ILO, 2014). Garment manufacturing is a process that require skilled labour to be able to deal with a range of raw materials, product types, production technologies, production volumes, retail markets and brands (Tyler, 2008). ILO (2014) notes that garment-manufacturing firms whose labour skills are low, production is often volatile and easily affected by changes in global trends. It is

therefore incumbent on countries and firms to understand that the need for skills adequacy and training are crucial to sustain competitive position in the garment industry.

2.9 Skill Acquisition through Apprenticeship

Traditional apprenticeships in the informal sector consist of private contractual arrangements between a parent or apprentice and a master craftsperson who agrees to provide practical training in the workplace, lasting for a duration of several months to three or four years. Some amount of fee is paid to the master craftsperson to certify the training for the apprentice while learning. Ghana's apprenticeships training is increasing for youth between 15 to 30 years of age (World Bank, 2009). Traditional apprenticeships are by far the most frequent form of skills training in Africa, particularly west and Central Africa.

Filipiak (2007 and Haan (2006) estimate that up to 70 per cent of urban informal sector workers in Africa have had their training through the traditional apprenticeship system. The Ghana Statistical Service (2012) for example, found 207,000 youths registered as apprentices in 2002, while in this same period, a much smaller number, just over 50,000 youths, were enrolled by public and private providers (World Bank, 2009). Traditional apprenticeships have both strengths and weaknesses. In terms of strength they are self-financing and self-regulating and provide practical, hands-on training with good prospects for employment after training. However, this system of skill acquisition suffers from weak education among the entrants, where literacy is an issue (Biney-Aidoo & Antiaye, 2013). Method of teaching in apprenticeship training varies and few market standards are available to judge the quality of the training provided (Johanson & Adams, 2004). Palmer (2007) espouses that few participants pass beyond a junior secondary education and many do not even complete a primary education. In this system of

training, the master craftsmen do not provide theoretical knowledge alongside practical experience and in most cases teach outdated technologies.

2.10 Free-Hand Cutting in Small Garment Industry

Direct fabric cutting, referred to as Free-hand cutting, is a method of cutting a garment style o directly on the fabric without the using a pattern (Efajemue & Lily, 2011). Apart from ready-to-wear garments, many types of the garment worn of late are usually made from free-hand cutting. Most Ghanaian small garment manufacturers resort to this technique of fabric cutting in contrast to the pattern drafting which is more costly. According to Foster and Ampong (2012) little has been done regarding documentation of free-hand cutting. Shailong and Igbo (2009) described free-hand cutting as a method of cutting the fabric marked with chalk based on a measurement and cut directly without the use of a paper pattern. The measurement of the individual is marked directly on the fabric in free-hand cutting. In the event that the tailor or dressmaker makes a mistake while using the free-hand cutting method, the fabric usually becomes wasted.

Thomas (2009) asserts that free-hand cutting has in some instances resulted in poorly fitted apparel and quarrels among dressmakers and their clients. According to Shailong and Igbo (2009), free-hand method of garment construction may spoil the apparel entirely, thereby wasting the fabric. They added that free-hand cutting is time consuming and slow, therefore cannot be conveniently used for mass construction. Clients may prefer ready-to-wear clothes because of the unsatisfactory jobs from some dressmakers and tailors that use free-hand cutting for apparel making. This often make the budget for clothing increase for consumers as a result of fabric wastage when pattern drafting is not used.

2.11 Creativity and Apparel Manufacture

Creativity in business is a multi-disciplinary concept which draws from the fields of economics, psychology, management, innovation, sociology and cultural studies (Gardner, 1988). Mark Runco who has been one of the leading figures in creativity research, co-authored a correction in the Creativity Research Journal and provided a 'standard definition' for creativity (Runco & Jaeger, 2012). They returned to the work of psychologist Maurice Stein for one of the most explicit and resonant definitions:

> The creative work is a novel work that is accepted as tenable or useful or satisfying by a group in some point in time…By "novel" I mean that the creative product did not exist previously in precisely the same form. It arises from a reintegration of already existing materials or knowledge, but when it is completed it contains elements that are new (Stein, 1953 pp. 311–312).

It is instructive to say that the over 60-year-old definition is still relevant today because of the incorporation of so many different aspects of creativity. To undertake the process the creator requires a body of knowledge or existing material, and the product requires an audience to assess it. Novelty suggests originality however the product does not need to be entirely original. The following core characteristics are typical of creative persons: aesthetic sensitivity, broad interests, attraction to complexity, high energy, independence of judgement, autonomy, intuition, self-confidence, toleration of ambiguity, firm belief in the 'self' as creative (Barron & Harrington, 1981) persistence, curiosity, intellectual honesty (Amabile, Barsade, Mueller & & Staw, 2005) and having an internal locus of control (Woodman & Schoenfeldt, 1990).

The garment industry involves significant creativity and innovation in order to satisfy the criteria of both aesthetic design and utility to consumers (WIPO, 2011).

Fashion designer not only improves the outside beauty and aesthetics of the object but most importantly improves the use and functioning of the object. WIPO (2011) notes that a product is well designed when aesthetics and functionality along with saleability are all in a perfect balance. Viktoriya, Malyavko and Lyubov (2018) opine that one of the primary problems in the garment industry is that of training highly skilled personnel, the combination of the fashion industry and the digital economy and the introduction of an innovative approach to all stages of the garment manufacture.

Arlidge (2016) advocates that lessons might be learnt from those fashion organizations that have placed the fashion designer at a strategic and high-profile level, such as Roberto Menichetti the design director at Burberry when it was able to achieved 110% increase in their profits following the revamp of their image and design. The fashion designer is also an analyst making predictions for trends and moods and acting as a conduit for expressing current moods. Creativity is an emotional issue in garment production of which the designers themselves cannot agree what it is. Designs that are inappropriate are blamed as major causes of product rejection (Wood, 2002).

According to Frings (1991) the fashion designer is someone who creates fashion ideas and supervises pattern-making and sample making. (Stecker, 1996) notes that the fashion designer is seen as being "…involved in creative and individual collections. It has been recognized that the designer must know their customer needs and wants (Cooper & Press, 1995) understand market statistics as well as the social, cultural, economic and political environment qualities which most small garment producers in Ghana are lacking (Stecker, 1996). Finally, Marinova (2004) postulates that market knowledge diffusion propels creativity and innovation, whereas satisfaction with past performance hinders efforts in creativity.

2.12 The Design Process in Fashion Firms

Fashion firms compete through aesthetic elements and the symbolic value of their style embedded in the visual characteristics of the individual elements of a collection (including clothing and accessories) and how they are combined. Fashion style is the result of choices concerning textiles and fabrics, weavings, colours, volume, shape, and silhouette (Davis, 1992). Fashion designers use their expressive freedom to continuously develop new designs that are saleable at the.

The design process starts with the research phase where designers collect information on market trends, and predictions about how fashion will evolve. Firstly, designers examine their own feeling of the market based on trade shows, designs that is currently selling, and their own contacts and experience in society. Secondly, they examine on trend reports that describe styles, colours, and fabrics popular for the coming seasons. Third, designers visit textile manufacturers to procure samples of fabrics and make an initial selection of fabrics and patterns and match them to the expected products (Statistics, 2008). After the selection of fabrics, colours, patterns, and shapes; the design phase starts where the designers sketch preliminary designs by using pencil and ink for their sketches and then translating them into digital blueprints with Computer-Aided Design systems. The computer systems allow designers to see their designs on virtual models and in different colours and shapes, thus reducing the time to do refinements and adjustments in the later phases of prototyping and sampling (Parsons & Campbell, 2004).

In the paper pattern drafting phase, the technical aspects of the designs are addressed. The paper pattern consists of the drawing on paper of the basic silhouette, indicating all the different parts and features of a garment (for example, in a female shirt,

the neckline or collar, sleeves, the pockets, the cuts, the lengths, the draperies). The paper pattern is then cut and placed on the fabric that is used, to decide how to cut the fabric for toile production (Statistics, 2008). During the toiling phase, the prototypes are built using different materials or with small changes to the pattern to experiment various alternatives. These prototypes are then tried on human models to see them and decide whether adjustments are needed. This process leads to the selection of the designs that will be actually offered for sale (Statistics, 2008). The next stage is the sampling phase. Once the final adjustments and selections have been made, the samples of the article using the actual materials are produced and marketed to clothing retailers through fashion and trade shows. This phase ends with the development of the different sizes of the same article. This garment development process, is iterative in its nature and having an ample field for experimenting and discovery. Colour and fabric specifications or even the design can be re-evaluated in light of the new information generated throughout the various stages in the process.

2.12 Customer Satisfaction in the Fashion and Textile Industry

Customer satisfaction should be the fundamental indicator of the firm's performance due to its links to behavioural and economic consequences beneficial to the firm (Anderson, Fornell, & Donald, Customer Satisfaction, Market Share, and Profitability: Findings from Sweden, 1994). A variety of studies reveal that higher levels of customer satisfaction lead to greater customer loyalty (Anderson & Sullivan, 1993). It is argued that customer satisfaction helps to secure future revenues (Fornell, 1992), reduce costs of future transactions (Reichheld & Sasser, 1990), decrease price elasticities and minimize the likelihood customers will defect if quality falters (Anderson & Sullivan, 1993). Internally, improving quality and customer satisfaction reduces costs associated with defective goods and services, such as warranty costs, field service,

reworking/replacing defective goods and handling/managing complaints (Garvin D. A., 1988; Gilly & Gelb, 1982). Word-of-mouth from satisfied customers lowers the cost of attracting new customers and enhances the firm's overall reputation, while that of dissatisfied customers naturally has the opposite effect. Some empirical work suggests that firms providing superior quality enjoy higher economic returns (Archer, 2003; Anderson & Sullivan, 1993).

For virtually all firms, the means of generating consistent profits comes by having customers who not only initially buy, but also consistently re-buy. Repeat customers are fundamental to the end-goal of every business, thus making a positive, sustainable financial return. As a result, the measurement of customer satisfaction and repurchase intention has become critical to managers and researchers (Lusk & Jaeger, 2007). Customer value is a strategic weapon in attracting and retaining customers and has become one of the most significant factors in the success of both manufacturing businesses and service providers (Zeithaml, 2006; Woodruff, 1997). Research suggests that brand personality boosts consumer preference (Zhang, 2007) and has a positive relationship with levels of consumer trust and loyalty (Wysong & Munch, 2004). Furthermore, customer perceived value provides marketers a clue on how to better satisfy the needs of their targeted customers (Yurong, David, Yen, & David, 2002). Nonetheless, perceived performance serves as an important antecedent of value and either directly or indirectly stimulate repurchase intention (Olorunniwo & Hsu, 2006).

2.12.1 Productivity and Customer Satisfaction

The purpose of measuring firm-level productivity is to evaluate the efficiency with which inputs are transformed into outputs (goods and services). The most common type of productivity measure is the simple, or single factor, ratio of output to

a specific type of input, such as sales per employee. There is also a rich literature addressing the issue of how to measure productivity as a ratio of output to all types of inputs- labour, capital, materials-known as total factor productivity (Griliches & Jorgenson, 1997). As the present study is concerned with the type of performance measures used by managers, people focus on the most common "single factor ratio," labour productivity calculated as the firm's total sales divided by the number of employees.'

Smith (2006) highlights how classical economics discusses productivity improvements in terms of capital and labour where increases in productivity are generally considered the major source of economic growth. Common types of investments that increase productivity include substituting capital for labour, automation of processes and improvements in existing technology or developing new training programmes for employees. Furthermore, productivity may also depend on various factors including the quality of resource allocation. Rather than increasing current levels of investment in capital or labour, reallocation of resources can increase productivity via changes in strategy, processes, and or organizational structure and values (Smith, 2006).

Moreover, according to Reichheld & Sasser (1990), there is considerable disagreement concerning the nature of the relationship between productivity and customer satisfaction. The firm that achieves superior levels of customer satisfaction needs to devote fewer resources to handling returns, rework, warranties, and complaint management, which eventually lower costs and improve productivity (Juran, 1988). In a service's context, Reichheld and Sasser (1990) argue that reducing defects leads to greater loyalty while increased loyalty leads, in turn, to greater productivity via lower costs of making future transactions, favourable word-of-mouth, and perhaps a price

premium. However, compelling logic, equally suggests that the pursuit of customer satisfaction increases costs and thereby reduces productivity. For example, in economics, the relationship between productivity and customer satisfaction is generally viewed as negative. Customer satisfaction-utility-is modelled as a function of product attributes. Increasing the level of utility, improving raw materials, adding features or service personnel requires increasing the level of product attributes and, therefore, costs (Griliches 1997). Finally, Jacobson and Aaker (1987); Phillips, Chang, & Buzzell (1983) argue that empirical analysis based on the PIMS database fails to find support for either a positive or negative relationship between quality as perceived by the firm's managers and costs (Jacobson & Aaker 1987; Phillips et a1., 1983). However, it may be argued that the nature of this relationship depends on the type of quality being investigated.

2.12.2 Production Delays in the Clothing Industry

Delays in the fashion industry are attributed to poor designs and specifications, and problems associated with management and supervision (Agaba, 2002). In their study, El-Razek, Bassioni and Mobarak (2008) find that delayed payments, coordination difficulty and poor communication are important causes of delay in textile firms in Indonesia. Sambasivan and Soon (2007) establish that poor planning, inadequate supervisory skills of supervisors, delay payments, material shortage, and rework or redesign, are the most important causes of delays in the Malaysian Textile industry. Kouskili and Kartan (2004) identify the main factors affecting the textile and clothing industry on cost and time overrun as inadequate/inefficient equipment during peak periods; examples of which are festivals and occasions, energy crises and unreliable sources of materials. In India, Le-Hoai, Lee and Lee (2008) rank the three top causes of cost overruns as material cost increase due to inflation, inaccurate quantity take-off, and labour cost increase also due to restrictions from the client on designing a cloth. Bubshait

and Al-Juwait (2002) list the following as factors that cause delay in Saudi Arabian fashion industry: number of cloths sewn at the same time, lack of productivity standards in Saudi Arabia, level of competitors, and client manipulations. It is therefore evident that delays in the fashion and textile industry vary from one country to another.

Furthermore, fashion designers' improper planning also leads to delay in the fashion industry. Most fashion designers are unable to draw a practical and workable ''work programme'' at the initial planning stage especially those that are sewn in bulk for schools, hospitals and other organisations. The failure is interrelated with lack of proper specification from clients and inadequate experience on the part of fashion designers towards sewing cloths (Le-Hoai et al., 2008). Poor supervision of clothing and textile firms is one of the most significant causes in delays in the fashion industry. A fashion designer with inadequate experience cannot plan and manage projects properly and this can lead to disastrous consequences (Theodore, 2009). Client's finance and payment for completed cloths or designs can cause delays in the fashion industry as well. Fashion designing particularly those done in bulk involve huge amounts of money and most of the fashion and textile firms find it very difficult to bear the heavy daily expenses when the payments are delayed. Work progress can be delayed due to the late payments from the clients because there is inadequate cash flow to support expenses especially for those fashion and textile firms that are not financially sound (Kaliba, Muya and Mumba, 2009). Problems with intermediaries and other experts in the fashion and textile field also can delay in meeting timelines in the fashion industry. Typically, in huge projects, there are many experts working under the main fashion firm to do other things such as overlocking and other sophisticated designs. If the expert is capable, the project can be completed on time as planned. Deadlines can be delayed if the fashion expert delays

because of inadequate experience or capability. Shortages in basic trims like buttons, needles, sewing machines etc. can cause major delays in the fashion industry.

Apathetic attitude on the part of some fashion designers is the major cause of the problem of client deadlines failure. Some fashion designers postpone the delivery of completed cloths to clients and this undermines their relevance in the communities they operate. Agaba (2002) posits that this in some situations lead to clients paying extra fees charged by the fashion designer. One problem that has been identified as the major cause of delays in meeting client deadlines is communication. Since there are two parties involved in the execution of a sewing project (client and fashion designer), the communication between the parties is very crucial for the success of the project and subsequently meeting deadlines. Proper communication channels between the various parties must be established during the planning stage. Any problem with communication can lead to severe misunderstanding and therefore, delays in the execution of the project (Agaba, 2002).

2.12.3 Industrial Health and Safety Culture

Uttal 1983 defines safety culture as consisting of shared values (what is important) and beliefs (how things work) that interact with an organisation's structure and control systems to produce behavioural standards (the way things are done). A poor health and safety culture are likely to lead to weaknesses due to problems at the person's workplace. A culture is a way of doing things that is shared, taught or copied. Everyone in a culture tends to do things in a similar way, which they would consider as the norm (Uttal, 1983). A poor health and safety culture appears to endorse an atmosphere where noncompliance of safe working practices are acceptable. Such atmosphere does not help the organisation to take effective action to solve health and safety problems. Quite often,

organisations that have poor safety culture also have the same underlying attitude to all processes and procedures resulting in poor product quality and financial control (Turner, Pidgeon, Blockley and Toft, 1989).

The health and safety culture of an organisation is an important factor in ensuring the effectiveness of risk control. The health and safety management system therefore is an important influence on the safety culture, which in turn affects the effectiveness of the health and safety management system (Mostafizur and Sobuj, 2011). Aspects of the safety culture therefore form part of the overall process of measuring health and safety performance. The term 'health and safety climate' has been used to describe the tangible outputs of an organisation's health and safety culture as perceived by individuals or work groups at a point in time. The health and safety related behaviour of individuals at all levels of the organisation is influenced by the health and safety culture, and the behaviours in turn shape the culture. Behaviours, which support and promote a positive health and safety culture and an effective health and safety management system, need to be included within the measurement processes (Mostafizur and Sobuj, 2011).

Researchers have been studying occupational safety since the 1930s and at least two trends have emerged (Alyssa and Lisa, 2010). Firstly, there is much greater emphasis on psychosocial factors affecting safety, for instance social exchange (Hofmann and Morgeson, 1999), communication (David and Adam, 1998) and safety climate (Zohar, 1980). Secondly there is proliferation of statistical methods to model multilevel organizational data has spurred an integration of contextual (organization and group-level) safety factors such as safety climate with individual-level safety factors such as employee knowledge, skill, cognition, and motivation to help understand worker safety (Hofmann and Morgeson, 2003; Zohar and Luria, 2005). Schneider proposes that

different kinds of climates function within a given organization and those climate assessments should take on a strategic focus, such as customer service, quality, and safety (Zohar, 1980). Regarding safety climate, several researchers have concluded that positive safety climates occur when managers of organizations show commitment and are personally involved in safety activities, provide and support safety training programmes, and emphasize safety issues within the organization and when investigations involving accident are oriented toward problem solving and counselling. Therefore, an organisation's safety culture consists of its shared working practices, its tendency to accept or tolerate risk, how it controls hazards and how it deals with accidents and near misses (Pidgeon, 1991).

Pidgeon (1991) notes that a positive safety culture has three key elements: ie

i. Working practices and rules for effectively controlling hazards

ii. A positive attitude towards risk management and compliance with the control processes.

iii. The capacity to learn from accidents, near misses and safety performance indicators and bring about continual improvement.

Mostafizur and Sobuj (2011) opine that presently, most of the garment's firms show little concern about the basic safety issue of the worker. In view of that, frequent unexpected accidents occur which eventually cause huge losses of both workers and to the owners.

2.12.4 General Working Conditions in the Global Garment Industry

The global garment industry valued at 3 trillion dollars, is one of the most important sectors of the global economy creating clothes and jobs for people all over the world. It accounts for 2 percent of the world's Gross Domestic Product (Strijbos, 2016). The sector employs over 25 million workers in more than 100 countries. Many individual producers in this industry in the developing countries work long hours under strenuous conditions at very low income, far less than a living wage (Strijbos, 2016). The concerns raised by most garment workers are long working hours and forced overtime.

Another bad working condition in the garment industry is the handling with the workers' health and safety. Eye strain, exhaustion and debilitating overuse injuries occur because of poor, long hours and constant pressure to meet production workloads. The illnesses are often undiagnosed and untreated. If employees take some time to get medical care or to recover from an injury or illness, they may experience cuts in wages or also be fired. In many factories, workers do not receive clean drinking water nor are they allowed to use the toilet when they need to. The reproductive health may be harmed by exposure to noise, overwork and exhaustion. In Bangladesh, for example, around 200 workers died and many more were seriously injured in garment factories fires between June 2004 and June 2006 because of no emergency exits; people were trapped in the factories and most of them died in a mass panic (Jahan, 2011). In some garment factories, women who are applying for work are asked if they are married, they reason for it is that some employers only hire unmarried women with no children and sometimes a woman must sign an agreement not to get pregnant if she should work at a factory.

Workers in most fashion firms/factories often do not receive regular employment contracts. Therefore, they have no means of compensation if their employers fail to respect labour laws like minimum wages, working hours, overtime payment, health benefits among others. Especially immigrants do not get contracts and so they are not accepted as normal workers in the industry (Bheda, 2004). The worst treated workers are the casual workers, because they are employed on temporary contracts which then renewed continuously to avoid legal responsibilities like health insurance. This is particularly common in Indonesia, Ghana and many countries across the world. In many of the garment firms, the management prevents workers from organizing unions and workers who join them are fired.

2.13 Apparel Production Processes

The production of garment consists of consecutive processes as follows:

Design Development: Fashion moves incredibly fast compared to other creative industries and it can feel like there is constant pressure to reinvent the wheel each season (Sorger & Udale, 2006). Designers need to be continually seeking new inspiration to keep their work fresh, contemporary, and keep themselves stimulated. In this regard, research means creative investigation, and good design cannot happen without some form of research. Fashion Design, according to Vivienne Westwood is "almost like mathematics". You have a vocabulary of ideas from which one must add and subtract to evolve an equation right for the times and that is exactly what happens in design creation (Sorger & Udale, 2006)

Pattern Making: Patternmaking is the process of generating all the correctly sized pieces needed to make a complete a garment. It is an art of manipulating and shaping a flat piece of fabric to conform to one or more curves of the human figure.

Pattern making is a bridge function between design and production. A sketch can be turned into a garment via a pattern, which interprets the design in the form of garment components. A pattern is flat while the body is not. The body has height, width and depth. Within this roughly cylindrical framework, there are a series of secondary curves and bulges, which are of concern to the pattern maker. He/she convert the flat piece of paper into a three-dimensional form, which fits the bulges of the body (Hayes, McLoughlin and Fairclough, 2012).

Sample Making: Sample of garment is produced based on specifications of buyers to analyse pattern fit and design and approved by buyer upon construction.

Production Pattern: This involves bulk production of patterns taking into consideration direct sample, specification sheet/measurement chart, actual body size measurements, ease allowances and sewing allowances.

Pattern Grading: Pattern Grading is the process whereby patterns of different sizes are produced from the original master pattern. This process can be performed manually or automatically by a computerized system. Patterns are graded according to size charts, which present the sizes, and the average measurements of the population group for which the garments are intended. Patterns are graded into different sizes such as S, M, L, XL or XXL.

Marker Making: Marking refers to the process of placing pattern pieces to maximize the number of patterns that can be cut out of a given piece of fabric. Marker making considers fabric width, length, fabric type and subsequent cutting method used. Markers can be made manually or by using computer application where the computerized method is more efficient.

Fabric Spreading: This refers to the spreading of fabrics on tables by operators manually or using a spreading machine. The number of fabric layers depends upon the required demand of the product. After proper spreading is done, the pattern papers are properly laid upon the fabrics.

Fabric Cutting: Once the marker is made, pattern pieces are cut out of fabric. Presently, apart from using traditional tools, computerized cutting systems are widely used for cutting. Pattern specifications are kept into consideration while cutting, ensuring that the constructed garment is exactly like the sample produced.

Sorting and Bundling: This involves the precision of sorting out cut fabrics according to sizes and grouping each size into a bundle

Assemblage: This is the process of seaming (joining) two or more patterns together by sewing threads. It is done to produce the final product. This is the main assembling stage of the production process where fabrics are stitched together and a garment is assembled. The garment production factories follow a type of chain work in the sewing process. Computerized sewing machines can be programmed to sew a specific number of stitches. However, sewing remains largely labour intensive and sewing remains the dominant process in garment assembly (Hayes, McLoughlin, and Fairclough, 2012)

Inspecting: Involves inspecting all aspects of the manufacturing process based on quality specifications.

