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Influence of Modernisation on the Smock Value Chain in Ghana

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Abstract

Purpose: The study examined the impact of modernisation on the Ghanaian smock value chain, with particular attention to how technological advancements, economic, and social transformations are reshaping production, distribution, and consumption patterns.

Methodology/Design: A qualitative case study approach was used to collect data through semi-structured interviews, focus group discussions, and participant observation in key smock production centres, including Daboya, Tamale, Bolgatanga, Navrongo, Wa, and major trading cities. Twenty-five purposively selected participants representing all stages of the value chain, including yarn spinners, dyers, strip weavers, garment producers, merchants, and consumers, were engaged. Data were analysed using reflexive thematic analysis to identify recurring patterns and interpretive themes.

Findings: The study shows that modernisation has significantly reshaped the Ghanaian smock industry. However, the sector continues to face challenges, including limited access to funding, inefficiencies in the value chain, and shortages of key raw materials such as cotton. To promote industry growth and preserve competitiveness, stakeholders are encouraged to increase financial support for small-scale producers, promote the adoption of advanced technologies, invest in workforce development, and enhance sectorwide collaboration.

Practical and Social Implications: The smock value chain contributes to rural development and generates employment opportunities, particularly for youth and women in northern Ghana. Addressing key challenges through effective policies and targeted support can enhance rural economic growth and safeguard cultural heritage.

Originality: This study incorporates the perspectives of value chain participants and offers recommendations to balance innovation and tradition in the Ghanaian smock industry.

Keywords
Smock, value chain, modernisation, traditional textiles, cultural heritage

1 | INTRODUCTION

The use of clothing is closely linked to the lifestyle and cultural practices of individuals within a specific geographical region (Kwakye-Opong, 2011). In Ghana, the distinct textile traditions of the northern and southern regions collectively illustrate the nation's cultural diversity (Abubakari, 2021). Southern Ghana is renowned for Kente, a vibrantly woven fabric historically reserved for royalty but now widely available in global markets (Akinbileje, 2014). In contrast, the northern smock is a loose, handwoven garment originally associated with northern ethnic groups and now recognised internationally as a symbol of Ghanaian identity (Abubakari, 2021). Chiefs and elders have traditionally worn smocks during ceremonies and festivals to signify power, heritage, and communal pride (Abdulai et al., 2016; Essel & Amissah, 2015). In recent decades, modernisation has introduced mechanised production technologies, digital communication tools, and expanded trade platforms into Ghana's textile sector. Although these

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advancements have increased efficiency and expanded market access, they have also disrupted traditional weaving practices and endangered indigenous craftsmanship (Appiadu et al., 2022). The proliferation of imported textiles and mass-produced imitations further erodes the economic sustainability of local artisans and diminishes the authenticity of Ghana's textile heritage (Appiadu et al., 2022). Consequently, the interplay between technological innovation and cultural preservation now defines the dynamics of the smock value chain.

Despite these pressures, smock production in Northern Ghana remains predominantly artisanal and is structured around indigenous knowledge systems rather than industrial models (Abdulai et al., 2016; William et al., 2025). Core production practices, such as handwoven narrow-strip weaving, apprenticeship-based skill transmission, and traditional dyeing methods, persist because they convey symbolic meaning, reinforce regional identity, and uphold cultural legitimacy that mechanisation cannot replicate without substantial loss (Amissah, 2022; Azuah et al., 2024). Furthermore, structural barriers including limited capital, restricted access to modern equipment, and informal organisational structures continue to impede the adoption of advanced technologies within the smock value chain (Abdulai et al., 2016). While existing studies acknowledge aspects of this persistence, research addressing the influence of modernisation across the entire smock value chain remains fragmented. Most scholars focus on production techniques or market access, offering limited analysis of how digitalisation, automation, and changing consumer preferences interact with culturally embedded systems across sourcing, weaving, garment construction and distribution. This research gap impedes the formulation of informed policies and design interventions that balance efficiency, economic viability, and cultural preservation. This study examines the influence of modernisation on the smock value chain in Ghana by analysing how technological, economic, and social changes affect production, distribution, and consumption practices. The research seeks to determine whether modernisation supports or undermines the longterm sustainability and cultural integrity of the smock industry, with the objective of informing policymakers, designers, and artisans in developing context-sensitive strategies for innovation within Ghana's traditional textile sector.

