Full Length Research Paper

Pattern cutting skills in small scale garment industries and teacher education universities in Ghana

Phyllis Forster[1]* and Irene Ampong[2]

[1]Department of Home Economics Education, University of Education, Winneba, Ghana.
[2]Department of Vocational and Technical Education, University of Cape Coast, Cape Coast, Ghana.

The purpose of the study was to compare pattern cutting skills taught in Teacher Education Universities in Ghana with what were used in local small scale garment industries. Fifty small scale entrepreneurs in six regions of Ghana were purposively selected to demonstrate how to take body measurements and cut patterns for a lady's fitting dress. Measurement and pattern cutting procedures used by the garment producers were found to be different from what were taught at the Universities. All the demonstrators marked the measurements on their fabrics and cut the garments direct without paper patterns (freehand cutting). Their allowances for seams, hems and openings were larger than those in instructions for teaching at the Universities. Reasons for the demonstrators' use of freehand cutting method were that: cutting instructions were fewer and easier to commit into memory, making the process fast and the best option for the Ghanaian market's increasing demand for new and fashionable custom-made garments; the pattern drafting method entailed a lot of work which attracted high charges their clients could not pay; drafted patterns did not produce fitting garments for many of their clients; freehand cutting was the most cost effective option; deep turnings for hems and seams were allowed in freehand cutting for future changes in design, figure and use. To the garment producers, making and keeping patterns of their clients for future use was not necessary, because girth measurement changes of Ghanaian women were very frequent. To bridge the gap between skill training in pattern cutting in the University and industrial practice, it is recommended that the University should involve entrepreneurs in the Garment Industry in their curriculum development and skill training.

Key words: Drafting, freehand cutting, small scale garment producers, pattern cutting.

INTRODUCTION

Clothes are of great importance to all human beings. Consequently, textile and garment industries keep on growing as the human population increases and are currently among the largest and fastest growing industries, which have become economic force to reckon with. If well resourced and managed, the garment industry can become a major source of employment in Ghana and many other nations. Jauch and Merc (2006)

stated that during the first two decades of Ghana's independence, the textile sub sector was a major key player which contributed significantly to employment and economic growth in Ghana. However, this sub-sector has seen a considerable decline over the years. Hence, garment production training programmes are currently being given a lot of attention by the Education Ministry in Ghana to offer students employable skills. These training programmes in Ghanaian schools are expected to develop students' competencies in designing, pattern and garment cutting, assembling and finishing of garments.

Students who are unable to acquire knowledge and kills in any of the listed aspects of the industry in school

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*Corresponding author. E-mail: phyllis_forster@yahoo.com. Tel: 2330245763443 or 0208159245.

are likely to find it difficult to gain employment in the garment manufacturing industry, or teach clothing, fashion, or sewing after graduation. Students often find pattern cutting difficult in the clothing construction course in the two teaching Universities in Ghana, a problem which can affect their teaching of the course after graduation. Technical and Vocational education remain central to the development of the Ghanaian economy, but available data point to serious weaknesses in Ghana's ability to produce enough high quality skilled manpower to sustain growth of the economy (Charway, 2002). Charway indicated that sustainable manpower resource will be required in far greater numbers than what was available and this would require appropriate measures to develop occupational skills for the industry. Though Charway did not mention clothing construction specifically, since it is offered in Vocational/Technical education, it is implied that there is the need to allign Vocational/Technical skills training to industrial practices and increase workforce for clothing manufacturing in the country.

Pattern cutting methods

Competency in pattern cutting is a major factor in the production of well fitting garments. Consequently, pattern cutting is a very important topic in the clothing construction course at the University of Education, Winneba and at University of Cape Coast, where Clothing and Textiles Fashion and Sewing teachers are trained to teach at all the levels of Education in Ghana. Pattern cutting methods taught in Ghanaian schools include draping, drafting, copying and direct cutting on fabric, called freehand cutting. Commercial patterns are usually mentioned but not discussed, because they are not available on the Ghanaian market for teaching in the two teaching Universities. Dress forms used for the draping process are also not available and students generally find the draping process on their figures expensive and unaffordable, because of the high cost of fabric. Copied patterns, on the other hand, are not emphasized because students are unwilling to unstitch sewn articles, for fear of not being able to re-assemble them and also for the fact that unstitching and re-stitching are laborious.

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

or adaptation of existing patterns, is now widely used by the dress trade because of its accuracy of sizing and speed with which ranges can be developed (Aldrich, 2008). Aldrich however advised that pattern cutting should be used in conjunction with dress forms, which are not available to students in the two teaching Universities.

