

ELEMENTS AND PRINCIPLES OF DESIGN IN GARMENT PRODUCTION AMONG SMALL SCALE PRODUCERS OF BEREKUM MUNICIPAL IN GHANA

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ABSTRACT: *The study was to investigate whether small scale garment producers in Berekum apply the elements and principles of design in garment manufacturing (since some produced garments had colours not well blended, fabric with lines not meeting at seam joints, motifs not well arranged, and some garment styles not looking good on clients' figures because their figure types were not considered before designing) and to unearth strategies to improve their clothing designing skills to meet current market standards. The study used a descriptive survey research design. The snow ball and convenience sampling techniques in selecting one hundred small scale garment producers for the study. The main instrument was a questionnaire and observation checklist, analysed to generate frequencies, percentages and mean, and presented in tables. It was revealed that the garment producers had a fair knowledge in the application of the elements and principles of design and about 85% appreciated their importance. However, they failed to practice because of Clients' demand. Findings from workshop organized revealed the need for using smart phones and has aided in the provision of an easy access to information which has sort to promote the use of data and real-world applications to enhance their productivity. The respondents therefore suggested that frequent in- service training and workshops should be organized for them by their Tailors and Dressmakers Association and Ghana National Association of Tailors and Dressmakers (GNATD) in order to meet current market demands and competition since majority of them went through apprenticeship training where there was no standard syllabus for them to learn from.*

KEY WORDS: garment, design, elements and principles of design, competency, knowledge, skills

INTRODUCTION

The fast changing economic conditions such as global competition, declining profit margin, customer demand for high quality product, product variety and reduced lead-time etc. have a major impact on manufacturing industries. The demand for higher value at lower price is increasing and to survive, clothing manufacturers need to improve their operations through producing right first time quality and waste reduction items. The garment manufacturing industry thrives in Ghana and constitutes a major revenue generating sector for many Ghanaians. As such, it is expected that clothing producers possess saleable skills that will help them in their field of work. The elements of design are important to everyone who works in textiles and out (GattoPorter & Selleck 2000).

In Ghana presently, the technological and scientific development in the field of fashion is vibrant. There is an upsurge in fashionable garments for both young and old. There is a growing awareness of behavioural attitude of consumers towards the role of fashionable clothes as a medium of expression. However, garments producers in Berekum, located in the Bono Region of Ghana seem oblivious about current trends. Some produced garments had colours not well blended, fabric with lines not meeting at seam joints, motifs not well arranged, and some garment styles not looking good on clients' figures because their figure types were not considered before designing. One wonders if they have ever had proper education on the application of the elements and principles of design. The construction of garments is based mainly on the elements and principle of design to give a better satisfaction in designing products. McCorkle (2003) indicated that by understanding and using the elements and principles of design, the likelihood that one will be successful in creating designs that are pleasing, is increased as this helps to understand how and why things work together. On the other hand, to possess skill is to demonstrate the habit of acting, thinking and behaving in a specific activity in such a way that the process becomes natural to the individual through repetition of practice (Njoku, 2002). As such, learners in the garment manufacturing industry will have to master the use of the elements and the principles of design in clothing before they could be ready to tackle practical problems in order to create their own designs with inspiration from objects in the environment.

Concepts of Design

According to Chambers (2006) design is to plan and execute artistically. It is the process of developing plans and schemes of action whether kept in mind or set forth as a drawing model. A design is seen in two folds – a process and a product. As a process, it is planning, organizing to meet a goal, being carried out to meet a particular purpose and as a product, it is an end result, an intended arrangement that is the outcome of that process or plan (Davis,1996). The arrangements are done by using the elements and principles of design to create a visual image (Sumathi, 2007). According to Anitha (2005), Understanding how and why a person responds to the various elements and principles of design and knowing how to control and use them effectively for a good design is an important aspect in designing". Construction of garments should be designed considering three key characteristics: structure, function and decoration. It should be structurally appealing and appropriate for the customers need. Functionally, it should give the added value or function that the garment is expected to perform and decoratively, it provides a psychological feeling of well-being through beauty. These three characteristics are present in a garment when the elements and principles of design have been defined as the fundamental components from which visual design is made. In dressmaking, the tailor or dressmaker needs to consider the designing of clothes base on the intended purpose of the costumer. It is important that designing is the most essential aspect of dressmaking since a beautiful dress is the bye product of a good design.