1.1| Overview of the Smock Industry in Ghana

Ghana's smock industry stands as a vibrant testament to the enduring strip-weaving traditions of Northern Ghana. According to oral histories, the origins of the craft were shaped by the migrations of the Mossi and Hausa, who introduced weaving and dyeing techniques to the region (Essel & Amissah, 2015; Tettehfio, 2009). The smock gained national significance in 1957, when Kwame Nkrumah and his compatriots, as shown in Figure 1, wore it during Ghana's independence proclamation, thereby solidifying its role as a unifying symbol of nationhood (Essel & Amissah, 2015). Since the early 2000s, indigenous weaving has seen renewed interest, with the smock becoming a key focus in discussions on heritage, identity, and livelihoods in Ghana (Fobiri et al., 2024). Major centres of production, including Daboya, Tamale, Yendi, Bolgatanga, Wa, and Navrongo, support the craft through household looms, apprenticeships, and integrated retail networks (Abdulai et al., 2016; Asare et al., 2019). Traditionally, the value chain was based on local cotton cultivation, handspinning, and natural dyeing, with men weaving narrow strips on horizontal looms that tailors assembled into garments (Tettehfio, 2009; Asinyo et al., 2021). In contrast, modern production primarily uses imported machine-spun cotton and synthetic yarns, reflecting the decline of local cotton farming and the demand for consistent raw materials (Abdulai et al., 2016; Asare et al., 2019).



Figure 1. Kwame Nkrumah and his fellow compatriots wearing smocks during the 1957 Independence Day Declaration in Accra (Source: https://i.ytimg.com/vi/xf5CPacHt4Q/hqdefault.jpg)

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1.2| Technical Features and Variations of Smock

The smock industry is characterised by labour-intensive processes, with men mainly involved in weaving and garment making, and women in spinning and retail activities (Asare et al., 2019). Apprenticeship programmes provide accessible opportunities for young people, promoting skill development and sustainable livelihoods. Surveys conducted in Tamale and Bolgatanga reveal significant youth participation and highlight the low capital requirements for entry. Despite these advantages, most businesses operate informally and lack essential training in business management (Asare et al., 2019) Ongoing challenges, including high yarn prices, unreliable input supplies, limited access to finance, competition from second-hand clothing, and inadequate branding and standardisation, continue to hinder the sector's export capacity (Asare et al., 2019; Joyce, 2020). Despite these challenges, the smock maintains cultural and economic significance, driven by national identity, tourism, and emerging youth fashion trends. Practices like Daboya's indigo pit-dyeing align with eco-textile narratives and offer sustainability benefits (Fobiri et al., 2024; Asinyo et al., 2021). Modernisation has expanded the smock's appeal through decorative embroidery, larger women's silhouettes, and mechanised stitching (Seidu et al., 2017; Asare et al., 2019). Events such as the Savannah Smock Festival and social media campaigns have further boosted its visibility and market reach (Asare et al., 2019).

1.3| Emerging Smock Styles

In recent years, the smock has transitioned from ceremonial and symbolic use to a versatile fashion item recognised both nationally and internationally (Appiadu et al., 2022). Historically, smocks signified social status and cultural identity through intricate handwoven designs and were primarily associated with royalty, warriors, and sacred rituals. Contemporary designers have reimagined the smock by introducing tailored cuts, diverse colour schemes, and functional adaptations, thereby facilitating its integration into urban wardrobes and everyday fashion (William et al., 2025). New styles such as the yenkisi, banaga, and jampa illustrate the garment's aesthetic diversity and its role in social signalling within modern dress. Additionally, designers are incorporating smock textiles into jackets, dresses, and coordinated ensembles, thereby attracting younger and urban consumers while maintaining cultural authenticity (William et al., 2025). This evolution demonstrates broader cultural dynamism, as heritage textiles are strategically repositioned in contemporary fashion to balance tradition and modernity. Although challenges persist in sourcing raw materials and sustaining artisan practices, the revitalisation of smock weaving highlights its resilience and continued significance, reinforcing its status as both a cultural symbol and a vital element of Ghana's creative industries (William et al., 2025).