Measurements used in pattern cutting

Accurate measurements are major inputs in pattern and garment cutting. Without accurate measurements, cutters will not have the right statistics to cut fitting garments (Adu-Gyamfi, 2006). Standard measurements are developed from accurate measurement statistics of a cross section of a specific population. These measurements are taken manually with tape measures and their accuracy largely depends on the skill of the data operator. Body scanning provides multidimensional data that have the potential to provide more reliable standard measurements for the development of standard size categories and fitting patterns (Aldrich, 2008; Ashdown, 2007). Body scanners are however not common in Ghana for measurements standardization, sizing categorization and pattern cutting. The instructional guide used to teach pattern cutting in the two teaching Universities in Ghana are of British and American origins. These teaching-learning materials are therefore based on measurements aligned to sizing systems that are derived from anthropometric data bases of cross sections of Americans and Europeans.

The set standards indicate size codes and their corresponding body measurements for toddlers, children, women, and men's garments. Measurements of individual students are aligned with corresponding measurements on a particular size code, despite the fact that their measurements often show many differences. Aldrich (2008) however explained that basic block patterns can be drafted to fit individual figures by using personal measurements instead of standard ones listed on size chart. Tools and equipment for taking body measurements and developing the patterns as well as the measurement procedures are also clearly stated and illustrated in drafting instructional documents (Aldrich, 2008; Shoben and Ward, 1987) used in teaching at the University. Drafted patterns can be made to produce very good garments if the operator is skillful and meticulous. Garments made from drafted patterns will only fit the client well if the body measurements were well taken, the calculations were correct and construction lines well positioned on the drafting paper (Adu-Gyamfi, 2006).

Current pattern cutting procedures at the university

Students at the Universities in Ghana use personal body

measurements to go through four different stages of pattern cutting before they get patterns to cut their garments. First, they develop the block pattern that is used as a basis for all adaptations. The block is then traced on to brown paper to produce the working pattern used for marking out the basic style lines and design features. After adding all the desired structural details to get the desired style of garment, the various sections of the garment are traced on a third sheet of paper. This pattern is clearly marked with the necessary garment cutting and making up instructions, including all allowances for seams and fullness, hem turnings and pattern symbols for the particular garment. Finally, the pattern sections are numbered and traced on another sheet of brown paper. It is from this final pattern that the garment is cut. At UEW, Winneba, seam allowances for the patterns developed by the students are pegged at 1.5 cm while hem turnings are usually 1.5 to 2.5 cm, depending on the style. At University of Cape Coast, the seam allowance ranges from 2.5 to 4 cm, the hem turnings are 1 to 5 cm depending on the style.

The cutting of pattern for a garment alone can take an average of 12 h, that is, four lecture periods in the two Universities. After going through the above procedures enquiries showed that many students in the two Teacher Education Universities in Ghana went into part time apprenticeship training from small scale garment producers while in school or after graduation, to develop their competencies in freehand cutting before they taught Clothing courses, or engaged in garment production. Teachers who graduate from the University are expected to teach clothing, fashion and sewing at the Tertiary, Senior High School (SHS) and Junior High School (JHS) levels to enable the youth to acquire occupational skills before they complete school. It would therefore be a big disservice to the nation if teachers are unable to fullfil their occupational obligations. Hence, there is need for the Ghanaian University curriculum to allign to industrial practices to make what is learnt at the University relevant to what is practised in the industry. The main purpose of this study was to compare pattern cutting procedures used to produce garments in small scale industries with what was taught at the two Teacher Education Universities and suggest measures to align the University curriculum to industrial practices in Ghana.

MATERIALS AND METHODS

Fifty small scale garment producers who were competent in the production of ladies' garments were purposively sampled from six regions in Ghana for this study. These garment producers were contacted with the assistance of the national executive members of Tailors and Dressmakers Association of Ghana in the selected regions. Producers of ladies' garments were preferred because students in the Clothing Construction classes at the Universities were predominantly women and they showed interest in knowing how to cut garments for themselves. Furthermore, all the

demonstrators were making garments for ladies with only eleven out of the fifty making garments for both sexes. Interview schedule and observation check list (Appendices A, B and C) together with video coverage were used to obtain the data. The demonstrators were interviewed to assess their educational backgrounds, the number of years they had been in garment production, the cutting skills they learnt in school, the cutting methods they used for garment production and the reasons for measuring and cutting the way they did.

