Journal of Science and Technology, Vol. 44, No. 2 (2026), pp 181 - 195
Kwame Nkrumah University of Science and Technology (KNUST)
https://dx.doi.org/10.4314/just.v44i2.10

CONTEMPORARY APPROACH IN MAXIMIZING SKILLS-SET AMONG SMALL SCALE GARMENT PRODUCERS TO PROMOTE PRODUCTIVITY IN THE KUMASI METROPOLIS, GHANA

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ABSTRACT

The advancement of new technologies and acquisition of modern skills by garment production is to produce high-quality garment to meet customers demand. This study employed the Jaideo's Skills Gap Theory/Model (2012), to explore the skills gap among SMEs garment producers in the Kumasi Metropolis. The study aims to investigate the requirements of quality garment production among small-scale fashion industry. It further aimed to determine the skills, materials, tools, and equipment required to enhance garment production in Kumasi metropolis. The study employed a quantitative approach lensed by descriptive survey research design to investigate the research problem. Stratified random sampling technique was used to arrive at 161 participants that responded to the study. Questionnaires were employed as a data collection tool. The results revealed that majority of the small scale garment producers owing to their familiarity by reason of their previous knowledge and skills, they consider and employ requirements such as design skills, computer aided design, creativity, trend awareness, technical skills (technique in garment production and machines manipulation and repair), sewing and pattern making, knowledge of material, and finishing for their quality garment production. The study further concluded that, the inadequate skills of the small scale garment producers affected the output of quality garment production. These include computer aided design for garment designing, a skill that most garment producers need to be equipped with to meet the ever-growing digitalization in the fashion industry. Also, quality control and production management in garment production led to some inefficiency, which increases production costs and could potentially result in poor services and products. Even though, the small scale garment producer's knowledge and skill of material was mastery on the fabric however, inadequacies in the selection and utility of appropriate fashion accessories affected the quality of garment produced. The tools and equipment in respect to the human ratio to machine and operational knowledge were efficient, however there were some inefficiencies such as understanding the machines types, different brands and specifications, time frame, among others. The study recommends that there should be international and local

collaborative training to provide the respondents with new ideas and fresh perspectives and approaches, to improve on quality garment.

Keywords: Skills-set, small scale, garment producers, skill gap.

INTRODUCTION

The question of skill gap remains urgent to be addressed not only at the Ghanaian close but at the international level in the apparel industry. Inadequate skills development is a hamper to the sustainability of the garment industry especially when modern equipment is replacing old tools and equipment in the processing and production of garments (Chang et. al. 2016). Improving skill-set increases productivity (Hossain, 2020). Although there is evidence that workers' skill competencies transfer into productivity and profit margins, overall employee preparedness rely on production advancements and the likelihood that personnel are engaged (Adhvaryu, Kala, & Nyshadham, 2018.). Although the domain of skill gap competencies and their association with improvement in garment production remains a necessary force worth interrogating because of their utility in impacting garment business sustainability, very little emphasis has been laid on examining and interrogating the skill set gaps of garment producers.

In contemporary times, many garment producers are advancing new technologies in applying modern skills in garment production. The essence is to produce high-quality garment to meet customers demand. Many informal garment producers today have realized the need to invest in skill acquisition, materials, tools and equipment to meet recent standards. Hence, it is only economically viable that these skills, materials, and equipment realize the production of the high-quality garment to meet the satisfaction of their consumers. Despite the attempt to examine the skills, materials and equipment generally in previous studies, not much attention has been given to skill acquisition at the secondary level (Joan et al, 2015). With regard to the design and production of local producers, Senayah (2018) revealed skills based competence and competitiveness as a major challenge. Obviously, the challenge is further burdened as majority of these locally-based producers are small-scale producers with little or no funding. Research has shown that there have been several attempts to examine the skills, materials and equipment in garment production among local producers. However, not much attention has been given to small scale garment producers in the Kumasi Metropolis. It is against these concerns that the researcher applied the Jaideo's skills gap model to investigate the extent of skills possessed by small-scale garment producers in quality garment production, in Ghana with particular interest in the Kumasi Metropolis. Therefore, this study sought to investigate the skills of small-scale garment producers in Kumasi Metropolis in Ghana. The specific objectives were as follows:

- To examine the requirements of quality garment production among small-scale fashion industry.
- To determine the skills, materials, tools, and equipment required to enhance garment production in Kumasi metropolis.

