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Assessment of Garment Quality and its Impact on Environmental Sustainability among Accra Technical University Fashion Design Graduates

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Abbreviations

ATU	Accra Technical University

Abstract

Purpose: This study aimed to examine the ability of Accra Technical University fashion design graduates to assess the quality of garment production and its impact on environmental sustainability.

Methodology/Design: A case study approach was employed using fashion design graduates from the Accra Technical University Fashion Department who completed their studies between 2015 and 2020. A questionnaire was administered to 210 graduates to collect data for the study's objectives. Descriptive analysis was performed using the Statistical Package for Social Sciences (SPSS) software (version 20).

Findings: The study found that fashion design graduates from ATU (2015-2020) could assess garment quality before, during, and after production. They demonstrated adequate knowledge of factors affecting garment quality. However, limited access to testing equipment was a challenge affecting a few respondents. The study suggests that ensuring garment quality is vital for the sustainability of the clothing industry, as it enhances durability and extends the lifespan of garments. The study contributes to the existing literature on quality assessment in garments as well as sustainable fashion.

Practical and Social Implications: The ability of fashion students to assess fabric quality is crucial for the growth and sustainability of the fashion industry. The study emphasises the need for updated curricula and appropriate equipment to better equip fashion students to assess garment quality.

Originality: The study examines fashion design graduates who completed their studies over six years (2015–2020) and are currently working in the industry, focusing on their ability to assess garment quality.

Keywords
Garment, quality, sustainability, fashion graduates, fashion industry, sustainability

1 | INTRODUCTION

Quality refers to the standard by which garments are evaluated based on factors such as durability, fabric, and design. A garment's quality often determines whether consumers keep or dispose of it, with poor-quality items leading to early disposal (Degenstein et al., 2020). Thus, fashion designers must apply their skills in garment quality assessment to produce sustainable clothing. According to Amankwa et al. (2015), skills are the ability to perform tasks expertly and systematically, which is critical in ensuring the longevity and sustainability of clothing. Quality control in garment manufacturing is vital for producing high-quality products, which influence the durability and overall sustainability of the final product (Rahman, 2009). However, some researchers argue that current trends in fashion place little emphasis

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on garment quality (Connor-Crabb & Rigby, 2019). Sustainable fashion, which prioritises reducing the environmental, social, and economic costs of clothing production, is central to the sustainability movement in the fashion industry (Ertekin & Atik, 2014). Consumers' knowledge of the effect of waste on the environment is influencing their decisions towards sustainable fashion (Schiaroli et al., 2024). Mandarić et al. (2022) identify that the sustainability of clothing concerning a particular brand is key in influencing their decision to buy a particular clothing. According to Zhang et al. (2021), consumers' knowledge of the sustainability of a particular clothing contributes decision to buy the clothing. Consumer awareness of the quality of clothing contributes to influencing the patronage of clothing and has the potential to make clothing sustainable (Ng, 2020). Bonelli et al. (2024) opine that the global discussion on fashion and innovation is directed towards achieving sustainable fashion.

Yet, there is limited research on how fashion graduates apply their training in garment quality assessment to meet the demands of sustainability in the global fashion market. Challenges faced with garment quality assessment have been attributed to the assessment of technology and equipment. The influence of fashion education curricula on garment quality assessment by graduate fashion students has not been extensively studied. An examination of how fashion education curricula impact graduate fashion students' ability to assess garment quality would provide information on aspects of fashion education curricula that need attention to improve garment quality assessment. This study, therefore, examines how the quality assessment knowledge gained by graduates of Accra Technical University contributes to sustainable fashion practices. The study was restricted to some aspects of garment quality taught to students at Accra Technical University. Responses from the study were limited to graduate students who completed between the years 2015-2020.

1.1 | Literature Review

1.1.1| Quality Issues in Garment Production

Using data from several research initiatives commissioned by WRAP and Defra, Cooper and Claxton (2022) report on a survey that found various types of garment failure by evaluating discarded items at the end of their life, discussing the causes of such failure, and suggesting potential remedies. According to the poll, colour fading and pilling are the most frequent reasons why clothing fails. Fabric deterioration, unintentional damage, loss of dimensional stability, logo failure, discolouration, and seam holes were further causes. Following technical guidelines for best practices can increase the longevity of clothing, but it also necessitates efficient management of the production and product development processes. Appropriate testing, enhanced technical expertise, cooperation to advance better design practices, and new business models that support garment longevity are all necessary for the implementation of technical solutions (Cooper & Claxton, 2022).

1.1.2| Fabric Production Quality Assessment

The preproduction quality control process involves testing the fabric, accessories, closures, interlinings, sewing threads, and other design aspects before manufacturing the garment (Nayak & Padhye, 2010). As explained, fabric can also be evaluated for comfort, colourfastness, and durability (Nayak & Padhye, 2014).

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1.2.3| Factors Influencing Fashion Work Output

Technology factors: Technological developments in the fashion industry have always had an impact on how clothing is made, supplied, and delivered to customers. The growth of the Internet and improvements in communication technologies have enabled businesses to respond more quickly to the latest market impulses by enabling and speeding up the flow of information from new trends and brands from the customer to the merchant. Customers now have higher expectations as a result of these advancements since they are aware of the latest fashion trends, thanks to the media (Rinnebach and Richter, 2014).

Environmental Factors: Unpredictable occurrences such as floods, tsunamis, and droughts can hinder the maintenance of industrial infrastructure and the growth of cotton. Since a lot of stores shifted their manufacturing to "developing" countries in Asia (Joy et al., 2012). The fast and slow fashion trends that are currently ruling the fashion industry are examined by Chavan (2018). Of the two, the fast fashion model is the most well-known, but the slow fashion model is becoming more and more well-liked because it discourages the excessive and unnecessary use of clothing, which leads to problems with recycling and environmental hazards. To accomplish the ultimate goal of creating lucrative client relationships, he also looks at the internal and external factors that affect the business climate of the fashion sector, as well as methods for overcoming them (Chavan, 2018).

Technical skills: Arasinah et al. (2014) examine the technical knowledge, abilities, and anticipated changes in the garment business over the next ten years. According to the findings of the interviews, drawing, designing, sewing skills, and computer proficiency are the technical skills that employers most value. They discovered that understanding current trends, fashion, and company strategy is knowledge of the desirable competency. The technical skills of the students studying Industrial Clothing Production in vocational high school are attempted to be illustrated by Aisyah et al. (2018). According to their study's findings, students' technical proficiency in nine areas—such as pattern/maker knowledge, cutting, sewing/knitting, finishing, pressing, quality control, packing, and deliveries—indicates that they are generally proficient in the process of creating in the fashion industry.

1.2.4| Finishing and Clothing Output

Sharma (2019) investigated the relationship between finishing (colourfulness, brightness, and sharpness) and how people perceive quality. Thirty people were enlisted for a psychophysical experiment, and a Likert scale was created. Participants were asked to score four fabrics according to the six aspects of image quality on a test form printed on four distinct textures and sheen combinations of fabric. The data was statistically examined, and the results show that consumers prefer fabrics with low texture and sheen and that image sharpness is the best image feature. The study also suggested that picture quality is subjective and observer-dependent and that the structural characteristics of fabrics or substrates may affect how well an image is viewed (Sharma, 2019).

Cooper and Claxton (2022) look at the level of information about garment failure that would be needed by businesses and policymakers who support longer garment lives. According to the data, the most common causes of clothing failure are colour fading and pilling. Failure of the logo, discolouration, collapse of the cloth, accidental damage, loss of dimensional stability, and seam gaps were further issues. Following technical best practice guidelines can result in more durable clothing, but doing so requires effective process management both throughout the product development and manufacturing stages. Implementing technical solutions calls for sufficient testing, improved technical know-how, cooperation

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to promote better design principles, and new business models that promote the longevity of clothing (Cooper & Claxton, 2022). Chowdhury (2018) looked at the effects of unique finishings on 100% cotton woven and knit fabrics. Different physical test outcomes demonstrated that both woven and knit materials are strongly influenced by various special finishes. This study was primarily concerned with the functional characteristics of cotton knit and woven fabrics. These characteristics were affected by chemical treatments, including paper touch, polyethene, polyurethane, wrinkle-free, anti-static, water-repellent, soft, and silky-soft finishes. Based on various finishes, there was no appreciable variation in GSM (grams per square metre).

1.2| Conceptual framework

The conceptual framework looks at all factors that contribute to the learning process in garment quality assessment at ATU, as shown in Figure 1. The conceptual framework sees the quality of lecturers, curriculum used, facilities at the ATU, and the behaviour of the fashion graduates from ATU to affect the quality of garment production education at ATU. The Quality Garment Production Education at ATU is seen to influence professional fashion designers from ATU. The professional fashion designer from ATU is seen to be affected by economic factors such as their access to capital and environmental factors such as the place in which they find their business located. The professional fashion designer from ATU also affects their pre-production, production and post-production quality assessment. The pre-production, production and post-production quality assessment also contributes to their business and environmental sustainability.