1.4| Systemic Challenges and Future Directions

Systemic challenges in Ghana's textile sector, including limited access to capital, inadequate infrastructure, fluctuating consumer demand, and weak enforcement of intellectual property rights, continue to hinder the smock industry's global competitiveness (Appiadu et al., 2022). While modernisation has enhanced the smock's international appeal, its effects on the sustainability of traditional weaving techniques and on equitable economic benefits remain underexplored (Abdulai et al., 2016). To promote the sustainability of the smock industry, coordinated support for production clusters, apprenticeships, and market development is crucial. Policies must address gaps in financing, branding, and export-readiness while safeguarding local dyeing traditions and unique strip-weaving techniques (Seidu et al., 2017; Asinyo et al., 2021). National initiatives, such as the President's Special Initiative on Textiles and Garments and AGOA, have had limited impact on traditional smock clusters due to low awareness and weak implementation (Tettehfio, 2009; Abdulai et al., 2016). Adopting lean production practices that emphasise workflow efficiency and quality can boost productivity in workshops (Ibrahim et al., 2022).

1.5| Value Chain Analysis

According to Porter (1985), as cited by Appiadu et al. (2022), the value chain concept encompasses all activities necessary to move a product or service from initial conception through production and distribution to consumers, culminating in final disposal. Products typically gain additional value as they progress through the supply chain. In the textile and clothing sector, value chains are primarily buyer-

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driven (Hellin & Meijer, 2006). Large trading firms, merchandisers, and retailers coordinate networks of suppliers operating in labour-intensive environments. Value chains are commonly divided into primary activities, such as inbound logistics, operations, outbound logistics, marketing, and after-sales service, and support activities, including strategy, human resource management, technology development, and procurement (Appiadu et al., 2022). Each stage adds value and is interlinked to create a single, integrated system (Kaplinsky & Morris, 2001). As a product progresses through the chain, its value rises. Breaking the chain into these components allows for a more precise assessment of how each stage drives costs and value creation (Hellin & Meijer, 2006). Value chain analysis provides a structured framework for evaluating these activities. It can be applied to a single firm, to industry clusters, or to entire sectors across borders, namely, to global value chains (Zamora, 2016). Early studies focused on the firm level, but more recent work has examined entire sectors, such as the garment industries in Myanmar and Jordan, to identify strengths and weaknesses at the firm, industry, and international levels. McCormick & Schmitz (2001) note that most analyses begin with market mapping, which identifies key actors and their relationships. In Ghana's smock industry, the key actors are cotton farmers, spinners, dyers, weavers, designers, merchants, and consumers. Supporting actors supply market information and research. The chain operates within a wider enabling environment of policies, infrastructure, institutions, and regulations (Hellin & Meijer, 2006; Zamora, 2016). These conditions lie beyond firms' direct control but shape how the chain functions. Understanding them is critical for tracking trends and making a strong case for policy reforms (Kaplinsky & Morris, 2001).

2 | METHODOLOGY

2.1| Research Approach

A qualitative research approach was employed to examine the impact of modernisation on the smock value chain in Ghana. This method enabled a comprehensive exploration of the cultural and social factors influencing changes within the industry. Unlike quantitative methods that focus on statistics and numerical data, qualitative research captures participants' perspectives, experiences, and interpretations, thereby providing the most suitable framework for this study (Creswell, 2013).

2.2| Research Method

The case study method was used to investigate the impact of modernisation on the smock value chain in Ghana. This approach is well-suited to examining complex social phenomena in which the boundaries between the subject and context are unclear (Yin, 2018). Case studies in Daboya, Tamale, Bolgatanga, Navrongo and Wa captured the diverse realities of smock production in Ghana. Trading cities such as Accra, Kumasi and Takoradi were also included. Data collection included semi-structured interviews, focus group discussions, and participant observation, which together provided a comprehensive understanding of the factors driving change within the value chain.

