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Improving Kaizen Implementation in the Ghanaian Garment Production Industry: Prioritising Critical Success Factors

Frances Yayra Sefenu [1*], Ninette Appiah Afi [2], Stella Daah Siaw [3], Evelyn Kuupole [4]

[1] Department of Fashion Design and Textiles Studies, Cape Coast Technical University, Ghana.
[2] Department of Fashion Design and Textiles Education, Akenten Appiah-Menka University of Skills Training and Entrepreneurial Development, Ghana.
[3] Wesley College of Education, Kumasi, Ghana.
[4] Department of Industrial Art, Bolgatanga Technical University, Bolgatanga, Ghana.

Correspondence (*)
Name: Frances Yayra Sefenu
Affiliation: Department of Fashion Design and Textiles Studies. Cape Coast Technical University, Ghana.
Email: frances.sefenu@cctu.edu.gh

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Abstract

Purpose: To examine key performance indicators that motivate the adoption of the Kaizen concept, assess challenges encountered during the adoption and prioritise critical success factors for improved Kaizen implementation in garments producing MSEs in Ghana.

Methodology/Design: The study adopted the positivism philosophy, which permitted a quantitative approach. An explanatory design was adopted for the study, and questionnaires were used in collecting data. The sample size was 204 respondents from 514 garment producers in MSEs in the Central region of Ghana. The data collected was analysed using Statistical Packages for Social Sciences software (version 27).

Findings: Key performance indicators (KPIs) that motivate garment producers in the Central region of Ghana to adopt the Kaizen concept are increasing productivity, reducing production costs and improving garment quality. However, challenges like an unstable electricity supply, worker resistance to change, and difficulties in sustaining Kaizen practices hinder progress toward achieving these KPIs. Leadership commitment, workers' training and development and physical work environment are critical success factors that need to be prioritised to improve the implementation and long-term success of Kaizen in the garment-producing industry.

Practical and Social Implications: The findings of the study provide direction to MSEs on integrating Kaizen into their operations to achieve productivity and quality improvements while addressing systemic challenges like an unstable electricity supply and resistance to change. Improving workplace conditions through Kaizen practices can enhance employee well-being and job satisfaction, fostering a more engaged workforce. Additionally, providing training and development opportunities for garment producers helps in embracing the principles and practices of Kaizen.

Originality: The study offers context-specific insights that address the key performance indicators that motivate Kaizen implementation in Ghanaian micro and small businesses (MSEs), in contrast to earlier research that has primarily concentrated on developed economies. Also, this study makes a unique contribution to the literature by identifying and prioritising critical success factors (CSFs) for Kaizen implementation within the context of Ghana's garment industry. In addition, prior to this study, there was a paucity of literature regarding this topic in the study area.

Keywords:
Critical Success Factors, Garment producers, Kaizen, Key Performance Indicators.

1 | INTRODUCTION

The forces of globalisation, largely driven by enterprises in developed countries, have a profound effect on how the global value chain is structured and managed. Nonetheless, rather than succumbing, developing countries such as Ghana, dominated by Micro and Small-sized Enterprises (MSEs), can take advantage of sustainable improvement initiatives to compete favourably in the global value chain (Taglioni

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& Winkler, 2016). Hosono (2020) suggests that MSEs' prospects in the global market will increase by implementing Kaizen, a sustainable improvement project that stresses little, gradual adjustments that add up to major gains in operational efficiency, productivity, and quality.

Kaizen, is a philosophy of sustainable improvement initiative that originated from Japan and was later popularised in the United States and beyond. Toyota Motor Company was the first company to implement Kaizen (Imai, 1986), and since then, it has gained widespread recognition for its significant positive effects on operational performance especially in the garments industry (Hagos, 2016; Mahir et al., 2023; Van Pham, Le, & Tu, 2022). While its relevance to sustainability, efficiency, and adaptability, among others, is well-documented, most empirical evidence comes from studies conducted in Western contexts (Kazancoglu et al., 2024). Thus, its adaptability to various socio-cultural contexts outside the Japanese context is been questioned (Shimada, 2023), particularly among MSEs in developing countries due to different working ethics and socio-cultural and environmental factors (Zvidzayi, 2021). On the contrary, the Kaizen initiative primarily emphasises improvement, teamwork and flexibility in the workplace; its adoption and implementation can be diverse irrespective of geographical location around the globe (Hosono, Page, & Shimada, 2020; Spasojević Brkić et al., 2023).

In Ghana, Kaizen was initiated and implemented in collaboration with the Japan International Cooperation Agency (JICA) between 2012 and 2017 among manufacturing enterprises as part of the government's efforts to improve productivity, competitiveness and sustainability in the manufacturing sector of the economy. Atta-Ankomah et al. (2022) opined that implementing the initiative had a significant impact on the methods, practices and techniques associated with manufacturing enterprises in Ghana, in the long run impacting positively on operational performance. Therefore, it is imperative to increase the application of the initiative across a broad spectrum of both production and manufacturing enterprises in the country (Atta-Ankomah et al., 2022). Although the Kaizen initiative is being adopted in the garment industry in Ghana, its impact and critical success factors remain understudied, limiting our understanding of its effectiveness and scalability. This scarcity of empirical research on Kaizen highlights the need to draw from parallel continuous improvement initiatives that have demonstrated success in other sectors of the country such as healthcare, water services, and the financial sector (Agyepong et al., 2001; Fisher et al., 2020; Srofenyoh et al., 2012) Therefore, providing valuable insights into how continuous improvement approaches can be applied in other sectors.

Given the diverse nature of garment production, where workers' capacities, waste reduction, and product quality are critical, implementing Kaizen as a continuous improvement initiative offers significant benefits. Additionally, for the initiative to remain successful over time, it must be adaptable to evolving industry needs and challenges. Hence the need to examine key performance indicators (KPIs) that influence it adoption as recommended by Georgise and Mindaye (2020), and as well prioritise context-specific critical success factors (CSFs) on how to better sustain the initiative. However, few studies focus specifically on KPIs that drives Kaizen implementation, empirical literature primarily highlights broader continuous improvement initiatives, such as Lean, Total Quality Management (TQM), and Six Sigma (Dora, Kumar, & Gellynck, 2016; Martinez-Jurado & Moyano-Fuentes, 2014; Sahu, Padhy, & Dhir, 2022). Therefore, presenting a gap in understanding unique KPIs that motivate Kaizen adoption, particularly in garment-producing MSEs.