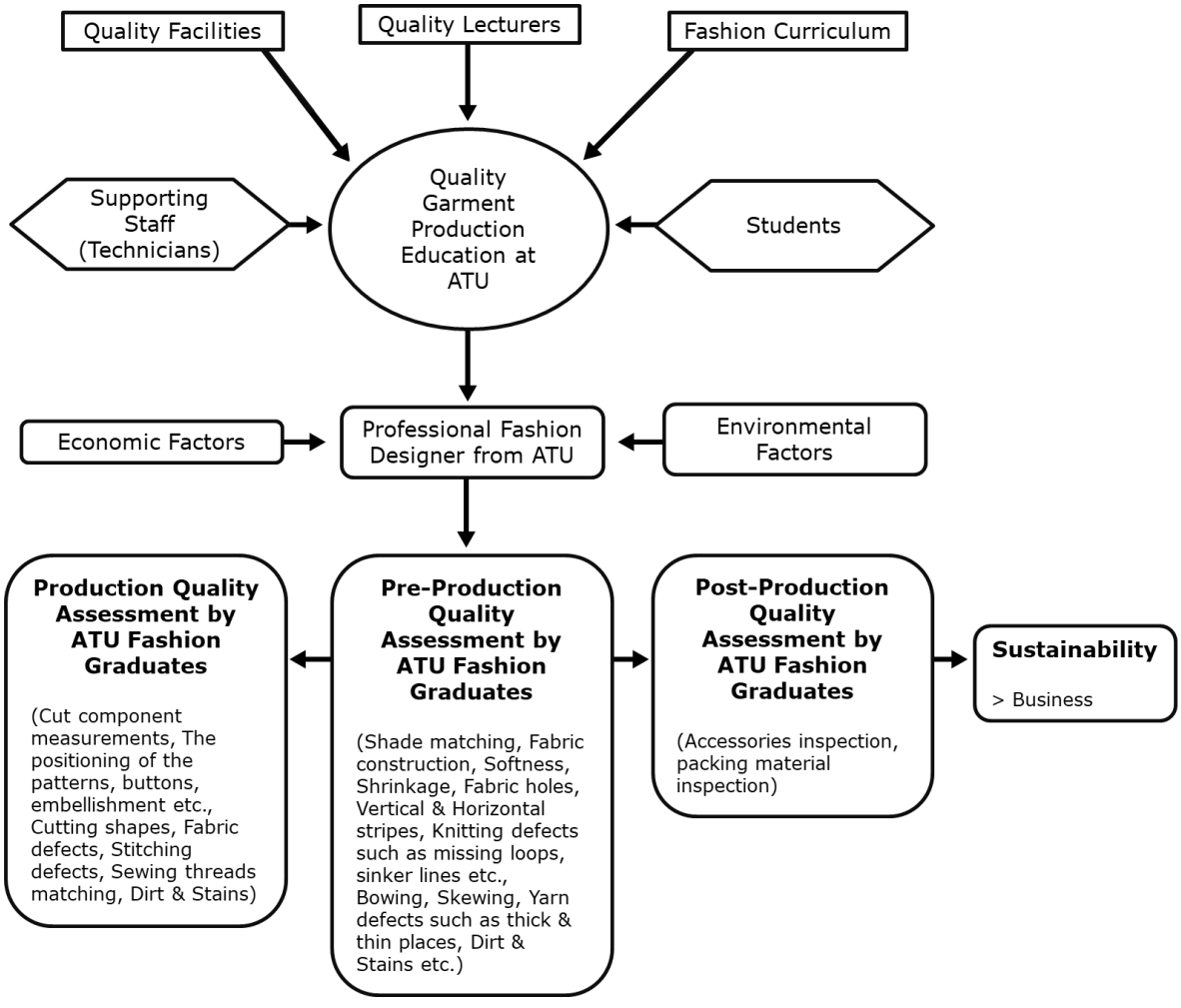


Figure 1. Conceptual Framework Researcher's Construct

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2 | METHODOLOGY

2.1| Research Design

This study used a positivist research paradigm, employing a quantitative research approach to examine the ability of Accra Technical University (ATU) fashion graduates to assess garment quality and its implications for sustainability. The study targeted fashion graduates from ATU who completed their program between 2015 and 2020. A field survey was conducted using questionnaires to gather data on their ability to evaluate garment quality, how this influenced their work, and how their knowledge contributed to sustainable fashion practices. Graduates' contact information was obtained from the Department of Academic Affairs. Those within the Greater Accra region who indicated their availability were selected for the study. A structured questionnaire was used to collect background information and assess the graduates' knowledge of garment quality assessment, including parameters such as fabric construction, fit, design, and overall aesthetic.

2.2| Population for the Study

The population for the study included all fashion graduates from Accra Technical University who completed the program between 2015 and 2020. The total number of graduates was 1,437.

2.3| Sampling Technique(s)/size

Purposive sampling was used to select the fashion department graduates from ATU. Students were selected from ATU because that is one of the public institutions with the highest number of fashion students in the country. Accra also has several fashion designers compared to other parts of the country. Graduates were then grouped by year of completion and degree obtained using stratified sampling. From these strata, simple random sampling was used to select 210 respondents. The sample size was determined using a modification of Cochran's formula to ensure statistical representativeness.

Table 1. Sample distribution for those who have completed the Accra Technical University from 2015-2020

Year	Population of Students who graduated				Sample
	HND	ST 1 BTech	ST2 Non HND	Total	
2015	108	-	21	129	19
2016	141	23	13	177	14
2017	253	20	15	288	22
2018	231	15	5	251	27
2019	231	26	23	280	28
2020	234	25	53	312	100
Total	**1198**	**109**	**130**	**1437**	**210**

2.4| Data collection instrument and procedure

A structured questionnaire was used to obtain relevant information from the respondents. The questionnaire had questions which captured the biodata of the respondents. The questionnaire also captured information on the training received by the students and how this knowledge had impacted their ability to assess the quality of garments. The questionnaire had a Likert scale of 5 to 1 where 1= Does not apply, 2= Not important, 3= Somehow important, 4= Very important, 5= extremely important which tested their knowledge of quality parameters critical in pre-production, production and post-production

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of garments. The questionnaire was developed into a Google form and shared via WhatsApp with each respondent.

2.5| Validity and reliability

The questionnaire was taken through a process where experts were consulted on the validity of the scales used, and where some questions and scales were seen to be inadequate, a review of such questions and scales was done until the final questionnaire was developed. The method adopted was compared with other established methods, data sources and theories to obtain an adequate understanding research procedure. The questionnaire was also pretested before it was used.

2.6| Data Analysis

Descriptive statistics, including frequency distributions, percentages, and measures of central tendency (mean, median), were calculated using SPSS version 20. The results were visualized through bar charts and graphs to enhance clarity.

2.7| Ethical Considerations and Approval

Ethical approval was obtained from the Ethical Board of Accra Technical University before the study commenced. All participants were assured of confidentiality and anonymity. Informed consent was obtained from all participants before data collection, and ethical processes were strictly followed throughout the study.

3 | RESULTS AND DISCUSSION

3.1| Background characteristics

The results of the background characteristics of the study show that the majority of the respondents (70.8%, n=149) are females, with a few being males, as can be seen in Figure 2(a). The results imply that more females than males enrolled on the program from 2015 to 2020. This is indicative that more females prefer to study fashion design compared to males. It consequently implies that most of the fashion designers who practice are mostly females compared to males. Studies by Antiaye et al. (2013) on the competence/skills acquired by students in fashion design concerning the performance expectations of the fashion industry from 1995 to 2010 obtained respondents which comprised 33 males and 107 females from ATU, indicating more females enrolling in fashion design at ATU compared to males. Damalie et al. (2019) also undertook a study to seek feedback from Technical University HND Fashion Students in identifying work experiences fashion students acquired during the S-O IA programme. They sampled 105 students from the ATU and obtained responses from 14 males and 77 females, also showing a higher enrolment for females compared to males at ATU. Also, it was observed that the majority of the respondents (54.5%, n=114) were also identified to be within the age range of 21-25 years, with just a few being 36 years and above, as can be seen in Figure 2(b).

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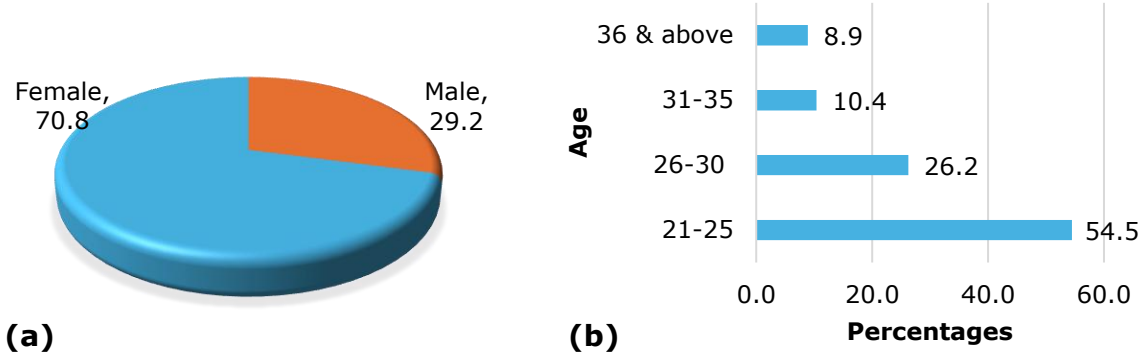


Figure 2. (a) Gender Distribution of Fashion Graduates (2015-2020), (b) Age Distribution of Fashion Graduates (2015-2020). Sample size 210

The results from the age distribution of the graduate fashion students from ATU indicate that most of the students enrolled in the fashion program after completing the second cycle of education. This is because most Ghanaians complete the second cycle of education at age eighteen and enter tertiary education after that age. This could also mean that the urge to learn fashion design is stronger among younger people compared to the elderly. This might be the level of stress associated with the learning of the fashion course.