Pressing: Pressing makes a large contribution to the finished appearance of garments and thus their attractiveness at the point of sale. The two main uses of pressing

are to smooth away unwanted creases and crush marks and to make creases where the design of the garment requires (Kiron, 2017).

Finishing: After the sewing operation, the constructed garments are examined, pressed, tagged and bagged. Unless any product is characterized by value addition, it is now impossible to survive in this highly competitive world market. Finishing gives value addition to it the products. It makes garments attractive, comfortable and finishing can incorporate desirable properties (Kiron, 2017).

Final Inspection: After the above operations are done, the factory performs final inspection and the finally completed product is transported to store room and waits for dispatch (Kiron, 2017).

Packaging: Involves sorting finished garments in packages based on design and size.

Cartooning: Involves placing packaged articles into cartons based on the specifications of the buyer.

Shipment/Dispatch: Involves sending the final products to the buyer.

2.14 Garment Assemblage

Garment construction involves conversion of a raw material into a stitched and wearable piece of clothing, which involves putting together various components of it such as fabric pieces, thread, buttons, zipper, and so on (Hayes, McLoughlin and Fairclough, 2012). It is about creating a three-dimensional garment from a two-dimensional design /pattern/ fabric and is a basic requirement of clothing production. Various parts of a garment, for example, in the process of assembling a shirt into a

complete garment, the front and the back body, sleeve, cuff, placket, yoke, collar and pocket need to be assembled together to make a shirt (Ramesh, 2012). Figure 3 shows the workflow of shirt production.
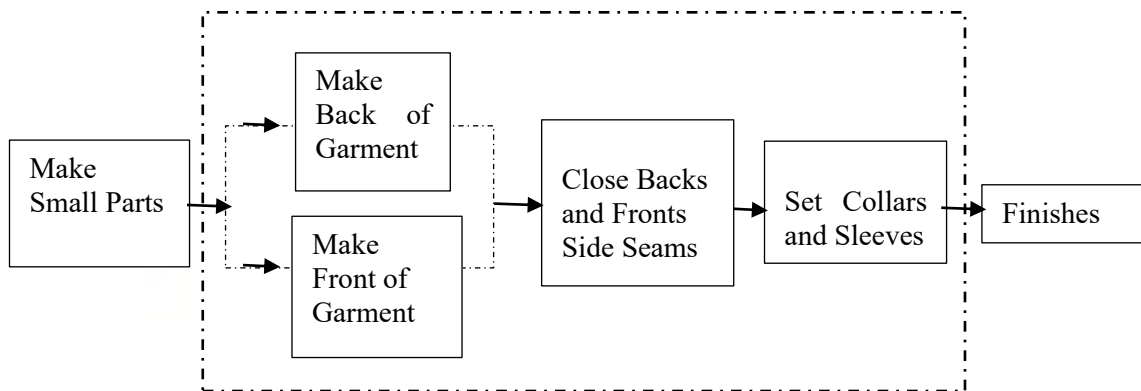
Figure 3: Workflow of shirt production

Source: (Ramesh, 2012)

2.10.1 Garment Assemblage Systems

The Garment assemblage system used by an individual or in small fashion shops is different from the systems used in the factories. The apparel production system in the factories follows a production processes that assemble garment components together. The basic garment components according to Ramesh (2012) include; Hems, stitches, seams, bonding, fusing, or a combination of them, which are used to assemble the garment components into a complete structure. The more components a garment has, the more complex the assemblage and higher the labour costs.

2.10.2 Individual system/Make through

In this system, the entire garment operation process is done by an individual. This is essentially the traditional method of production in which one operator assembles the entire garment. In this system, the entire garment operation process is done by an individual where the operator is given a bundle of cut fabric pieces so he/she can

assemble them based on his or her own method of production, which may include machining, handwork and pressing. This type of garment assembly system is effective when varieties of garments are to be produced in very small quantities and is more common with homemakers, local fashion designers, boutiques, etc. (Ramesh, 2012).

2.9.3 The Whole Garment Production System

The Whole Garment Production Systems consist of two types which are described as follows:

1 Complete Whole Garment

In the Complete Whole Garment System, one individual makes the entire garment from cutting the cloth, sewing, pressing, finishing to packing. In this system, the garment is ready for dispatch once the operator completes the final operation. It is a system used in few places, which are engaged in custom-wholesale. They are normally high priced and exclusively made for a customer (Ramesh, 2012).

2 Departmental Whole Garment.

The Departmental Whole Garment System is also used by custom wholesale manufacturers as well as high priced or better dress manufacturers. This system is such that, one individual does all the work with the equipment allocated to a department. For example, one person does all the cutting work in cutting department, the second person does all the sewing work in the sewing department, and the third person does the pressing and packing work. The workers in this system may use more than one equipment to complete their respective job.

2.9.4 Group System

Group system is a development on the individual system, with the difference is that the operators specialize in one major component and sew it from the beginning to the end. For example, an operator specializing in backs would assemble the back and yoke, label attaching, etc., and perform all the operations required to finish that component. The sewing room would have several sections, each containing multitalented operators capable of performing all the operations required for a specific component (Ramesh, 2012). The sewing room consists of several sections with each section containing multitalented operators capable of performing all the operations required for a specific component. Figure 4 represents the group system of garment production. Average garment sections may include:

Preparation of the collar

Preparation of the sleeve

Preparation of the front

Preparation of the back

Assembling operations (closing, setting collars and sleeves, etc.)

Finishing operations (buttonholes, blind-stitching, etc
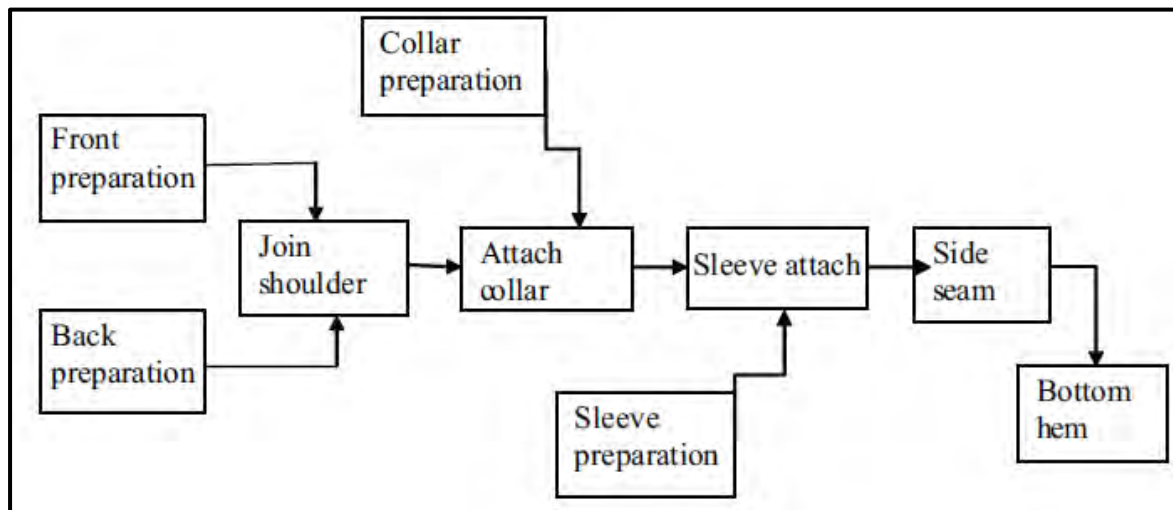
Figure 4: The Group system of producing a shirt

Source: (Ramesh, 2012)

2.10 The Factory Production System

There are various methods used in the clothing factories for assembling garments. The choice of suitable assembly system largely depends on the product, production and the pricing policies of the company. Most of the garment assembly systems employed in the clothing factories are derived from the following manual or mechanical systems, each of which has its own characteristics.

2.10.1 Garment Assembly Systems commonly used in Mass Production

Three main types of assembly systems are identified in the clothing factories for mass production. Each of these systems requires an appropriate management philosophy, materials handling methods, floor layout and employee training. Factories may use only one system, a combination of systems for a product line, or different systems for different product lines in the same plant to meet their specific production needs. These systems are, Progressive Bundle System, Unit Production System and Modular Production System.

2.10.2 Progressive Bundle System (PBS)

In the Progressive Bundle System, as illustrated in figure 5, the bundles of garment parts are moved in a sequence from one operation to another. The operators specialise in one major component and sew it from beginning to end. The garments are gradually assembled as they move through successive sub-assembly operations in bundle form. This system, often referred to as the traditional production system, has been widely used by apparel manufacturers for several decades still in use today. Bundles are assembled in the cutting room where cut parts are matched up with corresponding parts and bundle tickets. Bundles of cut parts are transported to the sewing room and given to the operator scheduled to complete the operation. Bundles consist of garment parts needed to complete a specific operation or garment component. For example, an operation bundle for pocket setting might include shirt fronts and pockets that are to be attached.

One operator is expected to perform the same operation on all the pieces in the bundle, re-tie the bundle, process coupon, and set it aside until it is picked up and moved to the next operation. Under this system of assembling garment, the sewing room would have several sections, each containing versatile skills capable of performing the operations required for a specific component.

The progressive bundle system is somewhat cumbersome in operation and requires large quantities of work in progress. However, it is probably one of the most stable systems if large output is required. The only disadvantage of this system is that production gets badly affected if there is serious absenteeism or prolonged special machine breakdowns (Ramesh, 2012).

CUFFS	CUFF HEM		BUTTON HEM	
	CUFF R/S		CUTT R/S	
	CUFF TURN / TRIM		CUFF FINISH	
SLEEVES	SLEEVE OPEN		CUFF SETTING	ASSEMBLY II
	SLEEVE PLK ATTACH		CUFF SETTING	
	SLEEVE PCK FINISH (B)		SIDE TOP STITCH	
	SEELVE PCK FINISH (C)		SIDE ATTACH	
COLLAR	COLLAR R/S		SLEEVE T/S	
	COLLAR TURN		SLEEVE ATTACH	
	COLLAR TOP IRON		SLEEVE SETTING	
	COLLAR T/S		COLLAR FINISH	
	PICK A HEM		COLLAR FINISH	ASSEMBLY I
	PICK ATTACH		COLLAR ATTACH	
	PICK CUTTING		COLLAR SETTING	
	POCKET IRON		SHOULDER T/S	
FRONTS	POCKET HEM		SHOULDER ATTACH	
	POCKET MARKING		SHOULDER JOIN SET	FRONT
	POCKET IRON		POCKET ATTACH	
	FRONT BUTTON PLK HEM		BACK YCKE LABEL	
	FRONT KAJA PLK HEM		BACK YCKE T/S	BACKS
	FRONT PLACKET FUSING		BACK YCKE ATTACH	

Figure 5: Progressive Bundle System
Source: (Ramesh, 2012)

2.10.3 Unit Production System (UPS)

A Unit Production System (UPS) illustrated in Figure 6, is a type of assembly line that uses an overhead transportation system to move garment components from one work station to another for assembling the garment. All the parts for a single garment are moved forward through the production line using a hanging carrier, which travels along an overhead conveyor. When an operation is completed, the operator presses a button, and the carrier moves on to the next operation. Most Unit Production Systems are linked to a computer-controlled centre that routes, tracks production, and provides up-to-the-minute data for management decisions.
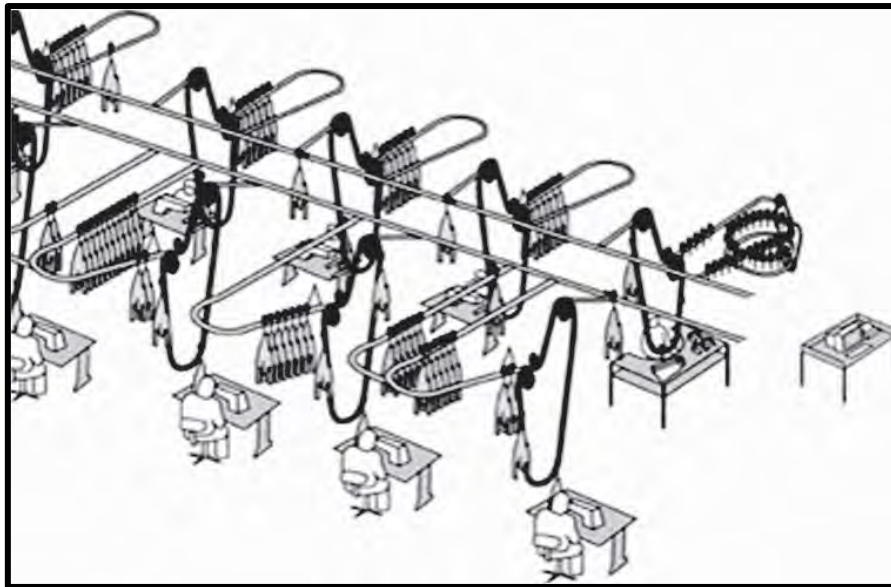
Figure 6: Unit Production System
Source: (ILO, 1998)

The unit production system transports all the pieces of one complete product through the manufacturing process. The carrier takes all the pieces of one entire unit (i.e., for trousers - backs, fronts, pockets, etc.) through the different steps of production. Operations are performed at individual workstations and the result is a cost-efficient product, processed from pieces to completion a.

2.10.4 The Modular Production System (MPS)

The Modular Production System focuses on a team method of assembly. The members of a team are supposed to take care of either the entire garment or a specific operation of the assembly process, depending on the industry production plant and the number of components being put together. The team is trained on the functions requires and paid as a team, based on the total output. Members of the team operate individual machines and perform separate tasks but they work together for their final compensation. They also undergo cross training to help company avoid any kind of production lapses. The Modular Production System is an efficient garment assembly system since it

reduces production time and improves quality. The fact that workers get to do different activities, there is reduction in work monotony and job performance is enhanced.

From the above discussions, it can be concluded that controlling quality in apparel industry is a tough task. If quality is properly controlled then costs remain at acceptable levels and customers would be satisfied. The fact is that quality is ultimately a question of customer satisfaction. Quality control in terms of apparel manufacturing, pre-sales and posts sales service, delivery, pricing and others are therefore essential for any garment manufacturer, trader or exporter.

METHODOLOGY

3.0 Overview

The chapter discusses the philosophical assumptions and the design strategies underpinning the study. The chapter therefore discusses the research design used, the population for the study, the sampling technique, the instruments used, and procedure for data collection and analysis of the study.

3.1 Research Paradigm

Qualitative researchers often begin their inquiry within a paradigm, with certain assumptions or with a world view (Creswell, 2012). According to (Kuhn (1977) the term "paradigm" refers to a research culture with a set of beliefs, values, and assumptions that a community of researchers has in common, regarding the nature and conduct of research. Bryman (2008) also describes the term "paradigm" as beliefs, which guide researchers to choose what discipline to explore and how they approach the interpretation of their evidence. Such definitions suggest that the paradigm of a field of inquiry has influence on almost every decision that researchers make throughout his/her study including data collection and analysis. The choice of research paradigm helps the researcher to determine the appropriate methods for data collection and analysis. Paradigm therefore includes the researcher's "epistemological, ontological and methodological premises that guide the researcher's actions" (Denzin & Lincoln, 2000 p.33).

Ontology is concerned with the nature of the existence or phenomenon being studied (Gray, 2004). Creswell (2007) holds that ontology refers to the most fundamental categories of being and the relations among them, which comprise the

theory and nature of existence, why, and how. Ontology therefore concerns with the nature of knowledge and reality of the field of research.

Epistemology refers to the way knowledge is acquired in a discipline (Bryman, 2008). Epistemology is concerned with how the reality of the research subjects can be known and their personally, culturally and socially "situated interpretations of the social life-world" (Crotty, 1998 p.67). Epistemology, or the researcher's theoretical perspective, is concerned with knowledge, how it can be acquired and communicated to others, how one distinguishes between what is legitimate knowledge as opposed to opinion or belief, and directs how the researcher acquires new knowledge (Cohen, Manion and Morrison, 2007).

Methodology therefore refers to the way researchers go about discovering whatever they accept and can be known. It is an exploratory technique used for interpreting anthology and epistemological standards into rules, which indicate the direction of research (Antwi and Kasim, 2015).

From the understanding of the three educational philosophies propounded above, this study is situated in the interpretivist/constructivist paradigm. The interpretative paradigm involves qualitative research, which is concerned with the investigation of small, distinct groups and aims to generate information that is useful in certain contexts rather than information, which can be generalised to a whole population (McMillan and Schumacher, 1993). Through this paradigm, the researcher has been able to get a rich, in-depth understanding of the 'lived experiences' of participants. The qualitative approach allows one to enter the participants' life-worlds and study their lived experiences (De Vos, 1998).

The purpose of situating the study on the interpretivist approach was to guide the researcher to choose appropriate methods for data collection and presentation. This paradigm enabled the researcher to have close interactions with the respondents through structured interviews and non-participant observation of their settings and allowed detailed descriptions and explanations of the phenomenon studied. Gephart (1999) explicates that interpretivist/constructivist paradigm is underpinned by qualitative approach, which is characterised by observation, interview and interpretation thus making meaning of the data by drawing inferences. Finally, the interpretivist paradigm was relevant since it has allowed presentation of visual pictures in the study (Andrew, Pedersen and McEvoy, 2011). In this paradigm, the researcher has interpreted the social environment and looked at human behaviour (De Vos, 1998). This means that, the standards of garment manufacturing techniques in the small garment firms, the health and safety compliance level, creativity, innovative capabilities of local garment designers were closely studied, described and interpreted qualitatively for conclusions to be drawn, and recommendations made.

3.2 Research Design

Several research designs fall within the interpretative paradigm. Saunders, Lewis and Thornhill (2003) indicate that the research design selected must be appropriate to the nature of the research being undertaken. Since the purpose of this study was to unveil the factors militating against the development of the small-scale garment industry in Ghana, a case-study design was considered suitable.

A case study is an in-depth analysis of one or more events, social groups, communities or other "bounded systems" in their natural contexts (McMillan, 2008). Creswell (2005) states that case study researchers are more interested in describing the

activities of a group (the case) instead of identifying shared patterns of behaviour exhibited by the group, as would ethnographers. The purpose in case studies is, therefore, not to understand a broad social issue, but merely to describe the particular case being studied.

Cohen, Manion and Morrison (2000) stipulate that case study design is descriptive in the sense that it reveals the complexity of an event. It has several hallmarks of which the following important ones have been applied in this study:

Rich and vivid description of events

Chronological narrative of events

Blending of description and analysis of events

The researcher therefore adopted the case study approach for the study as it allowed the description of the production processes of the small-scale garment industry and how their production techniques affect competition taking into consideration the level of creativity and safety compliance. This design enabled description of the constraints and opportunities in the local garment industry with focus on small firms.

The researcher employed multiple case study as it targeted three major garment manufacturing cities in Ghana namely, Kumasi, Accra and Tema. A stage was therefore set where the techniques of garment manufacturing in the small-scale garment firms in Ghana were examined in order to identify issues that would position Ghana's small garment industry in the global competitive market.

3.3 Population for the Study

The target population for this study comprised two regions, which were selected using purposive and stratified random method and are Ashanti and Greater Accra

Regions. The choice of the two regions became necessary because they are regions where different categories of garment manufacturers have established and are also well-known for businesses with respect to production, size of industry, merchandising and industry experience (Adu-Akwaboa, 1994; Gott and Loughran, 2010).

The study targeted garment manufacturers (fashion designer, tailors and dressmakers), garment merchandisers, fashion students and lecturers of selected tertiary institutions, personnel from government organisations whose operations have direct or indirect influence on the garment industry such as the Ministry of Trade and Industries (MOTI), National Board for Small-Scale Industries (NBSSI), and Ghana Standards Authority (GSA). The target population for the study was then divided into four categories for easy classification and identification. They consisted of:

Category A: Garment manufacturers (small-scale and large-scale) comprising fashion designers, tailors and dressmakers.

Category B: Students and lecturers of the Fashion programme, at the Traditional and Technical Universities.

Category C: Clothing merchandisers, consisting of business persons who trade in clothing products.

Category D: Governmental agencies in Policy (Ministry of Trade and Industry and Ghana Standard Authority, Kumasi).

The study had an accessible population totalling 46 respondents as shown in Table 2 below.

3.4 Sampling Technique

Fraenkel, Wallen and Hyun (2012) postulate that sampling is a procedure through which a sample is selected from a population for a study. According to Kumekpor (2002) sampling is the use of clear and precise procedure to select part of a population having certain characteristics and properties, which can be used to present a whole.

Purposive sampling and stratified random sampling techniques have been used for the study based on the reason that the various categories of respondents had the requisite knowledge and skills required to provide the necessary data. Ball (1990) underscores that in many cases purposive sampling is employed in order to access 'knowledgeable people', which means people with in-depth knowledge about issues, maybe by virtue of their professional role, power, access to networks, expertise or experience. Purposive or judgmental sampling is an approach in which particular persons are selected deliberately in order to provide important information that cannot be obtained from other choices. It is where the researcher includes cases or participants in the sample because of the trust that such people warrant inclusion to provide vital information tor the study (Taherdoost, 2016). Leedy (2005) suggests that in purposive sampling, a unit or people are selected based on specific purposes. Ackoff (1953) postulates that stratified sampling is often used where there is a great deal of variation within a population. The purpose of using the stratified sampling was to ensure that every stratum is adequately represented.

In line with the above, the researcher purposefully sourced for primary data from people in the large-scale garment industry, governmental agencies, merchandize, and institutions of higher learning who were knowledgeable in matters in the garment production essential to the study. Respondents from the formally trained small garment

firms were also purposefully sampled for the study while the informally trained garment producers were randomly sampled. In all forty-six (46) respondents were purposefully and randomly recruited to form the representative respondents for the study as shown in Table 3 This figure is quite adequate for the study since (Creswell, 1998; Mason, 2010) assert that for quality research, at least 30 respondents is a fair representation for an acceptable accuracy of results.

On such bases, the researcher selected three cities within the population namely, Kumasi in the Ashanti Region and Accra and Tema in the Greater Accra Region. These cities were selected because they are considered fashion and industrial hub of Ghana apart from being cosmopolitan in nature and centrally located. The population of the study was categorised into four (4) and further stratified into eighteen (18) strata with respondents that have similar characteristics (Cohen, Manion, & Morrison, 2007).

Category A consists of garment manufacturers engaged in small-scale and large-scale production. Storey (1994) stipulates that there is no single, uniformly acceptable, definition of a small and large firms. The researcher adopted the Ghana Statistical Services (GSS) definition which considers firms with less than 30 employees as Micro/Small-Scale enterprises while firms employing 30 or more workers are categorised as medium/large-scale firms (Kayanula and Quartey, 2000)

Therefore, the small-scale garment industry in this study consists of the firms which employ less than 30 workers while the large-scale garment industry are firms which employ at least 30 workers. Eight (8) respondents each were randomly selected from owners of informally trained small fashion firms in Kumasi, Accra and Tema to form part of the sample for the study. Also, one (1) respondent each was purposefully selected from formally trained small fashion firms in Kumasi, Accra and Tema. The

large-scale firms purposefully recruited were DTRT Limited, Accra where one (1) respondent, Learning and Development Officer was selected. Again, the Managing Directors of two other large-scale firms, KAS Fashion and Unijay Limited were also purposefully samples to provide data for the study. This category of people provided vital information in relation to the dynamics of the garment industry.

Category B constitutes respondents selected from tertiary institutions offering Fashion and Textiles programme. The researcher was convinced that these institutions train people in garment designing, production and promotion of local clothing product. They consisted of two (2) lecturers and two (2) students each selected from KsTU and UEW all in Kumasi in the Ashanti Region using stratified random selection method.

Category C is made up of Marketing Managers of two clothing merchandising firms in Kumasi who were purposefully selected to be part of the respondents. This category of people deals in the trading of both local and imported clothing items who understand the dynamics of the garment industry and as such, they could provide relevant data to accomplish the set objectives for the study. One (1) respondent each was selected from Groomsmen and Ultimate Fashion in Kumasi.

Category D comprised government agencies that initiate policies for promotion and standardisation of the garment industry. These institutions were purposively recruited to provide relevant data for the study. Two (2) key officers each from the Ministry of Trade and Industry (MOTI), National Board for Small-Scale Industries (NBSSI) and Ghana Standards Authority (GSA) were sampled to help achieve the objectives of the study. Table 2 and 3 provide graphical presentation of the distribution of respondents for the study.