Furthermore, unlike large organisations, MSEs often lack the resources, such as time, manpower, budget, and expert knowledge, needed to implement and manage numerous CSFs. This limitation makes it essential for MSEs to prioritise CSFs strategically for successful Kaizen adoption, as emphasised by

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Belhadi, Touriki and Elfezazi (2018) and Dombrowski, Crespo and Zahn (2010). It is in light of this background that the study aims to contribute to improving the Kaizen implementation index in Ghana's garments industry, drawing on the proven success of other continuous improvement initiatives to address the gap in existing literature. By focusing on CSFs, the study will provide empirical results from the Ghanaian context as it tailors factors that will suit the peculiar opportunities and constraints of garment producers in MSEs in achieving a culture for continuous improvement in production practices. Purposively, the following objectives guided the study:

i. examine key performance indicators that motivate garment producers to adopt Kaizen in their production practices.
ii. asses challenges garment producers encounter during the adoption of Kaizen in production practices.
iii. prioritise critical success factors for improved implementation of Kaizen in garments producing MSEs in Ghana.

1.1| Overview of the Kaizen Philosophy

Literally translated from two Japanese terms, "zen" which means for the better and "kai" for change (Hosono, Page, & Shimada, 2020; Shimada, 2024; Suárez-Barraza, 2023). Thus making change for the better that involves everybody in a community, an organisation or a family in the long term. Although there are various definitions of Kaizen to reflect its core principles, this study operationalises and defines Kaizen as an incremental and participatory approach that seeks to enhance operational efficiency and quality (Al-Hyari et al., 2019; Brunet & New, 2003; Mwenda & Gasper, 2022). Kaizen's fundamental ideas of eliminating waste, streamlining procedures, and organising the workplace boost output while simultaneously enhancing worker safety and morale. Over time, this initiative has proven to be adaptable and successful, having found applications in a range of industries, including production, healthcare, services, and education, beyond its manufacturing roots (Attar, 2021; Shatrov et al., 2021; Suárez-Barraza, 2023). Chotaliya and Mehta (2022) claim that kaizen is applied through a variety of practices, which are sometimes referred to as methods or techniques that are included in the Kaizen concept. According to Chiarini, Baccarani, and Mascherpa (2018), they consist of but are not restricted to Plan-Do-Check-Act (PDCA), Standardise-Do-Check-Act, 5S, Kaizen events, 5 Whys, Total Preventive Maintenance (TPM), and Just-In-Time. Occupational Safety, Health, and Environmental Management (OSHEM), Visual Management, Kaizen Costing, Quality Circle (QC), Employee Development, Enterprise Diagnosis, Toyota Production System (TPS), Kanban System, and Seven Wastes are additional methods. (Al-Hyari et al., 2019; Alvarado-Ramírez et al., 2018).

According to Otsuka, Jin and Sonobe (2018), Kaizen methods, when implemented, should be supported and promoted by all employees, regardless of their position in the company or enterprise, as in the case of successful Japanese companies. However, this is in contrast to traditional companies or enterprises in developing countries, where Kaizen practices are usually undertaken by specific employees who are often considered of lower status. This suggests a shift to a more inclusive strategy in which all workers, regardless of status, should participate in order to promote a culture of shared accountability and ongoing development at all organisational levels. For Kaizen to be successfully implemented in developing countries like Ghana, this strategy is required. Productivity has increased across East Asia, Europe, and North America as a result of the high adoption of Kaizen. This approach has been effective in promoting industrial growth in developing nations, where it has acquired popularity. Although some African countries, such as Ghana, South Africa, and Tanzania, among others, have adopted this philosophy in their industrial policies, the popularity of Kaizen is not widespread among many workers,

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managers and owners of enterprises unfamiliar with the concept (Otsuka, Jin, & Sonobe, 2018). Furthermore, the application of Kaizen has enhanced product quality, making manufactured goods more competitive in international marketplaces. By small and incremental improvement, some economies have moved from an agrarian foundation to an industrial one as a result of adopting the principles of Kaizen. When given the necessary commitment and resources, Kaizen lowers production costs, reduces accident rates, machine malfunctions, and delivery delays, and promotes the maintenance and expansion of market share and competitiveness (Goyal et al., 2019; Ichdan, 2024; Pereira de Carvalho et al., 2023).

1.2| Garment producers in Micro and Small Enterprises in Ghana

Particularly in developing and underdeveloped countries, MSEs are critical to the adaptability, flexibility, and economic development of both smaller communities and countries at large (Adjabeng & Osei, 2022). Accordingly, the Ghana Enterprises Agency uses the "fixed asset and number of employees" criterion to define MSEs (Ghana Enterprises Agency, 2020). A company that employs no more than ten people and has plant and machinery valued at no more than ten million Ghanaian Cedis—excluding land, buildings, and cars—is considered an MSE, according to GEA (2020). Therefore, because MSEs in the Central Region's apparel industry can be readily identified by the number of apprentices or employees working there, the study adheres to the employee concept of definition. This is contrary to the process of valuing fixed assets, which likely poses problems because the mode of accounting system used by these MSEs varies from one another.

The majority of garment producers in Ghana's MSEs mostly engage in the following economic activities: manufacturing clothing, selling haberdashers, and reinventing clothing items to extend their lifespan and promote sustainable consumption (Nyarko, 2022). The Ghanaian garment production industry is largely informal, dominated by women with varying degrees of education. As a result, they make far more contributions to Ghana's apprenticeship and dressmaking systems than males do (Bakker-Edoh, 2018; Sarpong et al., 2023; Senayah, 2018). As the globe moves toward sustainability and increasing possibilities for both developed and developing nations, these advancements help to reduce poverty (SDG 1) and promote economic growth and decent work (SDG 8).