Most of the respondents (90.1%, n=190) were also observed to be Christians, with a few being Muslims. The results on religion distribution and marital status implied that most Christians enrolled on the fashion program at ATU. Also, most of the single people enrolled on the fashion program at ATU. This observation could be due to the age at which most of them enrol on the program, and in Ghana, fewer people get married at the enrolment age in the tertiary institution. The majority of the respondents (87.1%, n=184) were also identified to be single as compared to a few who were married. The majority of the respondents (62.6%, n=131) had the HND as their qualification in fashion, with a few having a Btech degree (Figure 3a). The majority of the respondents (48.6%, n=100) had completed in the year 2020, with a few completing in the year 2017 (Figure 3b).

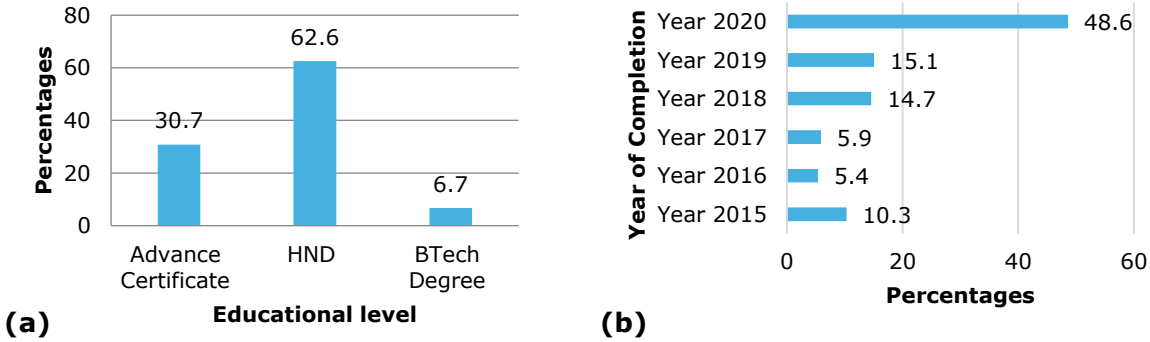


Figure 3. (a) Level of education of Fashion Graduates (2015-2020) (b) Year of completion of Fashion Graduates (2015-2020)

3.2 | Association between gender, religion, educational level and enrolment in fashion programs

A Chi-square test was conducted to assess if gender distribution in the fashion program at ATU significantly differs from other programs. The results indicate a stronger but not significant association (χ^2=5.735, p=0.333) between gender and enrolment in fashion programs (Table 2). This shows that there is gender disparity with the number of fashion students enrolled in ATU each year, over the period examined with more females enrolling each academic year. The strength of the gender difference in the sample was weak and also not significant (Cramer's V =0.172, p=0.333). The Gender disparity among

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students who enrolled in the fashion program at ATU over the period examined was, however, small as well as significant. One such inequity that has defined higher education enrollment in Ghana is gender-based disparity (Quarshie et al. 2023). As of 2018, the data demonstrates consistent trends of inequality in Ghana's tertiary institutions of all kinds (Quarshie et al. 2023).

Table 2. Association between gender and enrolment in fashion programs of Fashion Graduates (2015-2020)

Gender (N=210)	**Year of Completion**						**χ^2**	**Sig.**	**Cramer's V**	**Sig.**
	2015	2016	2017	2018	2019	2020	5.735	0.333	0.172	0.333
Male (n=61)	7	4	9	5	11	25				
Female (n=149)	12	10	13	22	17	75				
Total	**19**	**14**	**22**	**27**	**28**	**100**				

A Chi-square test was also conducted to assess if religion distribution in the fashion program at ATU significantly differs from other programs. The results indicate a weak and non-significant association (χ^2=3.683, p=0.596) between gender and enrolment in fashion programs (Table 3). This shows that the number of fashion students enrolled in ATU each year, over the period examined, was not influenced by the religious background of the students who enrolled in the fashion program. The strength of the religion distribution difference in the sample was weak and also not significant (Cramer's V =0.132, p=0.596). The disparity in the religious background of the students who enrolled in the fashion program at ATU over the period examined was minimal and not significant. Opoku et al. (2015) underscores the importance of religious affiliation in education enrolment, especially at the tertiary level.

Table 3. Association between religion and enrolment in fashion programs Fashion Graduates (2015-2020)

Religion (N=210)	**Year of Completion**						**χ^2**	**Sig.**	**Cramer's V**	**Sig.**
	2015	2016	2017	2018	2019	2020	3.683	0.596	0.132	0.596
Christian (n=190)	18	14	21	23	25	89				
Muslim (n=20)	1	0	1	4	3	11				
Total	19	14	22	27	28	100				

A Chi-square test was also conducted to assess if the educational level in the fashion program at ATU significantly differs from other programs. The results indicate a strong and significant association (χ^2=18.908, p=0.041) between educational level and enrolment in fashion programs (Table 4). This shows that there are variations in the level of the fashion program for the number of fashion students enrolled in the ATU each year over the period examined, with more fashion students enrolling in the HND program each academic year. The strength of the educational level difference in the sample was weak but significant (Cramer's V =0.212, p=0.041). Variation in the educational levels for enrolled in the fashion program at the ATU over the period examined was minimal but significant over the period examined. Amankwaa et al. (2020) identify that there are differences in enrollment levels for programs at the tertiary level of education, with this difference being informed by High School subject combinations, personal interests, career preference, and work opportunities. There are differences in enrollment levels for programs at tertiary institutions in Ghana (National Accreditation Board, 2020).

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Table 4. Association between educational level and enrolment in fashion programs Fashion Graduates (2015-2020)

Educational Level (N=210)	Year of Completion						χ^2	Sig.	Cramer's V	Sig.
	2015	2016	2017	2018	2019	2020	18.908	0.041	0.212	0.041
Advance Certificate (n=65)	7	3	4	3	9	39				
HND (n=131)	11	9	15	24	19	53				
BTech Degree (n=14)	1	2	3	0	0	8				
Total	**19**	**14**	**22**	**27**	**28**	**100**				

A one-way ANOVA was used to test for age differences across different educational qualifications. The analysis revealed that the age distribution between the two groups was statistically significant ($p < 0.05$) (Table 5), indicating that there is a significant variation with age across the different educational qualifications. This shows that students within different age brackets enrolled at different levels of enrolment for the fashion course at ATU. The correlation between age differences across different educational qualifications was statistically significant ($p < 0.05$). This implied that the students in different age brackets enrolled at different levels of enrolment for the fashion program at ATU over the period examined, with the differences in age brackets increasing as students enrolled in higher degrees in the fashion department at ATU. Insah et al. (2015) identify variations in the age of students across different levels of their study. Yusif and Ofori-Abebrese (2017) identify age variation to be associated with different levels of course studies within tertiary educational institutions.

Table 5. ANOVA table for age differences across different educational qualifications for Fashion Graduates (2015-2020)

Educational level (N=210)	Mean±SD	F	Sig.	Correlation coefficient	Sig.
		6.612	0.002	0.214	0.002
Advance Certificate (n=65)	2.57±0.98				
HND (n=131)	2.73±0.89				
BTech Degree (n=14)	3.57±1.16				

A one-way ANOVA was used to test for age differences across different years of completion. The analysis revealed that the age distribution between the two groups was statistically significant ($p < 0.05$) (Table 6), indicating that there is a significant variation with age across the different years of completion. This shows that students within different age brackets completed the fashion course for the different years of completion examined. The correlation between age differences across different years of completion was statistically significant ($p < 0.05$). This implied that the students in different age brackets completed the fashion course for the different years of completion examined with differences in age brackets reducing over the year on completion increased toward 2020. According to Cohen et al. (2022), there are age variations among students who complete the same program in tertiary institutions at different completion years.

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Table 6. ANOVA table for age differences across different years of completion for Fashion Graduates (2015-2020)

Year of completion (N=210)	Mean±SD	F	Sig.	Correlation coefficient	Sig.
		17.492	<0.001	-0423	<0.001
2015 (n=19)	4.05±0.85				
2016 (n=14)	3.64±1.08				
2017 (n=22)	2.95±1.00				
2018 (n=27)	2.41±0.69				
2019 (n=28)	2.57±0.74				
2020 (n=100)	2.44±0.77				

A multiple regression analysis to explore the predictors of age concerning other variables, such as gender, marital status, and year of completion**.** The results showed that marital status was the highest and statistically significant predictor of age (B=1.238, p<0.05), with gender being the least significant predictor of age (B=0.167, p=0.14), as shown in Table 7. This shows that for all the variables which can influence the age of enrolment at the fashion department at ATU, the marital status of the student has the highest influence on the age at which the student enrols at the fashion department at ATU. Students married are more likely to enrol in fashion programs at an older age as compared to single ones. The gender of the student, on the other hand, is the least determinant of the age at which the student enrols in the fashion department of ATU. Female students were likely to enrol in the fashion program at ATU at a younger age compared to male students. Bosu and Dawson-Amoah (2018) identify that marital status plays a key role in enrolment in Tertiary Education, especially in the case of women.