Table 2: Distribution of the Accessible Population for the Study

Category	Population for the Study	Sample
Category A	GARMENT PRODUCERS	
	Small-Scale Firm (Apprenticeship)	*24*
	Small-Scale Firm (Formally trained)	3
	Large-Scale Firms	3
Category B	INSTITUTIONS OF LEARNING	
	Kumasi Technical University	4
	University of Education	4
Category C	FASHION MERCHANDISERS	2
Category D	GOVERNMENTAL AGENCIES	6
Total Participants for the Study		**46**

Table 3: Stratification of the Accessible Population for the Study

Stratum	Population for the Study	Sample
	GARMENT PRODUCERS	
	Small-Scale Firm (Informally trained)	
Stratum 1	Small firms in Kumasi (Informally trained)	8
Stratum 2	Small firms in Accra (Informally trained)	8
Stratum 3	Small firms in Tema (Informally trained)	8
	Small-Scale Firm (Formally trained)	
Stratum 4	Large firms in Kumasi (Formally trained)	1
Stratum 5	Large firms in Accra (Formally trained)	1
Stratum 6	Large firms in Tema (Formally trained)	1
	Large-Scale Firms	
Stratum 7	Dignity DTRT Limited, Accra	1

Stratum 8	Kas Fashion, Kumasi	1
Stratum 9	Unijay Limited, Kumasi	1
	INSTITUTIONS OF LEARNING	
	Kumasi Technical University	
Stratum 10	Fashion lecturers	2
Stratum 11	Fashion students	2
	University of Education	
Stratum 12	Fashion Lecturers	2
Stratum 13	Fashion students	2
	FASHION MERCHANDISERS	
Stratum 14	Ultimate Fashion, Kumasi	1
Stratum 15	Groomsmen, Kumasi	1
	GOVERNMENTAL AGENCIES	
Stratum 16	Ministry of Trade and Industry	2
Stratum 17	National Board for Small-Scale Industries	2
Stratum 18	Ghana Standards Authority	2
Total Participants for the Study		**46**

3.5 Instruments for Data Collection

In this study, interview, observation and document analysis were employed as the instruments for collection of data. The use of the three tools ensured reliability of data since any issue that an instrument would not address could be tracked down by the other.

3.5.1 Interviews

Semi-structured interview was the main and more relevant technique of data collection instrument used for the study. The semi-structured interview enables the researcher administer follow-up questions for clarification. Creswell (2012) describes interview as one of the most powerful ways of trying to understand fellow human beings.

The reason for using interview was that, due to the low level of the educational background of most of the respondents they were able to express themselves by way of talking than writing.

One-on-one interview was conducted to obtain data from the garment manufacturers. The researcher used interview to interact with the three (3) managers of small-scale garment producing firms each from Accra, Tema and Kumasi with diverse education and training background and experiences; they expressed their views and concerns on the garment industry. Moreover, one (1) key person was interviewed from each of the three (3) large-scale garment firms namely, Dignity DTRT Limited in Accra, KAS Fashion in Kumasi and Unijay Limited in Kumasi. Again, one-on-one interview was conducted with two (2) key personnel each purposefully selected from the Ashanti Regional offices of MOTI, NBSSI and the GSA. The agencies form part of the major stakeholders in policy making of matters related to garment in the country. In the same manner, one-on-one interview was conducted with the respondents (students and lecturers) selected from Kumasi Technical University and University of Education, Winneba, Kumasi Campus.

Most of the interviews were conducted directly at either office, lecture rooms or homes of the participants, using a Samsung phone for recording. In all, forty-six (46) respondents were engaged by means of face-to-face interview using an interview guide. Most of the interviews were preceded with a letter of commitment and the interview guides (appendix B) to the participants to enable them prepare adequately for the interview.

3.5.3 Observations

Observation is the process of gathering open-ended, first-hand information by observing people and places at a research site (Creswell, 2012). Kumekpor (2002) asserts that observation brings the investigator into contact with the phenomenon being studied, in one way or the other. The researcher adopted non-participant observation technique for the study. The use of non-participant observation enabled the researcher to watch what went on in the activity but does not take part in the under study (Wallen and Hyun, 2012). The researcher observed the activities in the garment industry including laying and cutting out processes, pressing, method of finishing, packaging, product design and job place health and safety compliance. Moreover, customer satisfaction and facilities of the garment manufacturing firms were observed. Reflective notes and photographs were taken during observation. An observation check list (Appendix IX) was used as a guide for recording observable findings.

3.7 Document Analysis

Document analysis is a form of qualitative research in which documents are interpreted by the researcher to give meaning around an assessment topic (Bowen, 2009). Denzin (1970) stress that document analysis is often used in combination with other qualitative research methods as a means of triangulation thus, the combination of methodologies in the study of the same phenomenon.

The important documents of the respective garment manufacturing firms useful for evaluation of data were reviewed. Such documents reviewed were; attendance registers, receipt books, time books, contract books, dispatch books, posters and measurement books. These documentation tools were used to obtain relevant information to the study and as a support for the main data. The document analysis

helped the researcher to check and confirm some of the primary data from interview and observation.

3.6 Data Collecting Procedure

Data Collection for the study was done through qualitative approach. Data were collected from field work mainly through interview, direct observation and audio-visual documentation. The researcher employed interview guide (Appendices I to VIII) and observation checklist (Appendices IX) in the data collection. Data collected for the research was personally done by the researcher and a research assistant. Firstly, respondents were given copies of the interview guide and dates were agreed on for the interview to be conducted. The researcher, and a research assistant went to the various designated places to collect the data. In Kumasi, Accra and Tema, the researcher visited selected small-scale and large-scale firms of Fashion designers, Tailors and Dressmakers, and garment producing factories (Dignity DTRT Limited, KAS Fashion and Unijay Limited). Selected marketing managers of fashion merchandising firms in Kumasi were also visited and interviewed, (see Table 3). The interviews were conducted after thoroughly observing and recording their firm's production processes and machinery.

The researcher and the research assistant made another visit to the Ashanti Regional offices of MOTI and, GSA and NBSSI. At each of the government agencies, key officers were interviewed to find out the challenges the garment industry is facing and the government's contributions and policies aimed at providing sustainable development in the local garment industry. The researcher visited tertiary institutions in Kumasi that offer clothing and textiles programmes. The Kumasi Technical University (KsTU) and University of Education, Winneba, Kumasi Campus were visited, and

selected students and lecturers were interviewed to ascertain their views on the state of the small garment industry in Ghana.

3.7 Data Analysis Plan

After data collection, the recorded interviews were transcribed and compared with the notes taken during the interviews for purposes of authenticity. The responses from the observation check list were sorted out. Constant comparative/grounded theory analysis was employed in the data analysis. This method of data analysis was relevant to the study since it involved data collection, data transcription, reading, re-reading, coding and categorisation (Miles and Huberman, 1994). Lawrence and Tar (2013) expatiate that that grounded theory approach deals with coding the assignment into concepts, categories and themes. Saldaña (2013) outlines that in qualitative inquiry a researcher generates a construct that symbolizes and attributes interpreted meaning to each individual datum for later purposes of pattern detection, categorization, theory building and other analytic processes.

The researcher employed open, axial and selective coding for the study. An open coding was the first step in the analysis process where the interview transcripts and observer comments were closely examined to identify relevant concepts (Strauss and Corbin, 1998). The concepts were grouped into categories that reflected the objectives of the study and compared or triangulated for similarities and differences. An axial coding was conducted next after the open coding. In the axial coding, the researcher related the categories to their sub-categories and concepts were grouped into families for complete and precise explanations of the phenomena being studied. The third step in the theory building referred to as selective coding (Strauss and Corbin, 1998) was done. The information emerged from the coding were classified into themes and sub-themes

and were interpreted descriptively, supported with literature, tables and figures and presented in chapter four and five of the theses.

Both primary and secondary data obtained were assembled, analysed and interpreted and conclusions drawn. Recommendations were finally made with respect to measures that should be taken to revamp the local garment industry enable it to remain sustainable in the growing global competitive market.

3.8 Authenticity of Data

Authenticity is the extent to which the data and data analysis are made believable and trustworthy. In this study, the researcher employed data triangulation to ensure validity of data obtained. Neuman (1994) defines triangulation as the use of two or more methods of data collection techniques in order to examine the same variable. Triangulation implies that measurements improve when diverse indicators are used. Data triangulation therefore is the collection of data from multiple sources with the intention of obtaining diverse views on the phenomenon under study for the purposes of validation (De Vos, 1998).

In order to ensure credibility and reliability, data sources for the study were taken from different categories of respondents. They included personnel with varied education background and experiences from GSA, NBSSI and MOTI who represent major stakeholders in policy making. Other respondents were staff and students of higher institutions that offer clothing and textiles. Manufacturers of garments in small-scale as well as large-scale levels were also engaged and the last categories of respondents engaged garment merchandisers. Other measures taken to ensure credibility were that all the interviews conducted were audiotaped after agreeing with the participants. The recordings were transcribed verbatim so that the researcher had to transcribe versions of

the recorded interviews. The transcribed versions were sent back to the respondents to verify if those were the data provided.

To further ensure reliability, expert review and debriefing sessions were undertaken where the researcher periodically conferred with supervisors for their suggestions and guidance without which the study could not have been approved for submission. The reflexivity session of the study provided relevant experience, background and qualification of the researcher as measures of defusing perception of biases.

3.9 Researcher's Reflexivity

Researcher reflexivity is about placing the researcher at the centre of an analysis of the knowledge produced through social research. The researcher's background and his or her perception about matters under study must be made known to serve as a measure of credibility. Reflexivity draws on a variety of biographical aspects such as values, motives, politics, employment and personal status's as well as on issues related to key social divisions of age, gender, sexuality, ethnicity and ability as they specifically apply to the researcher (Shacklock & Smyth, 1998). Reflexivity ensures that all analyses are devoid of any form of bias and that they are completely transparent, and there is the acceptance that all knowledge claims are gained through the interaction of the researcher, the data and the social environment in which they exist (Moon , 2008).

The researcher attended Presbyterian Teacher Training College at Akropong Akuapem and did Mathematics and Science as major subjects and obtained 3-Year Certificate A. After teaching for some time, the researcher pursued further study at Kumasi Polytechnic now Kumasi Technical University and obtained Higher National Diploma (HND) in Fashion Design and Textiles Studies. Thereafter the researcher went

to University of Education (Kumasi Campus) and pursued Bachelor of Education, Vocational and Technical Education (VOTEC) in Fashion and Tailoring and graduated in 2007. He pursued further a post graduate programme, Master of Fine Art (MFA) in Textile Design at KNUST and passed in 2011. Currently the researcher pursuing a terminal degree in Doctor of Philosophy in Arts and Culture at the University of Education, Winneba.

At the Junior High School, the researcher taught Mathematics and General Science for five years, Pre-Vocational Skill - Textiles option, for three years and Clothing and Textiles at the Senior High School for one academic year. Since 2007, the researcher has been teaching Pattern Technology and Garment Technology at Kumasi Technical University.

As a Senior Lecturer at the Kumasi Technical University, the researcher has had opportunities to interact with garment manufacturers such as fashion designers, tailors, fashion merchandisers, fashion teachers and dressmaker and has made some observations related to their jobs. The researcher has learned from observations that the clothing industry can open many job opportunities in the country but most of the artisans are living on hand-to-mouth basis because of poor standards of production processes. With the influx of foreign clothing caused by global trade liberalisation, it is timely that this study is conducted to examine and ascertain the standard of small-scale garment manufacture can compete favourably in the international market and if not, recommend favourable measures to revamp it.

The above information spells out the researcher's academic and professional background. It also clarifies perceptions on the issue being studied, which however are not in any way influenced by the researcher's biographical details. The findings of this

study are credible since they are based on the analysis of the data collected from respondents.

CHAPTER FOUR

RESULTS AND DISCUSSION OF FINDINGS

4.0 Overview

This chapter presents and discusses the findings of the study. The purpose of the study was to investigate manufacturing standards of the small-scale Ghanaian garment industry in the phase of growing global competitive market. The chapter specifically looks at the competence level of the garment manufacturers with respect to creativity, assembly processes, workplace health situations, prospects and challenges of the local garment industry and measures put in place to address the challenges. The analysis in the chapter is guided by the following research questions:

RQ. 1: How does the small garment industry carry out designs for production in Ghana?

RQ. 2: What are the production techniques adopted at the small garment industry in assembly processes in Ghana?

RQ. 3: What is the situation at the small garment workplace regarding health and safety compliance in Ghana?

RQ. 4: What are the challenges and prospects that exist in the small garment industry in trying to meet market competitions in Ghana?

The formulation of the research questions was guided by the objectives of the study of the research as stated below:

1. To examine garment design development techniques employed at the small garment industry in Ghana.

2. To examine the production techniques employed by the small garment industry in Ghana.

3. To investigate workplace health and safety compliance situation at the small garment industry in Ghana.

4. To analyse the challenges and prospects in the small garment industry in trying to meet market competitions in Ghana.

4.1 Background of Respondents

In this section, the researcher describes briefly the background of respondent who provided data for the study. Table 4 provides distribution of respondents used for data collection.

Table 4: Distribution of the Respondents

Respondent	Gender		Age Range		Type of Training		Total Respondents
	Male	Female	Below 35 yrs.	Above 35 yrs.	Informal	Tertiary Institution	
1. Small-Garment firms	12	15	9	15	24	3	**27 (59%)**
2. Large-Garment firms	2	1	-	3	-	3	**3 (6%)**
2. Students	1	3	4	-	-	4	**4 (9%)**
3. Lecturers	2	2	-	4	-	4	**4 (9%)**
4. Merchandisers	1	1	-	2	1	1	**2 (4%)**
5. Governmental Agencies	4	2	1	5	-	6	**6 (13%)**
Total	**20** **(46%)**	**26** **(54%)**	**14** **(30%)**	**32** **(70%)**	**25** **(54%)**	**21** **(46%)**	**46** **(100%)**

Inferring from Table 4, small-scale garment manufacturers form greater percentage (59%) of the categories of respondents engaged for data collection while 6% selected form large garment firms. About the age range of the respondents, it can be

noted that most people in the garment industry have attained over thirty-five years, which represent 70% of the total respondents. It can be inferred from the table that out of twelve (27) respondents picked from small-garment firms nine (24) of them which represents 89% have non-formal training apprenticeship. The researcher took such a decision because of their dominance in the garment manufacturing sub-sector.

For the purpose of anonymity and confidentiality, names of respondents were not included with their responses. For example, respondents from informally trained small garment manufacturing firms were designated with SGP 1, 2, 3, in that order respectively. Also, respondents from the formally trained small garment manufacturing firms were designated FGP 1, 2 and 3 respectively and those from the large garment firms were designated LGP 1, 2 and 3 respectively. The respondents from government agencies were designated GA 1, 2, 3, etc. respectively while respondents from education institutions were designated STU 1, 2, 3 and 4 for students and LTU 1,2,4 and 4 for lecturers respectively. Finally, respondents selected from the merchandise were designated GM 1, 2 and 3 respectively. The use of numbers attached to the abbreviations represents the order in which the respondents were interviewed.

Research Question 1: How do small Ghanaian garment firms create designs for production?

The objective of this section was to find out the level of training of the local garment manufacturers in creativity and design development. The findings, which were obtained from the data research question one, are summarised in Table 5.

Table 5: Categories and theme from research question one

Research Question	Category of Respondents	Themes
How do small Ghanaian garment firms create designs for production?	Small-scale firms Large-Scale firms Education institutions	• Design development processes • Skill level in designing using hand and computer. • Prediction of designs – local garment industry perspective • Design innovations

Table 5 presents the themes generated from research question one. In all four (4) themes were retrieved from the responses obtained from research question one from the small-scale industry, large-scale industry and education institutions. The themes on research question one is presented and discussed with supporting literature.

4.2.1 Design Development Processes

One pertinent issue that had to be investigated in the research question one was the respondents' views on the processes followed by small-scale garment industry creating new designs. Different opinions and experiences were shared by the respondents on this matter. Citing the responses gathered from respondents on the issue about design processes, **SGP 8** stated: "***I sometimes get my designs from dream so I believe it is a gift of God. Normally, when I lay fabric then something urges me to create design. Actually, I don't follow any rule***". Moreover, **SGP 13** expressed the following sentiment, "***My design skills are about the gift of God, the moment I lay the fabric on table, the design just come up***" (**SGP 13**)**.** On the same question a respondent

from formally trained small firm, **FGP 2** expressed the following revelation: "***As a designer I sketch the design down on paper by studying catalogues and other designs somewhere***" (**FGP 2**, *2018*).

Responses from respondents suggested that most informally trained small fashion designers had no knowledge about mood-board as an inspiration for design creation of innovations. For example, a question was posed about whether local designers gather information on mood-board to serve as foundation for creation of design. The general response gathered from the respondents, most of whom had their training through apprenticeship were:

> I don't know anything about mood board and what it is used for because we don't use it here, when I want to create new designs, I look at the cloth I have at hand and then make something out of that" (***AGP 3 & SGP 15, 2018).***

The pieces of information obtained from the respondents about garment design processes indicate that small garment designers especially the informally trained ones have little knowledge about designing development processes for new collections. The researcher observed that the formally trained designers exhibited design skills which were manifested in sketch books they had. **LGP 2** stated: "***sometimes we design on the dummy and call clients for approval, sometimes too we use the old patterns and generate something new from them***". This suggests that designers who are formally trained go through research processes and make unique garment styles which is not the case with those who had only apprenticeship training. Carr and Latham (2008) suggest that the effect of designs that are not backed by research often result in creation of designs that would not sell since the customers are not involved in the creation of the designs. The system of production in the small garment industry is also different from

that of the large garment industry operates on designing of garments. For instance, the Learning and Development Officers of Dignity DTRT (**LGP 1**) made this statement:

> Our designs mostly come from the catalogue of the customer. We have research and designing teams which focus on garment designing. They look at functionality of garment and work around concepts. The design team looks at what can be done for the market based on the purpose or occasion (**LGP 1**, **2018**).

Similarly, another respondent in the large industry, (**LGP 2**), also explained that design is about evolution, what existed in the past later comes back into fashion. He indicated that designers need to keep collection of catalogues which would serve as reference point or source of if inspiration for future collections. He further stated that creative designers make references into the past catalogue and modify some of them into new product. It could be inferred from the response that large firms do not throw away catalogues rather they keep them for inspiration in future design developments. "*My secret of my success   is revisiting the old catalogue which keeps me ahead of others* (**LGP 2**, *2018*). In agreement with (WIPO (2011) the garment industry involves significant creativity and innovations in order to satisfy the criteria of both aesthetic design and utility to consumers.

LGP 3 also outlined that he often finds colleague tailors and dressmakers copying others. "*Those people who copy designs are lazy thinkers and cannot face competitions*" (**LGP 3**). Responses presented above suggest that the small-scale industry, particularly those who acquired skills through apprenticeship training do not have the capability to study trends to create designs. They create with designs in an ad hoc manner after obtaining the shell fabric. This trend means that the local garment manufacturers do not have skills in garment designing processes or do not see the need for it and therefore cannot predict future trending designs. However, to create a niche at

the global competitive market, Nyarko, Essuman and Peligah (2015) posit that varied standards are employed for designing and producing garments worldwide but the main standards involve analysing trends, producing design concepts, making sketches, designing patterns and overseeing production. The large-scale garment industry follows such paths of techniques while designers trained informally in the small-scale enterprises have little or no knowledge in design skills as indicated in their responses. The data reveal that the informally trained small-scale garment producers have deficiencies in garment designing skills and as such would find it almost impossible to sustain market competitions. Design is about building theme boards which reflect the general theme for the collection, reflecting on trends which give the designers ideas for their colour schemes and styles (Nyarko, Essuman and Peligah, 2015). Table 6 shows the means of designing in the small and large garment industries as observed and found by the researcher.

Table 6: Means of designing in the small and large garment industries

Small Garment Industry (informally trained)	Large Garment Industry and Small Garment Industry (formally trained)
No research done into past trends.	Established research into trends.
Designs are copied directly from catalogue.	New designs adapted or given innovation from mood board and catalogue.
Designs and patterns are not kept for the future	Designs are created and kept for future.

4.2.2 Designers' Competence in the use of Computer

One of the findings from research question one was the issue of industry's competence in designing using the hand or computer. The responses obtained from the participants indicated clearly that designers in the small garment industry whether formally trained or informally trained were handicapped in the use of computer for designing. Also, findings from the study showed that the formally trained producers are comfortable with the hand in sketching designs. The researcher observed that the respondents at the informally trained small garment firms had nothing to show as samples of the sketches they had made which confirmed that they were less motivated to draw or create something with the hand.

When a question sought to find out the respondent's competence in designing using the hand or computer the following were some of the responses from the various respondents: said, "*I still go by the manual way because the ideas come as I sit then I draw*" (**SGP 11**). Another made this response "*I have not tried using computer before and it's not something I can do now*" (**SGP 2**). Similarly, the rest of respondents from the small-scale industry provided the same response, which suggests that the small-scale industry is gravely deficient in Computer Aided Designs (CAD). For instance, **LGP 1** stated, "*I'm not good at computer but for the hand I am good even right from the time I was a school boy*". Another response from **LGP 3** indicated confidence in the use of the hand and not the computer by saying:

"*At the Kumasi Technical University where I had my Fashion certificate, we were trained very well in illustrations using the hand but the training in computer wasn't much (FGP 3, 2018)*. A response from a respondent at a tertiary institution studying Fashion Design also stated:

I'm not confident at using computer to design. Whenever I want to create design, I just do rough sketch then with the hand and quickly transfer it to the paper or fabric" (***STU 2, 2018).***

It could be inferred from the data that computer applications such as CAD has not been studied by the small garment entrepreneurs. Few of those who had had some training in CAD at the tertiary education level have not had in-dept training to enable students perform after graduation. Researcher observed that the small-scale industry has relegated the use of computer in designing to the background. There is loss of interest in CAD since workshop places did not include computer sites for designers to use. This identified design deficiency in the small-scale industry obviously hampers effective production. The researcher infers that this skill deficiency is in sharp contrast with the assertion made by Keiser & Garner (2015) that product developers with established firms store both their basic blocks and past-season patterns digitally so that they can be pulled up and modified to create new styles. This further implies that the generation of patterns cannot be performed on CAD systems where they can easily be stored and later retrieved and modified into new styles. The researcher observed that no local fashion workplace visited has a computer installed for purposes of designing. Figure 7 shows the general set-up of machinery at the local clothing workshop as observed by the researcher.

Figure 7: Set-up of machinery at the small garment workplace
Source: Curtesy Serwaa Fashion, Kumasi, 2017

The atmosphere in the large-scale industry appeared quite different since the response on the same question "How capable do you use the hand or computer in product designing?" yielded a different one. The   showed firm reliance on CAD for production at the large-scale industry. The following were the responses received:

> We have moved away from the manual designing systems so we have computer programmes that are used for designing and making patterns. That is the state of the art now, even, there are more advanced which we are planning to purchase. **(LGP 1, *2018*)**.

While the small-scale fashion enterprises are battling with manual system of designing, the large-scale firms have relied mostly on CAD from the designing stage to marker planner. All details of a garment are done on the computer and corrections are easily affected before plotting out. This means that the customer could have a look at the final design on the computer and make his or her input before the garment is sewn. Such standards are not followed in the small-scale firms. But currently, circumstances in the global garment industry indicate that it is past time small-scale firms had training in CAD and manual designing skills.

4.2.3 Design Forecasting skills in the small Garment Industry

One of the findings about the research question one was about the ability of the small garment industry to predict future designs. Design forecasting involves prediction of mood, behaviour and buying habits of the consumer. Data showed deficiency in the small garment industry but positive in the large industry where mass production is done. The following were the statements made by **SGP 9** and **SGP 2** when asked how often they can make designs. "*We don't do mass production. We produce for individual customers. When you produce in bulk for sale they will buy and leave out some which will lock up your money*" (**SGP 9** & **SGP 2**).

In addition, another respondent in the small industry made this statement; "*Predicting designs in the future is not something common among us because if you try to do that it may fail at the market*" (**SGP 6**). Responses from other respondents showed that there was some anxiety that the prediction may fail and run at a loss. "*We can forecast future designs but we are afraid they might fail, besides if you would like to make forecasting then you should plan going into mass production and advertising*" (**FGP 1**).