In the Bong Ahafo Region of Ghana specifically Berekum municipality, most of the dresses sewn by dressmakers for the inhabitants do not have the motifs in the fabric arranged rightly. For instance, a cut and joined section often has one part of the motifs standing right while the other part is distorted and many of the garments worn by women especially, do not fit their body forms properly, making the whole garment unattractive. Garments with lines do not have their lines meeting at seam joints and again, some sewn garments do not fit the figure types of their wearers.

It is evident that almost all the dressmakers in the Berekum municipality have taken the trend of not taking into consideration how effectively they have to make good use of the elements and principles of design in their garment construction in order to make them functional, structural and decorative, and also to increase patronage of their services, their income and ultimately, the national economy.

Elements and Principles of Design

Elements and Principles of Design forms an integral part of every design work and almost every beginning design course discusses them with basic terminology for understanding the concepts of design (Watson, 2003). Their importance in the creative world of art is unquestionable; however, their categorizations into what items to consider as elements and those to be grouped as principles have not been collectively agreed upon. The elements are considered as “plastics” in art language because they can be manipulated or arranged by the designer to create desired illusions (Sumathi, 2007). The elements are therefore the raw materials that must be combined successfully. They include lines, shapes, colour, texture and dots.

The design lines of a garment make the viewers eye follow a certain direction thereby creating illusions and could be used to improve body shapes and proportions (Gatto, Porter and Selleck., 2000). Horizontal line tends to cut height and the vice versa. As such specific garments can be chosen to improve the figure or cover up the figure faults. The soft handle of a fabric is suitable for a garment with draped or flowing features and a stiff fabric is suitable for a tailored style. Colour can also be used to emphasize parts of the body. For example, a pale yellow shirt worn with dark brown pants, will make the lower half of the body less noticeable than the top half. To emphasize a narrow waist, a belt of a different colour than the outfit could be worn. The principles of design are useful in creating different forms of expression in an artistic manner, which are pleasing and attractive to the eye. The principles of design consist of balance, proportion, emphasis, harmony, unity and rhythm. According to Wolfe (2010) balance implies that there is an equilibrium or uniformity among the parts of a design and could be achieved when there is an equal visual weight throughout the design. Proportion is defined by Wolfe (2010) as the spatial, or size relationship of all parts of a design to each other and the whole garment or ensemble. Details such as yokes, collars, pockets, accessories, buttons, and trimmings should be in proportion to the overall size of a garment.

Methodology

The researchers utilized the descriptive survey approach for the study. According to Doyle (2004), descriptive survey offers a researcher an accurate description of what people in some target group do or think and further allows the researcher to present information with frequencies, percentages and means. It involves the collection of information about a large population from a relatively small sample of that same population. In this study, the researcher wanted to describe how a population of garment producers apply the principles of design in garment design to draw conclusion on their proficiency levels. Hence, a descriptive survey was the best option. The target population from which respondents for this research work were drawn was five hundred registered small scale garment producers, who had registered with the Berekum Small Scale Garment Producers Association, had either formal or informal training and were into garment production in

Berekum. This group of garment producers formed a good research population for the study because they could easily be traced for the necessary data.

A multi-level sampling procedure of purposive and convenience sampling techniques was adopted for the selection of the sample from a total population of five hundred registered small scale garment producers in Berekum. As the name suggests, purposive sampling is where people or a unit of the population is chosen for study based on a purpose (Leedy & Ormrod, 2005). The purposive sampling technique was employed to select only hundred garment producers who were registered with the garment producers Association and were actively involved as respondents. In selecting the active members of the Association, the convenience sampling technique was employed to select members who lived or worked closer to the researcher's residence or work place in order to facilitate data collection. In all, all the twenty males and only eighty female respondents formed the sample size of hundred for the study because the population of the small scale garment producers in Berekum had more females than males.