Table 7. Multiple regression analysis exploring predictors of age about other variables, such as gender, marital status, and year of completion for Fashion Graduates (2015-2020)

	Beta	t	Sig.	R squared
Variable				0.444
Gender	-0.167	-1.489	0.138	
Religion	-0.409	-2.371	0.019	
Marital Status	1.238	7.732	0.000	
Educational Level	0.228	2.506	0.013	
Year of Completion	-0.187	-5.982	0.000	

3.3 | Trends in the enrolment of students in Fashion over the years of completion

The results on trends for the different years of completion for the fashion students at ATU for the different year of completion can be seen in Figure 4. The trend shows a steady rise in enrolment till the year 2019, when enrolment dropped, after which enrolment rose in the year 2020. The steady rise in enrolment till 2019 could be attributed to interest in people pursuing fashion as a course in Ghana. The drop in enrolment was caused by the COVID-19 pandemic affected economic activities as well as studies across the country.

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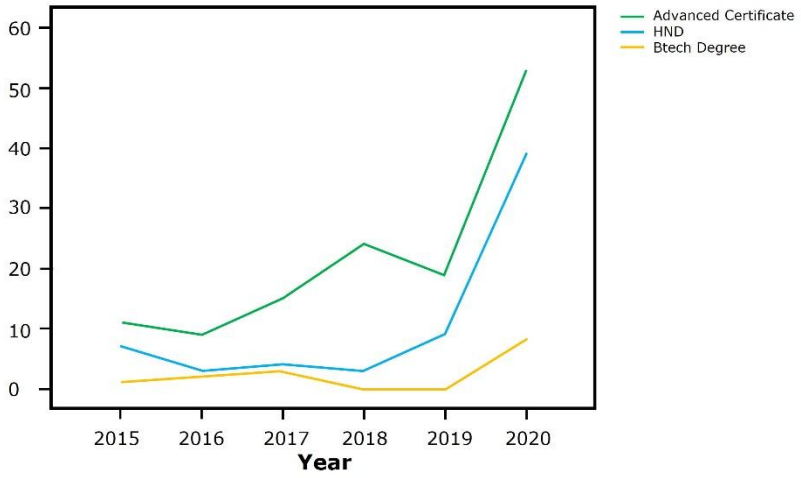


Figure 4. Time-series analysis for trends over the years of completion (2015-2020).

3.4| Training received by graduates from the ATU and its Effect on the quality assessment of garments

The results on the level of training received in school and its effect on the practice of fashion designers showed that most of the respondents (60.5%, n=127) had a Higher Diploma as their level of training in fashion, as shown in Figure 5(a). The majority of the respondents (94.0%, n=190) indicated that the level of training received contributes to the quality assessment of garments (Figure 5(b)). The results on the level of training received and the impact on the quality assessment of garments imply that the graduates from ATU between the periods of 2015 to 2022 have the Higher Diploma as their level of training in fashion. The level of training received contributes to the quality assessment of garments. However, the impact of the level of training received on the quality assessment of garments is moderate but contributes to the quality assessment of garments by improving the value of the clothing.

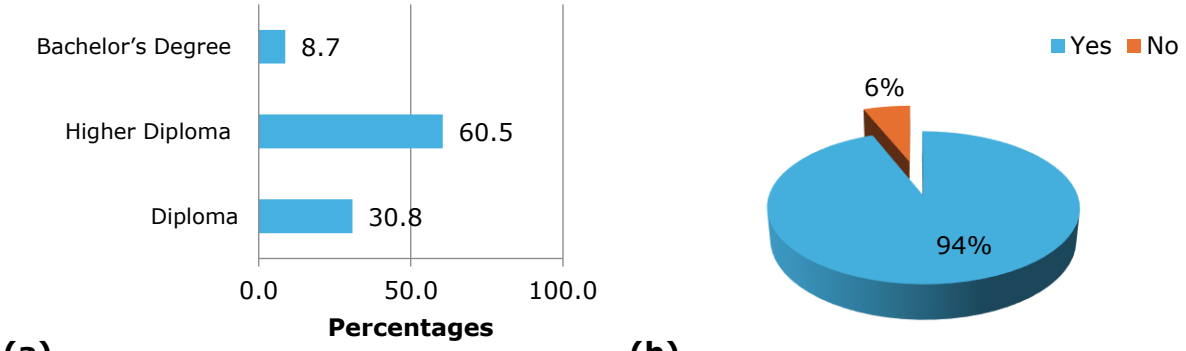


Figure 5. (a) Level of training in fashion designing, (b) The level of training received contributes to the quality assessment of garments

The training on quality evaluation of fashion and garments received from ATU needs to be upgraded. The lack of instructional materials is a persistent problem in sustainable fashion education. According to Murzyn-Kupisz and Houj's (2021) analysis of fashion design education and sustainability shows that the lack of sustainably produced fabrics and sewing and tailoring supplies is another issue that is apparent in the Polish environment. The post-secondary fashion design education curricula are under ongoing pressure to change and adapt due to trends and the shifting circumstances of the contemporary fashion market (Murzyn-Kupisz & Houj, 2021). According to the performance standards of the fashion business, Antiaye et al. (2013) evaluated students' competence and skills in fashion design. It was determined that the fashion design curriculum would be more effective if theory and practice were combined. The industry

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demands students who are practical thinkers, so students need more practical instruction. Once more, freehand cutting ought to be included in the curriculum to prepare students for certain vocational abilities. It was also discovered that competencies and abilities do not come naturally until they are taught or acquired via personal experience (Antiaye et al., 2013).

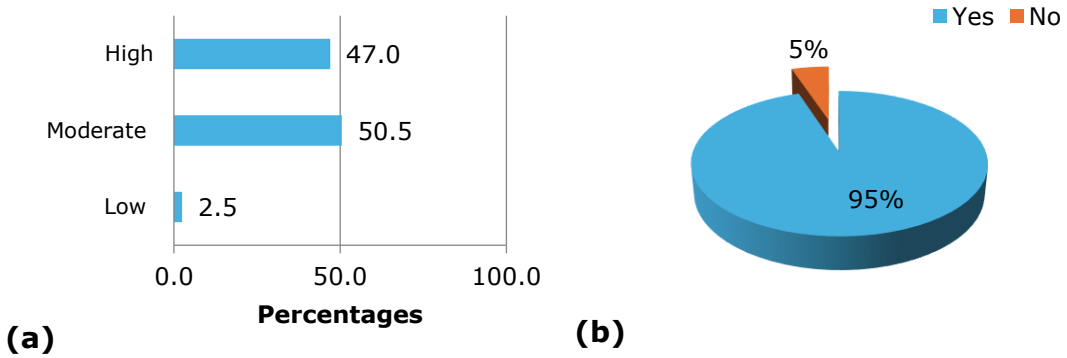


Figure 6. (a) Impact of the level of training received on quality assessment of garments, (b) Upgrading the training on quality evaluation of fashion and garments

Most of the respondents (50.5%, n=106) indicated that the impact of the level of training received on the quality assessment of garments is moderate (Figure 6(a)). Most of the respondents (45.9%, n=97) indicated that the level of training received contributes to the quality assessment of garments by improving the value of the clothing (Figure 7). The majority of the respondents (95.0%, n=199) indicated the training on quality evaluation of fashion and garments received in school needs to be upgraded, as shown in Figure 6b.

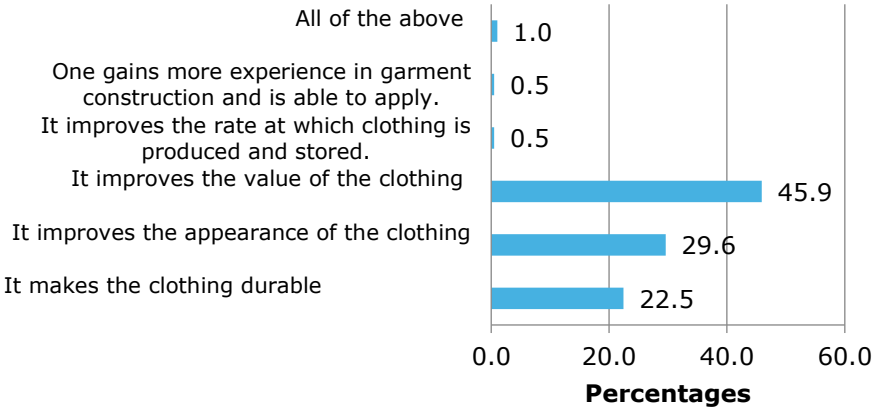


Figure 7. Contribution of training to quality assessment of garments

3.5 | Quality of Garment Assessment by Fashion Graduates

The results on the quality of a garment assessment by graduate fashion designers are presented under pre-production, production and post-production.

3.5.1 | Pre-Production Quality Assessment of Garment

The results on the knowledge of factors that contribute to the quality of the garment showed that for pre-production inspection, most of the respondents (56.0%) indicated that shade matching is very important in contributing to the quality of the garment, as shown in Figure 8. Most of the respondents (38.6%) likewise indicated that grams per square meter (GSM) are very important in contributing to the quality of the garment, as can be seen in Figure 9. Most of the respondents (57.2%) also indicated that matching ribs, collars & cuffs are very important in contributing to the quality of the garment (Figure 10).

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Most of the respondents (51.8%) indicated that dirt and stains are very important in contributing to the quality of the garment (Figure 11).

