International Journal of Vocational Education and Training Research
2018; 4(2): 58-64
http://www.sciencepublishinggroup.com/j/ijvetr
doi: 10.11648/j.ijvetr.20180402.12
ISSN: 2469-8180 (Print); ISSN: 2469-8199 (Online)

Dressmakers Knowledge on Dart Principles in Pattern Making and Garment Designing

Deborah Amoako Asare, Patience Danquah Monnie, Modesta Efua Gavor

Department of Vocational and Technical Education, University of Cape Coast, Cape Coast, Ghana

Email address:
Kwesiappiah24@yahoo.com (D. A. Asare), prayfat1@yahoo.com (P. D. Monnie), nuworzamodesta@yahoo.com (M. E. Gavor)

To cite this article:
Deborah Amoako Asare, Patience Danquah Monnie, Modesta Efua Gavor. Dressmakers Knowledge on Dart Principles in Pattern Making and Garment Designing. *International Journal of Vocational Education and Training Research*. Vol. 4, No. 2, 2018, pp. 58-64.
doi: 10.11648/j.ijvetr.20180402.12

Received: September 30, 2018; **Accepted**: October 24, 2018; **Published**: November 14, 2018

Abstract: The study assessed the knowledge of dressmakers on darts in pattern making and garment designing. Specifically, the purpose of this research was to evaluate the knowledge of dressmakers' on darts and the application of dart principles (dart manipulation, adding fullness and contouring) in garment designing. Descriptive research design was employed for the study using 50 dress makers selected from three districts in the central region of Ghana. A semi-structured interview guide and an observation check list were the instruments used for data collection. The data collected were analysed with the help of descriptive statistics using the Predictive Analytical Software for windows version 22. The results indicated that the dressmakers studied knew what darts are and their purpose in garment design and construction, but lacked knowledge as to how to apply the principles of darts to achieve desired effects. It is recommended that the importance of darts with special reference to marking it out accurately is emphasized to dressmakers during workshops, seminars and general meetings that are organized by their association. Stakeholders in the garment industry especially those in academia could also organise workshops for garment makers to educate them on the appropriate use of darts in garment design and construction.

Keywords: Dressmakers, Pattern Making, Principles of Dart Use, Garment Designing

1. Introduction

In Ghana, garment construction is done in most parts of the country by individuals such as dressmakers. Most women in Ghanaian homes today do not assume the responsibility of sewing for the family as they did during the colonial era. Instead, they take fabric to their local dressmakers and have clothes for all occasions sewn for themselves and their family members. This way of clothing the family has been the foundation of the fashion industry in Ghana. Dressmakers who want to stay in business have the responsibility of juxtaposing tradition and modern day "Ready to wear" fashion in a unique way in order to satisfy and attract a wide range of customers. Garment producers are to produce garments that fit well and also have a professional finished look, but can only do that if they are knowledgeable about elements that influence shape, silhouette, and style of a garment [1].

A number of researchers, who have conducted researches in the field of small-scale garment industries have focused on challenges, cutting/sewing skills, fit problems and training forms [2-4]. Inadequate research has been done on garment producers' knowledge base on details, associated with constructional processes including the elements that influence garment shape, silhouette and style. The purpose of this research therefore was to assess the knowledge base of dressmakers' on darts and the application of dart principles (dart manipulation, adding fullness and contouring) in garment designing.

Three research questions guided the study, which were:

1. What knowledge and skills do dressmakers have about making patterns?
2. What knowledge and skills do dressmakers have about darts use in creating different effects in garments?
3. How do dressmakers use dart principles in cutting out?

It was expected that the study would be of immense importance to a wide range of people like fashion tutors and the members of the Ghanaian tailors and dressmakers association. To the fashion tutor, the outcome of this study would help them identify existing gaps in the practical

application of the dart principles in the field of dressmaking so that, appropriate methods of teaching these principles would be employed to get expected results. With regard to the members of the dressmakers and tailors association, the study would enlighten them more about darts and how their principles are applied in garment designing to achieve desired effect.