Method of Data Analysis

Descriptive statistics were used to analyze the data collected. In accordance with the assertion made by Sarantakos (1993), data analysis entails the ordering and breaking down of data into constituent parts and then performing statistical calculation with the data to provide answers to the research questions which initiated the research. The Statistical Package for Social Sciences (SPSS) version 16.0 was used to process the data into frequencies, percentages, means and standard deviations and the results were presented in tables. The results were analysed and discussed with relevant literature to answer the research questions posed for the study.

Results and Discussions

The profile demographics of the respondents included gender, age, number of years in garment manufacturing, level of educational and professional qualification. 80% of respondents studied were females while 20% of were males. This is an indication of female dominance over their male counterparts and also shows their high sense of love for the garment industry. The highest percentage of 35.0%, were between 30 – 34 years, while 23.0% were between 35 – 39years. Fifteen percent were between 20 – 24years, while 10.0% were also between 25 – 29years. The rest 5.0%, 7.0% and 5.0% each, were between 45 – 49, 40 – 44, 50 years or more respectively. This indicates adequate numbers of more youthful garment producers who would replace the 17% soon-to-retire ones. The data also shows a healthy blend of experienced and long serving personnel and a majority of relatively younger garment producers who would be willing to implement new knowledge to meet current trends and market standards.

In relation to the respondents' experience in fashion as at the time of the study, it was revealed that, 58.0% of the respondents, had been sewing between 11 and 20 years, while 30.0% had been sewing for between one and 10 years. 11.0% had also been sewing between 21 and 30years, while only 1.0 % had been sewing between 31 and 40 years. Considering the number of years respondents had been sewing, one would expect that it would be easier for them to effectively apply the elements and principles of design in garment manufacturing because they have been practicing for a long time. This gives good ground to base the assumption that more people have

fair knowledge on the application of elements and principles of design. This further supports Njoku (2002) accession that to possess skills is to demonstrate the habit of acting and behaving in a specific activity in such a way that the process become natural to the individual through repetition of practice.

From the study, 84.0% respondents had Basic Education Certificate Examination (BECE) certificate, while 24.0% either had Senior Secondary School Certificate Examination (SSSCE)/ West Africa Senior Secondary Certificate Examination (WASSCE) certificate. Five percent (5%) had Middle School Leaving Certificate (MSLC). It could be deduced that majority of the respondents (95%) had Junior High School (JHS) education and were therefore supposed to have been taught since it is a requirement in the Ministry of Education (2010) syllabus that the elements and principles of design should be taught to all pupils in JHS. Also, it is stated in the Clothing and Textiles syllabus for Senior High Schools (SHS) that students should be taught to understand the application of the elements and principles of design in clothing construction (Ministry of Education, 2011). Data relating to the respondent's professional qualification in garment production is presented in Table 1.

Table 1: Respondents' Professional Qualifications

Profession Qualification	Percentage
Apprenticeship Training	89.0
N.V.T.I	10.0
Advanced Fashion/ HND	1.0
Total	100.0

Source: Field Survey by Researchers, May 2013.

From table 1, majority of the respondents (89%) went through apprenticeship training, while 10% were trained in Vocational/ Technical school to obtain the N.V.T.I certificate. One percent (1%) were trained in Polytechnic and had the Higher National Diploma (HND) certificate. This reveals that all respondents interacted with, have had some sort of knowledge on the application of both elements and principles of design. As such, it is expected that the practical application of these theories will help the designer or dressmaker to design and select clothes that will accentuate physical assets and minimize physical defects of the customer (Colussy & Greenbery, 2007) stated.

Table 2: Expertise of the Respondents in the Area of Clothing Production

Area of Specialization	Percentage
<i>Slit and Kaba</i> (Long skirt and blouse)	33.0
Shirts & Trousers / dresses	25.0
Dresses & Boubou	20.0
Dresses & <i>slit and Kaba</i>	20.0
Bridal wear & Dresses	2.0
Total	100.0

Source: Field Survey by Researchers, May 2013.