Contextual setting

The second largest city in Ghana is Kumasi. The greater Kumasi Metropolitan Area (KMA) is the result of multiple extensions of the cities perimeter, including inner Kumasi (KMA) and twelve additional municipalities and districts. It covers a total land area of 2,603km² with a total population of 3,190,473. Kumasi is set to more than double its population. The population density is expected to substantially increase from 159 people per hectare (in 2010) to 279 per hectare in 2033. Given that, the population for small scale garment producers in Kumasi Metropolis was not found or not well defined, the study relied on the population of small scale garment producer's association workshop held in the year 2021. The population for the workshop comprised 365 master tailors and 380 formal and informal workers (Small Scale Tailors & Dressmakers' Association Workshop, 2021). The study received responses from 161 participants overall, rather than the expected 180. This suggests that small-scale clothing manufacturers were well represented

Problem statement

At the heart of fashion dominance is the need for skills competency as a competitive advantage (Senayah, 2018). However, the booming nature of the garment industry characterized by several small scale firms has led to issues about quality of products, ease of use of high-level technology and sustainability of products made among others. While this remains a critical concern, the core component of any thriving business is the skill level of the people who practice the business. This is essential as it feeds into the quality of output that is generated by the particular enterprise. The question of skill gap remains urgent to be addressed not only at the Ghanaian close but at the international level in the apparel industry. Inadequate skills development hampers sustainability of the garment industry especially when modern equipment is replacing old tools in the processing and production of garments (Chang et. al. 2016). Generally, improving skill-set increases productivity (USAID 2015, Razzaue, Eusuf, 2015; & World Bank 2018). In developing countries like Ghana where resources are limited, it does not make business sense to invest into small scale garment productions that are not effective. Accordingly, Senayah, (2018) argues inadequate skills competencies hampering garment production. Therefore, this study investigated maximizing the skill set among small-scale garment producers to promote productivity in the Kumasi metropolis, Ghana with the goal of recommending workable strategies to be implemented to enhance skill-set among small scale garment producers.

MATERIALS AND METHODS

A positivist world view was adopted to answer the question regarding the relationship between variables, thus making this a deductive study. A quantitative approach was followed in the study, which is in line with the selected paradigm. Questionnaires were used to collect data from small-scale garment producers. The population was sampled from small scale garment producers that have been in business for more than three years. Given that the population under study was quite heterogeneous in terms of small scale garment producers, stratified random sampling was employed in the study. This was aimed at maintaining a balanced representation across all small-scale producers in the Kumasi metropolis. The garment producers were selected from the following zonal areas Abuakwa, Atonsu, Tech, Pankrono and Amanfrom. Each producer was considered a stratum. Using a two-way approach, each stratum was selected through simple random sampling. The small scale garment producers that participated in the study were labelled and randomly put into strata as Producer

1 to Producer 9. An overview of the data is displayed in table 1.

Table 1: Profile of garment firms in Kumasi (N= 161)

Producers	No. of males	No. of females	Firm size	Percentage (%)
Producer 1	9	15	24	14.9
Producer 2	6	14	20	12.4
Producer 3	3	14	17	10.6
Producer 4	3	16	19	11.8
Producer 5	2	12	14	8.7
Producer 6	5	8	13	8.1
Producer 7	3	13	16	9.9
Producer 8	1	10	11	6.8
Producer 9	6	12	18	11.2
Master Craft	2	7	9	5.6
Total	**40**	**121**	**161**	**100**

Consequently, 171 respondents who registered their businesses, along with their 9 master crafts qualified to part take in the study according to the stratified random sampling criteria employed. In all 180 small-scale garment producers were sampled population for the study. Overall, 161 participants responded to the study instead of 180. This suggests that there was a significant representation of small-scale garment producers. Hence, their responses can be generalized to ascertain the overview of the skills gap analysis of the garment producers in the Kumasi Metropolis.