2. Literature Review

The terms; shape, silhouette, and style capture the essence of apparel design and decisions about these three terms guide the design development process [5]. To achieve these three elements in garment design, dressmakers resort to the use of darts, dart equivalents or dart substitutes to achieve desired fit and style. Darts are used to shape fabric to fit the body curves by controlling fullness or excess fabric [6]. The wide base of a dart takes in fabric fullness so that a garment fits the narrower part of the body. Darts that may be featured in a garment include waist darts, bust darts and elbow darts. However, the bust darts and the waist darts are mostly used on women's garments to allow for fullness at the bust and hips, while shaping the fabric in at the waist [7]. The overall shape of a garment is the first thing anybody sees before any other details are conveyed [8]. Hence, the importance of dart, which is a feature in garment that creates shape, cannot be underestimated.

Apart from darts giving shape to a fabric to fit the curves of the body, they can also be used decoratively for varying effects. For dressmakers to produce garments that fit well with the application of dart, they have to be knowledgeable about the principles that govern dart use. Individuals involved in the production of garments should have a thorough understanding of the function of darts and how darts are used to create designs [9]. Designing with darts in garment construction are founded on three basic principles namely; Dart manipulation, Added fullness and Contouring. In this study, these principles are collectively referred to as dart principles. These principles can be used independently or combined to give varying effects. The application of these principles are the most creative and flexible part of pattern making [8]. The possibilities of creating designs with these principles are endless and the designer's imagination is the only limitation. In applying these principles, darts can be relocated, turned into pleats, gathers or style lines [8]. These techniques do not only create fit, shape and volume, they also change the style and design of the garment [8]. In simple terms, in-depth knowledge and appropriate application of these principles can help dressmakers keep up with fashion by producing garments that appeal to customers' fashion sense and also fit well.

3. Methodology

The descriptive research design was used for the study and the data were collected at a single point in time. Due to the nature of the research study, interviews and observations were used to carry out the study to enable the researchers to gather data that addressed the different aspects of the research problem.

3.1. Population

The population for the study constituted tailors and dressmakers in the central region of Ghana.

3.2. Sample and Sampling Procedure

For the purpose of the research to be achieved, 50 dressmakers were randomly selected through the multistage version of cluster sampling design. With respect to this study, three stages of cluster sampling were employed before final participants were selected. First, using the districts as clusters, 3 clusters were randomly selected through the lottery method from a compilation of the entire district in the Central region. The districts selected were Agona West Municipal District, Komenda Edina Eguafo Municipal and Cape Coast Metropolitan District. In each cluster (district), the tailors and dress makers association has been divided into zones. Systematically 7 zones were selected from the three clusters. The zones picked were Swedru, Nyakorom, Elmina, Komenda, Kawoano-Pado, Abura and kakumdo. Finally, a sampling frame was constructed for each zone after which the lottery method was employed to select the 50 participants.

3.3. Instrument

The instruments used in collecting relevant data were, semi-structured interview guide and observation checklist. Questions related to dressmakers' knowledge base on patternmaking and darts were asked. The semi-structured interview guide contained items related to the knowledge base of respondents on darts and how they applied the dart principles in garment designing. The observation checklist that was used to collect data included items related to tools and materials for measuring, how dressmakers take measurements, location of dart points, curves, lines and notches and manipulation and treatment of darts by dressmakers.

3.4. Data Collection Procedure

Contacts were made with dressmakers to seek their consent to participate and dates for personal meeting and data collection were agreed on. Each dressmaker was asked to choose a female client as his or her model for test designs provided. Brown papers and fabrics were provided for dressmakers to demonstrate how they would apply the dart principles to make test designs for 1) A-shape princess dress, 2) gathered yoke skirt and 3) a strapless bodice. The A-shape princess design depicted the dart principle manipulation, gathered yoke skirt illustrated dart principle added fullness and a strapless bodice showed the contouring principle of darts. The demonstration of measuring procedure for each test design, plotting of design with measurement, cutting process and sewing were observed and recorded.

3.5. Data Analysis

The collected data were edited, coded and tabulated for analysis. With the help of the shorthand book (abbreviations and its corresponding full word) that was created for the study and recorded interactions with participants, all abbreviations and incomplete responses were expanded and completed. A codebook was then created for all responses to facilitate data entry for statistical analysis. With the use of frequencies and percentages in the Predictive Analytical Software for windows version 22, dressmakers' responses were analysed. Pictorial presentations of trends and proportions derived from the statistics were presented.