It is evident that 33% of the respondents specialized in sewing *slit and kaba*, while 25.0% specialized in the sewing of shirts and trousers and dresses, and 20.0% each specialized in sewing

dresses and boubou, dresses and *slit and kaba* respectively. Only 2.0% of the respondents were specialist in bridal wear and dresses. About half of the respondents (53%) therefore specialized in making *slit* and *kaba*. This may be because majority of the respondents were females and *slit* and *kaba* are traditional wears for ladies in Ghana.

Table 3: The Importance of Studying and Applying the Principles of Design to Garment Production

Statements	Responses					
	SA	A	NS	D	SD	Mean
It is important to study the principles of design.	90	10	0	0	0	4.90
Knowledge and skills of the principles of design improve garment designing.	90	10	0	0	0	4.90
It is necessary for all garment producers to apply the principles of design in garment manufacturing.	85	15	0	0	0	4.85

Source: Field Survey by Researchers, May 2013. KEY: SA- Strongly Agree, A- Agree, NS- Not Sure, D-Disagree, SD- Strongly Disagree

The mean for the respondents on the statement “it is important to study the principles of design” is 4.90. That of “knowledge and skills of the principles of design improve garment designing” is 4.90 and “it is necessary for all garment producers to apply the principles of design in garment manufacturing” is 4.85. The mean scores in table 3 show that respondents strongly agreed to the importance of studying and applying the principles of design. This strongly supports Colussy and Greenberg (2007) accession that it is essential to know and understand the elements and principles of design, colour theories and harmonies in order to achieve the goals of clothing, such as achieving a clothing that is pleasing to the eye, comfortable to wear, while emphasizing good points and minimizing the bad points on the wearer’s figure.

Table 4: Knowledge and skill levels of respondents in the application of the elements and principles of design

Statements	Responses					
	SA	A	NS	D	SA	Mean
Application of the principles of design in garment construction helps to create an illusion of height or width.	70	25	5	0	0	4.65
Application of the principles of design create designs that will fit the wearer.	85	10	5	0	0	4.80
Lines can be applied in the seams of garments to create an illusion of height or width.	80	15	5	0	0	4.75
The use of shape as the outline of a garment can make a person look slimmer, taller or slender.	85	10	5	0	0	4.80
Knowledge about the principles of design facilitates effective cutting and sewing and arrangement of elements for the achievement of the principles of design in garments production.	85	10	5	0	0	4.80
The application of the principles of design helps to hide figure faults.	85	10	5	0	0	4.80

KEY: SA- Strongly Agree, A- Agree, NS- Not Sure, D- Disagree, SD- Strongly Disagree

Source: Field Survey by Researchers, May 2013.

The mean for each statement as indicated in Table 4 is 4.80 except that for the “application of the principles of design in garment construction help to create an illusion of height or width which is 4.65” and “lines can be applied in the seams of garments to create an illusion of height or with (4.75). This clearly shows that the respondents have knowledge and skills in the application of the principles of design. As such, if they truly put them into practice, then Gbetodeme (2001) argument that the application of these theories will help the designer or dressmaker to design and select clothes that will accentuate physical assets and minimize physical defects of the customer will be a reality thereby helping to improve productivity. However, it was also observed that some produced garments had colours not well blended, fabric with lines not meeting at seam joints and motifs not well arranged. Some garment styles did not look good on some clients’ figures because their figure types were not considered in designing for them.

Table 5: Sources of Styles for Clients’ Garments

Sources of Styles	Percentage
Fashion calendar / Clients’ own style	47.0
My own style / Catalogue / Fashion calendar	25.0
Magazine/ My own style /Clients’ own style/ Fashion calendar	13.0
Fashion show/ Fashion calendar/Clients’ own style	10.0
Internet/ Clients’ own style/ Fashion calendar	5.0
Total	100.0

Source: Field Survey by Researchers, May 2013.