In order not to take too much of their business time, initial contacts were made with them on phone to fix dates for individual meetings, to seek their consent to participate in the research and to fix dates for the data collection. Each of the fifty respondents was asked to demonstrate how to take body measurements of their female clients, and use the measurements to cut patterns for a lady's fitting dress. Brown paper and fabric were provided for the demontrations. All the demonstrators were made to use their female apprentices as clients to make it possible for fit to be checked. The demonstration of the measuring procedure for the dress, the marking of the design and the cutting process were observed and video recorded. The observation check list used to collect the data on measurements covered measurement formants used by the demonstrators; tools and materials for measuring, measurements taken; attire worn by clients when the measurements were taken; allowances for seams, hem and zipper opening. Observation check list for the pattern cutting on the other hand covered cutting methods and tools used; marking of the design outline for cutting; units of measures used; side, shoulder and zipper seam and hem allowances; fit; and total time spent on cutting and sewing.The cut garments were given to the apprentices to assemble and wear for the fit to be checked. On the average, 2 h was spent with each of the respondents for the data collection.

RESULTS

The Small Scale Garment producers who participated in this study comprised of 29 women and 21 men aged between 25 and 65 years. These participants were of different educational backgrounds.

Two out of the 50 demonstrators had not had any formal education. These demonstrators were however able to use the tape measure to take body measurements, record their client's measurements and plot garment outlines on fabric. The rest (96%) had formal education to different levels. The demonstrators who had completed vocational/technical school formed 36%; those who had completed Basic School were 28%; while those who trained in Fashion at the Polytechnic formed 20%. SHS graduates formed 10%, while one (2%) was a University graduate (Table 1). The 10 and 2% who had completed SHS and the University explained that they studied Clothing and Textiles in Secondary school and at the University, respectively. Each of the 50 demonstrators had been working for varying number of years (Table 2) and was competent, as testified by their Professional Association Executive Members. Majority of them (86%) had been producing custom-made garments on small scale for between 6 and 30 years and were therefore very skillful in pattern cutting (Figure 1).
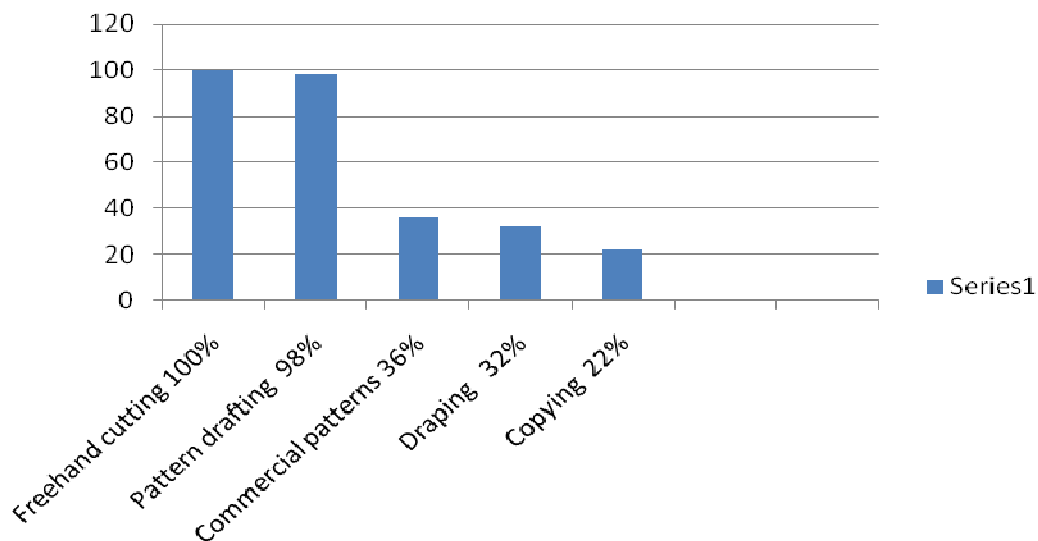
All the demonstrators had training in freehand

Table 1. Educational background of the demonstrators.

Level of education	Frequency	Percentage
No formal education	2	4
Basic (Junior high/middle school)	14	28
Vocational/technical	18	36
Senior high school	5	10
Polytechnic	10	20
University	1	2
Total	50	100

Table 2. Years of experience in garment production of participants.

Number of years	Frequency	Percentage
1-5	2	4
6-10	7	14
11-15	9	18
16-20	11	22
21-25	11	22
26-30	5	10
31-35	2	4
36-40	2	4
41-45	1	2
Total	50	100

Figure 1. Pattern cutting training skill (s) learnt in school/apprenticeship by the demonstrators.