4. Results and Discussion

4.1. Research Question 1: Knowledge Base of Dressmakers on Patternmaking

Dressmakers who participated in this study comprised of 39 women and 11 men who were between the ages of 25 and 60. These participants had been working as established dressmakers for varying number of years ranging from 4 to over 31 years. Dressmakers' responses to how patterns for garments can be developed centered on freehand cutting, drafting and draping or reverse engineer. Figure 1 captures the methods employed by dressmakers in making patterns.

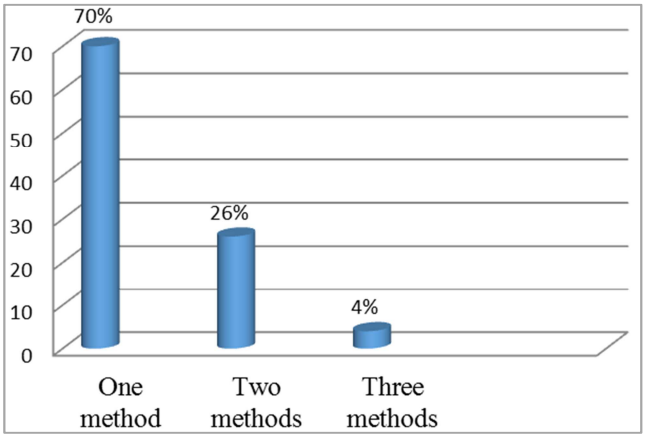

Figure 1. *Methods used for making patterns by respondents.*

Figure 1 illustrates that majority of the dressmakers (70%) stated only freehand cutting (one method) as a means of developing patterns whereas 4% which constituted minority of the respondents, stated freehand cutting, drafting and draping or reverse engineer (three methods) as a means of achieving a shape around the body. The dressmakers in the two categories (two methods (26%) and three methods (4%), stated drafting as a means of generating patterns for garment designing. However, from this proportion, only 24% said they can draft the basic block set. It can be noted that majority of the dressmakers who participated in this study were women. The participants had been working as established dressmakers from 4 to over 31 years. Patternmaking plays a major role in garment designing and production since it is a means through which change in the outline of clothes or the shape around the block can be changed while the body/block remains constant. To draw or plot the right style line in the correct position on a garment, it takes experience and practice. One would therefore expect that with the participants working for these number of years their knowledge in dart use will be high and would be employing varying methods in obtaining patterns for garment construction. Interestingly, majority of the dressmakers stated the use of freehand cutting as a means of developing patterns for garment construction.

A review on this category of dressmakers' educational background indicated that most of them did not receive any formal education whereas those who did, ended at the basic level. A look at the educational background for the respondents' that made use of drafting and draping showed that, they were mostly SHS/technical, polytechnic and university graduates indicating that, dressmaking skills were acquired formally. Surprisingly, most of the dressmakers who stated the use of freehand cutting for garment construction did not know what the basic block pattern was and this as well can be attributed to the form of training they received for skill acquisition; thus apprenticeship training which literally does not constitute theoretical framework.

It is clear that all the participants made use of freehand cutting in producing garments. This supports the statement that, Ghanaian dressmaker's chiefly use freehand cutting in producing garments [10]. Dressmakers explained that, the freehand cutting method enabled them to produce garments faster and in effect, enhance their financial status. They also indicated that the freehand cutting method was cost effective. The category of participants who in addition to freehand cutting used paper patterns and or draping explained that they made use of the other technique (s) to produce complicated designs for clients who are willing to pay extra charges, teach apprentices the concept of freehand cutting and at times, at the request of their clients.

Table 1 indicates the measurement format these set of dressmakers employed for drafting the basic block set.

Table 1. *Measurement format used by respondents for drafting the basic block set.*

Measurement for drafting	No.	%
Convenient measurement	03	25
Standard measurement	01	17
Client body measurement	08	58
Total	12	100

Table 1 shows that majority (58%) of the respondents made use of client's body measurement to draft the basic block set. According to them, this is done for clients who are willing to pay extra cost as it is time consuming. Twenty five percent (25%) said they made use of convenient measurements on the market as it could easily be altered to fit a wide range of clients with the minority group which constituted 17% indicating the use of standard measurement, when drafting the basic block set. However, the reason for the use of standard measurement was the same for the use of

convenient measurement.