Self-reported response on the requirements of quality garment production among small-scale fashion industry in the Kumasi metropolis".

The literature of this study affirms that different institutions and bodies adopt some relevant skills that meet their organization's practices and use these sets of skills as their requirements for quality garment production. Therefore, in order to achieve or establish the requirements used by garment makers in the Kumasi metropolis, the researcher reviews some standards used internationally to enable the respondents in the Kumasi metropolis to establish based on existing standards, what requirements are critical in ensuring quality in their garment production which subsequently satisfy their customers' garment needs. The existing international standards are from the following five entities:

1. According to (ZAHID, 2023), there are 10 essential skills required for quality garment production: these include:

- Excellent drawing skills
- Good business sense
- Good communication
- Interpersonal skills,
- Understand fashion trends
- Competitive spirit,
- Proper fabric knowledge
- Good sense of color
- Perfect measurement skill

- Ability to multitask leadership skills

2. According to (Kiron, 2023), the following are the skills required for quality garment production:
   - Creativity and proactivity
   - Flexibility to trends
   - Attention to details
   - Team management
   - Computer-aided fashion design
   - Visualization and drawing skills
   - Magnificent needlework
   - Business knowledge
3. According to (Karuna, 2023), these are key requirements for garment production: embroidery, 3D designing skill, fashion merchandising, colour study, fashion business, digital drawing and sketching, pattern making & garment construction, tailoring and designing, mastering the social network & influencers' world, textiles for interiors and fashion, analysing big data , creative fashion styling, draping, and pattern making, prior to these skills the skills in creativity, networking, communication.
4. As opined by the (Training.Gov.Au, 2023), the key relevant skills required in the garment-making industry as per the Australian standards must be skills in the following category:
   - Machines
   - Materials (thread, zips, buttons, trims, fabric few more to mention)
   - Fabrics
   - Components or control of fulness (collars, different pleats, cuffs, sleeves few more mentioned)
5. According to (Katana Technologies OÜ, 2023): these are the key requirements to attain quality garment production: design and development, pattern making, grading different garment sizes, marking and fabric cuttings, sewing, buttonholes, stitches, and finishing. The researcher summarized the requirements based on their similarities to generate 1 set of requirements questionnaire from which the Kumasi metropolis fashion industry was to determine which of these existing standards or requirements they used in ensuring quality in garment production. The results of respondents are revealed in percentages in Table 3 below:

Table 2: Display of results on quality garment-making requirement.

Skills Requirement Items	Frequency (N)	Agree Percentage [%] (N)	Disagree Percentage [%] (N)
Design Skills	161	94.4 (152)	5.6 (9)
Creativity	161	99.4 (160)	1.6 (1)
Trend Awareness	161	68.9 (111)	31.1 (50)
Technical Skills (Technique/ Machines)	161	94.4 (152)	5.6 (9)
Sewing and Pattern Making	161	88.2 (142)	11.8 (19)
Knowledge of Material	161	100 (161)	0 (0)
Finishing	161	63.4 (102)	36.6 (59)

Computer-Aided Design (CAD)	161	52.8 (85)	47.2 (76)
Quality control	161	32.3 (52)	67.7(109)
Knowledge of fashion Business	161	47.8(77)	52.2 (84)
Ethical and Sustainable Practices	161	31.1 (50)	68.9 (111)
Resilience and Determination	161	31.1 (50)	68.9 (111)
Total	161	100(N)	100 (N)

The results obtained in Table 3, reflect the degree of responses of the 161 respondents in this study to 12 items that have been deduced from existing internationally upheld requirements for garment production. The results for the item, design skills revealed that a majority of 152 respondents, representing 94.4% of the respondents consider designing skills to be a relevant requirement in quality garment production. The results for item, creativity revealed that 99.4% of 99 the respondents which represents 160 people in the accessible population consider creativity as a key requirement in determining the quality of garment products in the Kumasi metropolis. Also, the trend awareness was displayed 68.9% of the population representing a significant number of 111 respondents agreeing that the awareness of fashion trends was an important requirement in achieving quality garment production.