cutting and 96% of them indicated that they went into apprenticeship training to acquire the freehand cutting skills after learning pattern drafting in school. However the demonstrators without formal education said they never learnt any paper pattern cutting skills. Figure 2 shows that 6% of the producers used commercial
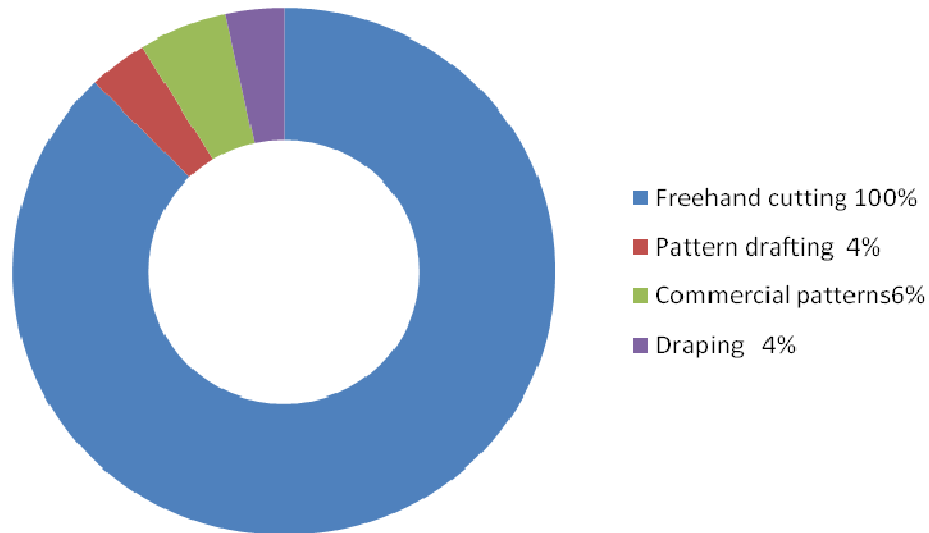
Figure 2. Pattern cutting methods used by the demonstrators.

patterns, 4% used draping, 4% drafted their patterns, but they explained that they did so only when their clients requested for designs that were very complicated. These two (4%) latter demonstrators revealed that they had developed their own methods of drafting from the freehand cutting process, but complained that they wasted too much time on the pattern work and this adversely affected their production rates and increased service charges. The demonstrators who used draping method indicated that they used it for clients who had hunch back. All the demonstrators indicated that they used freehand cutting method to cut garments in their workshops. Also all the demonstrators had apprentices who were either JHS or SHS graduates, or who had completed Vocational schools. They indicated that they taught their apprentices freehand cutting skills, first on paper and as they became competent, they were taught how to cut direct on fabric. To the demonstrators, teaching freehand cutting skills to beginners on paper prevents fabric wastage, because beginners make a lot of mistakes. They explained further that teaching the freehand cutting method was easier and faster and it enabled them to get competent workers to assist them in their workshops at all times.

Tools and materials used by the demonstrators

The main tools used by the demonstrators during the cutting process were their measurement note books, pens, large flat cutting table, scissors, tailor's chalk, tape measure, yard stick, skirt and trouser curves, pins, pressing iron and the fabric to be cut. Four types of measurement formats were used by the demonstrators

to take their clients' measurements (Figure 3). 34% used measurement formats indicated on job cards sold on the market; 24% used measurement formats developed by their association; 22% used what their trainers exposed them to; and the rest, 20% used what they had developed over the years to measure their clients. The demonstrators were requested to take personal measurements and use to cut a fitting sleeveless dress for a lady. Majority of the respondents (96%) measured their clients in inches and not in centimeters as done in the two Universities. Though four of them (8%) had their apprenticeship training in Nigeria, they also measured in inches. Only two (4%) of them who trained in the Ivory Coast, measured their clients in centimeters (Figure 4).