With respect to the concept of figure analyses in patternmaking, all the dressmakers said that they analysed their clients figure before making patterns for them, however, response to what figure analyses entailed differed. Sixty- six percent (66%) said figure analyses involved looking at the client to see if she has any deformity and the remaining 34% said that it involved using client body measurement to determine her shape. Majority of the respondents had the concept of figure analysis before pattern making wrong pointing directly to the form of education majority of the respondents received which basically through the informal training setting. These set of dressmakers will consequently construct garment without necessarily having an understanding of the figure he or she is working with which can consequently affect the use of dart principles in the garment design. The finding confirms the declaration that, some garment producers create recipe for disaster in garment designing by taking certain elements such as figure analyses for granted [8, 11].

4.2. Research Question 2: Knowledge Base of Dressmakers on Darts

In terms of definition, purpose and reasons associated with the construction of darts, Figure 2 illustrates dressmakers' responses.

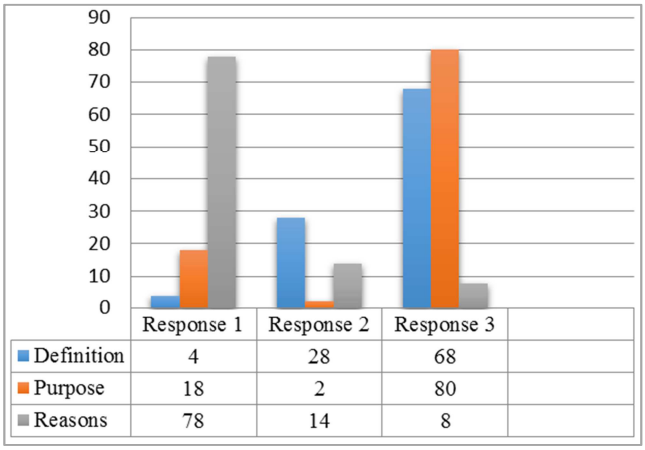

Figure 2. *Knowledge of respondents on dart.*

With regard to definition of dart, Figure 2 shows that four percent (4%) of the respondents were of the view that darts form part of a style (response 1), 28% also stated that darts were triangular or diamond shape in garments that are stitched to make garments fit well (response 2) and majority of the participants (68%) were of the view that darts give shape to garments (response 3).

In terms of the purpose of darts in garments, Figure 2 shows that 18% said darts make a garment to fit well (response 1), 2% were of the view that darts give body to garments (response 2), and 80% said darts give shape to a garment (response 3). Apart from response 2 (darts give body to garments) which constituted the least response, response 1(darts make a garment to fit well) and response 3 (dart gives shape to a garment) were correct response to the question that was asked. This is because both responses are imbedded in the purpose of dart as stated by authors such as [6-8]. According to these authors, the purpose of a dart is to allow a two-dimensional piece of fabric fit smoothly over a three-dimensional body by creating room to accommodate fullness. In other words, the purpose of dart is to make a garment fit well by creating room to accommodate fullness which automatically gives shape to the garment. Darts are necessary features of a well-fitting garment since they allow a two-dimensional piece of fabric to fit smoothly over three-dimensional bodies. In terms of definition, dressmakers exhibited great knowledge base on it despite the varying responses.

The marking of darts require knowledge about dart size, length and shape which are the three elements that define a dart as "well made" or "poorly made". With regards to dart size, length and shape, all participants agreed to the fact that, dart size, length and shape had an influence on the fit of a garment in that, it can make a garment either fit well or fit poorly. Hence, should not be constructed the same way for all clients. However, responses as to why dart size, length and shape had effect on the fit of a garment hence should not be constructed the same way for all clients varied. From Figure 2, Seventy-eight percent (78%) reasoned that because body shape differ (response 1), dart size, length and shape must also be marked based on the body shape one is working with.

Fourteen percent (14%) also reasoned that because styles differ (response 2), each style will require a particular way of marking out its darts. However, when this category of dressmakers were asked if they will mark out darts of a particular style the same way at the request of two individuals with different body shape, their response was 'yes'. This indicated that dressmakers in this category did not really know how dart size, length and shape influenced the fit of a garment. The remaining 8% were of the view that, dart size, length and shape should not be constructed the same way for all clients since it can distort the style and shape of the garment (response 3). Response 1 (body shape differ) supports the statement that it is the body shape that determines dart size, length and shape [9]. However, response 2 (style differ) and response 3 (distort style and shape of garment) although true to some extent, do not necessarily account for why darts size, length and shape should not be constructed the same way for all clients.