Further, technical skills (technique/machines) are another item that the respondents in the Kumasi metropolis employ as a requirement when measuring the quality of garment production. This is shown by a high number of 152 respondents, indicated by 94.4% of the population. Similarly, sewing and pattern making is recognized as a key requirement in attaining quality of garment production with a high number of 142 respondents represented by 88.2% affirming that sewing and pattern making is a key requirement in attaining quality of garment production. Again, the researcher's results revealed another item, which is knowledge of the material. This item scored the highest percentage of 100% indicating all 161 respondents affirm the need to include knowledge of the material in the requirement in order to attain the quality expected in the production of garment.

Furthermore, the researcher made an important observation after obtaining the scores for the items, with a total of 102 respondents and also used computer-aided design (CAD) with 85 respondents, that the subsequent items obtained a relatively lower number of respondents, which was below the average percentage score of 50%. These items include quality control with 32.3% representing 52 respondents, knowledge of fashion business 47.8% representing 77 respondents, ethical and sustainable practices 31.1% indicating 50 respondents as well as, item resilience and determination revealing a percentage of 31.1% representing 50 respondent's study. These results suggest that the majority of the respondents do not consider quality control, knowledge of fashion business, ethical garment production and sustainable practices, and resilience and determination as key skill requirements that impact the process of attaining quality garment production.

This prompted the researcher to conduct an evaluation to establish the level of skills, materials, and equipment necessary to improve garment production in the Kumasi metropolis.

Self-reported response on the efficiency of skills, materials, tools, and equipment required to enhance garment production in the Kumasi metropolis."

To evaluate the skills, materials, tools, and equipment used by respondents in garment production in the Kumasi metropolitan area, the researcher first identified the essential components that comprise the prerequisites for measuring skills.

The skills assessment requirements are computer-aided application, machine repair expertise, sewing and garment construction skills, pattern-making skills, quality control skills, production management skills, design skills, textile and fabric knowledge. The material assessment requirement: knowledge and skill in using Clothing Accessories (thread, zippers, buttons, trimmings), and fabric (stable woven and knitted fabrics, such as cotton drill, calico, double knit, rugby knit, and poplin, denim, single knits, tricot, and gabardine). The tools and equipment assessment requirements are the appropriate machine-to-human ratio, operational knowledge, and machine type (domestic sewing machine, commercial sewing machine, plain lockstitch sewing machine). Below are the results of the assessments as shown in Table 4, Table 5, and Table 6.

Table 3: Display of Results from Skills Gap Assessment

Skills Gap Assessment	N	Min	Max	Mean	SD±	Efficiency Percentages% [N]
Computer-aided application	161	1	5	3.94	1.125	34.8 [56]
Machine repair expertise	161	1	5	2.47	1.114	37.9 [61]
Textile and fabric knowledge	161	1	5	3.28	1.290	87.6 [141]
Design skills	161	1	5	3.87	1.166	75.2 [121]
Pattern making skills	161	1	5	4.09	1.054	82.6 [133]
Sewing and garment construction	161	1	5	4.13	.986	83.9 [135]
Quality control skills	161	1	5	3.77	1.140	32.3 [52]

Production management skills	161	1	5	4.23	1.020	47.8[77]
Grand Mean	161	3.84		1.106	/ 100	