It can be deduced from the interactions with the small-scale firms that the industry does not seem to aim at expanding due to lack of entrepreneurial competence. There is so much anxiety among designers in the small-scale industry about taking some risk coupled with lack of knowledge to produce and sell in the future. Those who were trained at the tertiary level were not taught forecasting as part of the curriculum.

Considering a statement made by a respondent from a tertiary education institution, "*Design forecasting is not included in the syllabus for training the students*, *we may have to look at that again when we are reviewing the curriculum*

LTU 3". The researcher agrees with (Opoku, Baiden, & Kemevor, 2015) for suggesting that most of the small-scale fashion designers were trained through apprenticeship, some of them being school drop-outs and others being basic school leavers with no previous knowledge on the job until they are made to undergo informal apprenticeship training. In view of their weak background in formal education, most of them do not have the skills to enable them project what consumers may be interested in in the future. A designer who can research and forecast styles ahead of others is the one that can make significant inroads in the garment industry in terms of profit.

4.2.4 Innovations in the Local Garment Industry

Another finding associated with the research question one was the issue of design innovations. Data obtained from respondents showed that the small garment producers relied on copying popular designs from catalogues without modifications. When respondents were asked to express their opinions of the innovative capabilities of the local garment manufacturers, the following were some of the responses gathered:

Respondent, **SGP 4** and **SGP 6** said, respectively "*I think foreign designs are ahead of us because over there they train them to create designs that the customer likes. I wish we get chance to go through such training*". These respondents were the small garment makers who conceded that the foreign designers were ahead of them. They have realized something needs to be done in terms of design creation and innovations skills. Similarly, when the same question was posed to the large garment fashion designer, manager of KAS Fashion, LGP 2, he stated this:

> I recently established a new association called Ghana Association of Fashion Designers and Exporters to train members in creativity and innovations in garment manufacture. There was massive participation but I could not continue due to lack of funding" (**LGP 2, *2018***).

His comments suggest that informally trained small garment makers are looking up for an opportunity to participate in training in innovations. Opoku, Baiden, & Kemevor (2015), note that some of the local fashion designers were trained through apprenticeship, some were school drop-outs. This infers that such people would need training to equip them with innovative skills rather that copying. KAS Fashion, (**LGP 2**) suggested that designers who cannot create their own designs and rather rely on copying designs are cannot face current market competitions. He said that such people fear competition in th market. Figure 8 shows observations made by the ressearcher which suggest that some local designers rely on copying of designs from catalogues without modifying them at all.

Figure 8: Display of catalogue for copying at small firms
Source: Curtesy Kyemfebea and Fashion, Accra – 2018

When the Learning and Development Officer of Dignity DTRT (**LGP 1**) was contacted for his assessment on the innovative competence of the local designers, his comment was that the people in small-scale firms need skills training to be able to meet international standards. Considering what is it takes to sew "kaba", it far exceeds the skill level required to sew a T-shirt. Therefore, in terms of assemblage the small

designers can do complex garments styles but will that sell at the international market due to lack of innovative skills. **LGP 1** advocated that the small garment makers need training to be able to meet the required global standards.

The observations made by the researcher revealed that indeed the local designers could create elaborate designs however, those designs do not sell at the international market. For example, the designers find it difficult to do the same sizes and grading into different sizes of the same design. **LGP 1** further indicated that the small-scale garment manufacturers are unable to produce exactly, two or more garments of the same features and specifications. Suh of practices in the local industry conflicts with Liu, Wang, & Gu (2009) who opine that innovative creation refers to some new design, which has structural, functional or formal novelty. Furthermore, Liu et al (2009) indicate that a design is the development upon the skeleton of an existing product, yet innovates and satisfies the demand of consumers and generates better sale.

> If we have training institutions that can help the people on the best ways of creating, modifying, the best ways of packaging, packing and such other skills, then it will be a gain changer for the small garment industry **(LGP 3, *2018*)**.

The response above infers that the local industry needs a little push in terms of training to be able to meet international standards. It is found that some garment designs for example, T-Shirts and jeans are simple in terms of design and construction; details however, they are selling far better than popular local apparel like *fugu* and *kaba*. The concern now is that there are serious deficiencies in the operations of the small-scale local garment manufacturing that must be rectified to enable them meet the demand of the consumer. Figure 9 provides a flowchart of a fashion design development process at the large-scale industry.

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┌─────────────────────────────────────┐
│        ANALYSING THE BRIEF           │
│       innovative opportunities       │
└─────────────────────────────────────┘


┌─────────────────────────────┐     ┌─────────────────────────────────┐
│   RESEARCH INSPIRATION      │     │     RESEARCH DIRECTION          │
│  inspirational/concept board│     │ fashion forecasting, trade fair │
│                             │     │            report               │
└─────────────────────────────┘     └─────────────────────────────────┘


┌──────────────────────────────────────────────────────┐
│                 THE DESIGN PROCESS                     │
│  colour, silhouette, proportion, fabric, pattern,      │
│                  texture, detail                       │
└──────────────────────────────────────────────────────┘


┌──────────────────────────────────────────────┐
│                 PROTOTYPING                    │
│   flat pattern cutting, toiling, embellishment │
└──────────────────────────────────────────────┘


┌──────────────────────────────────────────────┐
│        THE CHOSEN RANGE OR COLLECTION          │
│     putting the look together, accessories     │
└──────────────────────────────────────────────┘


┌──────────────────────────────────────────────┐
│                  PROMOTION                     │
│        Product and portfolio, promotion        │
└──────────────────────────────────────────────┘
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Figure 9: Flowchart of fashion design process at the large industry

Source, (http://fashion2apparel.blockspot.com)

4.3 Research Question Two: What are the production techniques employed in the small garment industry for assembly processes?

This section identifies and discusses the kinds of production techniques employed in the small-scale garment industry in assembly of garments. The themes obtained from the data in research question two, are summarised in Table 7 below:

Table 7: Categories and themes for research question two

Research Question	Category of Respondents	Themes
5. What are the production techniques employed in the small garment industry for assembly processes?	Small-scale industry, Large-Scale industry, Educational institutions Government agencies	**(Spreading techniques)** • Fabric preparation for spreading • Fabric management at the small-scale industry **(Assembly technique)** • Assembly system at the local industry • Evaluating stitching and seams quality during assembly **(Finishing and Packaging Techniques)** • Products finishing at the small-scale garment industry • Products packaging at the small-scale garment industry

The views found in response to research question two were discussion as follows:

4.3.1 Spreading Techniques in the Local Industry

The study found that the small-scale garment manufacturers mostly engage in bespoke production where the specifications are provided by the clients. The researcher observed that often the fabrics are provided by the clients so the designer decides on how to manage the fabric based on agreed style. Fabric with patterns are cut based on the nature of the patterns, whether florals, animate, real objects and other patterns. The study realised that laying out and cutting for plane, check stripe fabrics and similar difficult fabric is a serious challenge at the local garment industry. The findings in relation to spreading techniques are presented and discussed with supported literature as follows:

b. Fabric preparation for laying and cutting

As part of addressing the research question two, lack of understanding of physical properties of fabrics, their preparation and spreading by the informal small garment producers are some of the findings that resulted from responses from respondents. An item on the interview guide for research question two was "How do you ensure that a piece of fabric is fit for spreading and cutting"? The following were some of the responses obtained from the respondents from the informal small garment enterprises:

"*I press the fabric, lay it on the table and then lay my patterns to cut. I only make sure the selvedges are straight and they are meeting each other*" (**SGP 2**). For the same question, another respondent was:

> As for the cloth, we did not make it so if there is any problem in it, it cannot be our fault so we don't check for anything apart from the motifs. You only check proportion, balance and rhythm because every cloth is a cloth" **(SGP 18, *2018*)**.

The small-scale garment designers are aware of the importance of getting the fabric ready for cutting but that is not enough for enough for such product to be competitive in the market. However, an important aspect of fabric physical inspection that is ignored is fabric defect checking. Carr & Latham (2008) explain that fabric faults (flaws, holes, stains, etc.) may be identified by the fabric supplier, and additional faults may be detected during examination of the fabric by the garment manufacturer before spreading. The researcher observed that fabric faults such as stains and holes are not considered essential defect in garment manufacture as stated by **SGP 11** "***As for the cloth, we did not make it so if there is any problem in it, it cannot be our fault***". It is therefore evident and can be suggested that the informally trained garment manufacturers need study on human figure types and design principles to enable them apply it in designing and laying. For instance, **SGP 6** stated,

> I have not learned much about how lines, colours and designs on fabric are used according to human figure type, we often do custom-made garments so when the customer brings his fabric, we cannot be responsible for any fault in the fabric *(SGP 6, 2018)*.

The responses made by the formally trained small enterprises suggest that customers are not informed of defects detected in fabric before seek the approval is sought to use them. The following response buttresses that: "***I don't remember calling a customer and informing him of a fault in the fabric, I just use the fabric I receive from the customer (LGP 3).*** The study has revealed there is a dire need to educate the small garment firm thoroughly about fabric preparation before laying out and cutting. The researcher observed that most of the fabrics used by small-scale manufacturers are not properly ironed and also there are no thorough inspections made to identify defects such as colour, stain a, etc before using them.

On the other hand, what happens at the garment factories of large-scale industry is quite different since the factories are more particular about checking fabric defect before laying and cutting. Fabric go through rigorous inspections to ensure that the required standards are met before laying out and cutting. On the issue of fabric preparation for spreading at Dignity DTRT Limited, the Learning and Development officer atated:

> Before any fabric is sent to the cutting room, we have quality standards that are strictly followed. When we receive fabric consignment, what happens is we take it to the inspection area. We do 10% inspection to identify defects. There are several defects that we set out to go and look for, it may be oil stains, it may be broken yarns, it may be snags or at times there are pile lines (**LGP 1**, *2018*).

He explained that there may be lines across the fabric surface which can be detected in the very first 10% checking. When what is discovered is within the tolerance range, whole consignment is accepted and sent for spreading. Beyond the 10%, they would have to seek approval from the customer and explain the defects they have found; if the customer approves then they go ahead to use it. Figure 10 is a flowchart of a fabric inspection process in a large industry.