To bring out the effect that a dart is supposed to achieve, pressing plays an important role as well. The direction to which a dart is pressed has a significant impact on the fit of a garment as indicated by [6]. In view of this, dressmakers were asked to determine the direction to which a vertical dart and a horizontal dart will be pressed. Table 2 provides the responses that were given.

Table 2. *Direction for pressing a dart in a garment.*

Direction for pressing darts	No.	%
Vertical darts towards side seam and Horizontal darts pressed down	26	52
Vertical darts towards center front and Horizontal darts pressed up	05	10
Vertical darts towards side seam and Horizontal darts pressed up	03	06
Vertical darts towards center front and Horizontal darts pressed down	16	32
Total	50	100

Table 2 shows that majority of the respondents (52%) were of the view that, vertical darts should be pressed towards the side seam and horizontal darts, pressed down; 32% were also of the view that, vertical darts should be pressed towards the center and horizontal darts, pressed down; 10% said that vertical darts should be pressed towards the center and horizontal darts, pressed up, but 6% were of the view that vertical darts should be pressed towards the side seam and horizontal darts, pressed up. It was however observed that, vertical darts when pressed towards the center front or back produced good effect than when pressed towards the side seams and horizontal darts when pressed down produced good effect than when pressed up.

Darts can be relocated, released, turned into pleats, gathers or style lines [8-11]. These techniques do not only create fit, shape and volume, they also change the style and design of the garment. Dressmakers were asked to analyse the test designs (Figures 1 to 3) to determine how darts have been used in each design. Table 3 summarises dressmakers' responses on how darts have been used.

Table 3. *Identification of dart use in test designs.*

Number of test designs analysed	No.	%
1. All 3 test designs (A-shape princess style line dress, gathered skirt with a yoke, and a princess bustier)	07	14
2. One test design (A-shape princess style line dress)	37	74
3. None	06	12
Total	50	100

Table 3 shows that with respect to designing with darts, 14% of the dressmakers were able to identify how darts have been used decoratively in all the three designs. Dressmakers in this category were able to tell that, the A-shape princess style line dress was achieved by transferring the underarm dart to the mid-shoulder which was then joined to an extended waist dart. With the gathered skirt with yoke, they said the design was achieved by closing the waist darts to give a close fitting yoke, which was then attached to an equally spread out lower section. The dart use in the princess bustier was described the same way as the princess style line in the A-shape dress. However, they stressed that ease and dart intake ought to be taken out in order to achieve the hugging effect that a bustier is supposed to create. Seventy four percent (74%) which constituted majority of the dressmakers were able to identify how darts were used in only the A-shape princess style line dress; and 12% of the dressmakers were not able to tell how darts were used decoratively in the three designs (Table 3). This category of dressmakers simply said the garments did not have darts in them, indicating lack of knowledge in dart use in garment designing.

4.3. Research Question 3: Application of Dart Principles in Cutting Out

Dressmakers' application of the dart principles in cutting out are captured in Table 4 where dressmakers were assessed with the following qualities Not Well (N. W), Not Very Well (N. V. W), Neutral (N), Well (W), and Very Well (V. W). Dressmakers in the category of "Not Well" were those who were not able to analyse test design, plot according to the dart principle involved and also failed to observe associated basic rules of the dart principle. Dressmakers in the category of "Not Very Well" were those who were able to analyse the test design but were not able to plot according to dart principle and its associated basic rules. The category of "Neutral" dressmakers included those who were not able to analyse the test design but were able to plot according to dart principle to an extent. Dressmakers, who fell within the category of "Well" were able to analyse test design, plot according to dart principle but failed to observe some basic rules which although important, did not have any significant impact on the outcome of the test design. Dressmakers in the category of "Very Well" were those who were able to analyse test design, plot according to dart principle and observe all associated basic rules of the dart principle.