1.3| Key Performance Indicators (KPIs) that motivate Kaizen adoption among Garment Producing MSEs

Competition to meet changing consumer preferences for garment styles is constantly evolving, making it essential for garment producers to prioritise key performance indicators of quality, cost, flexibility, delivery lead time, competitiveness and performance of their products. Consequently, the adoption of continuous improvement initiatives, such as the Kaizen concept, is often proposed to meet such organisational goals (Potkany et al., 2022). Additionally, McDermott et al. (2022) and Chiarini, Baccarani, and Mascherpa (2018) proposed that four important performance indicators—cost, productivity, time/speed, operations flexibility, and quality—are what define production operations management. Long-term success and competitive advantage are fuelled by additional measures of creativity, innovation, and customer satisfaction. These dimensions collectively form the foundation for achieving operational excellence and sustaining growth in an increasingly competitive and dynamic garment-producing industry. Hence, it is fundamental for garment producers to identify lacking KPIs that align with operational needs to necessitate the adoption of Kaizen.

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To this end, KPIs advanced in literature have been clustered into internal and external factors (Bewoor & Pawar, 2010; Sahu, Padhy, & Dhir, 2022; Sternad, Krenn, & Schmid, 2019). Internal factors primarily include waste reduction, reducing rework, product and service quality improvement, planning procedures and organisational performance, among others. In addition, the necessity of creating an all-encompassing improvement strategy framework for enterprises usually motivates Kaizen adoption, as posited by Berhe, Gebremichael, & Beyene (2023). External factors such as responding to customer and competitive pressure, projecting a positive and lasting company brand image, aligning with the company's expectation, improving lead time practices and innovativeness were highlighted by (Lewis, 2000; Okpala, Nwamekwe, & Ezeanyim, 2024; Tezel, Koskela, & Aziz, 2018).

In Tanzania, the drive to boost productivity and quality led to the implementation of the Kaizen philosophy (Gasper & Mwenda, 2023). Similarly, the implementation of the Kaizen concept was motivated by the need for a considerable improvement in a Zambian industry's productivity, reduction in cost and quality (Sichinsambwe et al., 2023). Small-scale enterprises in India were focused on minimising production costs by eliminating non-value-added activities (Muda), improving work systems, promoting employee development, and optimising practices through structured improvements and cross-functional collaboration and consequently adopted Kaizen techniques (Kumar, Dhingra, & Singh, 2018). The lack of key performance indicators for regulatory compliance, customer demand requirements, and the improvement of owners' entrepreneurial capacity led to the adoption of Kaizen among SMEs in the Philippines (Raneses et al., 2020). According to Raneses et al. (2020), small and medium-sized businesses (SMEs) were adopting Lean-Kaizen because they wanted to increase organisational efficiency, address problems through small-scale process changes, cut waste, and incorporate the Kaizen concept into management practices. Ultimately, this leads to higher customer value and better long-term performance. Furthermore, the adoption of the Kaizen concept in textile and clothing SMEs was driven by the need for waste reduction, improved workplace organisation and standardisation in manufacturing processes. This approach not only enhanced production efficiency but also addressed issues like order fulfilment and equipment breakdowns, eventually reducing operational losses (Heredia-Mercado et al., 2021). Quality, delivery, cost, flexibility, and innovativeness were used as key performance indicators by Cua, McKone, and Schroeder (2001) to assess the results of an integrated model of several related Kaizen techniques, including TQM and JIT.

Addressing the aforementioned findings underscores the multifaceted nature of key performance criteria driving Kaizen adoption in SMEs, which aligns with the resource-based view (RBV) theory. This theory suggests that firms with a proactive approach to continuous improvement are better positioned to leverage their internal capabilities for competitive advantage (Barney, 1991). While existing studies identify these motivations, there is a lack of focused research on the specific factors that drive Kaizen adoption in the unique context of local market conditions, competition and government interventions that characterise Ghana's garments production industry (Appiadu, Senayah, & Biney-Aidoo, 2022).

1.4| Challenges Encountered During the Implementation of Kaizen

Despite its potential to drive continuous improvement, many MSEs struggle to achieve successful outcomes. This is because, according to Garcia and Oropesa (2017), the challenges of managing Kaizen strategies are often more complex than anticipated, requiring significant adjustments in organisational processes, culture, and leadership. Furthermore, the failure of Kaizen initiatives impacts the overall performance of enterprises in the long term (Antony et al., 2022). Among the many difficulties, Minh and Quyen (2024) found that SMEs frequently have non-functional organisations, insufficient resources, and

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a lack of experience and competence, all of which make continuous improvement initiatives difficult. Pesotskiy and Grigoreva (2023) emphasised that small businesses may encounter challenges, including poor cost control, heightened financial instability, low profitability, and inadequate responses to market changes if the Kaizen strategy is not planned out properly, ultimately limiting their sustainability and expansion potential.

In the context of Ghana's garment production industry, Table 1 lists the identified challenges that were taken into consideration in the study to empirically analyse the potential challenges that could hamper the successful adoption of continuous improvement (CI) approaches.

Table 1: List of identified challenges associated with the implementation of continuous improvement initiatives

	Identified Challenges	**Findings from Previous Research**													
		1	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**11**	**12**	**13**	**14**
1	Limited awareness of continuous improvement methods	*	*	*	*					*	*			*	*
2	Failure to motivate employees to participate	*	*	*	*	*		*		*		*	*	*	*
3	Abandonment of the Kaizen implementation plan				*					*				*	
4	Employee resistance to change	*	*			*	*		*	*	*	*			*
5	Scarcity of time and financial resources	*	*				*	*		*					*
6	Lack of leadership and management support	*	*		*	*	*	*	*	*	*		*	*	
7	Insufficient employee training	*	*		*	*	*		*	*	*	*	*	*	
8	Inconsistent usage of Kaizen tools				*					*					
9	Difficulties in managing continuous improvement								*				*		*
10	Lack of modern technologies	*								*			*		
11	Poor follow-up systems, e.g. Communication		*							*		*	*		
12	Non-recognition of hardworking employees									*		*			
13	Poor project selection and prioritization									*					
14	Cost of investment	*													
15	Resistance to change existing production floor	*													