Table 5: Display of Results from Material Assessment

Material Assessment	N	Min	Max	Mean	SD±	Efficiency Percentages% [N]
Fabric	161	1	5	3.44	1.855	71.4 [115]
Clothing Accessories	161	1	5	3.01	1.004	47.8[77]
161		1.90		/ 100		

Table 6: Display of Results from Tools and Equipment Assessment

Tools and Equipment Assessment	N	Min	Max	Mean	SD±	Efficiency Percentages% [N]
Human ratio to machine	161	1	5	3.84	1.115	64.6 [104]
Operational knowledge	161	1	5	3.87	1.164	76.4 [123]
Machines types	161	1	5	3.28	1.145	63.4 [102]
161		1.170		/ 100		

Discussion

The researcher upon obtaining the results for objective one: "To examine the requirements of quality garment production among small-scale fashion industry in the Kumasi metropolis.

A study conducted in Malaysia, shows that garment companies determine how their control systems work by conducting routine output quality inspections, regardless of whether they are recognized by the government (Yusof, Sabir, & McLoughlin, 2015). As Yusof, Sabir, and McLoughlin (2015) noted, quality inspections are the primary method of quality control in the apparel industry, and consumers significantly influence the rigor of these procedures. Effective quality control ensures that end-users can be confident in the goods they purchase. The quality of the manufacturing process is crucial for both clients and clothing suppliers (Midha

et al., 2009). Ultimately, manufacturers' efforts to implement quality control and demonstrate their commitment to ongoing development aim to satisfy customers (Dale, Van-Der-Wiele, & Van-Iwaarden, 2007).

This is in line with this present study that, there were diverse requirements used internationally to measure the skills, materials, tools and equipment. Therefore, it was necessary to find the similarities in the requirements used internationally by garment makers and compare or juxtapose with the requirements employed by garment makers in the Kumasi metropolis. This owing to that fact that, garment producers in the Kumasi metropolis do not have a written document that spells out their requirement for quality garment production. This was aimed at establishing what the garment makers requirements are in achieving quality garment production.

Below are the 12 summarized requirements used?

1. Design Skills
2. Creativity
3. Trend Awareness
4. Technical Skills (Technique/Machines)
5. Sewing and Pattern Making
6. Knowledge of Material
7. Finishing
8. Computer-Aided Design (CAD)
9. Quality control
10. Knowledge of fashion Business
11. Ethical and Sustainable Practices
12. Resilience and Determination 108

The researcher subsequently administered questions to establish which of the requirement was used by the respondents in their quality garment production. The respondents also, haven mentioned, which of the 12 requirements they employ in the process of making quality garment help the researcher know implication of the number of people in the study's population that employ the 12 requirements in their work.

Therefore, a statistically significant majority of 152 respondents were identified in the results to consider design skills, as a key requirement in quality garment production. This number indicated that 94.4% of respondents thought having good design skills was important for producing high-quality clothing. Also, this was by extension to examine the respondents' focus to obtain an effective idea generation when they have the task of manufacturing quality garments for their consumers. The results that measured the number of garment makers, who consider creativity as a vital requirement for quality garment production and hence employed it in their garment making showed a significant number of 99.4% of respondents in the Kumasi metropolis, which represents 160 people establishing that creativity was needed in achieving quality garment.

Also, trend awareness, which focused on the need for garment makers to employ current trends in their quality garment production was measured. The results displayed 68.9% of the accessible population, which represented 111 garment makers in this study agreeing to the fact that, the awareness of fashion trend was an important requirement in achieving quality garment production and hence it is employed in their work.

Further, technical skills, which refers to the technique used in garment production as well as machines or equipment used in garment production, are crucial requirements that the respondents in the Kumasi metropolis use in achieving quality garment production. The results for technical 109 skill obtained revealed a high number of 152 respondents, who indicated that it is impossible to do

without technical skills when considering the production of quality garment.