Measurements used by the demonstrators to cut the dress

Generally, measurements used by the demonstrators to cut the dress were: across back, waist to hip, bust, waist, hip, shoulder to front waist and shoulder to required dress length of the client. These measurements were taken very closely to the body but over the client's clothes, irrespective of the weight of fabric and style. The demonstrators kept asking their 'clients' whether they were comfortable with the length and girth measurements before recording them. All the demonstrators revealed that they had identified some trends of body measurements that yielded good results and these measurements were adopted to save time or as alternatives in cases where clients' measurements were not readily available. Hence they could just look at a client and cut to fit her. However, they emphasized that fit
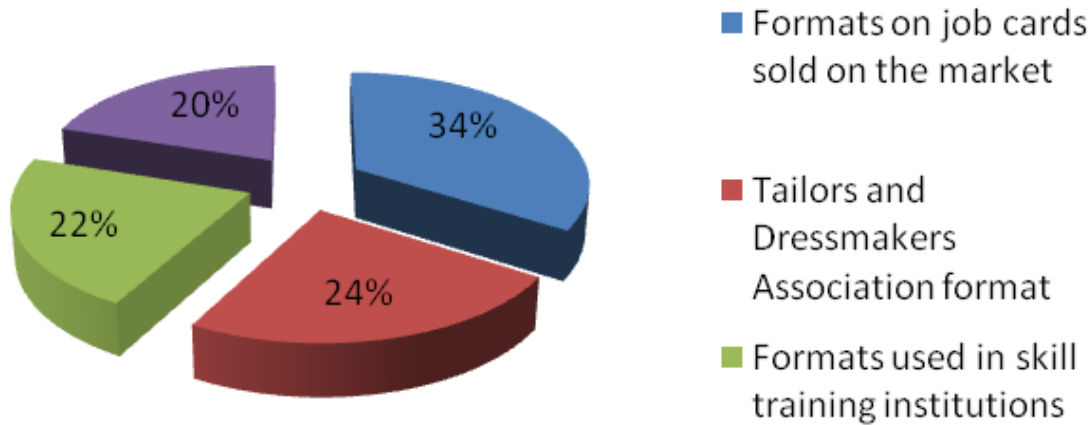
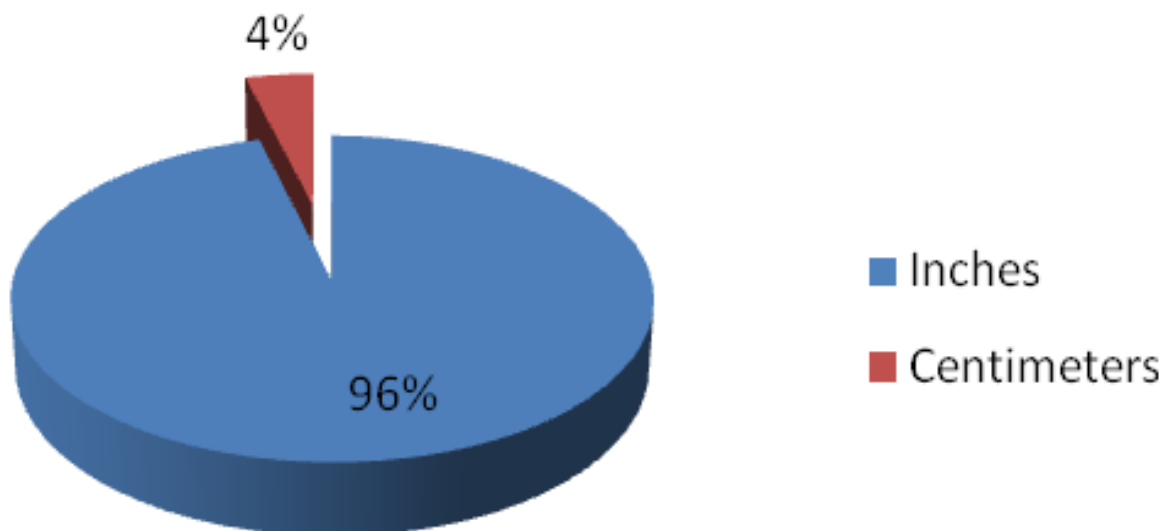**Figure 3.** Measurement formats used by the demonstrators.

Figure 4. Units of measure used by the demonstrators.

was best when client's personal measurements were used to cut garments.

Cutting process used by the demonstrators

The demonstrators were requested to use the measurements they took to cut the dress. Information about plotting of the garment design is presented in Table 3. All the 50 demonstrators measured their clients and used the measurements to cut their fabrics by the freehand method to fit and suit the style of the dress. They made outlines of the style of the garment plus all other construction details, including seam, dart and hem allowances with tailor's chalk directly on the fashion fabric, based on the client's body measurements. Length

measurements were the first to be marked. These were followed with across back width and the girth measurements, namely, bust, waist and hip. All the demonstrators measured 8 inches (20 cm) from waist to hip to mark the hip line for their clients. Allowances for seams, the hem and back zipper opening were added to the measurements as indicated in Table 3. It was realized that the allowances of the 96% demonstrators who learnt how to sew in Ghana and Nigeria were similar, but different from those of the two (4%) demonstrators who learnt their skills in Ivory Coast. The 96% who trained in Ghana and Nigeria allowed ½ inch (about 1.25 cm) for the shoulder, and armhole seams, 2 inches (5 cm) at centre back for zipper opening allowance and 1 inch (2.5 cm) hem turning. The side seam allowance for the lady's dress was 2 inches (5 cm) for 64% 32) and 3 inches

Table 3. Markings made by the demonstrators for the design outline.

Marking	Allowances	
	Ghana/Nigeria	Ivory Coast
Length markings		
Shoulder to waist	+½ inch (1.25 cm)	+1 cm
Waist to hip -20 cm for all	+½ inch (1.25 cm)	+1 cm
Shoulder to hem	+1½ inch.(3.25 cm)	+3 cm
Shoulder slope	¾ inch. (2 cm)	+2 cm
Girth and width markings		
½ Across back	+½ inch (1.25 cm)	+1 cm
¼ Bust	+4 inch.(10 cm-back)	+3.5 cm
¼ Bust	+2 inch. (5 cm-front)	+1 cm
¼ Waist	+ 4 inch. (10 cm)	+6 cm
¼ Hip	+2 inch. (5 cm)	+1 cm

*Centre back and front to 10 cm along waist line- for body dart position for all the demonstrators. *Neck depth and width varied greatly.