Authors: Alsaadi (2024), *2.* Baier (2024), *3.* Mahir et al. (2023), *4.* Dinka (2021), *5.* Salma, Anas and Mohammed (2021), *6*. Georgise and Mindaye (2020), *7*. Abebe and Singh (2019), *8*. Janjić, Bogićević and Krstić (2019), *9*. Rathi and Khanduja (2019), *10*. Ramadas and Satish (2018), *11*. Bwemelo (2017), *12*. Tiwari (2017), *13*. Dora, Kumar and Gellynck (2016), *14*. Maarof and Mahmud (2016).
Source: Researchers' construct (2025)

1.5| Critical Success Factors for Kaizen Implementation in MSEs

Critical success factors (CSFs) are those essential elements that have a major impact on the accomplishment of various organisational initiatives, projects or operations. They serve as focal points for organisational efforts, ensuring alignment and collaboration among teams (Al Kurdi et al., 2022; Pinto & Pinto, 2021). Thus, the lack of any crucial success factor during the planning and execution stages of

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an organisational project may make the difference between a successful implementation and a loss of resources, time, money, and effort (Antony & Banuelas, 2002). An extensive literature review from academic databases resulted in a list of 17 CSFs for improving Kaizen implementation in MSEs. The CSFs were then grouped into four categories (organisational, financial resources, socio-technical, and operations) based on their meanings and similarities, as shown in Table 2. The study takes into account these identified CSFs to empirically explore the possible CSFs that could enhance adoption practices in the context of Ghana's garment production sector.

Table 2: List of CSFs for Kaizen implementation

No.	Category of CSFs	Critical Success Factors	Findings from Previous Research															
			1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
1	Organizational Factors	Kaizen Implementation Plan	*		*	*			*			*						*	
2		Continuous improvement culture	*	*	*		*	*		*	*	*		*		*		*	
3		Owner/leadership commitment		*	*	*	*	*	*	*	*	*	*			*	*		
4		Customer focus			*		*			*		*				*			
5		Adequate resource allocation			*		*												
6	Socio-Technical Factors	Job Characteristics																	*
7		Employee participation	*				*				*						*	*	
8		Effective communication	*	*						*			*		*		*	*	*
9		Workers/employee involvement		*			*	*	*	*			*	*	*	*	*	*	
10	Financial Resources	Employee rewards and recognition			*							*			*				*
11		Financial support for continuous improvement	*		*														
12		Enterprise /business culture and investment																	
13	Operations	Worker's training and development	*	*					*				*	*	*	*	*	*	*
14		Technology usage	*					*				*							
15		Clarity in defining the role of workers					*								*				*
16		Multi-skilled operators																	
17		Standardised Operations	*												*				

Authors: Kazancoglu et al. (2024), *2*. Kuo and Lin (2024), *3*. Mohd Fauzi, Che Razak and Zulqernain (2022), *4.* Singh and Gurtu (2022), *5*. Chowdhury et al. (2020), *6*. Kumar and Mathiyazhagan (2020), *7*. Janjić, Todorović and Jovanović (2020), *8*. Abubakar, Freeman and Oppong (2019), *9.* Mapunda (2019), *10*. Demirkesen and Bayhan (2019), *11.* Swarnakar, Singh and Tiwari (2019), *12.* Poncotoyo (2018), 13. Tortorella et al. (2017), *14*. Nirmala and Faisal (2016), *15.* García et al. (2014), *16.* Rivera-Mojica & Rivera-Mojica (2014), *17.* Martínez-Jurado, Moyano-Fuentes and Jerez-Gómez (2014).
Source: Researchers' construct (2025)

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2 | METHODOLOGY

The study adopted the positivism philosophy, which permitted a quantitative approach. According to positivists, the world around us may be understood by reason and observation (empiricism). A quantitative explanatory design was adopted for the study because this approach seeks to comprehend phenomena through the identification and measurement of causal relationships among them (Creswell, 2014). The participants in the study were 514 registered garment producers who were also MSEs and members of the Ghana National Tailors and Dressmakers Association (GNTDA) from the six main zones in the Central area of Ghana. Yamane's (1967) sample size formula, $n= \frac{N}{(1+Ne^2)}$ was applied to get the study's overall sample size. The sample size of 225 clothing manufacturers in MSEs was determined at a 95% confidence level and a 0.05 margin of error. The study's sample was chosen using a multi-stage sampling process. First, six geographically based clusters of MSEs were created using a cluster sampling approach. Second, respondents were chosen proportionately from each cluster chosen for the study based on their experience and understanding of Kaizen implementation.

A survey questionnaire (closed-ended) was employed for data collection due to its efficiency, scalability and empirical rigour (McMillan & Schumacher, 2001). The instrument, comprising 55 structured items, was developed based on a comprehensive literature review and divided into five thematic areas. A five-point Likert scale with responses ranging from 1 = "strongly disagree" to 5 = "strongly agree" was primarily used. To ensure the validity and reliability of the instrument for data collection, a three-phase validation process was undertaken. First, industry experts reviewed the instrument for content validity, relevance, and clarity. Secondly, a pilot study was conducted with 20 garment producers in Tamale, Northern Region of Ghana, to evaluate question clarity and structure. Feedback from the pilot study led to refinements, including rephrasing ambiguous items and streamlining the structure. Lastly, Cronbach's alpha was used to evaluate internal consistency; the result was 0.91, suggesting good reliability (Cohen, Manion, & Morrison, 2007). Respondents were specifically asked to tick the appropriate box to indicate their response.

Respondents were assured of anonymity, and ethical considerations were given priority. Out of the 225 questionnaires distributed (using face-to-face and digitised platforms strategies), 204 were returned, indicating a return rate of 97.9%. Little's multivariate test for missing completely at random (MCAR) and the expectation maximisation (EM) algorithm methods were used to solve the problem of missing data (Little, 1988). However, the return rate percentage was above average for data analysis, as posited by Blaikie (2003) and Khamkham (2017). The research analysis was conducted using SPSS (version 27). Specifically, descriptive statistics of frequencies, percentages, means, standard deviations and multiple regression were used.