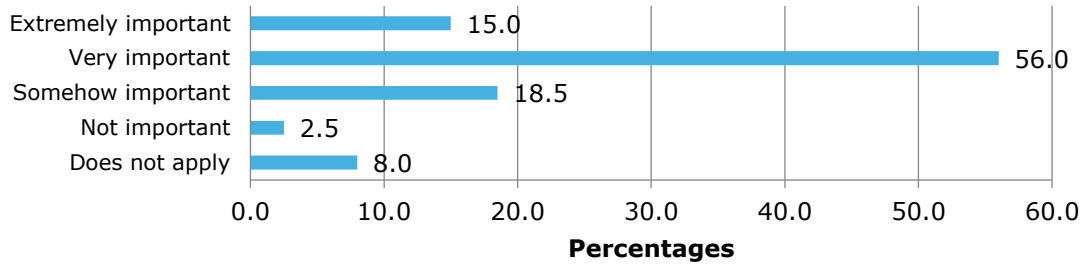


Figure 8. Shade matching is important in pre-production inspection

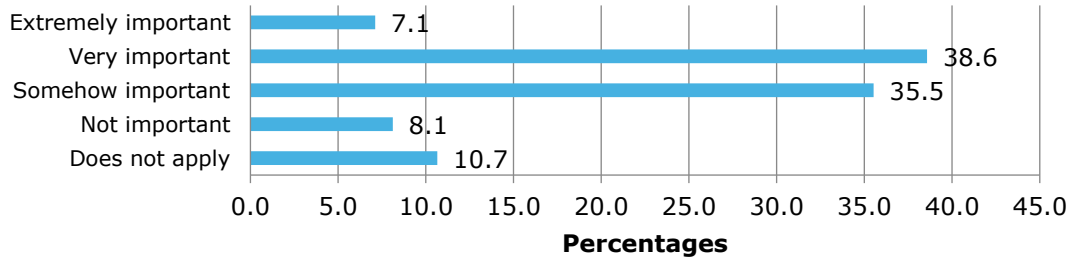


Figure 9. GSM (grams per square meter) is important in pre-production inspection

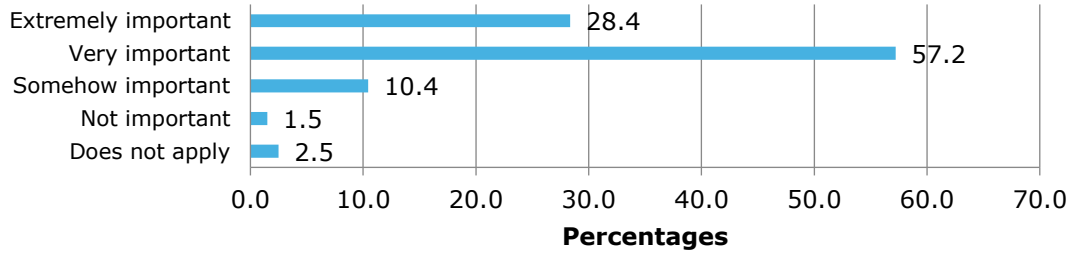


Figure 10. Matching of Rib, collars & cuffs is important in pre-production inspection

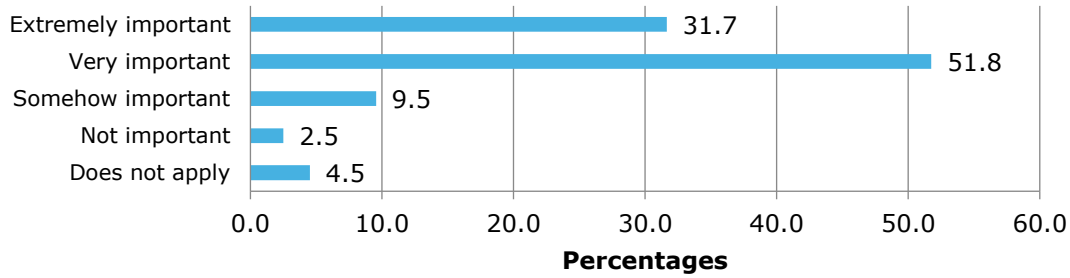


Figure 11. Dirt & Stains are important in pre-production inspection

The results implied that for pre-production inspection, the most important factors per the knowledge of the students that contribute to the quality of the garment are shade matching, grams per square meter (GSM), matching of rib, collars & cuffs, yarn defects such as thick & thin places and dirt & stains etc. Sizwe and Charles (2017) claim that the beginning of the sewing process for clothes is the receipt of an order with precise instructions, pattern creation, fabric procurement, fabric/cloth reading, cutting, fusing, sewing, buttoning finishing, and quality inspection at the end of the process. Some studies have shown the importance of these attributes to the pre-production of garments. According to Sumithra (2019),

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garment construction has both technical and design issues, The designer can choose where to construct lines like pockets, collars, plackets, and sleeves and how to finish edges and how to produce volume and structure to create a good look and experience for the wearer. Xiao and Li (2020) analyse the colour-matching methods of international women's wear brands, explore the operation methods of shade matching of international mature women's wear brands, and take the colour-matching methods and processes in colour planning of Chinese women's wear brands in a season as a practical case so that students can master how to apply the abstract clothing colour theory to the concrete process of clothing colour matching display. They identify that the students are familiar with the shade-matching method of the colour plan of the Brand Company, and the role transformation from students to designers is completed in the latent shift. The effective combination of theoretical teaching and design practice in colleges and universities can be realized, which injects the core competitiveness of innovation into the products of enterprises and makes the innovative and practical talents of colleges and universities connect with the market quickly and seamlessly (Xiao & Li, 2020).

Hannan et al. (2014) compared the effect of different yarn counts & stitch lengths on the spirality, GSM and shrinkage of knitted fabric and identified that when the yarn count is fixed, the increment of stitch length results decrement of spirality, an increment of shrinkage and a decrement of GSM. On the contrary, when stitch length is fixed, the increment of yarn count results increment of spirality, a decrement of shrinkage and a decrement of GSM (Hannan et al., 2014). Begum and Milašius (2022) review recent studies on the weave factor along with the effect of weave parameters and particularly the weave structure on various properties of woven fabric and identify that weave structure has an impact on the physical and mechanical, thermo-physiological and comfort properties, and some special application properties of garment (Begum & Milašius, 2022).

3.5.2 | Production Quality Assessment of Garment

During production inspection, most of the respondents (52.3%) indicated that verifying cutting patterns is very important in contributing to the garment quality, as shown in Figure 12. Most of the respondents (59.1%) indicated that cut component measurements are very important in contributing to the quality of the garment (Figure 13). Most of the respondents (47.2%) indicated that the positioning of the patterns, buttons, embellishments, etc., is very important in contributing to the quality of the garment, as can be seen in Figure 14. Most of the respondents (54.3%) indicated that cutting shapes is very important in contributing to the quality of garments Figure 15. Most of the respondents (57.9%) also indicated that fabric defects are very important in contributing to the quality of garments, as shown in Figure 16.

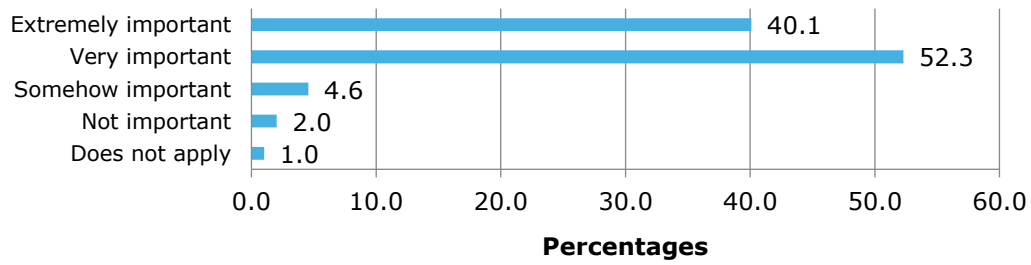


Figure 12. Verify that cutting patterns are important during production inspection

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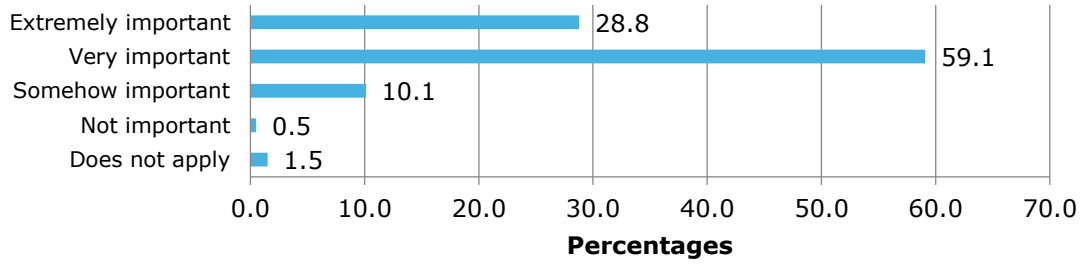


Figure 13. Cut component measurements are important during production inspection

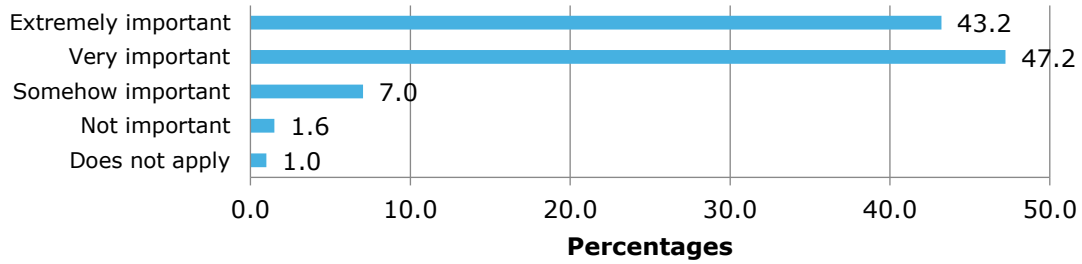


Figure 14. The positioning of the patterns, buttons, embellishments, etc., is important during production inspection