(7.5 cm) for 32% (16) of the demonstrators, respectively.

Allowances of the two demonstrators who trained in the Ivory Coast were different. Their shoulder and side seam allowances were 1cm and their hem allowance was 2 cm while their centre back seam allowance for the zipper opening was 2.5 cm. All of them measured 2 cm for the shoulder slope and 20 cm from waist to hip to mark the hip line, but used different width and length to design and cut the neckline. All of them indicated that in many cases female clients asked for wider side seam allowances because of pre-natal and post-natal figure changes, figure changes in middle age and when it was necessary to change the style to suit modern fashion, or new users. The demonstrators reported that allowances for ease, length and at times seam width of garments were often dictated by their clients. Client participation in dress design and product quality assurance is therefore very high in freehand cut clothes as demonstrated by the industrialists.

DISCUSSION

Measurements and pattern cutting procedures were found to be different from those used in teaching trainee teachers in the Universities. Measurement instructions used to cut patterns for a one piece fitting dress for ladies at the Universities were across back and chest, shoulder, neck, bust, waist, hip, front neck to front waist line, nape to back waist line, shoulder to knee, waistline to hip, front dress length, back dress length and dart separation as stated in Aldrich (2009). Measurements used by the demonstrators were across back, bust, waist, hip, shoulder to front waist and shoulder to required dress length of the client. The demonstrators used seven measurements of their clients and two fit-all ones,

namely, waist to hip and shoulder slope, instead of the fourteen used by students at the Universities to cut the same dress. Again, at the Universities, students are made to take body measurements over light garments, while measurements were taken over clients' garments without considering the style and weight of fabric in the case of the demonstrators. The demonstrators therefore had fewer measurements to take.

Hence, they spent very little time in taking measurements of their clients and could therefore save time for other important activities. Measuring clients over heavy clothes may not be ideal but they kept asking clients whether they were comfortable with the length and girth measurements and loosened, tightened, widened, shortened or lengthened as requested by their clients. To the demonstrators at the end of it all, what was important was for the design and fit to be accepted by the client to enable them remain in business. At the University, students are given training in paper pattern cutting before using it to trace to cut garments. Unlike the University where students have to go through four stages to draft and adapt pattern pieces to cut their garments, all the demonstrators used their clients' measurements to mark outlines direct on the fashion fabric for cutting. Wovenu (2007) also found in the Volta region of Ghana that clients' measurements were used by garment manufacturers to plot the outlines of desired styles of a garment on fabric and the plotting was followed with cutting direct from the fabric. Anyakoha (2001) indicated that there was a gap between Clothing and Textiles education and the industry, and bridging this gap will give the subject a wider vision to make it attractive to students and their parents.

These demonstrators explained that the faster they produced well fitting garments, the better their financial gains and since the freehand cutting process was faster

they all used it to remain in business. Charway (2002) observed that the Ghanaian system of education effectively steers many school leavers away from industry. In the University, time is a very important resource and as such any course which takes too much of the student's time and which does not enhance the job prospects of students, is not likely to be well patronized. Adentwi (2005) stated that there was need for making the school curriculum more` relevant to the needs, interest and purposes of individual learners and the society in which they live. Learning how to develop paper patterns is necessary, since students may want to engage in mass production of garments later in life. However, students need time for the other courses they offer in the University and skills to work as competent teachers or competent garment producers in the Local Industry too. The inability of graduates of the two Universities to acquire the relevant occupational skills in Clothing, Fashion and Sewing courses to teach competently in Ghanaian Schools is making it impossible for some of them to accept to teach the courses.

Furthermore, lack of competent teachers in Clothing Construction is discouraging students from opting to study Clothing and Fashion at the pre-tertiary levels of education in Ghana (Adaminyini, 2004; Ayim-Poakwa, 2004). Ayim-poakwa (2004) found that in a district of four Senior Secondary Schools in Ghana, where sewing equipment were available, no Home Economics teacher was willing to teach Clothing and Textiles, hence no student offered the subject. Students who completed SHS in that district that year therefore did not acquire Clothing Construction skills before graduating. No teacher will like to teach a subject he or she cannot handle competently. It had been observed that many students do not like the Clothing Construction course in both Universities. In a department of 416 Home Economics students in University of Education, Winneba, in 2010, only 34 indicated that they would teach both Clothing and Textiles and Food and Nutrition after graduation. The rest, 382 in number, indicated that they would not teach Clothing and Textiles because they were incompetent in Clothing Construction. Also, in the University of Cape Coast where students specialize in the Clothing programme, the statistics of Clothing Construction students are 35, 27, 31 and 17 for levels 400, 300, 200 and 100 for the 2011/2012 academic year.