Similarly, sewing and pattern making is recognized as a key requirement in attaining quality of garment production. This revealed from the results obtained from 88.2% of the respondents affirming that sewing and pattern making skills has been one of the longest requirements considered when they want to achieve quality in garment production by themselves or out-source other garment makers to help them meet their deadlines especially when they have a lot of garments to complete in the shortest time.

Again, the researcher displayed results for another requirement used internationally and used locally among garment makers within the Kumasi metropolis, this requirement is captured under item, knowledge of material. This item scored the highest percentage of 100% indicating that all 161 respondents affirm the need for knowledge of material in the requirement, because without it will be impossible to skillfully manipulate the materials to attain the quality expected in various garment production.

Furthermore, the researcher made an important observation after obtaining response for computer-aided design (CAD) from 85 respondents, who consider (CAD) as a requirement garment maker in this study use in achieving quality garment production. This observation was that 47.2% representing 72 people in the study's population do not consider the use any form of digital fashion tool in their idea generation as though the fashion world is advancing in technology rapidly.

Finishing is considered one of the key requirements garment makers in the Kumasi metropolis have adopted in their work to ensure quality manufactured garments, this is established per the agreement of 102 respondents as displayed in the results.

The researcher realized that the number of respondents that agreed to employing requirements such as knowledge of fashion business, quality control, as well as, some professional skills like resilience and determination, ethical and sustainable practices in garment production score relative lower percentages, indicating that less than 47.8% of the respondents agreed to using these requirements when seeking to achieve a quality garment production. This by extension suggested that, there could be a challenge with the majority of respondents' skills and knowledge of these requirements hence the reason for not considering nor employing these requirements in their quality garment product.

Prior to this objective is the establishment of requirements used by the garment makers in the Kumasi metropolis. The researcher haven established requirements by the respondents for their quality garment production, subsequently used the establish requirement as rubrics to assess the efficiency of the skills, materials, tools, and equipment in enhancing the garment production in the Kumasi metropolis.

The researcher haven administered the questions and obtained results from garment makers in this study, assessed the efficiency of garment production in aspects such as skills, materials, tools and equipment. The results for these three aspects of garment production were reported separately, hence in this section, they are discussed separately.

Islam (2020) noted that manufacturing cost (MC) and revenue (R) have an impact on efficiency (E). Efficiency (E) and revenue (R) have been found to be positively correlated, meaning that an increase in the efficiency of ready-made clothing factories would lead to an increase in revenue. Additionally, a negative correlation has been observed between manufacturing cost (MC) and efficiency (E),

indicating that an increase in efficiency would ultimately result in a decrease in cost.

This study is in agreement with the previous study by Isalm (2020) that skills assessment was measured based on requirements such as computer aided application, machine repair expertise, sewing and garment construction skills, pattern making skills, quality control skills, production management skills, design skills, textile and fabric knowledge. The result revealed that when it comes to measuring the efficiency of the respondents' skills in sewing and garment construction, textile and fabric knowledge and its application, pattern making and design skills, translate into idea generation for garment through manual means. In this regard, the garment makers were very competent. This is indicated by the results obtained that, about 80% making the majority of the respondents have relevant knowledge and applicable skills for idea generation, pattern making, sewing, garment construction, as well as textile and fabric manipulation.

It is however unfortunate that these same respondents are inefficient in some areas of their work, these areas include; computer aided application, machine repair expertise, quality control skills, and production management skills. The results displayed 65.2%, making the majority of the respondents had issues with generating ideas through computer aided application. This is because the majority of the respondents were familiar with the manual methods of generating ideas, hence there was the need for the garment makers knowledge and skills to be improved.

Quality control skills was another issue identified from the results obtained with 67.7% of the respondents lacking the knowledge and ability to employ quality control, in checking the quality of the garments that garment makers produce. This further suggests the need for those respondents without these skills to be equipped in that regard.