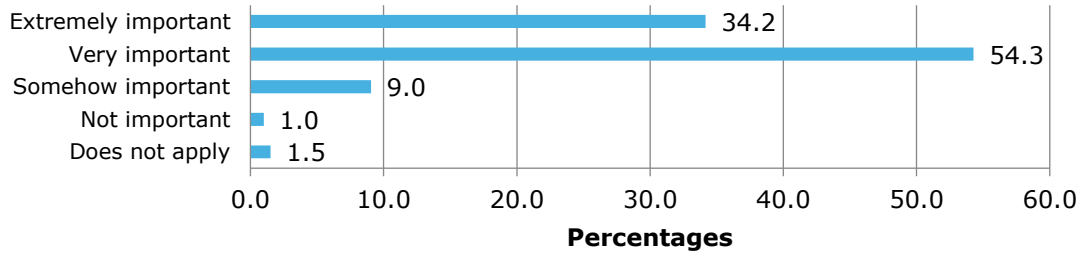


Figure 15. Cutting shapes is important during production inspection

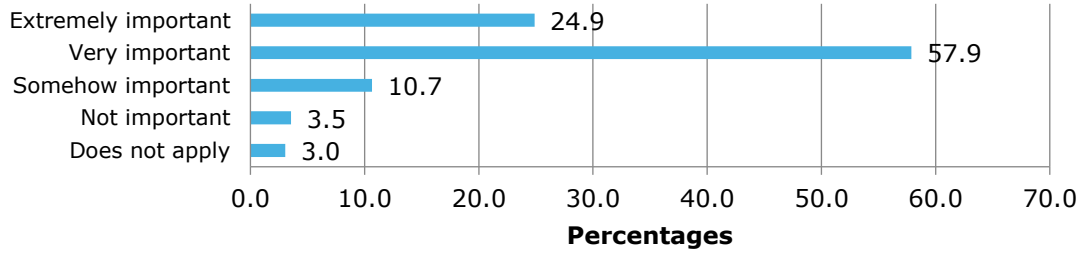


Figure 16. Fabric defects are important during production inspection

The results imply that during production inspection, the fashion design graduates from ATU between the periods 2015 to 2020 agree that verifying cutting patterns, components measurements, the positioning of the patterns, buttons, embellishment, etc., cutting shapes and fabric defects are very important in contributing to the quality of garment. Naznin et al. (2017) look at the process & effective methods of pattern making and identify that pattern-making methods and their way of processing are crucial steps for the industry. The pattern is most important to make an accurate sample for buyers for collecting orders. Except for the pattern, it is difficult to make samples. It always provides a clear idea of the required resources for the industry. It helps to reduce fabric wastage (Naznin et al., 2017). Buttons are small instruments used to fasten two parts of a garment. It is an element that makes the difference

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and enhances a man's or woman's garment, a leather item, or a pair of jeans. Elegant and classical buttons mean style; the perfectly shaped and coloured button is a design feature. Buttons are of different materials, colours, and shapes, and they allow the wearer's personality to stand out, enhancing a garment, a leather item, or some jeans (Textile School, 2019).

3.5.3 | Post-Production Quality Assessment of Garment

Most of the respondents (55.3%) indicated that label attachment and position are very important in contributing to the quality of the garment (Figure 17). Most of the respondents (51.0%) indicated that trims and accessories are very important in contributing to the quality of the garment (Figure 18). The results for post-production inspection imply that the most important factor per the knowledge of the students that contributes to the quality of garment labels attachment and position and trims and accessories.

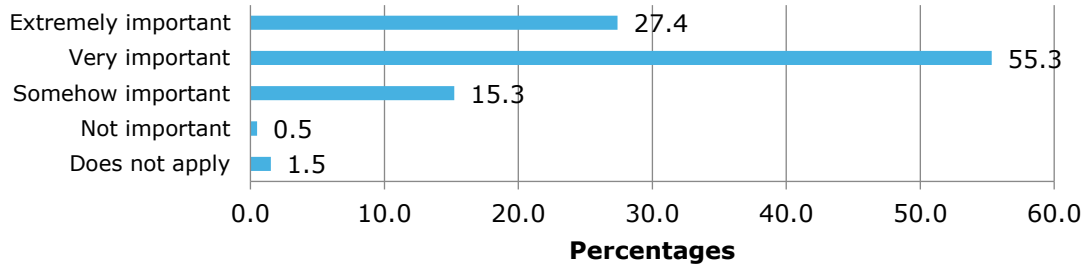


Figure 17. Label attachment and position are important during production inspection

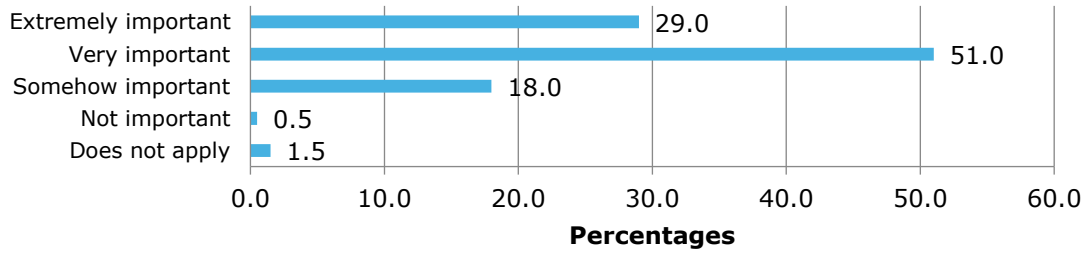


Figure 18. Trims and accessories are important during production inspection

Trims and accessories are used to enhance the aesthetic appeal of the garment. However, any defect in the accessories used in the finished product is bound to invite customer complaints about a garment that is otherwise considered to be of good quality (Nayak & Padhye, 2014). In the garment industry, trims and accessories are used in a wide variety and a huge quantity. This makes the 100% inspection of trims and accessories an almost impossible task. Moreover, inspection alone cannot assure quality. Hence, there is a need to establish an effective and efficient procurement system for trims as a preventive measure (Nayak & Padhye, 2014). A garment label is a communicator between the buyer and the product. A garment label contains various types of information about those garments, such as buyer name, country of origin, types of fabric, types of yarn, fabric composition, garment size, special instructions about care, etc. (Nayak & Padhye, 2014).

The results on the quality of a garment assessment by graduate fashion designers showed that most of the respondents (89.5%, n=188) had adequate knowledge of the assessment of fabric quality. Similarly, the majority of the respondents (95.2%, n=200) had adequate knowledge of the assessment

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of fabric construction. The majority of respondents (92.9%, n=195) had adequate knowledge of the assessment of fabric fit. The majority of respondents (84.3%, n=177) had adequate knowledge of the assessment of fabric design. The majority of respondents (88.6%, n=186) had adequate knowledge of the assessment of Overall Aesthetics, as shown in Table 8. The results of the garment assessment by graduate fashion designers implies that the graduates from ATU between the periods of 2015 to 2022 have relatively good knowledge of the assessment of fabric quality and can determine the quality of a garment. Aakko and Niinimäki (2022) claim that understanding quality from the user's point of view is crucial for understanding the lifetime of clothing in connection to sustainability initiatives. Lekamge and Ekanayake (2021) identify that fashion designers contribute to the internal quality failures of the apparel company. Their understanding of factors which contribute to quality failures is thus very important.

Table 8. Garment Quality Assessment by Fashion Graduates from ATU (2015-2020)

Garment quality parameter (N=210)	Frequency	Percentage
Fabric quality		
Poor	22	10.5
Adequate	188	89.5
Fabric Construction		
Poor	10	4.8
Adequate	200	95.2
Fabric Fit		
Poor	15	7.1
Adequate	195	92.9
Fabric Design		
Poor	33	15.7
Adequate	177	84.3
Overall Aesthetic		
Poor	24	11.4
Adequate	186	88.6

Every industry or business must maintain a certain standard of quality to boost sales and improve its reputation among customers and other businesses. To ensure greater business worldwide, export-oriented businesses in particular need to maintain a high standard of quality. The prestige of the nation is held by companies engaged in exporting, and as a result, export quality control standards are typically very stringent. As export companies generate foreign cash for the nation, it becomes imperative that they maintain a high standard of quality control for their products (Hamzah & Shamsudin, 2020). From the first step of locating raw materials until the stage of the final, completed garment, quality control is conducted in the apparel sector. The quality and standards of fibres, fabric construction, yarn, surface designs, colour fastness, and final garment items are all taken into consideration when determining the quality of products in this industry. The kind of consumer categories and retail locations have an impact on the quality standards for export.

3.6 | Effects of garment quality on sustainability

The results on the impact of the quality of garment examination on the sustainability of the final clothing output showed that the majority of the respondents (99.0%) indicated that they think the quality of garments contributes to the sustainability of the final clothing output, although a few disagreed (Figure 19). Of those who agreed, most of them (57.1%) indicated that the quality of garments contributes to the durability of the final clothing output by improving the life span of the clothing (Figure 20). For those who disagreed that the quality of garments contributes to the sustainability of the final clothing output,

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most of them indicated that the other main attribute of garments contributing to the sustainability of the final clothing output is fitness (Figure 21).