3 | RESULTS AND DISCUSSION

3.1| Respondents' Demographic Characteristics

In contextualising the demographic data of the study, it revealed that approximately 81% (165) of the respondents were females, while 19% (39) were males. The gender dynamics of the study reflect the broad landscape of Ghana's fashion industry, where women play more prominent roles than men. As emphasised by Sarpong et al. (2023) and Senayah (2018), this prominence may be attributed to historical, social, or cultural factors that make the fashion industry more accessible and appealing to women. The age distribution of respondents was predominantly between the ages of 25-34 (57.4%),

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representing a youthful generation that needs to be supported and motivated to boost the economic employment ratio as well as reduce youth unemployment. Furthermore, the study's respondents were mostly SHS graduates, representing 60%, while 28% had progressed to various tertiary levels of education.

Regarding years of experience in business, a greater number of them (117, 57.4 %) have been in operation between 6 and 10 years. This reflects their contribution towards national development, as earlier mentioned. However, 161 (79%) of these enterprises were not registered due to several reasons, including bureaucratic procedures, legal issues, and limited finances, among others. One hundred and thirty-one (131, 64%) garment producers reported they had less than six employees, representing the micro nature of their enterprises, while 73 (36%) reported having between 6-10 employees, representing small enterprises as stipulated by GEA (2020). This finding confirms that the sample for the study is garment producers from MSEs. Overall, the garment producers were engaged in two or more of these operations: fashion designing, tailoring, dressmaking, clothing alteration, event decoration, clothing retailing, garments finishing and haberdashery selling, reflecting the diversified nature of the garment production industry.

3.2 | Key Performance Indicators that motivate Garment producers to adopt Kaizen in Production Practices

Awareness and understanding of Kaizen methods are essential for motivating garment producers to adopt these practices, enabling them to enhance production processes and improve key performance indicators. Therefore, the study investigated garment producers' awareness and practice of Kaizen methods. Given the diversity in garment production processes, respondents were at liberty to provide multiple responses as long as they were aware of and practised it. From a total sample size of 204, garment producers were aware of and practised "5S" (N=187, 91.7%), "Quality control" (N=135, 66.2%), "Seven waste management" (N=119, 58.3%) and "Employee development" (N=105, 51.7%). On the contrary, "Plan-Do-Check- Act (PDCA)" (N= 60, 29.5%), "Visual management" (N=49, 23.9%), "Enterprise diagnosis" (N=35, 17.3%) and "Occupational Safety Health and Environmental Management" (N=24, 11.9%) were hardly practiced. This confirms the assertion by Suárez-Barraza (2023) and Attar (2021) that the Kiazen philosophy has been widely accepted in diverse industries, including the garment production industry in Ghana, as an improvement initiative. More importantly, the high adoption of 5S suggests the foundational and effective nature of this method for improving workplace organisation and productivity, while the significant adoption of Quality control emphasises the relevance of ensuring product quality in garment production. However, PDCA and OSEM require more awareness creation and promotion.

The study further investigated KPIs that motivate respondents to implement Kaizen. Multiple regression analysis was performed on the collected data on KPI variables, and the outcome is shown in Table 3.

Table 3: Multiple regression analysis and KPI variables

Code.	Dependent KPIs Variables	B	SE	β	t-stat	Sig.	
	Constant	2.128	0.381		5.586	0	
KPI1	Improving customer satisfaction.	1.035	0.089	-0.041	6.393	0.01	Sig.
KPI2	Reducing production cost	0.370	0.064	-0.01	3.344	0.001	Sig.

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KP3	Enhancing competitiveness in the market.	0.008	0.047	0.521	-0.235	0.561	Not Sig.
KPI4	Promoting enterprise image	0.006	0.111	0.472	-0.092	0.927	Not Sig.
KPI5	Increasing productivity	2.712	0.863	-0.588	3.145	0.002	Sig.
KPI6	Improving workplace organisation	0.479	0.107	0.609	4.466	0	Sig.
KPI7	Improving garment quality	0.75	0.13	0.357	5.77	0	Sig.
KPI8	Improving standardisation in production practices	0.12	0.49	-.020	4.78	0.14	Not Sig.

Source: Field Survey (2025) R = 0.68 Adj R^2 = 0.62 F(12.99)= 0.000

Regarding the relationship between KPIs and the Kaizen concept, R (0.68) indicates a moderate positive correlation between the two variables (Table 4). The Adjusted R-Square value of 0.62 shows that there was 62 percent of variation caused by the independent variables on the dependent variable. The remaining 38 percent could not be accounted for by this model. Table 4 shows that there was a positive significant effect of improving customer satisfaction [β=1.035, t (6.393), p<0.05)], reducing production costs [β=0.370, t (3.344), p<0.05)], increase productivity [β=2.712, t (3.145), p<0.05)], improving workplace organization [β=0.479, t (4.466), p<0.05)] and improving garments quality [β=0.75, t (5.77) p<0.05)] and the adoption of the Kaizen concept.

While the findings of this study (as indicated in Table 3) align with previous research, the study highlights unique regional priorities and contextual factors shaping Kaizen adoption in Ghana's garment industry. Sichinsambwe et al. (2023) and Potkany et al. (2022) highlighted that the dynamic nature of consumer preferences necessitates continuous improvement, compelling garment producers to focus on cost reduction, performance enhancement, and product quality factors that are prominent in the study. However, unlike previous studies that primarily link Kaizen adoption to competitive market pressures (Lewis, 2000; Okpala, Nwamekwe, & Ezeanyim, 2024), the study's findings underscore a stronger emphasis on internal efficiency improvements and customer satisfaction as key motivators in Ghanaian garment-producing MSEs. Furthermore, the study extends this understanding by demonstrating that Ghanaian garment producers also prioritise workplace organisation as a crucial determinant, reflecting the industry's focus on structured operational efficiency.