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┌─────────────────┐
│ In-coming Fabric │
└─────────────────┘
         ↓
┌──────────────────────────────┐
│ Follow American 4.0 Points System │
└──────────────────────────────┘
         ↓
┌──────────────────────┐          ┌───────────┐
│ Check 10% of consignment │ ──────→ │ Audit fail │
└──────────────────────┘          └───────────┘
         ↓                               ↓
┌──────────────┐      ┌──────────────────────────┐
│  Audit pass   │ ←──── │ Additional 15% is inspected │
└──────────────┘      └──────────────────────────┘
         ↓                               ↓                  ┌────────────────────────┐
┌──────────────┐              ┌───────────┐          │ Item failed kept in Non- │
│ End operation │              │ Audit fail │          │    Conformance Zone     │
└──────────────┘              └───────────┘          └────────────────────────┘
                                     ↓                              ↑
                        ┌──────────────────────────┐                │
                        │ Raise Non-conforming report │ ──────────────┘
                        └──────────────────────────┘
                                     ↓
                        ┌──────────────────────────────┐
                        │ Inform top mgt. for decision making │
                        └──────────────────────────────┘
```
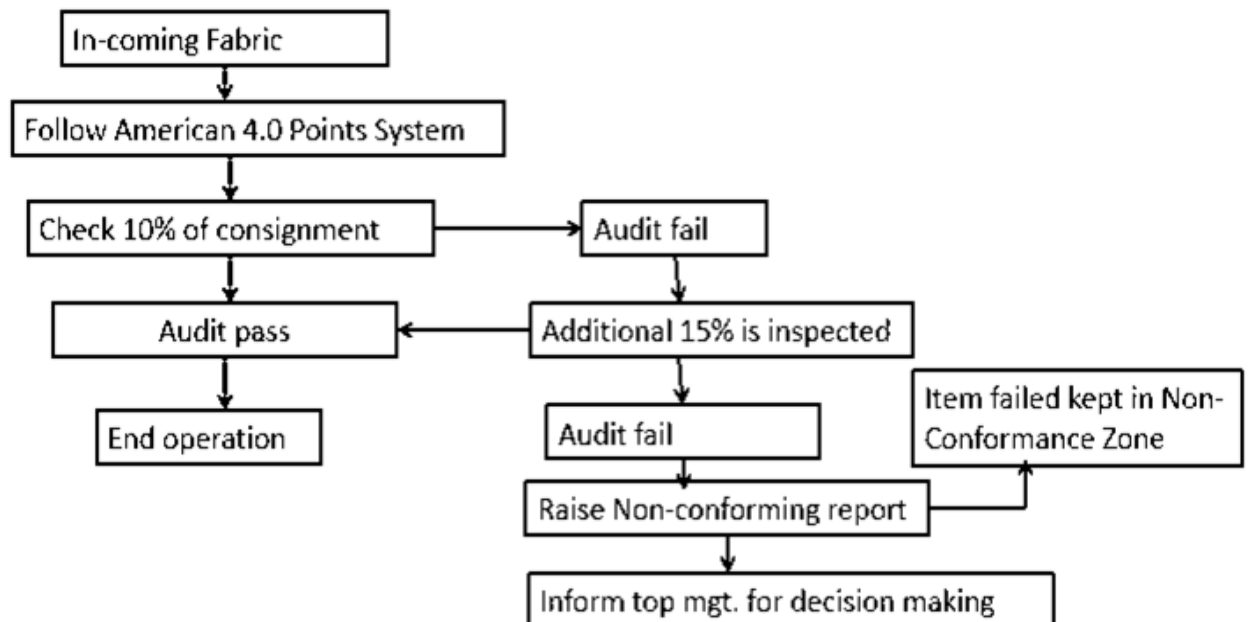
Figure 10: A flow chart of fabric inspection process in Dignity DTRT Ltd.

Source: Curtesy Dignity DTRT Ltd, 2018

Adherence to quality controls which include fabric inspection is really a critical process in the large garment industry but the small-scale garment producers do not have adequate knowledge in the kind of inspection that has to be done before laying out. The following responses from a respondent buttresses the point.

> We must strictly ensure that the inspection has been done thoroughly to convince the customer that we followed this procedure, a report is generated and submitted to them **(LGP 3, *2018*).**

It could be deduced from the responses that the large garment producers would never attempt to lay out and cut fabrics that do not meet the required standards of physical inspection unless the customer agrees the use of that fabric. Figure 11 represents a roll of fabric being loaded into the inspection machine while Figure 12 shows an inspection process being carried out at Dignity DTRT.

Figure 11: Fabric being loaded into the inspection machine
Source: (Dignity DTRT, 2017)

Figure 12: Ten percent of fabric consignment being inspected

Source: (Dignity DTRT, 2017)

Most of the fabric faults inspected at the large-scale industry are shown in Table

8 as provided by Dignity DTRT Limited.

Table 8: Common fabric defects found on fabrics (in red colour)

DEFECT	EXPLANATION	PICTURE
Dropped pick	A filling yarn woven in the loom without tension.	
End out	Caused by yarn breaking and the loom continuing to run with missing end.	
Slub	Usually caused by an extra piece of yarn woven into fabric. It can also be caused by thick places in the yarn.	

Knots	Caused by tying spools of yarn together.	
Mixed filling	Caused by bobbin of lightweight yarn or different fibre blend used in filling. Will appear as a distinct shade change	
Stained	Dirty, oil looking spots	
Dropped stitches	It appears as holes or missing stitches.	
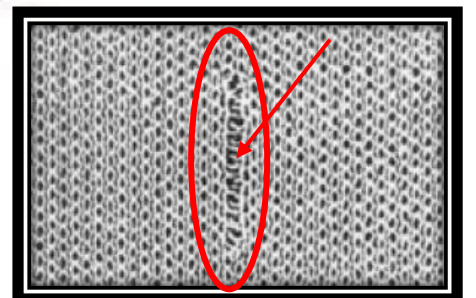
Missing yarn	Occurs in circular knit. Caused by one end of yarn missing from feed and machine continuing to run.	
Mixed yarn	Results from wrong fibre yarn (or wrong size yarn) placed on wrap.	
Needle line	Caused by bent needle forming distorted stitches. Usually verticals line.	
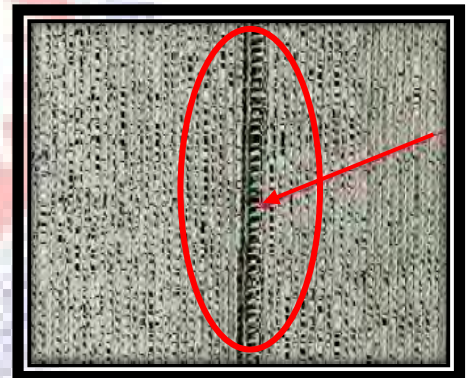
Source: Field research, 2017

At the Dignity DTRT Ltd., these defects are grouped into three main categories (Commercially Acceptable, Q. A. Manager to Decide, Reject) as shown in Figure 13

Figure 13: Types of fabric defects found in fashion fabrics

Source: (Dignity DTRT, 2017)

Fabric in Category Number 1: Are referred to as commercially acceptable which means they have passed quality assurance audit and are fit for production. Fabrics in Category Number 2 did not pass the recommended audit processes and would expect Quality Assurance Unit to take a decision on the way forward. In the case of Fabrics in Category Number 3 are declared rejected after going through the audit processes. According to the Learning and Development Officer of Dignity DTRT Ltd., such fabrics are kept at the training centre for training purposes.

In the large industry, if the first ten percent of the fabric fails to meet the industry's quality requirements, a further inspection of 15% is done with some range of tolerance. If the fabric still does not meet the inspection requirements, non-performance report is issued for top management to take a decision on it or the items are kept in non-performance zone. Contrary to the assertion by Das S. (2009) that the 4-Point System, also called the American Apparel Manufacturers (AAMA) point-grading system for determining fabric quality, is widely used by producers of apparel fabrics, the researcher

has determined that this system is never used in the small-scale industry in Ghana. It has also been found that int the large-scale industry, the customer sets the tolerance level for the garment manufacturer. The findings agree with Carr & Latham (2008), who state that the cutting rooms generally maintain checks of fabrics cut to be within the tolerance levels set by the customer. On the contrary, there is nothing called "level of tolerance" in the small-scale industry set by the customer or the industry. The researcher believes that it is through training and education that can correct this deficiency can be corrected at all levels of the small garment industry. It is also ascertained that the operators of the small-scale industry do not put premium on the physical inspection of the fashion fabric. However, Cole & Czachor (2009) opine that fabric quality is of utmost importance to the overall quality of clothing product. Regardless of how well a product is designed or constructed, if the fabric is of poor quality, the product will most likely be disliked by the consumer.

a. Fabric management at the small garment industry

Data retrieved from the research question one revealed that the small-scale garment designers do not have various techniques of cutting with the purpose of economising the fabric. The researcher observed that patterns are mostly done using the direct cutting method (free-hand) on the fabric with unspecified seam allowances, with the reason that the client may grow fat in the future. Moreover, bespoke production is predominant in the small industry and the customer does not demand left-over fabric from the sewer. When a question was posed, "How do you ensure economic use of the fabric when laying out and cutting"? A respondent, from the formally trained small garment firm stated:

It depends on what you are doing, especially the style you are cutting. As

a designer, if you restrict yourself to economy and reserve the fabric, you may not be able to get the intended effect. Sometimes you must use a wider fabric before you get what you want **(FGP 2, *2018*).**

Respondents explained further that he does not do mass production; and in custom-made production, the question about fabric economy is taken into account. These responses suggest that the technique laying practised at the small industry which does not consider the size of fabric has become embedded in producers to the extent that they see it normal to waste a fabric and tell the client that there was no leftover. Responding to the same question above, respondents from an informally trained small garment firm stated;

Someone can use two-yard fabric to sew a long sleeve shirt and another someone cannot unless three yards. Therefore, everything depends on the one cutting, his training and his knowledge about laying and cutting. If I have two or more designs to cut, I cut them separately I don't know about grading patterns" **(SGP 14, *2018*).**

Another respondent also remarked, "***I don't consider fabric economy because the most important thing is to achieve my intended style for the customer***" **(SGP 6).**

Responses from the education institution attributed why the small garment firms non-adherence adhere to economy of fabric as lack of knowledge, and lack of benchmark and policy for local garment production and so in the event of competition they cannot stand (**LTU 2**). The responses suggest that once the focus of the production is on bespoke, the local designers do no bother about producing patterns and make test toile to see the effect before final production. If patterns were to be made, toile (test garment), could first be made for necessary corrections to be made on the patterns before the final production of the garment. This situation also implies further that future reproduction of the style and grading the style into different sizes for varied customer taste is also not catered for and this causes inconsistencies in production quality. Smith (2009) asserts

that the pattern may have to be altered prior to cutting out the fabric. Smith further states that it is always a good idea to test out a pattern in calico before using the real fabric, (which is known as making a toile). The toile will help to analyse the fit and ascertain whether the style chosen suits the figure type or not. Figure 14 shows that the local designers draft directly on the fabric and do not have pattern to keep for future use.

Figure 14: A local designer drafting directly on shell fabric
Source: Field research

Still, on research question one, the researcher wanted to know the different fabrics available and the different methods of cutting them. The following were the responses obtained from the respondents: "*If it were a plain fabric, it is very easy you just lay it straight away because there wouldn't be anything like turning some inscriptions upside down*" (**SGP 21, 2017)**. The designers in the informal garment subsector indicated they have had no training on the use of specialised fabrics such as checks, stripe and pile fabrics so the handling of such fabrics is done according to individual experiences **(SGP 10).** It can be deduced that from the responses that the informally trained designers say plain fabrics do not pose any problem in designing. In

that regard, they can join plain fabric cut in different direction and sew. They do not consider that different shades and effects of a colour can occur when some plain fabrics that have been cut in different directions are joined. As explained by Weber (2008), pile fabrics which include velvet and corduroy require special pattern layouts and pressing techniques but in most small-scale garment producers do not mind that.

On the same question above, the response below was received from some of the respondents:

> We have the free-hand cutting and we have a situation where you use your own skills to cut it, the other ones we use the patterns. There are some of the designs it won't come out well when you use free-hand. In general, the best way to go is the free-hand (**SGP 19,** *2018*)**.**

The study also reveals that the local designers are conscious of the fact that some fabrics are difficult in handling due to the nature of their patterns, for example, stripe, check and plaid fabrics. The challenge small garment designers is their lack of knowledge such as design principles in laying and cutting out professionally.

The researcher has observed that the local designers need training to enable them handle different laying out techniques for different categories of fabrics such as plaid, check and stripe as well as one-way fabrics. Cole & Czachor (2009) comment that Plaids and checks need to be cut carefully so that when the garment is stitched together the checks can match horizontally and vertically on the garment (at the shoulder seams and other horizontal seams). The researcher observed that time and careful preparation is the ultimate when laying patterns on checked, plaid fabric, velvet, corduroy and stripe fabrics. The researcher observed again that the common technique of laying fabric was lengthwise centre fold. Other techniques in folding such as crosswise centre fold, off-centre lengthwise fold, off-centre crosswise fold, bias laying, open laying, combination

laying and other methods of laying out are used but the designer could not tell when to use them.

The study revealed that in the large garment manufacturing firms, the situation regarding fabric management and economy is vital. The large garment industry does not do laying out without using patterns, particularly marker planner. When the same question concerning fabric, management was posed to the Learning and Development Officer of Dignity DTRT Limited, the response given is as follows:

> Economy of fabric happens at the designing stage of production. When the patterns are developed, we do not do manual cutting, we use marker. We have a computer programme that is used to do the patterns and a different system is used to do the marker **(LGP1, *2018*)**.

The responses revealed further that when patterns are finalised, they are arranged on the marker and then we plotted out. This account for the saving of fabric. In arranging the marker, the firm sures that all wastages are eliminate.

The researcher observed that in the large industry there was a specialist whose job was to make sure that the way the panels had been arranged on the marker would minimise wastage. It was also observed that there was a certain dimension for the marker within which the patterns were arranged and later plotted out. This was done to ensure consistency and economy of fabric.

The laying out practices in the large industry is in consonance with the assertion made by Weber (2008), that when a manufacturer produces thousands of garments, a financial saving of just a few inches of fabric inches per garment can be substantial. On the other hand in the small-scale industry, which are not followed. Figure 15 indicates the pile of fabrics being cut after a marker is placed on it.

Figure 15: A marker placed on a pile of fabric for cutting
Source: Field Research (2017)

Quality in handling is also of utmost importance when cutting. The factory ensures that the shrinkage of fabric during cutting and laying is controlled to the barest minimum. The researcher observed that in the small-scale industry no measures are put in place to check possible shrinkage during laying and cutting.

The Learning and Development Officer further explained that after the cutting, it is possible that there would be a shrinkage, which could change the size. Because of that a certain number of piles or layers could be laid at a time that is between 111 to 115 plies. "***When the piles are too many they begin to shift because they do not use an auto spreader" (LGP 1***). It can be deduced from the responses that if this kind of quality were made known to the small-scale firms there would be a drastic change in the quality of their production.

4.3.2 Assemblage Processes in the Garment Industry

During the interview with the respondents from the small-scale industry, large-scale industry, academic institutions and government agencies researcher wanted to find

out the assembly systems employed at the local garment industry. The findings, which resulted from the interviews, was that the local garment industry employs Individual System of production that is Make through System, which is also known as Whole Garment System. Dealers of haberdashery do not know the proper use of the items they sell and as a result they are unable to advise their clients of garment trims suitable for a particular task.

a. Assemblage System at the Small and Large Firms

Observations made at the small production firms suggest that the operators adopt Individual System of assembly for almost every kind of production. Hardly did the researcher come across a small firm doing garment assembly on the Distribution of Labour System. When the respondents were asked the type of assembly system, they operate in the garment industry, the response received was that the master craftsperson cuts the pattern and shares the pieces among the workers so that each worker had to complete the whole garment from fusing through assembly to final pressing. For instance, **SGP 9** and **SGP 13** made this statement: ***What we do is that after the fabrics have been cut, we share them based on the apprentices' ability then each person sews everything until he/she finishes***. The same question was posed to one of the respondents, **FGP 3**, he expressed similar sentiment. He said, the fabrics are cut together by summoning all the workers around so they could learn how the cutting was done. The researcher observed that occasionally all other local designers do the same thing by calling apprentices together when laying and cutting out. A respondent also said "***We share the cut-out pieces and you have to finish everything on your own***" (***SGP 16***)**.** Management also factor might be the reason for the local industry to stick to the individual system of assembly. For instance, **SGP 6** delivered this response,

> The best practise for the firms is the distribution of labour system whereby one person does a component of it and passes on to the other. In such a situation, you specialize in one thing and so you become expert in that aspect whether pocket, sleeve, collar, or topstitching but that system sometimes leads to conflict **(LGP 1, *2018*).**

The response signifies that distribution of labour poses a few challenges at the small garment firms. Some workers think that their job is more important or more difficult than their colleagues and therefore must be given higher remuneration. Such situation becomes difficult for the firm to handle. The researcher observed that the Individual System, practised by the small-scale firms sometimes led to shoddy finished of work. The reason is that the workers are paid based on the number of items they finish so speed work is achieved at the expense of quality. This also leads to no specialisation.

The large-scale industry on the other hand adopts Straight-line or Synchro System and so the operators are trained to perform a specific task and then the garment is passed on to the next operative in a straight-line order. At Dignity DTRT Ltd., the respondent was asked about the type of assembly system they have adopted. He explained that the firm has adopted Lines Production System. What it means is that at the operation floor, they do not allow just one operator to assemble a whole garment. He said:

> Every operator is trained to specialise in assembling just one part. So, an operator would be trained to attach or join the shoulder, another will join or attach the sleeve, another will work on the neck band, another will work on the side seam and all that **(LGP 1, *2018*).**

The researcher observed that no operation on the style could be skipped. It means that the operative would have to join the shoulder and then he gets up to go and fix the sleeves and all other pieces. This would be wastage in terms of time. With the setting up

of the production line, the various operations could be handled by individual sewing operative so by the time the garment gets to the end of the line the product is already assembled including attaching labels, stitching buttonholes and fixing button. What is left after the assembly is final pressing, inspection and packaging. Figure 16 shows the production floor of Dignity DTRT Ltd.

Figure 16: The production floor of a large industry (DTRT Ltd)
Source: Curtesy Dignity DTRT, 2017

Based on the observations made by the researcher, Table 9 summarises the main operational differences between the assembly system adopted by the small-scale industry and the type adopted by the large-scale industry.

Table 9: Systems adopted by small and large garment makers

Individual System (Found in Local Industry)	Straight Line System (Found in Large-Scale Industry)
1. No specialisation of each aspect of production	1. Involve specialisation of an aspect of the production.
2. The operator moves from one machine to another	2. The operator transfers the pieces being to the next operator in front to continue.
3. An operator starts and completes the assembling of the whole garment.	3. No one operator can assemble a whole garment.
4. Product quality may be inconsistent.	4. Consistent quality of production assured.

b. Stitches and Seams Finishing

As part of the effort to address research question two, the researcher found that the standard of the seams and stitches produced by the small garment designers are not in conformity with any particular benchmark, rather the stitches, seam allowance, lining of the garment, etc. are based on the designer's discretion and experience. When the respondents were asked how they determine suitable trimmings (interfacing, buttons, zippers, etc.) for a production, SGP 7 explained that it required experience to be able to select suitable trimming in the following response:

> There are no standards that guide us as to how the stiches should be made but we use our experience to regulate the stitches. There are some works that you do not require small stitches otherwise the product would not be nice" (*SGP 7 2018*).

On the same question, **LGP 3** expressed similar sentiment, saying that designers require to gain experience in the use of trims such ae interfacing, zipper, materials for lining among others. The response made is as follows:

At first, I thought every interfacing is interfacing but now I have gained some experience so I know how to select the good ones. Now I am able to identify the good and the inferior ones **(FGP 3,** *2018***).**

Garment manufacturers complain that there are no regulations on the use of trimmings. Further statement by **FGP 2** indicates that there are no rules guiding the designer on how to go about the use of trimmings. In that regard if the designer understands the concept being worked on, he/she can explain to the clients about how they work. A respondent said the following:

> You don't just fix trimming on garment; it should be part of the design. It should be useful to the design but many designers do not look at it that way. If you are fixing zipper in a dress it should be part of the design and not just placing it there" **(FGP 4,** *2018***).**

It could be inferred from the response above that the local designers appreciate the importance of trimmings in garment manufacture. Small-scale garment producers are aware trimmings are used for decorative purposes functional purposes. As explained by **FGP 3**, every trimming used in the garment should be part of the design. Most local designers are able to use the trims to make creative and appealing designs to embellish the garment.

According to the Learning and Development officer of Dignity DTRT Limited, his observations at the activities of tailors and seamstresses in Ghana show that only a few of them follow the international standard of sewing, especially when it comes to lining a garment. His response is as follows:

> When you walk into a shop and you buy a garment, you see that the lining conceals all the raw edges. For, you see our small designers, work open the dress and you will see that the lining has been attached to the shell fabric and stitched together, exposing the raw edges" **(LGP 1,** *2018***).**

He stressed that it is not the proper way of lining a fabric if the raw edges are exposed and the darts in the shell fabric and that of the lining are stitched together, he stressed. The researcher observed that some styles are developed by giving the fabric a flat lining but there are serge machines with appropriate thread that overlock the edges to make it look neat. In this regard respondent **LGP 1** said "*I see that the local industry cannot compete on the international market*". Commenting on the issue respondent **LGP 2** also expressed the following concerns:

> If the patterns are well tested, we call them TT, "Tried and Tested" patterns. When the pattern is tried and tested, it means you have made toiles, the person has fitted and all corrections have been made on the patterns. When you are lining a garment with TT patterns, you encounter little challenges. **(LGP 2, *2018*).**

Respondent **LGP 3** was concerned about serious issues happening in the industry. He said when they go for apprenticeship training, the masters teach them only latest styles in the market, instead of building their capacity from the foundation and adapted. He explained that when later on current styles change, the designer becomes frustrated. "The respondent said further that "*the apprentice should be taught pattern making then adaptation, after adaptation, transformation then they advance further so they would be equipped with everything*".

During observations by the researcher, he found that most of the local designers do not provide facing around the edges of the garment necklines being constructed and sometimes provide side seam allowance as large as $3\frac{1}{2}$ inches. The large seam allowances provided in the garments are sometimes not consistent along the same edge of the garment. Keiser & Garner (2015) recount that although home sewing patterns cosistently provide $\frac{5}{8}$ -inch seam allowance, commercial construction most often utilises ½ -inch seam allowance on straight seams and ¼ seam allowance on curves in

garments made of woven fabrics and garments made of knit fabrics tend to use narrower seams throughout. They further explain that women's tailored garment and those of haute couture level sometimes provide 1-inch seam allowance to facilitate alteration. Therefore, it is noticed that the situation is different in the Ghanaian local industry. Figure 18 shows a garment lined with a large seam allowance and no facing is provided around the edges of the garment to precede the lining fabric.
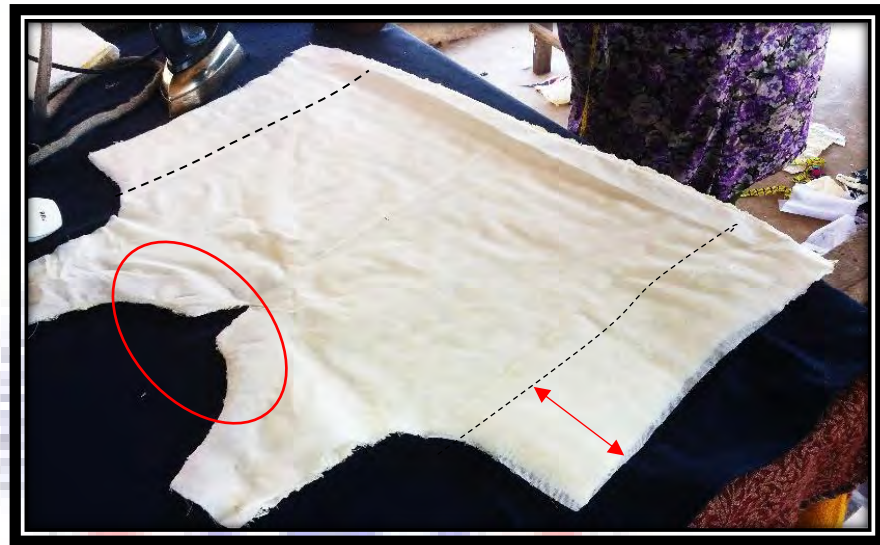
Figure 17: Local method of lining garment in flat method
Source: Field research, Kumasi, 2018

Other observation made at the local industry was that after providing the large seam allowance, they slit through the seam allowance close to the seam with the aim of avoiding excessive bulk. Another workmanship defect identified among informally trained small-scale designer was that the selvedges are not cut away during laying and cutting out. They rather use them as part of the fabric pieces as Figure 18 indicates.
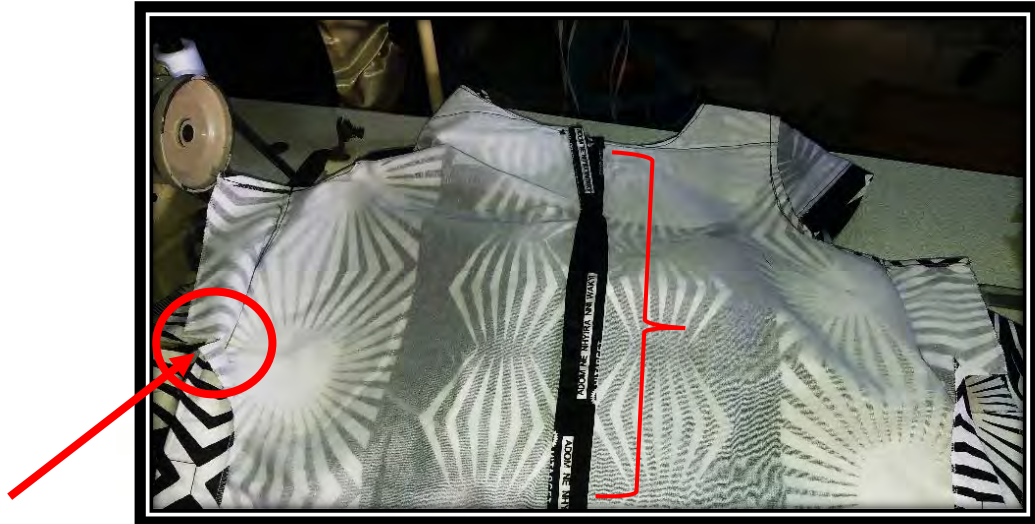
Figure 18: The seam allowance is slashed at the waist deep into the seam

Source: Field research, Kumasi 2018

Again, the researcher observed that checked fabrics and other fabrics with motifs are cut at most small-scale firms without considering the alignment of the lines as shown in Figure 19 and 20 below:

Figure 19: Defect in cutting of check fabric

Source: Field Research, Kumi Klothing, Accra (2018)

Figure 20: Defect in motif arrangement

Source: Field Research, Kumi Klothing, Accra (2018)

Respondent **(LGP 2)** explained further that in garment designing, one has to consider all the fasteners and closures required for production. Designers should consider the zipper, buttons and every trimming one would use before cutting the fabric. He further indicated that the designer must have the design of the garment on paper so he/she does not finish before he starts looking for those trimmings. Whether one would need fancy buttons, shank buttons, etc or not one must plan before cutting.

The researcher observed that where the designer buys trimmings is also of great concern. Some of shops dealing in the sale of haberdashery do not know the proper functions of trims; they do not sew fabrics and therefore do not know for what those items are meant. Keiser & Garner (2015) explain that when selecting trim for production, it should be the same quality as the shell fabric so that neither the trim nor the shell overwhelms the other; this is what most dressmakers and tailors in the small-scale garment firms do not know.

4.3.3 Finishing and Packaging Techniques in the Local Garment Industry

During the interview with respondents to collect data for research question two, the respondents were asked to give account of the finishing and packaging skills in the local garment industry as compared to the foreign ones. Responses obtained from respondents suggest that finishing and packaging of garments in the small-scale industry do not meet global market standards.

a. State of Finishing in the Small Garment Industry

The study sought to find out whether the kind of finishing given to the garment in the small industry could project them to the international arena. The respondents said they do not have any benchmark for the industry to serve as a guide. Some of the designers, **SGP 10** and **SGP 19** made this statement, "***The whole thing is about how your master taught you or where you studied and under whom you have studied***". Respondent **SGP 4** also added that there is not a standard set for producing a garment so the designer looks at his master's method and repeats the same thing. He was of the view that the finishing of the products by the local designers is poor but it is not their making but rather where they had had their training. Respondent **FGP 3** also said, in the garment industry, tailors and dressmakers have their individual ways of cutting and doing things but when you ask them, they will tell you this is how we were taught **(**

The officer in charge of Business Advisory Centre of NBSSI (**GA 2)** stated that the local designers are not doing well in terms of product finishing. He said the following:

> For this sub-sector in particular, finishing has been the problem, the entrepreneurs have products to portray but the finishing is making it difficult to compete in the international market (**GA 2,** *2018*).

In the same way, **LGP 2** argued that the local designers do not see the need to provide labels indicating the kind of soap that should be used for washing, laundry tips for their stuff, fibre content etc. Again, the packaging of most Ghanaian products is not attractive, the designers do not even make provision for extra buttons for their products. In Europe, according to the manager of KAS Fashion who has international experience, there are fashion critics. He adds that the critics look at all areas of the finished products and tell whether or not the good is fit to go out to the market.

In the large-scale industry, after the production cycle, there is final inspection is conducted. They randomly sample the products and inspect to certify that the product is within the acceptable quality. The researcher observed that the large-scale manufacturers have a Quality Control Unit which conducts checks during the production process and conducts the checks again even after the assemblage. At the final inspection stage, they cross-check the measurement, do the physical checking itself to make sure it is within the acceptable range before parking the products. The researcher again noted that there are some operations if wrongly done, affect others that follow. In view of that, the large-scale manufacturers assign in-house inspectors who check the level of quality as the garments are being assembled. Respondent **LGP 1** stated that "***The three key aspects that designers have to take serious look at are finishing, packaging and deadline***". Figure 21 show In-house quality checker inspecting production processes at the garment factory.
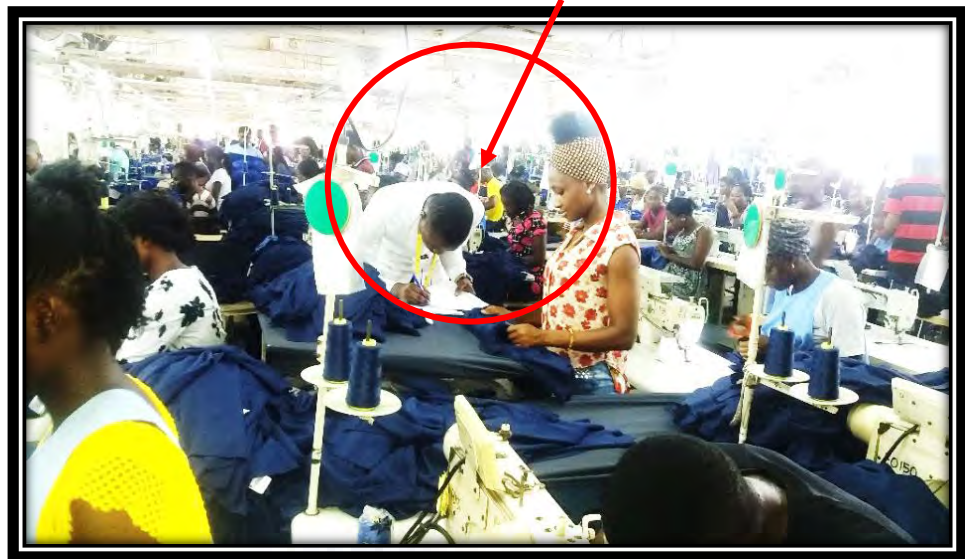
Figure 21: In-house quality checker inspecting production processes
Source: Curtesy, Dignity DTRT Ltd., Accra (2018)

Figure 22 provides some of the defects identified during inspection at the large garment industry.

Figure 22: Some defects found during inspection at the large-scale industry

Source: Certesy, DTRT Dignity Ltd. Accra (2018)

Observations made by the researcher on the issue of finishing indicate that most important corrections that need to be done on garment are ignored during production for the mere reason that they would amount to time wasting. This is partly so because the

machine operatives mostly engaged on work-and-pay bases think they may not reach their targets for the day if they kept on doing those corrections intermittently. The observations made about the key deficiencies in the small-scale garment firms that are ignored include:

i. Broken yarns joined at the exact point of breakage instead of unravelling and restarting the whole seam.

ii. Buttonholes done using a straight stitching machine.

iii. Buttonholes either bigger or smaller than the sizes of the button because they are wrongly cut.

iv. Topstitching not uniform and straight.

v. Unmatched or poor alignment of buttons and buttonholes.

vi. Uneven or incorrect spacing of buttons.

vii. Wrong positions of buttons from the edge of fabric.

viii. Garment edges are serge using wrong thread colour.

ix. Garment hemming wrongly done.

x. Interfacings are not shaped to conform with the part of garment it is required.

xi. Faults in zipper installation and finishing and other issues ignored.

xii. Stitching lengths selected based on operatives' discretion.

As stressed by Cole & Czachor (2009), buttonholes need to fit comfortably over the button and not feel too tight or too loose. Moreover, snap closures need to hold the