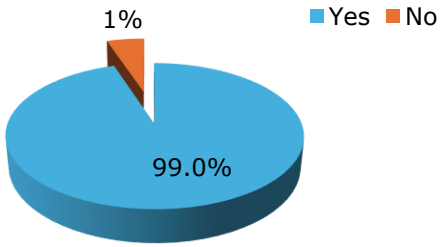


Figure 19. Does the quality of the garments contribute to the sustainability of the final clothing output?

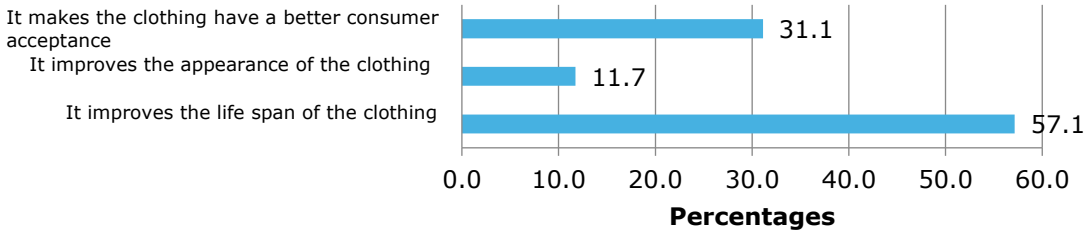


Figure 20. Contribution of the quality of garments to the durability of the final clothing output

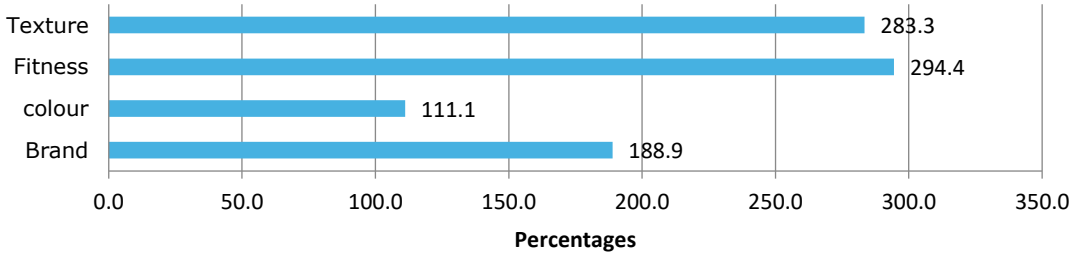


Figure 21. Attributes of garments contributing to the sustainability of the final clothing output.

It is important to maintain a level of quality for every industry or business to get increased sales and a better name amongst consumers and fellow companies. Especially for the business engaged in export business has to sustain a high level of quality to ensure better business globally. Companies that are in the export business hold the prestige of the country, and due to this, generally, quality control standards for export are set strictly. It becomes mandatory to have good quality control of their products as export houses earn foreign exchange for the country (Hamzah & Shamsudin, 2020). Irrespective of the industry, customers will not choose a particular product merely based on the price, nonetheless often on quality. The results on the impact of quality of garment examination on the sustainability of the final clothing output imply that the graduates from ATU between the period of 2015 to 2022 agree that training on quality evaluation of fashion and garments received from ATU needs to be upgraded. The graduates from the ATU between the periods of 2015 to 2022 agree that the quality of garments contributes to the sustainability of the final clothing output by improving the durability of the final clothing output as well as improving the life span of the clothing. The other main attribute of garments that contributes to the sustainability of the final clothing output is fitness. Companies want to attain competitiveness with differentiation (Gupta et al., 2020). This happens when there are distinctive qualities in a product that cannot be imitated by rivals. Quality is essential to satisfy customers to retain their loyalty so that they

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will be willing to buy in the future as well. Quality products make a significant impact on revenues in the long run. Quality is what differentiates a company in a crammed market (Lu et al., 2020).

4 | IMPLICATIONS OF FINDINGS

The ability of fashion students to assess the quality of fabrics is important to the growth and sustainability of the fashion industry. This can influence the quality of clothing produced for people to wear in Ghanaian society, as well as the taste for clothing produced in Ghana. There is a need for curriculum improvements and the provision of instructional materials to enable fashion students to improve their ability to assess the quality of fabrics. There is a need to improve upon curricula for the students to be able to improve their ability to assess the quality of fabric since there are modern and novel methods in the assessment of fabric quality, which seems to be absent in the curricula used in training fashion students. There is a need to integrate freehand cutting into the curricula to enable the student to perform such skills when patterns are not available. There is a need for the Government as well as other stakeholders in the fashion industry to support fashion designers with equipment as well as technology to help them assess the quality of fabric since this appears to be a challenge faced by fashion designers.

5 | LIMITATIONS OF THE STUDY

The study was restricted to some aspects of garment quality taught to students at Accra Technical University. Responses from the study were limited to graduate students who completed between the years 2015-2020.

6 | CONCLUSION AND FUTURE STUDIES

It can be concluded from the study that most of the fashion students who graduated from ATU between the periods of 2015 to 2022 are females within the age range 21-25 years and are Christians as well as single. Most of them also have an HND degree in fashion compared to other fashion degree courses taught at ATU. The graduates from ATU between the periods of 2015 to 2022 have adequate knowledge of factors that contribute to the quality of garments since they were able to identify factors that are important in contributing to the quality of garment pre-production and during the production of clothing. However, the curricula used in teaching limit their ability to adequately assess garment quality. The issue of not having access to equipment to test for the quality of garments they produce is the main challenge although moderate faced by fashion students who graduated from ATU between 2015 to 2022 in determining the quality of garments. The graduates from ATU between 2015 to 2022 agree that the quality of garments contributes to the sustainability of the final clothing output by improving the durability of the final clothing output as well as improving the life span of the clothing. The other main attribute of garments that contributes to the sustainability of the final clothing output is fitness. The approach to sustainable fashion includes better materials, better working conditions, quality of sewing/construction and good finishing. It is recommended that further studies on garment quality assessment and economic sustainability of clothing should be done to see how garment quality assessment affects the sustainability of the business of graduate fashion designers. Studies that look at methods that can facilitate easy integration of curriculum that allows more practical periods should be done to enable the students to practice what they learn while in school.

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ETHICS APPROVAL STATEMENT

The Ethics committee at Accra Technical University approved the set of questions before data collection started. Respondent was told about the purpose of the study; hence his consent was taken before he proceeded to answer the interview questions. Also, the confidentiality and anonymity of respondents was assured.

DATA AVAILABILITY STATEMENT

Data sharing in this article is applicable upon reasonable request from researchers.

CONFLICT OF INTEREST STATEMENT

The author declares no conflict of interest.

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DECLARATION OF GENERATIVE AI AND AI-ASSISTED TECHNOLOGIES IN THE WRITING PROCESS

During the preparation of this work, the author(s) used Quilbolt in order to reword some statements. After using this tool/service, the author(s) reviewed and edited the content as needed and take(s) full responsibility for the content of the publication.

REFERENCES

Aakko, M. & Niinimäki K. (2022). Quality matters: reviewing the connections between perceived quality and clothing use time. *Journal of Fashion Marketing and Management: An International Journal*. 26(1) 107-125. https://doi.org/10.1108/JFMM-09-2020-0192

Aisyah, S., Kustono, D. & Hadi, S.(2018). The Contribution of Vocational Competence Learning to the Creativity in Apparel Making among Vocational School Students. *In International Conference on Indonesian Technical Vocational Education and Association* (APTEKINDO 2018) (pp. 11-15). Atlantis Press. https://doi.org/10.2991/aptekindo-18.2018.3

Amankwa, J., Gbadegbe, R. S. Gbetodeme, S. & Agra F. E. (2015). Improving the Skill Component of Clothing and Textiles among Students in Second Cycle Institutions in Ghana and its effect on the Polytechnic Fashion student. A Case Study of OLA Girls, Mawuko Girls and Mawuli Senior High School in Ho, Ghana. *Journal of Education and Practice*. 6(27), 20-27. https://eric.ed.gov/?id=EJ1077397

Amankwaa, T., Morro, M. & Bossman, G.D. (2020). Dynamic Influences on Students' Choice of Tertiary Education in Ghana. *International Journal of Multidisciplinary Studies and Innovative Research*. 55-95

Antiaye, E., Biney-Aidoo, V. & Oppong, J. A. (2013). Assessment of the Effectiveness of the Fashion Design Programme of Accra Polytechnic from 1995 to 2010. *Journal of Education and Practice*. 4, (21), 56-63. https://core.ac.uk/download/pdf/234634792.pdf

Arasinah, K, Ab. R., Bakar, Ramlah, H., Soaib, A. & Norhaily, Ab. H. (2014). Technical Skills, Knowledge Competencies and Expected Changes in the Clothing Industry. *International Journal of Humanities, Arts, Medicine and Sciences* (BEST: IJHAMS). 2(1), 1-12

Begum, M.S. & Milašius, R. (2022). Factors of Weave Estimation and the Effect of Weave Structure on Fabric Properties: A Review. *Fibers*, 10(9), 74. https://doi.org/10.3390/fib10090074

Bonelli, F., Caferra, R. & Morone, P. (2024). In need of a sustainable and just fashion industry: identifying challenges and opportunities through a systematic literature review in a Global North/Global South perspective. *Discover Sustainability*, 5:186. https://doi.org/10.1007/s43621-024-00400-5

DOI: https://doi.org/10.35738/ftr.v6.2024.16

Bosu R. S. & Dawson-Amoah, G. (2018). Female Access and Participation in Tertiary Education: Do Traditional Beliefs and Practices Matter? *Journal of Business Administration and Education*. 10(2), 23-42.