Furthermore, the machine repair expertise of 62.1% of the respondents, do not have any knowledge or skill to help them become efficient in repairing and manipulating their machines, especially when they are faulty. This has also contributed to the skill inefficiency among the majority garment maker in the Kumasi metropolis. Lastly, the results haven measured the skills of respondents on their production management, revealed a significant number of 84 respondents, representing 52.2% of the population who do not have the expertise in managing their production. This has contributed some inefficiency and inconsistency of the garment making process.

The other aspect that this objective sought to assess the material, tool and equipment. The results on material revealed that the respondents although, they did not have issues with selecting and using different types of fabric there was an inefficiency with the adaptation of various fashion accessories in their garment production. This is owing to the fact that most of these garments use their digression rather than understanding the material appropriateness when integrating different materials. For instance, it is crucial to understand the characteristics of certain metals when integrating them as accessories in a garment production.

Also, the researcher in order to assess the tool and equipment considered human ratio to machine and operational knowledge of which most respondents according to the results obtained were able to efficiently check the number of persons to a machine at a particular time and the knowledge and skill to use the right tools and equipment for the right job. Meanwhile, there are some inefficiencies when it comes to understanding the machines types, brand and specifications. This focuses on the extent to which specific types of machines behave when over used and how long they can last when used frequently,

the advantages of purchasing specific brand over other brand as well as, the power consumption of the machine.

CONCLUSIONS AND RECOMMENDATIONS

It can be deduced from the discussion of the results that, the majority of the respondents owing to their familiarity by reason of their previous knowledge and skills, they consider and employ requirements such as design skills, computer aided design, creativity, trend awareness, technical skills (technique in garment production and machines manipulation and repair), sewing and pattern making, knowledge of material, and finishing for their quality garment production. It is noteworthy that, these inadequacies in requirements for achieving quality garment should be assessed in order to attain a deeper understanding of its impact on the production of quality garment that meet international standard or benchmark.

The study further concluded that, the respondents were efficient in some of the established requirements for quality garment production, these include skills in sewing and garment construction, textile and fabric knowledge and its application, pattern making and manual garment designing skills.

On the other hand, there are some inadequacy skills of the respondents which affected their output and quality garment production. These include computer aided design for garment designing, this is a skill that most garment makers need to be equipped on to meet the ever-growing digitalization in the fashion industry. Also, quality control and production management in garment production has led to some inefficiency, which increases production costs and could potentially result in poor services and products. Also, assessing the knowledge and skill of material, the respondent had mastery on fabric however, there were some inadequacies in the selection and utility of appropriate fashion accessories, which has affected the quality of garment produced.

Furthermore, in assessing the tools and equipment considered by respondents the human ratio to machine and operational knowledge were measured and they were efficient, however there were some inefficiencies when it came to understanding the machines types, that is knowledge on how different brands and specifications work in a given time frame.

The following suggestions were made from the study:

- There should be international and local collaborative training to provide the respondents with new ideas and fresh perspectives and approaches, in order to improve on quality garment.
- Government should establish a program to train the respondents to improve knowledge in computer-aided design, quality control, knowledge of fashion business, ethical and sustainable practices, and resilience and determination to add a few, to ensure quality in garment
- There should be proper invest time in mastering these digital fashion tools and understanding the ins and outs of tools as it significantly enhances your efficiency and creativity as well as in the concept development of the garment production process which involves specific computer-aided design software.
- Respondents should advance in the application of skills in computer-aided application, machine repair expertise, sewing and garment construction skills etc to assess efficiency to equip them in garment designing.

- Furthermore, the small-scale garment respondents perhaps should invest in production management in garment production to solve the inefficiency, to resolve in good production and products. Respondents should be educated to understand machine types, and how different brands and specifications work in a given time frame.

ACKNOWLEDGEMENTS

I acknowledge the good platform given to me by KNUST that deepened my research knowledge. A special tank you to Akosua Mawuse Amankwah, and Michael Oppong from Kumasi Technical University Library and all staff members of Kumasi Technical University whom in diverse ways contributed to the success of this work.

Conflict of interest

This present study had no sponsorship from anywhere; hence, there is no conflict of interest.

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