garment securely closed. They hinted that dysfunctional closures that easily "pop" open would not sell. Figure 23 shows buttonholes made by a local fashion designer.

Figure 23: Buttonholes made by a small-scale fashion designer

Source: Field research, Sampat Fashion, Kumasi (2018)

b. The Level of Packaging in the Small-Scale Industry

Findings from the study show that the small-scale garment firms present deficient products to their customers. Researcher observed that producers do not have brand packages or bags; labels are not attached to the works; extra buttons are not provided in the works; buttons do not match with buttonholes and loose threads are not thoroughly trimmed off.

When a question was posed about how respondents see the packing of garments being delivered to customers. Respondent **SGP 5** stated "*when it comes to presenting the finished product to the customer, it is not attractive enough*". Respondent **SGP 5** explained that considering the foreign package for the store shirts that we buy; they all have tags and labels. Responding to the same question, Respondent **LGP 3** explained

that the small garment producers do not understand packaging; they do not also know how to make their products presentable to the customer. He said further that designers must finish and present their products not only to attract the local market but also the international market as well remarked. Respondent GA 2 indicated that there was no policy on how clothing products should be packaged and presented to the customer and it is affecting the nation's revenue. He lamented:

> Look at kente and fugu, where else will you find these fabrics? Do people really come to Ghana in their numbers to buy or place order for kente and fugu? (*GA 2, 2018*).

Respondent GA 1 explained also that imported garments show attractive packaging and have been presented and branded in such a way that people are pleased with them "*The product may not be bad but the way it is presented to the customer may not make him accept it*". (**GA 1,** *2018*).

Sharing the same opinion, the Manager of KAS Fashion (**LGP 2**) indicated that he attended a Fashion Show in Frankfurt, Germany. When he went to the stand of other participants, he realised that Ghanaians were far behind in terms of finishing and packaging. To him, Ghanaians do not package their works attractively; they do not also provide labels and extra button for products. "*Our way or method of packaging cannot help us face competitions*" (**LGP 2**). The researcher therefore concludes that there is urgent need for training the small garment manufacturers on finishing and packaging.

4.4 Research Question Three: What is the situation at the small garment workplace regarding health and safety compliance in Ghana?

The objective of this research question was to assess workplace health and safety compliance at the local clothing industry. The findings that resulted from responses on

the research question are presented in Table 10. The discussions of the findings with literature connections are also provided.

Table 10: Categories and themes for research question three

Research Question	Category of Respondents	Themes
RQ3 What is the situation at the small garment workplace regarding health and safety compliance in Ghana?	Small-scale industry, Large-Scale industry, Educational institutions Government agencies	Low knowledge in emergency controls at the local industry Workshop equipment and layout.

4.4.1 Inadequate Knowledge in Emergency Controls in the Local Industry

Another finding identified with regard to research question three was the respondents' low level of awareness about emergency controls that need to be taken care of. The low knowledge in health and safety issues points to the assumption that the local designers do not anticipate emergencies and even if they happen at all they are of low magnitude. Findings revealed that designers overlook health and safety issues associated with their job.

With regard to insurance, all the respondents sampled from the small garment industry were appreciative of the importance of insuring garment production firms against eventualities however, they were uncertain they could generate funds for the payment of premium consistently. They are afraid that the premium might be too high

to bear. One of respondents said that he had inquired about insurance but was scared of the payment of the premium so he could not register the business with any insurance company. "*In fact, I've done one or two enquiries about insurance but the problem is the premium which I don't know if I can pay*" (**SGP 7**).

Respondent FGP 1 intimated, "*As for emergencies, they don't normally occur in the sewing workshop*" (FGP 1:).   The researcher observed that some of the garment producers are not particular about their health at the workplace. Individuals encounter several risk factors at the workplace, such as awkward arm, neck, trunk, leg postures and back pains. Safety measures have to be taken seriously especially when sharp pointed objects are used such as scissors, tacking pins, needles, etc are used (Ahmed & Hossain, 2009).

The awareness level in the large-scale industry is much higher as compared to that of the small-scale subsector. In the large-scale garment sub-sector, there is scheduled training in health and safety issues for worker. The Learning and Development Officer of Dignity DTRT Limited made a statement, that management of the large-scale garment firms are more concerned about staff safety. He indicated that management organises talk shows and lectures aside the establishment of fire brigade training at the industry. According to the officer, every staff at the factory is taken through a demonstration of firefighting. Respondent LGP stated:

> In the event of fire outbreak, there are trained persons at the factory who can act quickly to put out the fire. They are trained in such a way that if the situation goes beyond their control, they can also exit to save their lives *(LGP 1, 2018)*.

It could be inferred from the responses of the large firms that they are concerned about proper ergonomic compliance at the workplace. The large-scale, firms do their

best to comply with the International Labour Organisations' (ILO) rules on safety at the workplace; the small garment firm seem to be adamant about health and safety situations at the workplace and do not have training on what to do in event of emergencies. Occupational Safety and Health (OSH), including compliance with the OSH requirements pursuant to national laws and regulations, are the responsibilities and duties of the employer. The employer should show strong leadership and commitment to OSH activities in the organization, and make appropriate arrangements for the establishment of an OSH management system (ILO-OSH, 2009).

4.4.2 Awareness of Health Implications Associated with Facilities Layout

One other issue that was important to this study was the tools, equipment, materials, lay out and handling at the workplace. The finding generated from this section was that the local designers are ignorant about the health implications of the kind of equipment and environment in which they are working. For example, no respondents in the small industry whether formally or informally trained saw the need to secure comfortable chairs.

The researchers observed that most of the local garment manufacturers are operating in some small spaces, sometimes in containers or kiosks with small windows on them, so it appears that most of the workers are not concerned about workplace safety compliance. On the issue of space for production, one of the respondents conceded that the safety conditions of the small-scale industry have not been the best. Respondent STU 11 stated:

> Most of the operators are occupying small space because they don't have money to rent bigger space for production. Sometimes in container or kiosk with small window on it, so it appears that we don't care about the safety aspect of the job we are doing (**STU 4, 2018***).

With regard to the layout of tools and equipment in the local small garment firms, data collected revealed that the local designers are not bothered about the health implications of the kind of some of the equipment they use and also the environment they are working in. For example, no respondents contacted saw the need to secure chair that are fitted with backrests. Responding to a question on that matter, a respondent from the small-scale sector who happens to be a former regional chairperson of GNTDA had this to say when he was asked about how important the small-scale garment makers treat lighting system, ventilation, and chairs at the workshop:

> We do not have backrest for our chairs when working because it is not important since we have to get up to press, cut and fuse stiff. I know ventilation and proper lighting are good but as for the chairs, our work doesn't allow us to sit all the time so there is no need for backrest and comfortable chair **(SGP 4, 2018).**

In response to a question on the state of illumination, ventilation and kinds of chairs used, one of the respondents in a small garment firm intimated that in general, the chairs they are using are not comfortable to use at the workshop. Space had been their challenge and they can install one table for cutting and doing all other things *(SGP, 2018).* The researcher observed that the, the posture at workplace, their outfit were not conducive to ensure safety. The same table used by small garment designers for laying and cutting is also used for ironing and workers have to queue to do those works as shown in Figure 24.

Figure 24: The same table used for cutting and ironing by all workers
Source: Field research, Adom Fashion, Tema (2018)

The characteristics exhibited (outlined above) in the small garment firms are indication that manufacturers in the sub-sector are unable to provide health condition prescribed by the World Health Organisation WHO remarks that "Health is a state of complete physical, mental and social wellbeing and not merely the absence of diseases or infirmity" (WHO, 1948).

Responding to the same question, another respondent in the small garment firm (***SGP 7: personal communication, 15th April 2018)*** said the chairs they are using do not have backrest and admitted that they experience back pains intermittently during prolonged sitting. This affirms Jana's (2008) claim that due to excessive workload and awkward postures, forceful exertions, repetitive motion, and heavy lifting, workers may have exposure to undue physical stress, strain and overexertion. The study finds that large garment industry on the other hand, are much concerned about safety compliance for workers. On that note, the manager of Kas Fashion **LGP 2,** gave his views about how his firm handles health and safety related issues. The respondent expressed worry that the small-scale firm does not seem to care about the ergonomic situation of the

worker. He said however that if industries do not take good care of their workers, it would adversely affect their entire output (Ahmed & Raihan (2014).

It could be inferred from the discussion that provision of enabling environment for workers in safe and comfortable conditions is paramount in the large garment industry unlike that of the small firms. The manager of Kas Fashion, (**LGP 2)** further explained that each sewing machine in the firm is fitted with a separate light and there is enough space for movement and storage. He said that working in bad visibility could affect the eyes of the worker and does not make the workplace safe and healthy. Burton (2009) indicates that a healthy workplace is supposed to be a place where all workers work together to achieve an agreed vision of health, workers' well-being and that of the surrounding community. It provides all members of the workforce with physical, psychological, social and organizational conditions that protect and promote health and safety.

The researchers observed that the small manufacturers do not have a place of convenience or wash room, a place for eating, and there is inadequate space for storage of tools and materials. The floors of the workshops are cluttered with electrical cables and materials. Most of the firms operate in non-spacious places, sometimes kiosks with little or no ventilation. They also do not have protective clothing and dress-code for both male and female workers. One can find machine operatives with very long hairs which could easily be entangled in the moving parts of the sewing machine which may injure the operative. It was also observed that some workers eat at the workshop while sewing. Such an attitude is quite unwholesome and could detract the worker's attention and cause damages or injuries at the workplace. Studies have shown that vertical installation of

cables will facilitate free movement at the sewing laboratory thereby minimising accidents.

As reported by Mostafizur (2011), Garment manufacturing, like other industrial processes, can be hazardous. It is necessary for employers and workers to be aware of the hazards associated with garment manufacturing and take precautions to guard against work-related illnesses and injuries. Because of too much flammable materials such as cotton and other chemicals in the garments industry, there is great probability of fire outbreak at any time if the maintenance is poor as happened in Bangladesh in the year 2000 where more than 5000 workers were killed (Mostafizur, 2011). Therefore, proper ventilation, respiratory protection and other personal protective equipment are important to protect workers during operation. In the case of Ghanaian small garment manufacturers, compliance to safety is most neglected even though some of the operatives are aware of the occupational related health challenges. Figure 25 and 26 show special conditions in small and large-scale garment manufacturing workplaces respectively.

Figure 25: Inadequate space in a small garment firm

Source: Field research, Evelyn Fashion, Kumasi (2018)
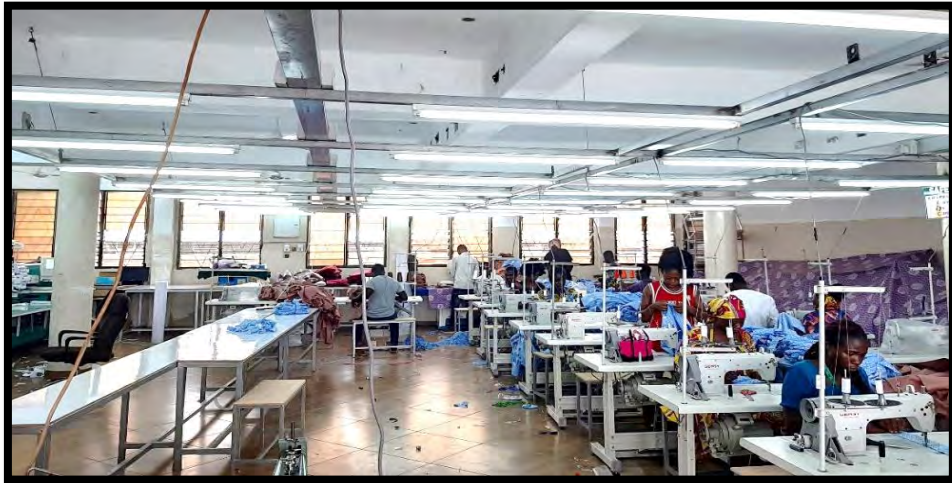
Figure 26: Equipment layout in a large industry

Source: Field research, Unijay Ltd., 2018

4.4.3 Health and Safety Awareness Situation in the Small Garment Firms

Respondents from small garment firms stated that there is no need to worry about emergencies since they do not normally occur. In view of that, there have never been any clear-cut emergency plans against such eventualities. The researcher notes that this kind of ignorance exhibited by workers in the small-scale garment firms points to the assumption that the Ghanaian fashion designers do not seem to anticipate any emergencies and that if could happen it would be of low magnitude. The designers just ignore health and safety aspects of their job. When a question was asked on how they evaluate the safety conditions in the clothing industry, this was some of the responses:

> I do not see the fashion industry as having such an occupational risk as those at the catering industry where they rely on gas for production. Accidents at the clothing industry are manageable. (**SPG 3, 2018**).

The respondents assume that accidents at the sewing workshop cannot be too damaging to worry about. It was observed that none of the local garment manufacturing firm contacted had installed fire extinguisher. However, the respondents from formally trained and informally trained firms had no knowledge about what to do in the event of

eventualities such as fire outbreak or needle pricking in the workshop. On that same question, other respondent expressed similar remarks by stating that the safety consciousness among sewing operatives is very low, the workers do not care about how they eat and drink at the workshop. Two respondents said:

> Look at the kind of chairs we are using! Fashion designers don't care about who is visiting them, and most of the time we don't have enough space to install our equipment and store our goods (**SGP1 *and FGP 3, 2018***).

A respondent, **SGP 4,** also asserted that emergencies do not normally occur at the workshop and when there is any, it is minor, and a matter of pouring machine lubricant on it. Commenting further another respondent, **SGP 14** added that:

> As for emergencies, they don't normally occur in the sewing workshop. If even it happens, what we know is that iron may burn you or needle may prick your hand. In that case, we only pour oil on it. Most of the designers are still using the very uncomfortable chairs they were using when they were on apprentice training *(SGP14, 2018)*.

The local garment makers never anticipate that some devastating disaster can occur and cause serious damage to their business. In view of that, the designers do not see any need to insure their businesses against any eventuality. The finding is in consonance with the assertion made by Ahmed & Raihan (2014) that knowledge about occupational diseases and the capacity to pursue legal authority is very limited among garment workers. However, the situation was quite different at the large firms as the workers were educated to be conscious of workplace safety and the handling of emergencies. The Learning and Development Officer of Dignity DTRT Limited stated that, "In every department, we have fire points. We also have local fire brigade in-house trained by the Ghana National Fire Service. The training sessions engage everybody in the factory" *(LGP1, 2017)*.

The study revealed that government agencies do not conduct any monitoring exercise to correct workplace ergonomic deficiencies. Respondent GA 2 said *"Actually, we do not go around to monitor what is happening at these workplaces, we also don't engage them in being aware of these workplace related challenges but it is not the best* (*GA 2*). At the education institutions it became evident that curriculum for the training of the students doing clothing and textiles the tertiary institution does not include workplace safety (*STU and LTU, 2018*).

4.5 Research Question Four: What are the prospects and challenges of the small garment industry in trying to meet market competitions in Ghana?

The objective of this research question was to identify and discuss the prospects and challenges in the small-scale garment industry in trying to meet market competitions. The findings that resulted from responses on the research question on the issue of prospects in the garment industry are presented in Table 11

Table 11: Categories and findings for research question four

Research Question	Category of Respondents	Themes
RG4: What are the prospects and challenges that exist in the small garment industry in trying to meet market competitions in Ghana?	Small-scale industry, Large-Scale industry,	**Prospects** • Increased interest in African wears • Job creation • Enabling Environment for Investment • Export market

Educational institutions,	**Challenges**
Government agencies	• Lack of Working Capital
	• Lack of competent workers to work with
	• Lack of specialised equipment
	• Inadequate government support
	• Lack of training centres
	• Influx of second-hand clothing
	• High cost of local fabrics
	• Influx of low-quality trimmings
	• Lack of adequate space for working
	• Premature setting up

4.5.1 Prospects in the Garment Industry in Ghana

The study unveiled that the local garment industry, cannot boast of a number of prospects that could revitalize the industry.

1. Increased interest in African wears

The study established that the use of African fabrics in manufacturing garments have become much accepted in recent times particularly in Ghana. Observations at the small-scale garment firms suggest that local firms that engage in the use of African designs are enjoy good patronage while those that use foreign fabrics and try to copy foreign designs struggle to meet customer demand.

Respondents were asked to express their opinions on whether there are prospects for the garment industry. The general response was that, with the African wear gaining grounds, there is hope that the industry has prospects. For example, respondents **SGP 3** stated;

> Ghanaian fashion has future. Now, African wear is gaining grounds. Even in parliament these days, when you are wearing African wear you feel good than wearing T-shirt (**SGP3,** *2018*).

On the same issue, the Industrial Promotions Officer of MOTI also was optimistic about prospects of the industry in Ghana. He explained that the government's policy about made-in-Ghana products favours the local garment producers because it provides opportunity for more market and exposure. Furthermore, as part of that policy the Ministry advertises clothing outside Ghana through countries such as US, UK, China, South Africa and Nigeria. They upload such garments and fabrics on the website. People in those countries could have access to them; this serves as means of exposing all such products to the outside world, to get more market. He ended that the National Friday Wear has become highly patronised and has now been extended to all-day wear. In support of this assertion, the Manager of KAS Fashion **(LGP 2)** also stated that clothing would forever remain one of the necessities of man because people can never live without wearing clothes. Respondent **LGP 2** continued that:

> When invited by a prominent person, you would think about what you will wear to the place. I can say that the prospects are there, we would need clothing for wedding ceremony, naming ceremony, and funeral, even the dead need clothing to see him off **(LGP 2***2018*).

The researcher observed that all the respondents were convinced that the garment industry is flourishing particularly with the emerging consumer interest in African wear.

2. Job Opportunities

The study unveiled that garment production is linked to other related businesses. A question was posed to find out from respondents whether they are aware of available job opportunities in the garment manufacturing sub-sector. In response, the Industrial Promotions Officer of MOTI, **(GA 1),** explained that there are a whole lot of opportunities and the most paramount among them is the employment that it is

generating for the young ones and those with low education background. He added that after people have gone through training in education institutions or through informal sector, which is apprenticeship training, they are able to set up their firms and employ others and pay them or train them to become self-sufficient. This is really in consonance with the assertion made by Rajesh, Narag, & Singla (2003) that the Clothing industry has been a pivot of poverty alleviation in most developing nations based on the huge employment opportunities it offers for persons with lower level of formal education.

Responding to the same question raised above the Learning and Development Officer of Dignity DTRT Ltd. also expressed a similar opinion by stating that the industry has a huge potential, provided it is given the needed attention. He said he does not know of a culture that is going to stop wearing clothes. "Need for clothing is going to be there just as there is need for food. It is sustainable, it is a business that can continue, but we have to give it the needed attention" **(LGP1)**. He acknowledged further that:

> If the raw materials (fabric, the thread, trimmings etc) for garment production were produced in Ghana rather than importing them from places like China, they would need to employ people in that aspect **(LGP 1, *2018*)**.

This implies that designers are aware of related category of jobs that are created in the garment industry of which include self-employment retailing, cotton production, fabric manufacture and fabric designing. He ended by saying that in a matter of three and half years Dignity DTRT Ltd. has been able added 600 people the workforce **(LGP 1, 2018)**.

3. Enabling Environment for Investment

Business-friendly environment is found to attract investors into the economy for faster growth. It has been revealed in the study that respondents have confidence in the security of the country. "***Ghana is such a peaceful country where investors are always trying to come in***" **(LGP 1)**. A respondent, **SGP 4,** added his voice that there is now stable supply of power for garment businesses which hitherto was a big challenge. Designers can now work any time of the day or night especially during peak times like event celebrations and organisations.

> When we were experiencing *dumsɔ* (frequent power outage) some time ago I couldn't buy a generator and so it affected our business so much. Currently, *dumsɔ* is over which is good for garment makers' **(SGP4, *2018*)**.

4. Relatively Simple to Start a Garment Production Firm

The study has established that one would need some small space, which can even be on the home veranda for beginners. In terms of equipment, a respondent in the large garment sub-sector made the following revelation;

> The simple thing in this business is that, once you have finished apprenticeship training, you may not get easy access to financial support but that shouldn't be a worry, just get a straight stitching machine, an iron and some small table you can start doing production **(LGP 2, *2018*).**

Expressing similar sentiment, respondent **FGP 4** from the formally trained small garment sector, added that some people are filled with too much anxiety to start doing something after apprenticeship. "***When you ask some of the tailors and seamstresses about the job, they tell you they have stopped the business, because it is not good and they have nobody to assist them".*** He concluded that such people who make all those complaints are not serious because they need just a small space and simple equipment

as a beginner. "***When you pay serious attention to the work you will gain. If you have a child, I will advise you to encourage him to take up this profession***". A respondent who shared his experience as well stated that it requires courage to go into the fashion business. "***One can start something with one machine. I started the business with a hand sewing machine***" (**SGP 19, 2017**).

It can be deduced from the responses that the graduate apprenticeship training lacks entrepreneurial capability to start the garment production business with few resources. The researcher observed that most of the graduates from the Technical Universities and apprenticeship training start with minimum logistic in the garment industry. To buttress that, Norton and Ballard (2009) asserted that the activities of small businesses are crucial to address economic growth, job creation and the alleviation of poverty in our societies.

6. Awareness of Export Opportunities

It was revealed in the study that opportunities exist in the export market. When a question was posed as to whether the export market favours the local garment industry, there were affirmative responses from the respondents. Respondent **LGP 1** from a large-scale garment industry stressed that indeed the export market was a good arena for the garment industry. He continued that:

> There is so much that can be achieved for instance through the African Growth and Opportunity Act (AGOA), established by the U.S. which gives certain free access to their Market" (**LGP 1, *2018*).**

On the same question, respondent **GA 1** from the government agencies added that AGOA provides opportunity for textile and garment products and a few other craftworks to be sent to the U.S. market on free tariff. She said that AGOA gives artisans a wider base to market their goods, "***Therefore, export market, is bright for the local***

industry". Local garment manufacturers therefore could benefit from this international market through accessing the AGOA opportunities. Respondent **GA 1** reiterated further that government's commitment to strengthen collaboration with the US to enable wider access to their market. He asserted that:

> There is going to be a launching of Ghana Apparel Manufacturing Expansion Programme by the President, Nana Addo Dankwa Akufo-Addo, and the US Ambassador to Ghana to provide training for Ghanaian youth and create new apparel-making jobs that could sell on the US market *(GA 1, 2018)*.

GA 1 explained that the project was going to provide employment to more women compared to men and would increase apparel exports from Ghana to the US within a duty and quota-free regime under AGOA. The study uncovered that Unfortunately the informally trained garment producers do not have any knowledge about the existence of AGOA and the opportunities they could access. Respondents **SGP 10 and SGP 8** each remarked, "***I don't know there is anything called AGOA and what it does for the garment business"***.

The researcher therefore agrees with Sarpong, Howard and Osei-Ntiri (2011) that the government ought to device means of improving the skill and competency base of the small garment manufacturing industry to make them efficient, experts, and result oriented with modern technology in fashion. The researcher also sees there is move by government to collaborate with the US to train garment manufacturers as a welcome news.

7. Poverty Reduction

The study revealed the optimism expressed by participants about various job opportunities found in the garment industry. Findings further established that the garment industry is an avenue to reduce poverty among the vulnerable such as low

educated people. Respondents were asked to express their opinion on whether the garment industry is lucrative or not. In response, none of the participants showed regret for taking up the profession. Respondent **LGP 2** said "***The business is very lucrative and can offer many people jobs to do especially those who couldn't go to secondary school***". Responding to the same question, Respondent **SGP 22** also made this statement "***I would encourage anybody who has the interest to be in the industry, since it is lucrative***". Similarly, **(FGP 2)** stated;

> The industry fetches income but if you don't sew nicely, it will draw your customers away. I will say it is lucrative because when you sew nicely, you will get more customers so you need to learn a lot (**FGP 2, *2018***).

It could be inferred from the responses that designers are appreciative of the economic reliefs obtained from the garment production business. The concerns expressed by some of the respondents confirm the opinion of Sarpong, Howard and Osei-Ntiri (2011) that the key to success in the garment industry is quality production and when quality is achieved, there would be success the industry.

4.5.2 Major Challenges of the Local Garment Industry

Major challenges of the small-scale local garment industry, as revealed from the interviews conducted and observations made in the industry are lack of working capital, skilled workers and equipment among others.

1. Lack of Start-up and Working Capital

Success in establishing any practical skills firm depends to a large extend on the availability of workshop stocked with all the required tools and equipment for productivity which also depends on availability of funds and easy access to customers.

The study finds that there is no fund available that can be accessed by new fashion designers from either apprenticeship training or education institutions to start business. Those who are already in business do not have access to credit facilities to expand it. When a question was posed on how fashion firms finance their businesses, the general response received is that everything about the enterprise is financed by the individual from the time of setting up. There has not been any financial help from anywhere. They intimated that if funds were available, they could go into mass production, or buy most of the materials and trimmings in bulk to reduce production cost.

Respondent **FGP 2** from the formally trained production lamented: "*I've made several attempts to source for loan but I have always been turned down*". The researcher deduces that the financial institutions are not willing to give out loans to people to start businesses for fear of not recovering the loans. As Weber (2008) discusses almost every business need funds to cover start-up costs. The young designer for example, needs a good sewing machine and varied tools to start with. The cost of rented space must also be figured out. To make the business grow, fund for advertising is needed. Without adequate funding, it would be difficult for a business to survive in growing competitive market. The study confirms Sarpong, Howard and Osei-Ntiri's (2011) assertion that Ghanaian fashion producers face serious challenges, major one of which is lack of capital. The researcher shares the views that one of the most important that form the backbone of every industry is capital as it is the means by which all the resources to generate wealth are acquired.

2. Lack of Competent Workers

The study revealed that the established garment manufacturing firms are unable to get competent workers to employ in their businesses. When respondents were asked to enumerate some of the challenges confronting the garment industry, **LGP 1** stated:

> The challenges as I mentioned before is lack of skilled workers to employ, when the students first finish Technical University or apprenticeship and you engage them, they are not able to work to the expected standard of the industry (***LGP 1, 2018***).

Respondent **LGP 3** also specified that it is difficult these days to get skilled machine operators and their factory has to spend time and resources to train people after which they stay for a short time and leave to establish their own firms. Respondent **SGP 4** stated that she wishes there is an institution that would organise training workshops for tailors and dressmakers.