Chavan, R.B. (2018). Analysis of Fashion Industry Business Environment. *Trends in Textile & Fashion Designing*, 2(4), 212-219. https://doi.org/10.32474/LTTFD.2018.02.000144

Chowdhury, K.P. (2018). Effect of Special Finishes on the Functional Properties of Cotton Fabrics. *Journal of Textile Science and Technology* 04(02), 49-66. https://doi.org/10.4236/jtst.2018.42003

Cohen, A. K., Ryan, S., Smith, L. H., Ream, R. K., Glymour, M. M., Lopez, A. & Yen, I.H. (2022). Educational Attainment past the Traditional Age of Completion for Two Cohorts of US Adults: Inequalities by Gender and Race/ Ethnicity. *Race and Social Problems* 14:208–222. https://doi.org/10.1007/s12552-021-09352-1

Connor-Crabb, A. & Rigby, E.D. (2019). Garment Quality and Sustainability: A User-Based Approach. *Fashion Practice*, 11 (3). 346–374. https://doi.org/10.1080/17569370.2019.1662223

Cooper, T. & Claxton, S. (2022). Garment failure causes and solutions: Slowing the cycles for circular fashion. *Journal of Cleaner Production* 351. 131394. https://doi.org/10.1016/j.jclepro.2022.131394

Damalie, S. A., Forster, P. & Kludzi, E.A. (2019). Feedback on work experiences technical university fashion students acquire during their semester-out industrial attachment programme. *Fashion and Textiles Review*. 1(1), 13-21. https://doi.org/10.35738/ftr.v1.2019.02

Degenstein, L.M., McQueen, R.H., McNeill, L.S., Hamlin, R.P., Wakes, S.J. & Dunn, L.A. (2020). Impact of physical condition on disposal and end-of-life extension of clothing. *International Journal of Consumer Studies*, *44*(6), 586-596. https://doi.org/10.1111/ijcs.12590

Ertekin, Z. O. & Atik. D. (2014). Sustainable markets: Motivating factors, barriers, and remedies for mobilization of slow fashion. *Journal of Macromarketing* 35(1), 53–69. https://doi.org/10.1177/0276146714535932

Gupta, S., Gallear, D., Rudd, J., & Foroudi, P. (2020). The impact of brand value on brand competitiveness. *Journal of Business Research*, 112, 210-222. https://doi.org/10.1016/j.jbusres.2020.02.033

Hamzah, A. A. & Shamsudin, M. F. (2020). Why customer satisfaction is important to business?. *Journal of Undergraduate Social Science and Technology*, 1(1). https://abrn.asia/ojs/index.php/JUSST/article/view/58

Hannan, M. A., Islam, M. M., Kabir, S. M. F., Kaf, A. & Sheikh, S. (2014). Effect of yarn count & stitch length on shrinkage, GSM and spirality of single jersy cotton knit fabric. *European Scientific Journal*.10.36.118-198. https://eujournal.org/index.php/esj/article/view/4897

Insah, B., Mumuni, I. A. & Bowan, A. P. (2015). Demographic Factors and Students' Academic Achievement in Tertiary Institutions in Ghana: A study of Wa Polytechnic. *Journal of Education and Practice*. 4(20).76-80.

Joy, A., Sherry Jr, J. F., Venkatesh, A., Wang, J., & Chan, R. (2012). Fast fashion, sustainability, and the ethical appeal of luxury brands. *Fashion Theory*, 16(3), 273-295. https://doi.org/10.2752/175174112X13340749707123

Lekamge, R., & Ekanayake, N. (2021). Internal Quality Failures of Apparel Industry: A Case from Sri Lanka. *Open Journal of Business and Management*, 9(5), 2389-2406. https://doi.org/10.4236/ojbm.2021.95129

Lu, V. N., Wirtz, J., Kunz, W. H., Paluch, S., Gruber, T., Martins, A., & Patterson, P. G. (2020). Service robots, customers and service employees: what can we learn from the academic literature and where are the gaps? *Journal of Service Theory and Practice*, 30(3), 361-391. https://doi.org/10.1108/JSTP-04-2019-0088

Mandarić, D., Hunjet, A., & Vuković, D. (2022). The Impact of Fashion Brand Sustainability on Consumer Purchasing Decisions. *Journal of Risk and Financial Management* 15(4): 176. https://doi.org/10.3390/jrfm15040176

Murzyn-Kupisz, M. & Hołuj, D. (2021). Fashion Design Education and Sustainability: Towards an Equilibrium between Craftsmanship and Artistic and Business Skills? *Education Sciences*, 11(9), 531. https://doi.org/10.3390/educsci11090531

National Accreditation Board (2020). Tertiary Education Statistics Annual Statistics Report 2019. Available at: https://gtec.edu.gh/download/file/TEI%20Statistical%20Report%202019.pdf (accessed on May 3, 2024)

Nayak, R., Padhye, R. & Gon, D.P. (2010). Sewing performance of stretch denim. *Journal of Textile and Apparel, Technology and Management*, *6*(3), 1-9. https://jtatm.textiles.ncsu.edu/index.php/JTATM/article/view/509/608

Nayak, R. & Padhye, R. (2014). Garment Manufacturing Technology. Woodhead Publishing Series in *Textiles*: Number 168

Naznin, K.N., Tabraz, M. & Sultana, S. (2017). Process & Effective Methods of Pattern Making For the RMG (Readymade- Garment) Sector. *IOSR Journal of Research & Method in Education* (IOSR-JRME). 7, 3. 46-48

Ng, S.K.I. (2020). Consumer attitudes towards sustainability in the garment industry – A consumer study in Hong Kong. Master thesis in Sustainable Development at Uppsala University, No.

DOI: https://doi.org/10.35738/ftr.v6.2024.16

2020/34, 36 pp, 15 ECTS/hp, https://www.diva-portal.org/smash/get/diva2:1448580/FULLTEXT01.pdf
Opoku, J. K., Manu, E. & Wiafe, F. (2015). Religion, education and development in Ghana: a historical perspective. *Global Journal of Arts, Humanities and Social Sciences.* 3(12), 6-18.
Quarshie, A.N., Nkansah, G. B. & Oduro-Ofori, E. (2023). How Far Is Progress? Gender Dimensions of Student Enrollment in Higher Education in Ghana: The Case of Kwame Nkrumah University of Science and Technology. *SAGE: Open,* 13(4), 1–17. https://doi.org/10.1177/21582440231220456
Rahman, M. F., Baral, L. M., Chowdhury, M. A. M. & Khan, A. N. (2009). Quality Management in Garment Industry of Bangladesh. *Management of Sustainable Development*. 1(2). 1-8.
Rinnebach, Dr. P. & Richter, S. N. (2014). Redefining Fashion Business Models: Today's Challenges, Tomorrow's Competitive Edge. Available at: http://www.kurtsalmon.com/uploads/WP%202014_02_Business%20Operating%20Model_final.pdf (accessed on May 3, 2024)
Schiaroli, V., Fraccascia, L. & Dangelico, R. M. (2024). How can consumers behave sustainably in the fashion industry? A systematic literature review of determinants, drivers, and barriers across the consumption phases. *Journal of Cleaner Production,* 483, 144232. https://doi.org/10.1016/j.jclepro.2024.144232
Sharma, P. (2019). *A Study on the Effect of Fabric Structure and Finishing on Perceived Image Quality*. Thesis. Rochester Institute of Technology. https://repository.rit.edu/theses/10093/
Sizwe, M. M. & Charles, M. (2017). Quality Control in the Clothing Production Process of an Under-Resourced Sewing Co-operative: Case Study. In *Proceedings of the 2017 International Symposium on Industrial Engineering and Operations Management (IEOM)* (pp. 698-707). https://www.ieomsociety.org/ieomuk/papers/160.pdf
Sumithra, M. (2019). *Advanced garment construction guide*. Woodhead Publishing India Pvt Ltd. New Delhi.
Textile School. (2019). *Buttons in Garment Manufacturing*. Available at: https://www.textileschool.com/223/buttons-in-garment-manufacturing/ (accessed on October 23, 2022)
Xiao, N. & Li, F. (2020). Analysis on the Application of Color Matching Methods in Color Teaching of Clothing Design Specialty in Colleges and Universities. In *The 6th International Conference on Arts, Design and Contemporary Education (ICADCE 2020)* (pp. 340-346). Atlantis Press. https://doi.org/10.2991/assehr.k.210106.066
Yusif, H. & Ofori-Abebrese, G. (2017). Admission path, family structure and outcomes in Ghana's public universities: evidence from KNUST students enrolled in the social sciences. *Higher Education*, https://doi.org/10.1007/s10734-017-0110-8
Zhang, B., Zhang, Y. & Zhou, P. (2021). Consumer Attitude towards Sustainability of Fast Fashion Products in the UK. *Sustainability*, 13, 1646. https://doi.org/10.3390/su13041646

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