Also, the study did not find strong evidence supporting the significance of market competitiveness, production standardisation, and brand image promotion as key motivators for Kaizen adoption in Ghana, despite their emphasis in prior studies (Heredia-Mercado et al., 2021; Lewis, 2000; Okpala, Nwamekwe, & Ezeanyim, 2024; Tezel, Koskela, & Aziz, 2018). This divergence suggests that while global research often links Kaizen to external market positioning, Ghanaian garment producers are more driven by operational and cost-related benefits rather than brand-building efforts. In summary, the findings of the study underscore the need to broaden the awareness and understanding of Kaizen methods among garment producers. By extension, through the awareness sensitisation, non-practising Kaizen garment producers need to be made aware of the relevance of KPIs to production operations and their significant positive relationship to Kaizen adoption.

3.3 | Challenges Garment producers encounter during the adoption of Kaizen in production practices

The study found that several operational challenges are encountered during the adoption of Kaizen. The result in Table 4 offers a wide-ranging view of these challenges based on a five-point Likert scale from 1= "strongly disagree" to 5 = "strongly agree".

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Table 4: Challenges encountered during the adoption of Kaizen in production practices

Code	Statement of challenges	Mean	Std Dev	Rank
CK1	Unstable electricity supply affecting production processes	4.87	0.24	1
CK2	Workers resist changes introduced through Kaizen	4.77	0.45	2
CK3	Difficulty in sustaining Kaizen practices over time	4.62	0.38	3
CK4	Lack of financial resources to promote Kaizen adoption	4.54	0.84	4
CK5	Lack of follow-up mechanisms by industry experts	4.21	0.68	5
CK6	Non-recognition of hardworking employees	4.09	1.05	6
CK7	Limited training on Kaizen practices	3.87	0.65	7
CK8	Lack of modern technologies	3.55	0.54	8
CK9	Inconsistent usage of Kaizen tools	3.51	1.17	9
CK10	Abandoning Kaizen implementation plan	3.21	1.23	10

Source: Field Survey (2025)

Respondents generally agreed with subscale items, with the most pressing challenge being "Unstable electricity supply affecting production processes" (mean score = 4.87, SD = 0.24). This was closely followed by mean scores of 4.77 (SD=0.45) and 4.62 (SD=0.38) for "Workers resist changes introduced through Kaizen" and "Difficulty in sustaining Kaizen practices over time", respectively. While "Inconsistent usage of Kaizen tools" and "Abandoning Kaizen implementation plan" had moderate mean scores of 3.51 (SD=1.17) and 3.21 (SD=1.23), respectively. The findings in Table 4 reflect the various difficulties that garment producers encounter in MSEs, reinforcing Garcia and Oropesa's (2017) argument that implementing and overseeing Kaizen practices is frequently more difficult than expected. Significant changes in organisational procedures, culture, and leadership are necessary for successful implementation, and these changes can be quite difficult, especially for micro, small-scale enterprises.

While the study's conclusions align with previous empirical research by Miller, Wroblewski, and Villafuerte (2014), Pesotskiy and Grigoreva (2023), and Minh and Quyen (2024), it offers a crucial new perspective: the instability of the electricity supply is a significant barrier to the adoption of Kaizen in Ghana's garment production industry. This element has not received much attention in the body of existing Kaizen research, which raises the possibility that infrastructure limitations may be more important in determining the adoption of Kaizen in emerging economies than previously thought.

Furthermore, the results differ from those of Minh and Quyen (2024), who found that the main obstacles to SMEs' efforts at continuous improvement were a lack of resources, insufficient knowledge, and non-functional organisational structures. Even while these elements are still important, this study shows that the infrastructure component, more especially, erratic electricity, is a major operational issue that interferes with the implementation of Kaizen. Similarly, while Pesotskiy and Grigoreva (2023) focused on financial instability, poor cost control, and inadequate market responsiveness as Kaizen-related challenges, findings from the study suggest that even well-planned Kaizen strategies may falter if critical infrastructure remains unreliable.

3.4 | Prioritising CSFs for improved implementation of Kaizen in garments producing MSEs in Ghana

To ensure a successful Kaizen adoption and the subsequent benefits, garment producers must rank CSFs and thus take measures to commit resources geared towards their achievement (Belhadi, Touriki,

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& Elfezazi, 2018; Kazancoglu et al., 2024; Mapunda, 2019). Therefore, the reliability of CSFs subscales was measured using Cronbach's α. The result of the subscales yielded 0.807 (*F*-statistic=5.261, sig.=0.000), making the subscales very reliable for further analysis, as emphasised by Nunnally (1978), the Cronbach α coefficient greater than 0.7 indicates reliability of the scales.

However, out of the 17 CSFs, 13 CSFs were ranked based on the relative importance mean scores, ranging from 3.30 to 4.86, as shown in Table 5. A total of five CSFs obtained overall importance mean scores of 4.00 and over. The one-sample t-test was used to determine whether each CSF had a significant impact on the implementation of Kaizen. All of the CSFs had p-values of 0, indicating that they were all significantly important. Additionally, the Spearman rank correlation coefficient was 0.849 at the 0.05 level, demonstrating statistical significance. This suggested that despite the variations in mean scores, garment producers agreed on the 13 CSFs' overall relevance ranking.

Table 5: Prioritising CSFs for improved implementation of Kaizen

Code	CSFs	Mean	SD	*p*-value	Rank
CSF1	Leadership/ Garment producers' commitment	4.86	0.31	0[a]	1
CSF9	Workers' training and development	4.76	0.39	0[a]	2
CSF4	Customer focus	4.62	0.54	0[a]	3
CSF11	Physical work environment characteristics	4.54	0.60	0[a]	4
CSF8	Workers' rewards and recognition	4.53	0.65	0[a]	5
CSF13	Multi-skilled operators	3.96	0.61	0[a]	6
CSF7	Workers/employee involvement	3.87	0.67	0[a]	7
CSF5	Financial support for continuous improvement	3.59	0.78	0[a]	8
CSF3	Employee participation	3.41	0.89	0[a]	9
CSF12	Technology usage	3.40	0.78	0[a]	10
CSF10	Enterprise /business culture and investment	3.36	0.89	0[a]	11
CSF6	Effective communication	3.35	0.91	0[a]	12
CSF2	Continuous improvement culture	3.31	0.71	0[a]	13