Observations made by the researcher revealed that most of the workers are employed for machine operation and they are paid on output bases. Most of such workers depend on the work-and-pay system for their livelihood, because of that they do not embrace the idea of leaving a job place for training where they may not receive any pay during the training period. In the large-scale industry, the situation is different in terms of skills training for workers. When the same question was posed to Respond **LGP 1,** he made this statement:

> Anyone who would do anything close to what we are doing here needs to spend so much money on training of workers. Even those who are already in the tailoring industry and can sew already, we still have to pass them through the training to be able to work to the required level of acceptance (***LGP 1, 2018***).

The researcher observed from the finished products that foreign fashion designers are ahead of the small designers in Ghana in terms of quality production. A response

from a government agency, GA 4 suggests that virtually nothing is being done to upgrade the skills of the workers in the small-scale garment sector. Respondent **GA 3** said "*if fact we have to collaborate with ASSI to organize periodic training for its members but it has not been effective*". The researcher again observed the kind of interest the small garment manufacturers had shown in the current skill training being organised by COTVET in collaboration with the German government. The researcher therefore agrees with the assertion made by Opoku, Baiden and Kemevor (2015) that most of the local fashion designers do not adhere to quality systems of finishing since they were trained informally and besides, they have no law governing their activities. The inability of such designers to practise the appropriate finishing procedures affects their competitiveness at the local and international levels.

3. Inadequate Tools and Equipment

The study discovered that tools and equipment play a key role in providing acceptable level of production in the garment industry, however, the small-scale garment firms inadequately resourced to provide competitive products in terms of quality.

Respondents were asked whether the issue of equipment was a challenge in the industry. In response, the Learning and Development Officer of Dignity DTRT **(LGP 1)** stated that;

> The small industry lacks basic equipment or machines accessories, which may not be the entire equipment itself, some presser foot, or some basic accessories but you cannot get on this local market (LGP 1, *2018*).

Respondent **LPG 1** that specialised equipment and machine accessories contribute to quality manufacturing that is acceptable at the international market. On the same question, Respondent **LTU 1** explained that the matter concerning machines is the

main challenge in the small-scale garment industry. The researcher observed that a number of the small garment firms do not have buttonhole machines so they use zigzag or even the straight stitching machine for buttonholes. Respondent, **SGP 11** in the small industry was of the view that lack of specialised equipment such as hemming machine and buttonhole machine makes it very frustrating in the industry. Respondent **LGP 2** also said hemming machine is much important in the industry. When one gets large contract of about 3000 pieces, there is no way one can meet deadline or do proper hemming. He explained further that equipment helps reduce the time one spends in sewing and that helps one to do quality and efficient production. Respondent **FGP 3** in formally trained designer in the garment sector expressed similar sentiment that imported garments are better finished that the local ones because of machinery and skills. Respondent **FGP 4** said also that:

> when you sew a shirt and the buttonholes are not neat, the whole shirt would be affected. We use ordinary zigzag machine to make buttonholes and you can't use it to make uniform stitches, and neat buttonholes *(FGP 4, 2018)*.

Another observation made by the researcher was that most of the specialised equipment are not found at the local market, those that can be found are too expensive for the designers. It was also observed that only a few of the designers have some of the specialised and are very obsolete; others are damaged and the designers cannot buy new ones because they are expensive; also, neither can they get a technician to repair them. Respondent **LGP 2** in the large industry recounted some of the negative effects lack of equipment has on under resourced firms as follows:

i. Buttonholes not uniform

ii. Buttonhole not matching the size of the button

    iii.   Hem puckering

    iv.   Improper installation of Zipper

    v.   Inconsistencies in binding and piping garment

    vi.   Improper serging of seam allowance

    vii.   Improper assemblage of elastomeric fabrics

    viii.   Designer's inability to meeting deadlines

4. Inadequate Government Support

Data collected from the study showed that government has not done much to equip the small garment firms to enable them compete both locally and internationally. The respondents were asked about the kind of support local small garment firms get from the government. Respondent **SGP 1** among others gave the response: "***We have not seen any government policy that is helping us. We heard of President's Special Initiative (PSI) sometime ago but now there is no support***. The researcher has found that PSI is an initiative established by the former president of Ghana, John Agyekum Kuffour, to promote the garment and other made in Ghana products. Another respondent, **FGP 2** also expressed a similar view by stating that:

> As for me, I have not seen any help from the government. You buy your own machine, look for a place yourself and you buy fabric with your own resources and so on (**FGP 2, 2018**).

Respondent **SGP 5** giving her views also stated that she has not had any support and attributed it to the fact that she has not registered as a member of any association. She had some feeling that those who have registered with some association sometimes have some support but it is not much.

The Industrial Promotions Officer of MOTI stressed that a positive image is given to what government is doing in terms of support, but the garment designers are not aware of that. The Business Advisory Officer of NBSSI enumerated some of the support areas that government has made available to the clothing industry which include the need to register the business and pay tax **(GA 1 and 2)**. Respondent **GA1** indicated that the MOTI has an agency called Business Advisory Centre that advises the artisans on the business operations of the industry. The agency educates the artisans on the right technology and the right strategies on finishing their products as well as the right material to use for production. He said that the Centre again organises in-service workshops for sewing machine operatives. It also encourages the designers to venture into areas that are more demanding such as bead making.

The researcher observed that enough has not been done for the designers to appreciate the contribution of the government in the industry's development. There are visible frustrations that the fashion designers are going through in terms of support. One of the respondents acknowledged the contribution of the Council for Technical Vocational Education and Training (COTVET) in terms of training support but said it is not enough at all. He felt disappointed that an application for support is put in but nothing comes out of it or what he/she gets is just meagre and cannot fully support the actual work done (**SGP 6**). The researcher agrees with Colovic (2011) that the production capacity is affected by many parameters, which include funds and logistics that are available in a production facility.

5. Lack of training centres

The study revealed that the local garment industry has no established training centres for skills training purposes. Most designer who have the desire to upgrade their

skills resort to unravelling second hand clothing and studying the assembage techniques. Colovic (2011) argues that in order to make a technological system of production flexible it is necessary to conduct regular employee training. When a question that sought to find out how respondents engage in further training was posed, respondents gave the following responses: *SGP 1* indicated that she goes on the internet and learns some new things. Apart from that, she visits other designers who have different ways of production processes to solicit ideas from them. Some of the ideas are bead stringing which initially was not part of what she does. This implies that some of the designers have interest in updating their skills. The researcher noted that it takes a great deal if time for designers to identify deficiencies in their techniques of production and they do, they cannot access where those deficiencies could be corrected.

Sometimes a designer would want to explore by travelling to other countries like France, Berlin or New York learn new things but he/she sees the opportunity is not available. The issue is that in Ghana, designers cannot identify where they can go to learn new things. The impression created in the minds of the designers is that, many resources to work with cannot be obtained in Ghana. Respondent **SGP 24** said they do not also trust that their colleagues in the industry could help them to learn new skills. Another respondent in a small garment firm also expressed similar sentiment by stating that:

> I do self-tuition by using second hand clothing. They have patterns that have been tried and tested. I used that to solve the problems in assemblage like puckering on sleeves (***SGP 5, 2018***).

Respondent explained further that there should be regular in-service training for garment makers. She said that she has had the opportunity to travel outside and has noticed that if graduates set up their businesses after apprentice training, or university

training, that alone will not be enough to them remain sustainable and compete in the international market. But despite that, garment manufacturers have nowhere to go to train. A respondent **UT 1** in the education institutions stated;

> The small garment designers need to be educated; I would wish the institutions organised training workshops for the small garment designers. They should educate them on the principles of designing, design processes, entrepreneurship skills, customer relations, and so on (***UT 2, 2018***).

Sharing his experience from the large-scale industry, the Learning and Development Officer of Dignity DTRT Ltd. stated that when his factory recruits fresh employees, they have a training centre where they give them training them for some time to let them acquire the needed skills. He expressed worry that the local small garment firms do not have training centres where interested persons could be given skilled training. He said that if such facilities were available, they could recruit people and let them go straight into production without spending several months at the factory's training centre. Respondent **LGP 1** lamented:

> You recruit the person and train him and pay him at the same time. While on training, that person is not making any production so until they mature to join the production team it would have been a huge cost to the industry (***LGP1, 2018)***.

A lecturer at the Fashion Department of Kumasi Technical University, Respondent **STU 2** indicated that the small garment manufacturers are to update their skills at the University but they need financial support to be able them do so.

The researche agrees with the opinion of Thomas (2009) who stipulates that free-hand cutting has in some instances resulted in poorly fitted apparel and quarrels among dressmakers and their clients therefore the craftsmen need skill training to meet global standards. With the limited facilities available, coupled with high illiteracy rate among

designers, the researcher concludes that the best proactive approach in curbing the production deficiencies among small-scale sector would be for the NBSSI in collaboration with ASI, AGI and education institutions to organise periodic workshops and skills training programmes for the small garment workers to enlighten and equip them with quality production techniques.

6. Influx of foreign clothing in Ghana

Imported clothing has been found to be one of the challenges hampering the progress of the local garment industry. A respondent at the informally trained sector, SGP4, made it known that;

> If the government could stop the Chinese people from pirating our fabrics, I think it would help. That would enable Ghanaians to patronise garments made by local garment designers. If they go about wearing Giorgio Amani and the rest how would our local clothing also move forward? (*SGP 4, 2018*).

Another respondent who lamented on the issue, stated that second-hand clothing is a major threat to the small garment firms. Respondent SGP 10 showed remorse as she said:

> If you consider buying three yards of suiting fabric at Gh¢ 120.00 and the tailor charges you Gh¢ 50.00 making Gh¢ 170.00, just to get one pair of trousers, the person would rather buy *bent-down boutique* at Gh¢ 20.00 (*SGP 10, 2018*).

Observation made at the local market suggests that Ghanaian garment consumers prefer second-hand items because of their good quality and low cost. Some of the garments are declared "let-go", thus prices are reduced to clear off the stock to make room for new consignments. Respondents were of the view that government should steps in by regulating the influx of foreign clothing in the market. Some of the respondents also argued that the quality of finishing of imported garments is acceptable level to

customers and advocate for training on finishing for the small garment manufacturers. The findings made on foreign clothing is in consonance with Asare, Narh-Korley, & Ahiabor (2018) who believe that aside from local firms being under-resourced with basic production equipment, they hire less qualified personnel in their production causing complaints from clients on poor service delivery. Consequently, customer have become attracted to second-hand and other foreign clothing which they feel would compensate for the inadequacies of the local garment firms. The researcher opines that workers of the local small garment industry must also be educated to consider time as an important resource that should not be abused to sustain the trust of the client. The findings therefore confirm the study conducted by Asare (2012) who states that the clothing sub-sector currently faces stiff competition from foreign competitors, especially Asian countries like China, which the local clothing industry considers unfair.

7. Lack of Communication between Designers and Policy Makers

There are opportunities of which the local garment makers are not aware due to lack of coordination. In the interaction with the respondents from the government agencies in Kumasi, there are catalogue of projects that have been put in place for local garment makers. When the respondents were asked what the government was doing to revamp the small garment industry, the Industrial Promotions Officer of MOTI mentioned the "Made in Ghana" policy which is giving the designers exposure to the international market. He said that as part of that policy, the Ministry advertises local garments to the outside world by uploading their designs on the website of their offices in US, UK, China, South Africa and Nigeria (*GA1, 2018*). Respondent **GA1** commented further that they are also trying to formalise their businesses because most of them are not formalised. Currently, most of the designers cannot determine their production

capacity and the reason is that the designers work in isolation. He said that until they register as members of either Association of Ghana Industries (AGI) or Association of Small-Scale Industries (ASSI), they cannot benefit from such opportunities. Even though most of them are already members of GNTDA, they still have to register with an umbrella association, either AGI or ASSI depending on their size (**GA 1, 2018**).

The researcher learned that whenever government wants to communicate with the private sector, it looks for either AGI or ASSI so they in turn send it to the sector association such as GNTDA. this is a vital information, which the small-scale enterprises need to know. Observations made by the researcher suggest that the small garment manufacturers do not have a platform where they can be reached easily. When there is a cluster, information could easily be communicated to members and team work could be effectively organised in case of larger contracts.

The Business Advisory Officer of NBSSI, a respondent, made the following remarks: made similar sentiment by stating this:

> We have Business Advisory Centre. We advise the artisans on the business operations of industries. We give education on the right technology and strategies to enable them get a better finish of their products. We also educate small businesses on the right material to use for production (GA *2, 2018*).

The remarks above revealed that opportunities are available for the small enterprises such as the garment subsector but they are not accessed due to lack of communication between the industry and the government.

8. *Poor attention to Customer Satisfaction*

The study reveals that the local garment manufacturers are losing a lot of customer trust due to poor attention they have for the customer interest, deadline and

reception. Some of the respondents indicated their inability to meet client deadline and yet ignored to inform customers about the status of their orders. (**STU1, SGP 14, FGP 1, 2018**). Responding to a question on challenges facing the small garment industry, respondent **LPG 3** recounted that there is lack of skilled workers who can deliver on time (**LPG**). It has gradually become a norm amongst local designers that when they disappoint it is a "normal thing". They do not see anything wrong with disappointing a customer. Contributing to the answer of the same question **SGP 4** added that customers do not like disappointments, and therefore they choose to buy ready-made garments. The attitude of the small garment producers confirms the Asare, Narh-Korley, & Ahiabor (2018) espouses that lackadaisical attitude and lack of basic managerial skills on the part of small fashion designers in the country could be the major cause of their inability to meet client's deadlines.

The researcher also observed that poor managerial skills at the small garment firms is destroying the industry. Sometimes, when clients go to collect their garments, designers may have misplaced them. This is because most of them do not have a well-structured system where they will take detailed information of the client and take their fabric sample so that years later, they could easily retrieve the item and organise their order of production. It was observed also that most of the small firms do not have resting space to receive and entertain customers. Respondent **FGP 3** declared rather sadly

> Sometimes a client will book an appointment with a designer only to be disappointed, meanwhile he won't even call but wait till the customer comes; and he tells him stories which sometimes lead to unhealthy exchanges (**FGP 3, 2018**).

The responses infer that the small garment manufacturers lack skills that bother on customer satisfaction. The researcher therefore agrees with Asare, Narh-Korley and Ahiabor (2018) about the fact that customer satisfaction should be a more fundamental

indicator of the firm's performance since higher levels of customer satisfaction lead to greater customer loyalty.

9. Unmonitored Apprenticeship System

Data collected for the study showed that currently, there are no policies or regulations guiding the apprenticeship system and training of competent apprentices. The garment industry has nobody that provides guidelines for the training of apprentices and the award of accredited certificate to qualified apprentices who could establish private garment production firms.

When a question was posed on how effective the apprenticeship system is being run in the small garment subsector, the following were some of the responses were; A respondent **SGP 17** from the informally trained small garment sector expressed worry about how the apprenticeship system is carried out in the country. He said the system allows anybody to set up a firm after apprenticeship training or graduation from the education institutions. He said further that such people have not undergone any assessment to determine whether they can really do quality work or not. The practice where anybody is allowed to set up a firm damages the image of the industry by producing shoddy products. He argued further that there is need for issuing of proficiency certificate for apprenticeship training. Respondents SPG 4

> When someone is on apprenticeship training, as soon as he is able to sew some shirt, he thinks he is okay, but the master who trained him would know that his standard is very low. In that regard, government should provide proficiency certificate to qualified persons to operate so that if one does not have certificate, one should not be allowed to operate (*SGP 4, 2018).*

A similar sentiment was expressed by a respondent from the formally trained sector, *FGP 3* added that when unqualified persons are allowed to operate, they will also

be training other incompetent people for the profession and one can imagine the damage that will be caused in the industry. On the same question of challenges confronting the industry, Respondent **LGP 3** confirmed that getting competent workers to employ is difficult because when students finish the Polytechnic or University, they quickly set up their shops and this does not help the business. Respondent **LGP 3** reiterated that: *after their graduation they should work under an established designer for about a year or two to gain experience before they establish.*

The researcher observed during visits to the small garment firms that apprentices receive their skill training based on the competence level of the master-craftsperson. There is no structured curriculum in use for the training of apprentices so the current production determines what to teach the apprentices. Responses enumerated above inferred that graduates from apprenticeship training should have an attachment with another designer by working under a new designer for at least a year before setting up his or her own firm. Such experience would acquaint the new designers with different approaches and techniques in garment production. Biney-Aidoo, Antiaye and Oppong (2013) emphasize that the apprenticeship system of training dressmakers and tailors has been in place for a considerable period and remains a form of training for the youth, particularly females to equip them with remarkable skills in order to reduce unemployment.

The researcher therefore concludes that the informal training sector is noted for a very vital role it plays in Ghana's economy by promoting technical and vocational skills through traditional apprenticeship training schemes. It is imperative that the apprenticeship system is formalised so that the youth are given the required vocational

skills in garment production through apprenticeship training to equip them with means of livelihood.

CHAPTER FIVE

SUMMARY OF FINDINGS, CONCLUSIONS AND RECOMMENDATIONS

5.0 Overview

This chapter summarises the major findings of the study, draws conclusions from the findings and makes recommendations based on the conclusions and findings.

The study sought to divulge manufacturing techniques of Ghanaian small garment industry in this era of growing competitive market and based on the findings; possible strategy was proposed towards revamping of the local garment industry for sustainable job creation to reduce the unemployment situation in the country. The problem was that the small garment manufacturers in the country have failed to meet customer requirements due to poor quality production. This has resulted in customer dissatisfaction and low patronage making the local garment industry unable to meet global market demands in terms of quality.

The study commenced with thorough literature search on some main themes and sub themes deemed appropriate. The areas explored included – competitive advantage theory; global trade in the garment and textiles; manufacturing structure of the garment industry; quality in the garment industry. Other areas explored included – The rise of the fashion centres; the role of clothing and textiles in economic development; industrial and safety culture; customer satisfaction in the fashion and textiles industry and garment assembly. To elaborate on selected few the literature established that customer satisfaction should be a more fundamental indicator of the firm's performance due to the links to economic consequences beneficial to the firm. It also came to the fore that poor attention to detail during production processes could have the domino effect on quality. The study was situated in the interpretivist paradigm underpinned by observation,

interview and interpretation. The interpretivist paradigm enabled the researcher to interpret data and make meaning of the information by drawing inferences. Purposive sampling technique was employed to select respondents for collection of data for the study.

The research objectives and research questions, which guided the study, were as follows:

Research Objectives:

1. To examine garment design development techniques employed at the small garment industry in Ghana.
2. To examine the production techniques employed by the small garment industry in Ghana.
3. To investigate workplace health and safety compliance situation at the small garment industry in Ghana.
4. To analyse the challenges and prospects in the small garment industry in trying to meet market competitions in Ghana.

Research Questions:

1. How do small Ghanaian garment firms create designs for production?
2. What are the production techniques employed in the small garment industry for assembly processes?
3. What is the situation at the small garment workplace regarding health and safety compliance in Ghana?

4. What are the challenges and prospects that exist in the small garment industry in trying to meet market competitions in Ghana?

5.1 Summary of Findings

The main findings of the study and its discussions coupled with relevant literature connections have been presented in the fourth chapter. In this section, the researcher provides summary of the main findings of the study based on the research questions. With respect to the data analysis, the following main findings were made under the corresponding research questions:

5.1.1 RQ1: How do small Ghanaian garment firms create designs for production?

a. Design Development Processes

The data found that the informally trained small-scale garment producers have deficiencies in garment designing skills. Responses from respondents suggest that the small garment industry, particularly those whose workers acquired skills through apprenticeship do not have the capability to study trends and create designs on their own. It was revealed that most informally trained small garment designers have no knowledge about the use of mood-board as an inspiration for design creation and innovations

Small garment designers do not follow any structured processes by which new design collections are created. Most of these designers who acquired informal apprenticeship training underscored that they got inspirations for new designs through dreams and that designs. The small garment designers believed that by laying the design on the table they are inspired to create something for clients. They indicated that they do not create designs on paper and show to clients to make a choice and that mood board and idea development processes are alien to them. The effect of designs that are not

backed by research often result in designs that would not sell since the customers are not involved in the creation of the designs.

By comparing the responses from the informally trained small garment producers to the responses obtained from the large-scale industry, it was found that the large garment industry depends on the catalogue of the customer. Results further suggest that while the large-scale firms have research teams that often are able to predict future designs the small-scale firms do not have such teams.

b. Competence in Using the Hand or Computer

It emerged from the analysis of data from the small garment manufacturers that they have virtually no knowledge about the use of the computer for designing. The study again revealed that while the small fashion industry was struggling with the manual means of product designs, the large fashion houses have moved from the manual system into more a complex CAD system. With the CAD system, clients could see the finished design on the computer and make his or her input before the product is executed; however, this technological advancement is completely absent in the small garment industry whether or not the designers are both formally or informally trained.

c. Design Forecasting skills - the Small Garment Industry Perspective

The study established that small garment manufacturers engage much in bespoke production and most of such designers who engaged in bespoke production in Ghana are not entrepreneurial inclined. It was deduced from the interactions with the small-scale firms in the industry that the industry does not seem to be aiming at expanding due to lack of entrepreneurial competence. There is much anxiety in designers in the small-scale industry about taking risk, coupled with lack of knowledge to produce and sell in

the future. Those who are trained at the tertiary level are not taught fashion forecasting in the entrepreneurship and merchandising courses of the programme.

d. Design Innovations in the Local Garment Industry

One of the findings is that the small garment producers rely on copying popular designs from catalogues and posters without modifications. Most of the informally trained small garment makers rely on copying design and fail to pay attention to production details so eventually they produce products that do not sell fsvourably at the international market.

Again it was revealed that some local designers are able to create elaborate designs; but most of such designs are not in relation to design principles and so they do not sell favourable at the international market. For example, designers could create elaborate African wears like *fugu*, *kaba and* shirts but they are unable to grade such designs into different sizes and styles. Often less attention is drawn to the wrong side of the garment with regard to stitches, seams and allowances. It was established that consumers are concerned with quality product finishing rather than the intricacies of the design.

5.1.2 RQ 2: What are the production techniques employed in the small garment industry in assembly processes in Ghana?

The findings made for research question 2 are summarised as follows:

a. Spreading Techniques in the Small-scale garment Industry

The study reveals that the operatives in the small-scale industry do not put premium on the quality of fabrics used for production. The small producers were not bother about checking fabric defects before cutting. Again, most of the small designers

have little knowledge about the use of special fabrics such checks, plaids, piles and stripes. In the large firms, the fabrics are sent through laborious inspection to ensure that the standards are followed in laying out and cutting with a marker planner. The study also established that the small garment designers are not well versed with techniques of spreading based on fabric physical properties.

With respect to fabric management at the small firms, the study revealed that patterns are normally drafted directly on the fabric without specified and uniform seam allowances. But in the large firms, fabrics are cut by using patterns after toiles of those patterns have been done for corrections to be made; the small-scale firms do not go through toile production to ensure perfection and fabric economy.

b. Assemblage Processes in the Garment Industry

The analysis revealed that the common assemblage system in the small garment industry is the Individual System. It was learned from the large industry that the assemblage system adopted in the large manufacturing firms is the Straight-Line Production System, which is also referred to as Distribution of Labour System. It was explained that the operators are trained to perform a specific task after which he or she passes on to the next operator in a straight-line order. Respondents selected from the small manufacturing firms confirmed that the Line System was better in terms of efficiency and consistency but is difficult to manage in the small firms due to conflict among workers.

It was unveiled that the Individual System, which is predominant at the small firms often leads to shoddy and sub-standard finished products. The main reason was that payment of workers is often based on worker output, ie the number of items finished per day; so, speed work is the focus of the worker at the expense of quality.