It was revealed that with the sources of styles for clients’ garments 47% were from fashion calendar and clients own style, 25% used clients’ own style, catalogue and fashion calendar, 13.0% used their own styles, magazine, clients own style and fashion calendar. 10.0% were from fashion show, fashion calendar and the clients’ own style, while 5.0% were from the internet, clients’ own style and fashion calendar. This is a clear indication that few of the respondents could create their own styles. The majority were copying styles from other sources. This indicates that even though the respondents had acquired the skills, there were not putting them into practice. Copying other people’s designs had become a norm for respondents of this study. However, Njoku (2002) argues that to possess skill is to demonstrate the habit of acting, thinking and behaving in a specific activity in such a way that the process becomes natural to the individual through repetition of practice.

Findings from workshop organized

Data collected for this intervention stage was divided into three main sections. These were the pre-workshop stage, and the post-workshop stage. In the Pre-workshop stage, prior notice and arrangements were done with the leaders of the Tailors and Dressmakers Association in Berekum to notify members and to allow the researchers a period of four weeks to distribute and collect questionnaire from members. Initially, rapport was established with other member through friends who were already members. From then on, any further visit was gladly welcomed. By administering the questionnaire personally, it was possible to explain items that were not clearly

stated to the respondents. In addition, photographs of some sewn garments were taken. Sample images of their works are as shown below



Figure 1 Sample image (Source: Photographed by Researchers)



Figure 2 Sample of image (Source: Photographed by Researchers)



Figure 1 Sample image (Source: Photographed by Researchers)



Figure 2 Sample of image (Source: Photographed by Researchers)

The images shown above are samples of colours not well blended, fabric with lines not meeting at seam joints, motifs not well arranged, and some garment styles not looking good on clients' figures because their figure types were not considered before designing. In the workshop stage, members were taking through both lectures and practical applications of the elements and principles of design and were also introduced to how to search for new designs and current fashions with their phones. Below are sampled images:



Figure 5 Workshop image (Source: Photographed by Researchers)



Figure 6 Workshop image (Source: Photographed by Researchers)



Figure 7 Workshop image (Source: Photographed by Researchers)



Figure 8 Workshop image (Source: Photographed by Researchers)

Before the close of the workshop, the telephone numbers of all participants were collected and a WhatsApp group was created for the purposes of posting pictures, cites and videos which could also support them in their application of skills. Moreover, participants were also encourage to use it as a medium to ask all questions and to also paste images of some of their products after the workshop. This constituted the post-workshop stage. Below are some of the sampled images: Fig. 9 shows the group chat page created

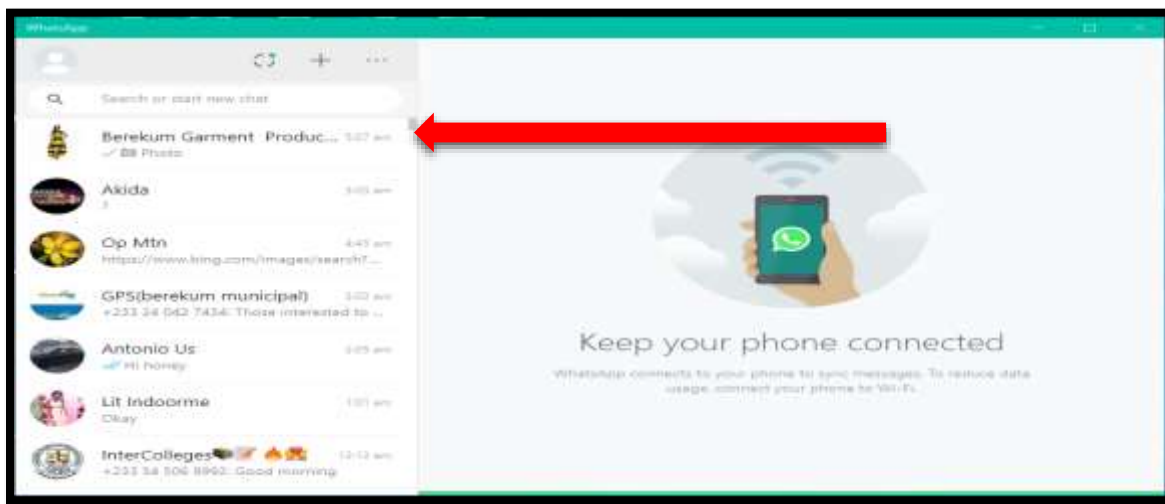


Fig. 9 Sample of Group Chat (Source: Photographed by Researchers)

Fig. 10 and Fig. 11 show website addresses as posted on the page for the participants to visit for further information.