Five student from 200 level who were irregular at lectures revealed that the Clothing Construction programme was not their choice but the choice of the University for them, hence their lack of interest. While the students reactions in University of Education, Winneba show that the programme did not prepare them well enough to be able to face the challenges of Clothing education in the schools, the drop in the enrolment of students for the Clothing Construction programme in University of Cape Coast shows students are gradually losing interest in the programme. These two indicators of incompetence and lack of interests are of grave implications for education at the pre-tertiary level and also the development of the fashion industry in Ghana. Work force for the garment manufacturing industry is likely to decrease as the older workers retire. Jauch and Merc (2006) observed that during the first two decades of independence, the textile sub sector was a major contributor to employment and economic growth in Ghana. Ghana therefore stands to benefit a lot if Teacher education emphasizes on vocational and technical skill training in relevant and employable skills. The fact that all the demonstrators, including those who had training in pattern cutting had to go into apprenticeship training in freehand cutting before opening their own small scale industries shows that the skills they learnt in school were inadequate for what were required in the Small Scale Garment Industry. Though it is important for students to learn the conventional methods of cutting patterns for garments, they must also acquire skills they can work with in their immediate environment to reduce retraining and graduate unemployment.

Except for two, all the demonstrators had been trained to draft patterns, but none of them used the method in garment production. Instead, they had to undertake apprenticeship training to acquire freehand cutting skills before engaging in garment production. Fianu and Acquaah-Harrison (1999) stated that seamstresses taught their apprentices mainly in freehand cutting. The demonstrators found the freehand cutting method simpler to teach and easier to understand and commit to memory. Any teacher would want to use a teaching method that is effective. Consequently, they opted to teach what was not given much attention in school but worked best for them and their clients. Fianu and Zentey (2000) also observed that all the Large Scale Fashion Designers they studied in Accra has had training in freehand cutting, while Wovenu (2007) stated that many students in the University and Polytechnics in Ghana went into part time apprenticeship training from Small Scale Garment producers while still in school or after graduation, to develop their competencies in freehand cutting before they could teach Clothing courses, and engage in garment production. In a study of Vocational school graduates in the Central region of Ghana, nine graduates who studied dressmaking in school had to quit dressmaking because they could not sew to fit their clients.

However, their mates (eleven in number), who learnt freehand cutting skills after graduation were all active in the Dressmaking business (Forster, 2007). Considering the demonstrators' reasons for using the skills they learnt in their apprenticeship training, it is not surprising that they were not using the skills they learnt in school in garment production. Naturally, anybody would like to adopt a skill he or she is competent in to save fabric,

produce to satisfy clients and make rather than lose money. The demonstrators indicated that their clients had no problems with fit when they used the freehand cutting method. The dresses that were cut and sewn also fitted their owners. Body measurements have not been standardized and categorized into sizes in Ghana as in the United States of America and Britain. Zwane and Magagula (2007) stated that Clothing sizing system is based on body measurements which date back to the 1940's and it was only in the last decade that both US and the UK updated their anthropometric databases. Clothes produced for South Africans based on the British standardization have not been found to fit clients (South African Bureau of Standards, 2005). Adu-Gyamfi (2006) found that figure types of Caucasian women were different from figure types of Ghanaian women.

It was therefore not surprising that garments produced with patterns cut with instructions that were based on American and European standard measurements and sizing systems, did not fit Ghanaian clients. Hence the demonstrators in this study had to look for a method which produced better fitting garments for their clients. Wagner and Heyward (2000) observed that variations in human body composition are the result of lifestyle, environmental and genetic differences. The life styles, environmental conditions and genetic make ups of Ghanaians are not the same as those of the Caucasians. One is therefore not likely to get a good fit if cutting procedures for garments meant for black Africans are based on anthropometric databases and sizing systems of Caucasians. Onoma (1997) observed that patterns cut in some schools in Ghana had too many fit problems and therefore recommended the development of cutting methods that would work for Ghanaian women as an answer to fit problems. Ardrich (2008) has stated that patterns are fashioned to suit stable figures and the cutter can choose whichever pattern making method works for him or her. Using information from other cultures to teach students how to cut for themselves and others may not be the best. The demonstrators were therefore justified for not aligning the measurements of their clients to measurements in any foreign size chart for pattern cutting.