Note: [a]At the two-tailed 0.05 level, the outcome of the one-sample t-test is significant.
Source: Field Survey (2025)

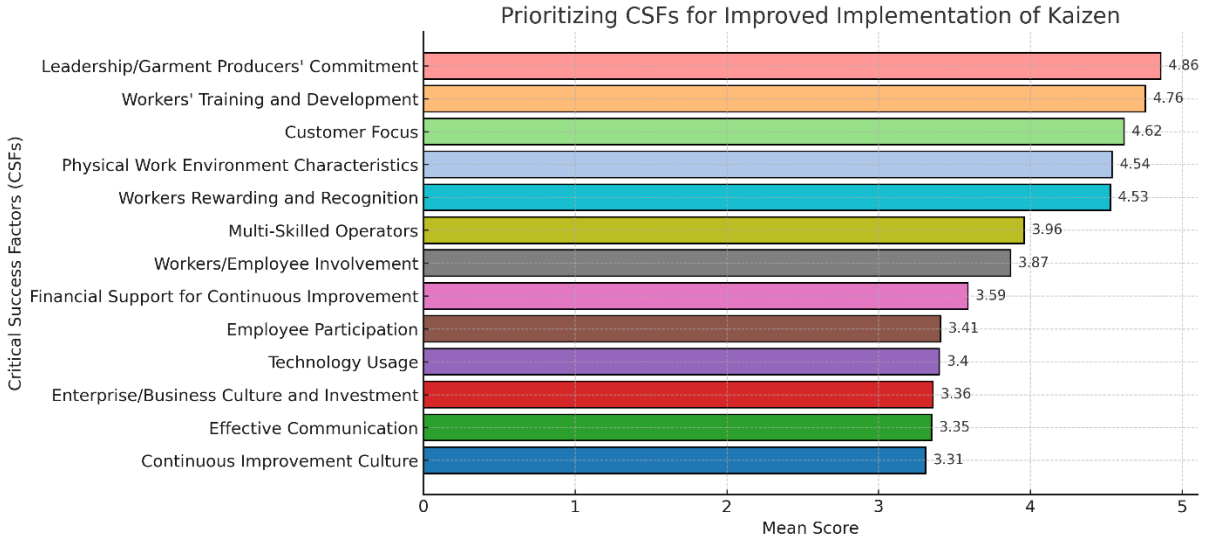


Figure 1. Prioritising CSFs for improved implementation of Kaizen

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The data in Figure 1 reveal that the mean scores for CFS are above the scale's midpoint of 3.00, which suggests that respondents generally concurred with prioritising CSFs for successful Kaizen application. "Owner/Garment producers' commitment" was prioritized first with mean score of 4.86 (SD=0.3), "Workers' training and development" (mean score of 4.76, SD=0.31) ranked second, "Customer focus" with mean score of 4.62 (SD=0.54) ranked third, "Physical work environment characteristics" ranked fourth with mean score of 4.54 (SD=0.60) and Workers rewarding and recognition" with mean score of 4.53 (SD=0.65) ranked fifth towards the prioritisation of CSFs for successful implementation of kaizen.

Leadership commitment was the most significant CSF in this study, while being the second most significant in Mohd Fauzi, Che Razak, and Zulqernain's (2022) study. This finding reinforces the assertion by Achanga et al. (2006) that leadership and management commitment are central to the success of continuous improvement, particularly in micro and small enterprises (MSEs). Given the resource constraints and informal structures characteristic of many Ghanaian MSEs, strong leadership commitment becomes even more critical in driving and sustaining Kaizen practices.

Also, the study's findings are consistent with those of Singh and Gurtu (2022), which ranked employee training and leadership commitment as the top two critical success factors (CSFs) for enterprises, respectively. In contrast to their study, this study emphasises the importance of the physical work environment and customer focus for the implementation of kaizen among Ghanaian garment producers. This contrast highlights the unique operational challenges and customer-driven nature of Ghana's garment-producing industry, where customer preferences and satisfaction significantly influence business sustainability. A notable contribution of this study is the prioritisation of the physical work environment, which has not been emphasised in prior studies such as Kazancoglu et al. (2024), Nirmala and Faisal (2016), and Martínez-Jurado, Moyano-Fuentes, and Jerez-Gómez (2014). In Ghana's garment industry, workspace conditions, including lighting, ventilation, and ergonomic setups, significantly impact productivity and efficiency. This recognition highlights the need for targeted interventions to improve the physical work environment, which could enhance worker performance and facilitate continuous improvement efforts.

This study also reveals that employee reward and recognition, which were overlooked in studies like Singh and Gurtu (2022), Kuo and Lin (2024), and Kazancoglu et al. (2024), is an essential component in encouraging a sense of worth, accountability, and ownership among workers. This is consistent with research by Demirkesen and Bayhan (2019) and Tortorella et al. (2017), which highlights how an organised reward system fosters creativity and a healthy workplace culture. In the Ghanaian context, where job stability and formal incentives may be limited, recognition and rewards play a pivotal role in motivating employees to engage in continuous improvement initiatives.

Last but not least, continuous improvement culture was given the lowest priority, despite Singh and Gurtu (2022), Chowdhury et al. (2020), and Demirkesen and Bayhan (2019) prioritising it highly. This suggests that many MSEs in Ghana operate with a short-term vision for improvement, which contradicts the foundational philosophy of Kaizen. Rymaszewska (2014) highlights that for Kaizen to be effectively institutionalised, businesses must adopt a long-term mindset toward improvement initiatives. This study, therefore, calls for a paradigm shift in how Ghanaian MSEs perceive and integrate continuous improvement, ensuring that Kaizen is not just an isolated intervention but a sustained organisational culture.

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4 | IMPLICATIONS OF FINDINGS

The study's conclusions have major implications for the sustainable implementation of Kaizen methods in Ghana's garment-producing industry. The identification of key performance indicators (KPIs), including increased productivity, reduced production costs, and improved garment quality-emphasizes the transformative potential of Kaizen. In order to ensure that Kaizen principles are incorporated into organisational processes and to promote a culture of continuous improvement, leadership commitment is crucial. The physical work environment is another critical area requiring attention. Improved workplace conditions, such as better lighting, ventilation, and ergonomics, can boost employee productivity and morale, creating a conducive environment for Kaizen. Policymakers and industry stakeholders should consider integrating workplace enhancements into training and development strategies to support long-term growth.