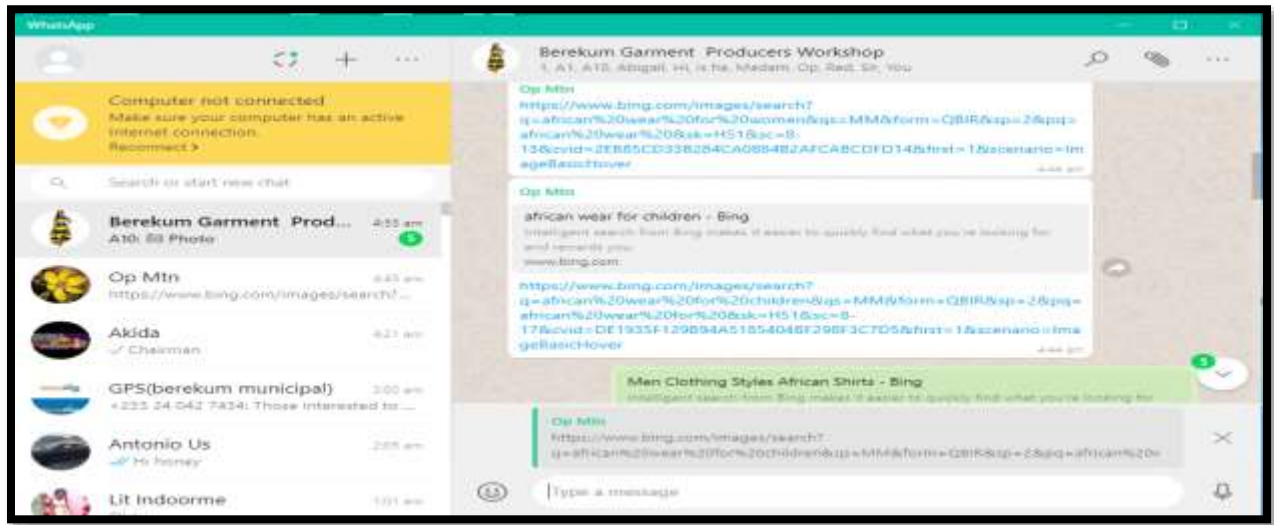


Fig. 10 Website Addresses Posted on Group Chat (Source: Photographed by Researchers)

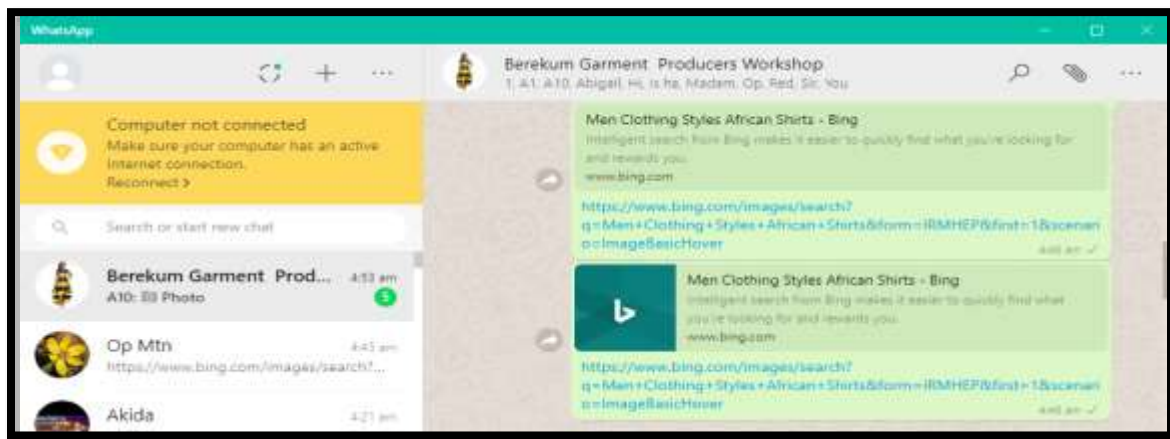


Fig. 11 Website Addresses Posted on Group Chat (Source: Photographed by Researchers)

Fig. 12, fig. 13 and Fig. 14 also shows some images on of the works done by the participants as they personally posted on the page for other members to see their level of improvement.