Stitches and Seams Finishing

With respect to production stitches and seams, the analysis of the data revealed that the seams and stitches produced by the small garment designers do not conform to any benchmark but rather based on the designer's discretion and experiences. Observations of the activities of tailors and seamstresses in Ghana show that only a few of them follow recommended quality system (4-point system etc.). Key manifestations are lining of the garment, button and buttonhole alignment and finishing, seam allowances, hem and seam pucker, uneven stitching length, shoddy shaping of fusible, pressing, quality of trims used and sub-standard installation of zippers.

On garment finishing, the analysis showed that some corrections associated with work produced are ignored to avoid time wasting. As earlier explained, the reasons are that the machine operatives are mostly employed on work-and-pay bases and so are afraid they may not reach their targets set for the day if they keep on doing such intermittent corrections. Some of the key faults associated with workmanship in the small garment firms are:

i.   Broken yarn joined at the exact point of breakage instead of unravelling to restart the whole seam.

ii.   Buttonholes done using straight stitching machine.

iii. Buttonholes either bigger or smaller than the sizes of the button and wrongly cut.

iv.   Topstitching not uniform and straight.

v.   Unmatched or poor alignment of buttons and buttonholes.

vi.   Uneven or incorrect spacing of buttons.

vii.   Wrong position of buttons from the edge of fabric.

viii.   Garment edges serge using wrong thread colour.

ix.   Garment hemming wrongly done.

x.   Interfacings not shaped to conform with the part of garment it is required.

xi.   Faults in zipper installation and finishing ignored.

xii.   Stitching lengths selected based on operator discretion.

c. Finishing and Packaging Techniques in the Local Garment Industry

Responses obtained from respondents suggest that finishing and packaging of garment at the small-scale industry did not meet the global competitive market. With respect to garment finishing in the small garment industry, the findings indicate that the small garment industry has no benchmarks that guides them on garments finishing. Product quality of garment finishing in the local industry is much lower as compared to the foreign products. In the large-scale industry, after the production cycle, final inspection is conducted. But there is no process called final inspection in the small manufacturing firms. In addition, while the large garment manufacturers engaged in-house inspectors who check the level of quality during garments assemblage, the small manufacturers do not conduct intermittent quality checks during production.

On the matter concerning product packaging, the analysis from the data revealed that packaging is a general challenge affecting all small firms in the country. Finished

products are not properly packaged for the customer; tags, labels and other details are not attached to the garment coupled with unattractive packaging.

5.1.3 RQ 3: What is the situation at the local garment manufacturing workplace regarding health and safety compliance in Ghana?

Findings made for research question 3 are summarised as follows:

a. Inadequate Knowledge in Emergency Controls in the Local Industry

Analysis of data revealed low level of awareness about emergency controls at the small garment firms, which stems from the fact that workers do not seem to anticipate any serious emergencies. Most designers at the small-scale sector ignored health and safety rules associated with their job based on the perception that serious emergencies will occur.

None of the respondents at the small garment firms has installed fire extinguishers. Respondents have no knowledge of what to do in the event of fire outbreak or other emergencies at the workshop. It was observed that workers did not care about eating and drinking habit, the kind of chairs they sit on and their hair make-up at the workplace. Respondents perceive that emergencies do not normally occur at the sewing workshop except few minor injuries, which they just pour lubricating oil on. Individual sewing machine operatives encounter several risks at the workplace, such as awkward arm, neck, trunk, leg postures and back pains if workplace safety measures are not monitored.

The study also revealed that managers of garment firms have not insured their businesses due to anticipation of high premium payments. The awareness level at the large garment firms is much higher as compared to that of the small firms, in the sense

that, there is scheduled training on health and safety management for workers in the garment factories. As the large-scale, industry try as much as possible to comply with the ILO job place regulations, the small-scale firms are adamant to health and safety precautions at the workplace.

b. Workshop Equipment and Layout

With regard to equipment, the findings established that the local designers are ignorant about the health implications of the kind of equipment and environment they operate in. There is inappropriate height of working table, which makes the workers strain herself/himself while working; in most cases either the table is too high or too short for the worker. This creates poor neck and back postures that are maintained for extended periods of time and increases stress on the neck, back, legs and feet. The study found that sewing tables used are not easily adjustable. It was noticed that when working tables used are too high; they create elevated shoulder postures and non-neutral elbow and wrist postures. Moreover, when the working tables are too low, they cause the operative to wrongly lean forward and flex his or her neck. Other findings were:

    i.   Working chairs having no backrest.

    ii.   Inadequate ventilation due to space factor.

    iii.   No head lamp for individual machine.

    iv.   Workers queuing to do pressing and ironing.

    v.   Using one socket for several purposes which is hazardous.

    vi.   Chair not swivelling when operatives have to turn sideways.

    vii. Floors of workshops cluttered with electrical cables and pieces of fabrics.

5.1.4 RQ 4: What are the prospects and challenges of the small garment industry in trying to meet market competitions in Ghana?

Findings identified in this research question are summarised as follows:

a. Prospects of the Garment Industry in Ghana

The study revealed a number of prospects in the local garment industry.

    i.   Increased consumer interest in African wears.

    ii.   Job creation as means of poverty reduction among the youth and those unable to pursue higher education.

    iii.   Enabling environment for manufacturing because of recent stable power supply.

    iv.   Relatively easier means of setting up in terms of logistics.

    v.   Export opportunities, which stem from AGOA, e-marketing, and trade liberalisation.

b. The Major Challenges of the Local Garment Industry

The findings revealed a number of challenges that threaten the operations of the industry. They include:

    i.   Lack of start-up and working capital

    ii.   Lack of competent workers

    iii.   Lack of specialised equipment such as:

        a)   Buttonholes machine

        b)   Hemming machine

        c)   Over edge machine

    d)   Specialised machine attachment e.g. Zipper fixer, footer for sewing and elastomeric fabrics.

    e)   Cutting machine

    f)   Pattern laying facilities, e.g. marker

The study again confirmed a number of challenges enumerated by Sarpong, et al (2011) and these are:

    i.   Inadequate government and non-governmental support

    ii.   Lack of training centres

    iii.   Influx of foreign clothing including second-hand clothing

    iv.   Influx of low-quality trims

    v.   Non-ergonomic working condition

    vi.   Lack of communication between designers and policy makers

    vii.   inadequate knowledge of customer satisfaction and involvement

5.2 Conclusions

The small garment industry in Ghana particularly, the informally trained ones mostly resorts to copying of existing design and direct cutting of fabric (freehand) with little concern about fabric economy. This is largely due to deficiencies in the skill level of workers in pattern making, garment design developments and the use of computer applications in garment production

The study concludes further that the small-scale garment manufacturers lay and fabric and cut out fabric without subjecting it to rigorous inspection for possible fabric fault identification such as holes, stain, mixed yarn, knots among others. Little attention is also paid to the wrong side of the garment with noticeable inappropriate and

inconsistent seam allowances. Garment are lined without attaching facing to serve as edge finish to the garment. Again, most of the small-scale manufacturers have little knowledge on the physical properties of the fabrics such as checks, plaids, piles and stripes in use. The stitches and seams done by the informally trained small garment designers do not conform to any benchmark; rather the assemblage techniques are based on designers' discretion and experiences. Also, the finishing and packaging of the small-scale garment firms are so poor that garment produced cannot compete favourably in the local and international markets.

Another conclusion is that there is weak health and safety compliance situation in the small garment industry. The workers in the small garment industry have little or no knowledge about what to do in the event of work place emergencies. There are no clear-cut measures in place to forestall and manage occurrences of accidents and disaster such as fire outbreaks. Again, there is disregard for proper posture, ventilation, scrap management, dust from fabrics, the use of electrical gadgets among others. Again, no attempt has been made by the small garment manufacturers to insure their businesses against eventualities, which can be attributed to ignorance.

The study concludes that in spite of the numerous opportunities available for the garment industry in terms of poverty reduction and empowerment of undereducated people, the industry is facing many challenges which stem from lack of skilled workers, modern equipment, government's logistical support. What the industry needs most is a holistic and strategic policy document with good and favourable policies to champion the course of textile production and sales, exports and imports of textiles and textiles essentials in the country. As the garment industry represents the surest way to fulfil the government's goal of accelerated industrialisation for socio-economic development, it

is incumbent on the government, stakeholders, fashion industrialists, fashion institutions, merchandisers, fashion designers, fashion models, consumers, and other fashion activists to come together to make collaborative and frantic efforts to initiate policies aimed at positioning the garment industry to gain competitive advantage locally and internationally.

5.3 Recommendations

Based on the findings and the conclusions of the study, the following recommendations have been made. It is expected that the recommendations would provide clear directions to appropriate institutions, agencies and organisations for necessary actions towards raising the competitiveness of the small-scale Ghanaian garment industry.

i. Since the garment industry provides a wide range of jobs for the citizenry, especially those with low academic qualification, it is incumbent on the government through Council for Technical Vocational Education and Training (COTVET) in collaboration with the tertiary education institutions to organize skill improvement courses for small garment manufacturers in order to improve on their competence, especially, in the area of design and creativity.

ii. The Ministry of Trade and Industry in collaboration with COTVET and institutions of higher learning should provide technical assistance to tailors and dressmakers in quality control measures, pattern drafting, adaptation, fabric inspection, laying, stitches, finishing and packaging. In that circumstances, there must be establishment of training centres that would regularly update the skills of the designers especially, the master craftsmen.

iii.   The Ministry of Trade and Industry in collaboration with the Labour Department of Ghana and Ghana National Fire Service should organise periodic education and sensitisation workshops for small-scale garment workers on workplace fire accidents, ergonomic problems associated with posture, cutting, assembly, illumination among others in the garment industry. Such education should cover work practices that cause health hazards and techniques that alleviate the risks.

iv.   Government through Ministry of Trade and Industry in collaboration with ASSI and NBSSI should provide support services to the small garment industry in terms of funding, start-up capital and supply of modern equipment at subsidised prices to help them compete favourably at the intranational and international arena.

5.4 Suggestions for Further Studies

Based on the outcome of the study, it is suggested that a follow up study should be conducted on the following:

i.   Assessment of small garment manufacturers' knowledge on fullness and the effect on garment design and production.

ii.   An enquiry into the design principles in the small garment industry and the effect on customer acceptance.

iii.   A comparative study of the formally and informally trained garment manufacturers on apprenticeship training.

iv.   Assessment of design principles in the small-scale garment manufacturers' knowledge on garment design and production

Other researchers are thus encouraged to take up the responsibility of investigating the above-mentioned problems to help find a lasting solution to the challenges that the small-scale local garment industry is facing with respect to quality manufacturing.

What is New in the Study

New ideas that emerged from the study include:

i.   The study reveals that there has not been significant action by the relevant stakeholders (government agencies) in terms of policy and logistical support to revamp the small garment industry in spite of the contribution of the industry in job creation and poverty reduction in the country.

ii. The study shows that the local small garment firms do not have benchmark in laying out patterns. They fail to make toiles (test garment) to correct faults in patterns before doing the laying out. Fabrics are not subjected to thorough preparation before laying and cutting. Fabric selection and laying out is based on only beauty of patterns and colours but not based on their suitability of the client's figure type and purpose.

iii. The study finds that designs are not created prior to laying and cutting out especially in bespoke production. In the process of laying, the designers do not consider design principles in relation to fabric patterns. Respondents indicated that they have no idea about research design or design inspiration; rather they get designs through dreams and when the fabric is spread on table.

iv. It emerged from the study that the small garment craftsmen are exposed to various ergonomic problems, which may have long term effect on their health. Fashion designers do not involve experts when setting up their fashion firms. Garment workers do their job under bad postures with prolong sitting. Chairs have no backrest and do not swivel. There is poor lighting system coupled with other health related hazards.

v. The study brings to light that small fashion designers are unable to meet customer acceptance with respect to international standards. For example, they line garments without providing facing and do not conceal seam allowances. There is also misalignment of buttons and buttonholes and other closures. Garment edges are overlocked with different thread colour.

vi. The study again finds that the small garment makers do not subject their products to quality inspections to identify sewing faults. The seam allowances provided in garments are very too big to leave bulk and uneven sizes. Final garment has no extra button and no labels as well as branded packages.

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APPENDIX I: Interview Question Outline for Small Garment Industry

This interview guide is developed to conduct a scientific research by a Ph.D. student of the University of Education, Winneba, Mr. Thomas Obeng Asare, on the topic, '***Manufacturing standards of the Ghanaian Small-Scale garment industry in the phase of emerging competitive market***'. The outcome of this study would be used for academic and managerial purposes only especially in the area of quality management in garment and textiles production in Ghana.

Thank you.

Section A: Personal Information

1. Name and location
2. Educational background
3. How did you become fashion designer and how long ago?
4. Years of industrial experience

Section B: Garment Assembly Processes

Section B1: Spreading Technique

5. How do you ensure that a piece of fabric is fit for spreading and cutting?
6. What are the different fabrics and the different methods of cutting them?
7. What are the main concerns when assembling check and stripe fabrics?
8. How do you ensure economic use of fabric when laying?

Section B2: Assembly Technique

9. How do you assess stitching quality during garment assembly processes?
10. How are trimmings (interfacing, closure, etc.) selected for garment production?
11. How do you assess Ghanaian method of lining garment whether they meet international competition?

Section B3: Finishing and Packaging Techniques

12. What are the things you do to certify that a product is ready for delivery to client?

13. How do you compare the quality of your garment finishing skills to the foreign ones with respect to lining, seam allowances, stitches, etc.?

14. Which benchmark does local industry use to determine acceptable standard for finished products?

15. How do you deliver finished products to clients?

Section C: Level of Competence in Creativity and Design Innovations

1. How do you go about creating or modifying new garment design?
2. How often do you create garment collections based on a theme or a concept?
3. How often do you predict designs that will appeal to customers in the future?
4. How capable do you use the hand or computer in product designing?
5. How often do you engage in scheduled training to update or upgrade your skills?

Section D: Workplace Health and Safety Situation.

6. What provisions have you made at your firm against fire outbreak and other emergencies?

7. How do you guard against work place accident at your firm?

8. How are you satisfied with the lighting, ventilation, and chairs systems at your workshop?

9. How do you see the need to insure your business against occupational eventualities?

10. Overall, how satisfied are you with the safety conditions at your firm?

Section E: Prospects and Challenges Faced by the Local Clothing Industry

Section E1: Prospects in the Local Clothing Industry

11. What are the opportunities in the fashion industry in Ghana?
12. How do you envisage the future of the Ghana's garment industry?
13. How lucrative is the garment production?
14. Are there any prospects for the garment industry?

Section E1: Challenges Faced by the Clothing Industry in Ghana

15. What challenges confront the clothing industry against competing on the international market?
16. What king of support do the local industries get from the government?
17. What do you think must be done to invigorate the clothing industry?

APPENDIX II: Interview Question Outline for Students

This interview guide is developed to conduct a scientific research by a Ph.D. student of the University of Education, Winneba, Mr. Thomas Obeng Asare, on the topic, '***Manufacturing standards of the Ghanaian Small-Scale garment industry in the phase of emerging competitive market***'. The outcome of this study would be used for academic and managerial purposes only especially in the area of quality management in garment and textiles production in Ghana.

Thank you.

1. Name

2. Name of industry

3. Location

4. Age

5. Do you testify to the fact that fashion the industry is facing tough competition?

6. Do you have any hope of getting support from the government to start your own firm?

7. What kinds of safety measures do you have at your lab?

8. How do you compare the foreign and local garments in terms of quality?

9. Is the infrastructural base for the clothing industry in terms of space and machinery substantial?

10. Are there any prospects for the garment industry?

11. Can the training you have receive enable you to establish your own firm?

12. Can the training you have receive enable you to create new garment designs?

13. How do you see the fate of Ghana's garment industry in the future?

14. What kinds of challenges confront the garment industry?

15. What do you think must be done to invigorate and sustain the local clothing industry?

APPENDIX III: Interview Question Outline for Lecturers

This interview guide is developed to conduct a scientific research by a Ph.D. student of the University of Education, Winneba, Mr. Thomas Obeng Asare, on the topic, '*Manufacturing standards of the Ghanaian Small-Scale garment industry in the phase of emerging competitive market*'. The outcome of this study would be used for academic and managerial purposes only especially in the area of quality management in garment and textiles production in Ghana.

Thank you.

16. Name
17. Name of industry
18. Location
19. Educational background
20. Can you give a brief comment on the current state of the garment industry?
21. Do you testify to the fact that the garment industry is facing tough competition?
22. What kinds of safety measures do you have at your lab?
23. How do you compare the foreign and local garments in terms of quality?
24. Is the infrastructural base for teaching, in terms of space and machinery, substantial?
25. Are your students able to establish their own fashion firms after completion?
26. Are there any prospects for the garment industry?
27. Do you have Quality Clothing Systems as a course on the fashion programme?
28. Do you job place safety as a course on the fashion programme?
29. Can the training you have received enable you to establish your own firm?
30. How do you see the fate of Ghana's garment industry in the future?
31. What kinds of challenges confront the garment industry?
32. What do you think must be done to invigorate and sustain the local clothing industry?

APPENDIX IV: Interview Question Outline for Fashion Merchandisers

This interview guide is developed to conduct a scientific research by a Ph.D. student of the University of Education, Winneba, Mr. Thomas Obeng Asare, on the topic, '***Manufacturing standards of the Ghanaian Small-Scale garment industry in the phase of emerging competitive market***'. The outcome of this study would be used for academic and managerial purposes only especially in the area of quality management in garment and textiles production in Ghana.

Thank you.

1.   Name
2.   Name of industry
3.   Location
4.   Educational background
5.   Years of industrial experience
6.   How long have you dealt in fashion merchandising business?
7.   Where do you get garment you sell from them from?
8.   Which of the clothing items sell best and why?
9.   How do you compare the foreign and local garments in terms of quality?
10. How do you compare the price of the foreign and local garments?
11. How do you compare the patronage of local and the foreign garment?
12. What are your challenges in the sale of local garments?
13. What are you doing to address the challenges?
14. How lucrative is fashion merchandising?
15. What do you think must be done to invigorate and sustain the local clothing industry?

APPENDIX V: Interview Question Outline for MOTI

   This interview guide is developed to conduct a scientific research by a Ph.D. student of the University of Education, Winneba, Mr. Thomas Obeng Asare, on the topic, '***Manufacturing standards of the Ghanaian Small-Scale garment industry in the phase of emerging competitive market***'. The outcome of this study would be used for academic and managerial purposes only especially in the area of quality management in garment and textiles production in Ghana.

   Thank you.

1. Name
2. Name of industry
3. Location
4. Educational background
5. Can you give a brief comment on the current state of the garment industry?
6. Do you testify to the fact that the industry is facing tough competition?
7. What is the government doing or has done to revamp the garment subsector?
8. Is the infrastructural base for the clothing industry in terms of space and machinery substantial?
9. Does the clothing industry have enough qualified technical expertise?
10. What is the statistics on imports of foreign clothing from 2010 to 2016?
11. What is the workplace health and safety awareness level of the local designers?
12. How do you compare the foreign and local garments in terms of quality?
13. What benefits does the nation derive from the garment subsector?
14. Are government policies regarding the clothing industry favourable?
15. What kinds of challenges confront the garment industry?
16. Are there any prospects for the garment industry?
17. What kinds of training programmes do you organise for the local garment industry?
18. What is the MOTI doing towards sustainable development of the garment industry?
19. What is the fate of the future of the Ghana's garment industry?
20. What do you think must be done to invigorate and sustain the local clothing industry?

APPENDIX VI: Interview Question Outline for GSA

This interview guide is developed to conduct a scientific research by a Ph.D. student of the University of Education, Winneba, Mr. Thomas Obeng Asare, on the topic, '*Manufacturing standards of the Ghanaian Small-Scale garment industry in the phase of emerging competitive market*'. The outcome of this study would be used for academic and managerial purposes only especially in the area of quality management in garment and textiles production in Ghana.

Thank you.

1. Name
2. Name of industry
3. Location
4. Educational background
5. Years of industrial experience
6. Can you give a brief comment on the current state of the garment industry?
7. Do you testify to the fact that the industry is facing tough competition?
8. Does the clothing industry have enough qualified technical expertise?
9. What is the standard of the safety level of the local fashion designers?
10. How do you compare the standard of the foreign and local garments in terms of quality?
11. What kinds of training programmes do you organise for the local garment industry?
12. Are government policies regarding the clothing industry favourable?
13. What kinds of challenges confront the garment industry?
14. Are there any prospects for the garment industry?
15. What is the GSA doing towards sustainable development of the garment industry?
16. How do you see the fate of Ghana's garment industry in the future?
17. What do you think must be done to invigorate and sustain the local clothing industry?

APPENDIX VII: Interview Question Outline for Teachers

This interview guide is developed to conduct a scientific research by a Ph.D. student of the University of Education, Winneba, Mr. Thomas Obeng Asare, on the topic, '***Manufacturing standards of the Ghanaian Small-Scale garment industry in the phase of emerging competitive market***'. The outcome of this study would be used for academic and managerial purposes only especially in the area of quality management in garment and textiles production in Ghana.

Thank you.

1. Name
2. Name of industry
3. Location
4. Can you give a brief comment on the current state of the garment industry?
5. Do you testify to the fact that the garment industry is facing tough competition?
6. What kinds of safety measures do you have at your lab?
7. How do you compare the foreign and local garments in terms of quality?
8. Is the infrastructural base for teaching, in terms of space and machinery, substantial?
9. Are your students able to establish their own fashion firms after completion?
10. Are there any prospects for the garment industry?
11. Do you have Quality Clothing Systems as a course on the fashion programme?
12. Do you job place safety as a course on the fashion programme?
13. Can the training you have received enable you to establish your own firm?
14. How do you see the fate of Ghana's garment industry in the future?
15. What kinds of challenges confront the garment industry?
16. What do you think must be done to invigorate and sustain the local clothing industry?

APPENDIX VIII: Interview Question Outline for Large Garment Industries

This interview guide is developed to conduct a scientific research by a Ph.D. student of the University of Education, Winneba, Mr. Thomas Obeng Asare, on the topic, '***Manufacturing standards of the Ghanaian Small-Scale garment industry in the phase of emerging competitive market***'. The outcome of this study would be used for academic and managerial purposes only especially in the area of quality management in garment and textiles production in Ghana.

Thank you.

Section A: Personal Information

1. Name and position of person
2. Educational background
3. Brief background of the industry
4. Years of industrial experience

Section B: Garment Assembly Processes

Section B1: Spreading Technique

5. How do you ensure that a piece of fabric is fit for spreading and cutting?
6. What are the different fabrics available and the different methods of cutting them?
7. What technique do you follow in cutting check and stripe fabrics?
8. How do you ensure economic use of the fabric when laying and cutting?

Section B2: Assembly Technique

9. What type of assembly system do you adopt in your industry?
10. How do you assess stitching quality during garment assembly processes?
11. How do you determine suitable trimmings (interfacing, buttons, zippers, etc.) for a particular production?
12. In your opinion, how do you see the quality of Ghanaian method of lining garment whether they meet international competition?

Section B3: Finishing and Packaging Techniques

13. What checks do you conduct to certify that a product is fit for delivery to clients?

14. Do you have standard seam allowances, stitching length, etc. in the garment industry?

15. How do you compare the quality of the finishing of garment in the local industry to the foreign ones?

16. Which benchmark do you follow to determine acceptable standard for finished products?

17. What are your comments on how the small-scale designers package finished products and deliver to clients?

Section C: Level of Competence in Creativity and Design Innovations

18. What are the processes followed by your industry to create new designs?

19. How often do you create garment collections based on a theme or a concept?

20. How often do you predict designs that will appeal to customers in the near future?

21. How capable do you use the hand or computer to create designs?

22. How do you assess the innovative capabilities of the local clothing manufacturers?
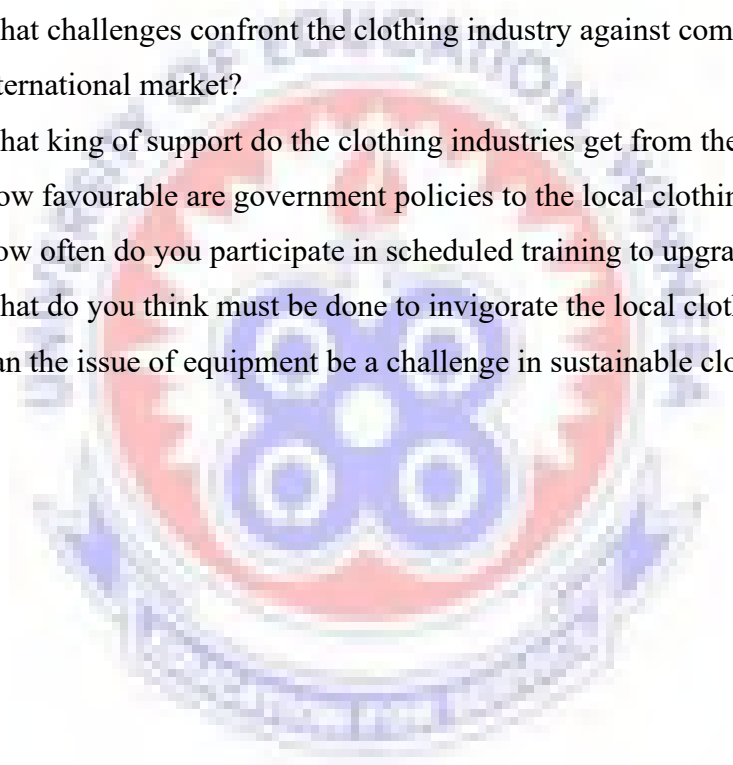
Section D: Workplace Health and Safety Situation.

23. What provisions have you made at your firm against fire outbreak and other emergencies?

24. How important do you treat following at the workshop: lighting system, ventilation, and kind of chairs?

25. How do you see the need to insure your business and the firm against occupational eventualities?

26. Overall, how do you assess the safety conditions at the small-scale clothing industry?

Section E: Prospects and Challenges Faced by the Local Clothing Industry

Section E1: Prospects in the Local Clothing Industry

27. Are there any prospects for the garment industry?
28. How do you envisage the future of the Ghana's garment industry?
29. How lucrative is the garment production?
30. Does the export market favour the local industry?

Section E1: Challenges Faced by the Clothing Industry in Ghana

31. What challenges confront the clothing industry against competing on the international market?
32. What king of support do the clothing industries get from the government?
33. How favourable are government policies to the local clothing industry?
34. How often do you participate in scheduled training to upgrade skills?
35. What do you think must be done to invigorate the local clothing industry?
36. Can the issue of equipment be a challenge in sustainable clothing development?

APPENDIX IX: Observations Check List for Small and Large Garment Industries

Format for Field Notes on Observation at The Small and Large Garment Industry

Table 12: Format for Field Notes on Observation

Section	Production Unit
Role of Observer	Non-participant observer of industry activities
Date and Time	18/12/2017 12:45 pm
Length of Observation	2 hours 30 minutes
Description of Activities	Reflective Notes on Activities/Skills
Fabric Preparation	Pressing of fabric
	Checking for possible defects
Fabric laying	Grain of fabrics
	Identifying the right method for laying out
Cutting	Equipment for cutting
	Sorting after cutting
Assembling	Stiches and seams
	Edge finishes
	Disposal of fullness (dart, pleats, etc.)
	Linings
	Assembly equipment
Finishing	Checking of defects
	Final pressing
	Packaging
Facilities	Equipment available and layout
	Workshop safety

Source: (Adapted from Creswell, 2012)