Worker resistance to change underscores the necessity of regular training and development programs. Providing hands-on training in Kaizen practices can demystify the process and equip employees with the skills and confidence needed to embrace continuous improvement. The study's findings suggest that addressing resistance through regular training will not only enhance workforce adaptability but also ensure alignment with Kaizen's productivity and quality goals. An unstable electricity supply remains a systemic challenge, hampering the operational efficiency required to achieve Kaizen outcomes. Investments in alternative energy solutions, such as solar power, are critical for mitigating this issue. Relevant stakeholders should work collaboratively to develop funding mechanisms or subsidies to encourage MSEs to adopt sustainable energy solutions.

Finally, the study highlights the broader role of industry leaders in creating an enabling environment for Kaizen implementation. Policies that prioritise skill development, economic infrastructure investment, and access to sustainable technologies will be vital for overcoming systemic challenges and enhancing industry competitiveness. By addressing these areas, Ghana's garment industry can leverage Kaizen as a strategic tool for achieving its productivity, cost-efficiency, and quality goals.

5 | LIMITATIONS OF THE STUDY

The results of the study may not be as applicable to other areas or industries because it focuses exclusively on the garment-producing MSEs in Ghana's Central Region. Also, the absence of a comparative analysis with industries or regions outside the garments sector limits the ability to contextualise the findings within broader national or global practices. These limitations highlight the need for further research to address these gaps and deepen understanding of Kaizen implementation in varied contexts.

6 | CONCLUSION AND FUTURE STUDIES

While improving customer satisfaction and reducing production costs are consistent with research findings from around the world, workplace organisation stands out as a unique driver of kaizen adoption among Ghana's MSEs garment producers. This highlights their need to optimise operational efficiency and make the most of their limited workspace, underscoring the significance of context-specific Kaizen strategies. A significant challenge to the implementation of kaizen in Ghana's apparel industry is the study's identification of unstable electricity supply, a problem that has not been highlighted in research

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from both developed and developing nations. This is a special contextual problem since frequent power outages impede workflow and restrict consistent Kaizen implementation.

The aforementioned prioritised CSFs are, therefore, essential to the effective application of Kaizen in Ghana's MSE clothing sector since they directly address important issues and strengthen fundamental motivators. Given this, the dedication of clothing manufacturers might lessen obstacles like erratic electrical supplies and the challenge of maintaining Kaizen principles over time. In a similar vein, the sector's main motivation—improving customer satisfaction and competitiveness—aligns with customer focus, while staff engagement and resistance to change are fostered by rewards and recognition. These interconnections distinguish this study from others by highlighting the necessity of a context-specific Kaizen approach that not only targets Ghana's sector difficulties but also responds to international best practices. Future studies could explore ways to overcome systemic barriers that confront garment producers in the implementation of Kaizen. Research on leadership's role in sustaining Kaizen practices among garment producers in MSEs and SMEs is recommended. Also, comparative studies across different regions of Ghana or other industries in the micro-small enterprises of Ghana can help adapt Kaizen practices to diverse contexts.

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ETHICS APPROVAL STATEMENT

The Ethics Committee at the Cape Coast 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 for the study is available upon request.

CONFLICT OF INTEREST STATEMENT

The authors declare no conflict of interest.

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

During the preparation of this work, the author(s) used ChatGPT by OpenAI in order to develop ideas and increase writing clarity. 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.

ORCID

Frances Yayra Sefenu - https://orcid.org/0009-0006-7234-3311
Ninette Afi Appiah- https://orcid.org/0000-0002-6790-240X
Stella Daah Siaw - https://orcid.org/0000-0001-5824-2756
Evelyn Kuupole - https://orcid.org/0009-0007-0555-7712

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AUTHOR BIOGRAPHY

Frances Yayra Sefenu is a Lecturer at the Department of Fashion Design and Textile Studies, Cape Coast Technical University, Cape Coast in the Central Region of Ghana. She holds a Master of Philosophy degree (MPhil) in Home Economics from the University of Cape Coast and is currently a PHD candidate in fashion design technology at Kwame Nkrumah University of Science and Technology, Kumasi, Ghana. A researcher specialising in lean practices and continuous improvement initiatives, particularly in the garment industry of Ghana. Her research interests include clothing production practices, design thinking, management philosophy and financial management.

Ninette Afi Appiah (PhD) is an accomplished academic and industry expert specialising in Fashion Design and Textiles Education, currently lecturing at the Akenten Appiah-Menka University of Skills Training and Entrepreneurial Development in Kumasi, Ghana. With a PhD in Fashion Education and Management, she brings over two decades of experience in teaching, curriculum development, and research, focusing on sustainable practices and innovation in fashion education and industry. Her extensive publications and mentorship of postgraduate students underscore her dedication to advancing technical and vocational education while fostering impactful collaborations that bridge academia and industry.

Stella Daah Siaw is an Assistant Lecturer at the Department of TVET, Wesley College of Education, Kumasi in the Ashanti Region of Ghana. She holds two Masters of Philosophy degrees (MPhil) in Home Economics from the University of Cape Coast and (MPhil) in Fashion Design and Textiles from Akenten Appiah-Menka University of Skills Training and Entrepreneurial Development, Kumasi, Ghana. She is currently a PHD student in fashion design technology at Kwame Nkrumah University of Science and Technology, Kumasi, Ghana. Her research interests include compliance with global best practices, sustainability in the fashion industry, supply chain management in the fashion industry, and technologies used in apparel production.

Evelyn Kuupole is a Lecturer at the Department of Industrial Arts, Bolgatanga Technical University, Bolgatanga in the Upper East Region of Ghana. She holds a Master of Philosophy degree (MPhil) in Home Economics from the University of Cape Coast and is currently a PHD student in fashion design technology in Kwame Nkrumah University of Science and Technology, Kumasi, Ghana. Her research interests include fashion design, sustainability and production practices, cultural costume, time and space management.