The demonstrators also said their clients insisted on deep turnings which they easily incorporated into the design when they cut with the freehand method. The extra width and length were a kind of investment for maximum utilization of the sewn product. If the allowances they gave made it possible for them to alter girth and length, change style and use, then one may recommend freehand cutting method where poverty levels are high. It was however observed that the 5 and 7.5 cm side seam allowance given by the demonstrators on dresses were clipped at the waist to a final seam width of 2.5 cm by a 60% majority of the demonstrators after sewing, to bring out the waist shape. They should probably have left a narrower seam as was done by the two

(4%) demonstrators trained in the Ivory Coast to prevent waste. At University of Education, Winneba, students are made to leave 1cm side seam width. Though this makes no room for waist extension, it ensures a good fit. Students of University of Cape Coast however are also able to obtain a good fit with 2.5cm side seam allowance just like the majority of the respondents.

As indicated by two of the demonstrators, complicated styles came out best when paper patterns were used in cutting garments. However, they used the freehand cutting method to cut such paper patterns. This means that it is possible to use freehand cutting method to develop paper patterns and the demonstrators might have been drafting paper patterns if they were competent in pattern drafting. It is possible that they were unable to draft patterns and adapt to fit their clients because they did not use the method in conjunction with dress form to check proportion and line and correct mistakes as was suggested by Aldrich (2008). Probably the two teaching Universities have to equip their departments with dress forms to facilitate the development of the competences of their students in pattern drafting. If indeed the use of the freehand method saves time and fabric for future alterations then it makes sense that prospective garment producers enter into apprenticeship training in freehand cutting to develop the cutting skills before entering into industry.

According to the demonstrators, demand for custom-made garments in Ghana was very high and the more fitting garments they made the more money they earned. Sticking to construction methods that were fast and did not pose fitting problems was therefore the best option. If freehand cutting is fast and produces a better fit then lecturers in the two Universities may have to reconsider it as a method that needs to be emphasized, if the Educational goal of providing the youth with employable vocational skills in Clothing, Fashion and Sewing, especially at the terminal levels of pre-tertiary educational are to be achieved in Ghana. It is arguable that if students have to acquire relevant skills in pattern cutting from full time apprenticeship training after graduation, or on part time pattern cutting training while in school, then there is no need to go to school to waste time and money. Pattern cutting skills are not all there are to the Clothing Construction course. Freehand cutting must be given much attention in the Universities to help produce competent Clothing, Fashion and Sewing teachers who can compete with Small Scale Garment producers on the job market.

Conclusion

The pattern cutting skills acquired by students in Ghanaian Universities are different and inadequate, compared to the skills used in Small Scale Garment industries. Competences of University students are

therefore not well developed to enable them to teach garment cutting skills effectively in schools. The Clothing, Fashion or Sewing teacher's mandate of equipping learners with employable skills at the terminal levels of education may therefore not be well fulfilled by teacher trainees of the Clothing Construction course, in the two Teacher Education Universities in Ghana. Currently Small Scale Garment producers have to admit some graduates from the Universities into apprenticeship training to develop their competencies before the University graduates could cut garments and teach garment cutting skills very well to their students. This means that the acquisition of freehand cutting skills enhances job prospects in the Garment Industry in Ghana. The current situation causes incompetence, lack of self confidence and interest in the Clothing Construction course. In addition, it makes graduates unable to teach Clothing, Fashion or Sewing well in schools and postgraduate apprenticeship training in pattern cutting inevitable. Finally, it increases graduate unemployment rate of students who opt for Clothing, Fashion or Sewing at the various levels of education in Ghana.

RECOMMENDATIONS

There is need for a review of the Clothing Construction curricula in the two Teaching Universities in Ghana to meet the needs of the industry. The Universities therefore have to link with the Garment Industry and come out with definite step-by-step cutting instructions for different designs of garments, for different categories of people, as well as other necessary occupational skills that are not taught in school. The pattern development methods of the demonstrators who made patterns with the freehand cutting method should be documented and studied in the University for variety. Finally, in order to standardize measurements and improve the garment sector, the government should invest in scanners to create a data base of measurements for Ghanaians; invest in serious research to establish a sizing system for Ghanaians; train teachers and entrepreneurs to facilitate reasonable regulation and standardization of measurements and sizing in the Ghanaian Garment Industry.

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APPENDIX A

Interview schedule

1. Number of years in the sewing business
2. Age
3. Educational level
4. Country location of learning centre
5. Type of skill training received
6. Method of cutting learnt
7. Method of cutting used
8. Reasons for the choice of method
9. Method of cutting skills taught to apprentices
10. Reasons for the choice of method

Appendix B. Observation check List for body measurements.

Measurement format used	Tools and materials	Measures	Attire for measurement taking	Interactions with clients while measuring

Appendix C. Observation check list for pattern cutting.

Cutting method and tools	Units of measures	Marking of design and dart position	Shoulder seam	Side seam	Zipper opening	Hem allowance	Fit	Total time spent on cutting and sewing