Table 4. *Dressmakers' Application of the Dart Principles in Cutting Out.*

Assessment	No.	N. W	N. V. W	N	W	V. W	Total
Design 1	50	0	20	26	36	18	100
Design 2	50	14	0	22	22	42	100
Design 3	50	0	38	26	20	16	100

N. W= not well, NVW= not very well, N= neutral, W= well, VW=very well.

As established earlier in the results, all the 50 dressmakers (100%) employed the use of freehand cutting in making garments with a few using either one or both paper patterns and draping in addition to freehand cutting. There are no laid

down rules for the use of freehand method as opposed to developing paper pattern [3]. However, there are certain basic rules that cannot be ignored when cutting out any given style. With respect to design 1 (A-shape princess dress), it is a basic rule irrespective of the cutting method to;

a trim off dart excess after darts have been transferred,
b crossmark for notches
c remove dart intake
d label, true and blend pattern pieces to complete panels.

In light of this, only 18% of the dressmakers were able to plot and cut the test design according to the dart principle and associated basic rules involved (Table 4). Thirty six percent (36%) were able to plot the test design well but this category of dressmakers ignored crossmarking for notches which is very important for such a style (Table 4). Refusing or ignoring to crossmark for notches can result in mismatching of pattern pieces, uneven hemline and misplacement of panel seamlines if extra care is not taken.

Thirteen dressmakers representing 26% were able to plot and cut out the test design however, they misplaced the panel seam lines. With this category of dressmakers, 9 representing 18% chose to make the front panel lines run from mid-armhole instead of mid-shoulder through dart point to hemline. The remaining 4 (8%) also choose to make the panel seam lines of both the front and back of test design to run from mid-shoulder through dart point to hemline. This was due to their inability to analyse the test design to identify or indicate new location of dart points (panel seam lines). The effect of this action is that, specific style that is preferred by a customer will not be produced even though it will feature the element of interest based on the dressmakers inability to analyse the preferred design. Apart from the misplacement of panel seam lines, they also did not trim off excesses after transferring the darts which will create fitting problems if garment was to be sewn. Twenty percent (20%) of the participants who did not perform very well failed to remove dart intake after separating pattern pieces as well as the trueing of seam lines and hemlines. The effect of this action is that, the garment if sewn will have excess and uneven allowance at the side seams. Again, the garment will not accentuate the body curves of its wearer especially at the waist line. Apart from this effect, the princess line will also not pass through the bust point which will produce a very ill-fitting garment.

With design 2, majority of the dressmakers (42%) were able to plot and cut the test design according to the dart principle and associated basic rules involved which if sewn, will produce a desired effect. Twenty two percent (22%) were able to plot and cut the test design but the yoke line was almost straight instead of a perfect curve. This indicated that this section of respondent lacked understanding of how the waist dart have been treated; thus the waist darts have been closed which automatically creates a natural curve which only needs to be blended for a perfect curve. Another 22% of the respondents, indicated the presence of waist darts while plotting the test design. This clearly showed that dressmakers in this category were unable to analyse the design to determine how darts have been used to create such a design.

Minority of the respondents (14%) however were not able to plot and cut out the test design according to the dart principle involved. This section of respondents plotted between 6 to 8 inches below the waistline. The effect of this action is that, when the garment is sewn, the yoke line will tend to flatten the buttocks of its wearer and also cause difficulty in wearing and removal. In addition, the wearer of such an article will feel restricted in many ways when walking, bending, reaching or sitting because, the yoke line is not well positioned.

With regards to design 3, 19 respondents representing 38% were not able to plot and cut out the test design according to the dart principle involved. Even though a section of this group made use of sample paper pattern, they had problem with adjusting the paper pattern to suit the size they were working with. This could be attributed to (a) the lack of knowledge required to either reduce or increase the paper pattern to fit a particular size, or (b) the uniqueness of the size they were to work with. Thirteen dressmakers (26%) also had problems with locating the dart point although nipple-nipple and shoulder-nipple measurements were taken. In addition, because the test design is close fitting, dressmakers who chose to plot and cut directly on fabric needed to take out the ease amount at the bust area as well as the dart intake, however this category of dressmakers (26%) did not do so. The effect of this action is that, such an article will not qualify as close fitting which also places the comfort of its wearer at risk. To remedy this effect, a dressmaker will then sew in “mock darts” or tucks to make the style line fit well on its wearer. Twenty percent (20%) of the participants on the other hand, were able to plot and cut the test design according to the dart principle however, this category of dressmakers ignored crossmarking for notches. On the other hand, 16% of the participants were able to plot, cut and sew the test design as dictated by the use of this dart principle (contouring).