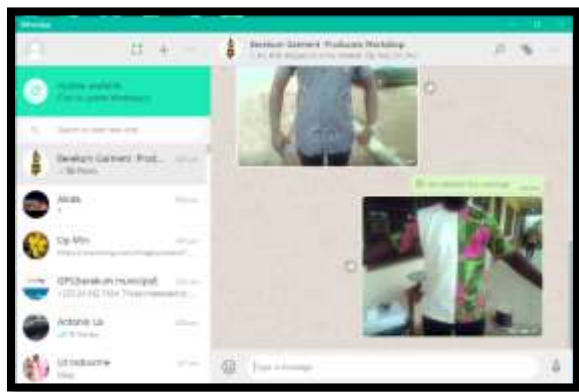


Fig. 12

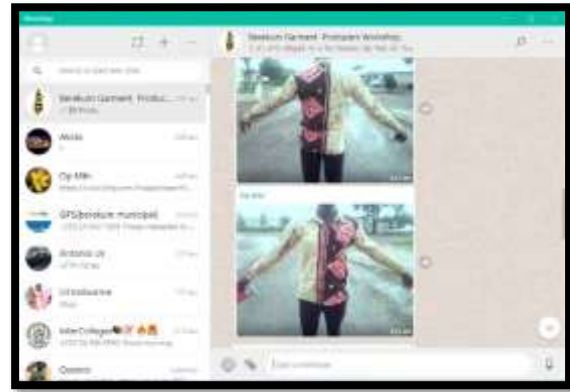


Fig.13



Fig. 14

Fig. 12, Fig. 13 and 14 Images of post-workshop Garment Produced Group Chat (Source: Photographed by Researchers)

Table 6: Respondents' Suggestions for Improvement in Garment Designing Skills in Berekum

Suggestions	Percentage
In - service training workshops should be organized by the Tailors and Dressmakers Association.	55.0
The government should organize free in – service training programmes for Tailors and Dressmakers.	40.0
Students studying garment designing in Vocational schools and Polytechnics should be allowed to go for industrial attachment.	5.0
Total	100.0

Source: Field Survey by Researchers, May 2013.

From Table 6, majority of the respondents (55.0%) suggested that in service training should be organized by the Tailors and Dressmakers Association, while 40.0% suggested that the government should organize free in – service training programmes for them to up- date their skill in designing. while 5.0% suggested that students studying garment designing in Vocational schools and Polytechnics should be allowed to go for industrial attachment.

The results revealed that (95%) of the respondents suggested that in - service training should be organized to help improve their designing skills. International Labour Organisation (ILO) in 2010 stated that a five – day training workshop was held for members of Ghana National Association of Tailors and Dressmakers (GNATD) in the Central Region at Gomoa Aboaso to upgrade their skills. Also Ghana Skills Development Initiative GSDI in 2014 organized a two – day training workshop for Master Craft Persons and teachers in Dabokpa Technical and Tamale Vocational Training Institute to enhance their knowledge and skills. It is therefore not out of place for the respondents in this study to ask their association and the governments to organise in- service training workshops for small scale garment producers in Berekum to upgrade their skills.

CONCLUSIONS

Based upon the findings, it is concluded that not all the small scale garment producers in Berekum are illiterates, the majority had low levels of education. At that level very little is done on the elements and principles of design. Most of the respondents went through apprenticeship training where there was no standard syllabus for them. Respondents made some suggestions like subsequently, in- service training workshops should be organized for them by the Tailors and Dressmakers Association and Ghana National Association of Tailors and Dressmakers (GNATD) so that they can meet current market demands and competition.

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