Generally, all the dressmakers who participated in the study were able to give correct definition of dart which shows that indeed, darts are recognized as necessary or basic feature of a well-fitting garment. However, some respondents found it difficult to establish how darts have been manipulated in the designs they were provided with even after working for a number of years.

5. Conclusion

From the results of the study, it can be concluded that majority of the dressmakers studied did not have much knowledge about patternmaking and the principles of dart use. Most of them made use of freehand cutting in garment designing and construction. In addition, participants of the study had little knowledge about what figure analysis before garment designing is about. This shows the lack of knowledge with regard to pattern making on the part of the respondents for this study. Furthermore, generally majority of the respondents gave the impression of having some amount

of knowledge about dart and its purpose in garment designing, however, the respondents lacked details as to what goes into the use of darts properly to achieve the desired effects in garment designing and construction. This could be attributed to the kind of training majority of the respondents had in garment making which is the apprentice system of training in the informal training setting. In garment designing, darts play a major role and their use is dependent on how knowledgeable a dressmaker is about the elements involved in applying the dart principles. The knowledge with which these elements are applied greatly influence the end product. This is evident from what was observed in this study where a section of the participants did not know how to manipulate or treat the basic darts to achieve the desired effect in some of the designs they were given.

6. Recommendations

Most of the garment makers made use of freehand cutting in garment construction with very few combining both freehand and flat pattern designing procedures, which could be due to the fact that majority of the dressmakers studied had their training in the informal setting. This indicates the need for the organisation of workshops for garment makers by stakeholders in the garment industry especially those in academia to educate them on the appropriate use of darts in garment design and construction. This can help the garment industry in Ghana to meet up with the challenges of modern day garment design and compete properly on the global level.

During the study, it was observed that although dressmakers acknowledged darts as a necessary or basic feature for any well-fitting garment, they however underrated the importance of darts especially when it came to marking them out. As a result, they could hardly achieve the desired effect. Based on this finding, it is recommended that the importance of darts with special reference to marking it out accurately, should be emphasized more to dressmakers during workshops, seminars and general meetings that are organized by the association. Stakeholders in the garment industry especially those in academia could also organise workshops for garment makers to educate them on the appropriate use of darts in garment design and construction.

7. Limitation and Future Research

The researchers did not compare the use of darts in garment design between formally and informally trained dressmakers, which could have helped to establish better the areas contributing to the skill gaps in darts use. A comparative study can be carried out to review methodologies used by established dressmakers who were formally trained in dressmaking and those who were informally trained, to bring to bear the impact each category have on their apprentices and their products.

References

[1] Keiser, S. J. and Garner, M. B. (2012). Beyond design: The synergy of apparel product development (3rd ed.). New York: Fairchild books.

[2] Sarpong, G. D. Howard, E. K. and Osei-Ntiri, K. (2011). Globalization of the fashion industry and its Effects on Ghanaian independent fashion Designers. Journal of Science and Technology, 3, 97–106.

[3] Forster, P. and Ampong, I. (2012). Pattern cutting skills in small scale garment industries and teacher education universities in Ghana. International Journal of Vocational and Technical Education, 4(2), 14-24.

[4] Biney- Aidoo, V. Antiaye, E. and Oppong, J. A. (2006). An assessment of the apprenticeship system as a means of acquiring sewing skills. Retrieved October 20, 2013, from http://www.iiste.org.

[5] Brown, P. and Rice, J. (2001). Ready-to-wear apparel analysis (3rd ed.). Prentice Hall: Pearson Education, Inc.

[6] Baker, M. M. (2007). Darts, Ease, Gathers, Pleats, Shirring, Tucks. University of Kenturky Cooperative Extension. Retrieved July 20, 2013 from http://www2.ca.uky.edu/hes/fes/FACTSHIS/ CT-MMB-182.pdf.

[7] Jeffreys, C. (2006). The complete book on sewing. London: Dorling Kindersley Limited.

[8] Fischer, A. (2009). Basic Fashion Design 03, construction. Switzerland: AVA Publishing SA.

[9] Hollen, R. N. and Kundel, J. C. (1992). Pattern making, by the flat method. New York: Macmillan Publishing Company.

[10] Forster, P. (2009). Freehand cutting made easy (2nd ed.). Accra, Ghana: Midland Press Ltd.

[11] Joseph-Armstrong, H. (2010). Pattern Making for Fashion Design (5th ed.). New Jersey: Pearson Education, Inc.