2.3| Population for the Study

The study examined yarn spinners, dyers, strip weavers, smock producers, and smock merchants, who encompass the stages of the smock value chain from raw material preparation to the sale and consumption of finished garments. Table 1 presents the study population.

Table 1. Distribution of accessible population and sample size for the study

Category	Target Population	Accessible Population	Sample Size
Spinners	8	7	3
Dyers	10	5	4
Weavers	15	10	5
Smock Garment Producers	20	12	6
Smock Merchants	15	11	4
Smock Consumers	12	8	3
Total	**80**	**53**	**25**

(Source: Field Research, 2025)

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2.4| Sampling Techniques

The study utilised purposive sampling, a method that intentionally selected participants are uniquely positioned to explain how modernisation influences processes, materials, markets, and the cultural significance of the smock. Focusing on these participants ensured that the collected data were comprehensive, precise, and aligned with the research objectives (Maxwell, 1996).

2.5| Data Collection

Data collection methods included semi-structured interviews, focus group discusions and participant observations. Semistructured interviews were prioritised for their ability to generate detailed responses and adapt to new themes (Bryman, 2016). Focus group discussions among the various actors in the smock value chain enhanced data triangulation by corroborating individual responses with group perspectives, increasing the credibility and depth of the findings. Participant observation in dyeing and weaving centres, markets, and social events documented practices and interactions in the smock value chain. Field notes and photographs supplemented data from interviews and focus groups. Using these multiple instruments enabled data triangulation, enhancing the reliability and depth of the study's findings.

2.6| Ethical Consideration

The research adhered to established ethical guidelines. Participants provided informed consent after receiving clear information regarding the study objectives, their rights, and the intended use of their data. Confidentiality and anonymity were maintained, and participants could withdraw at any stage without penalty.

2.7| Validation and Reliability

To enhance the study's validity and reliability, we employed several methods. We compared interview and observation data to verify key themes regarding how modernisation influences Ghana's smock value chain. We also asked participants to review the findings to ensure their views were accurately represented. Finally, we maintained detailed records of each step, which clarified the research process and facilitated others' review or replication (Tisdell et al., 2015).

2.8| Data Analysis

Interview and observation data were analysed using thematic analysis. The process included transcribing the data, coding, and systematically reviewing the codes to identify recurring themes and patterns regarding the impact of modernisation on the smock value chain in Ghana. Thematic analysis was chosen for its capacity to provide a comprehensive, detailed interpretation of qualitative data, particularly appropriate for examining complex social issues (Ozuem et al., 2022).

3 | RESULTS AND DISCUSSION

This section presents findings on the impact of modernisation on the smock value chain. The results are organised into thematic areas aligned with the research objectives and supported by participant narratives, direct observations, and relevant literature.

3.1| Impact of Modernisation on Smock Production

Global textile and fashion trends are prompting the modernisation of Ghana's traditional textiles, particularly the smock industry. The adoption of innovative tools and concepts, along with access to new markets, is transforming design, production, and distribution processes. Every stage of the smock value chain, from raw material sourcing to design, weaving, and marketing, demonstrates significant impacts of modernisation.

3.1.1| Raw Material Sourcing

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The smock production industry in Northern Ghana is rooted in a longstanding tradition. The production process typically begins with the cultivation, maturation, and harvesting of cotton, as shown in Figure 2 (a, b, and c). These activities are primarily conducted in rural communities across Ghana's northern regions.



Figure 2. Cotton Production in Northern Ghana (a) cotton cultivation, (b) mature cotton ready for harvest and (c) harvesting of cotton (Source: Field Research, 2025)

After harvesting and cleaning, cotton is hand-spun into yarn by older women using a spindle known locally as a jeni. This process increases cotton's value and underscores the significant contributions of women in the early stages of smock production, as illustrated in Figure 3(a). The traditional spinning process is slow and constrained by seasonal conditions, limiting its capacity to meet the growing demand for yarn. As a result, the sustainability of the local spinning industry is threatened. Modernisation has led many weavers to adopt imported industrial yarns that are cheaper, more durable, and consistently available year-round. Figures 3(b) and 3(c) compare hand-spun and factory-made yarns.



Figure 3. (a) An Old woman spinning cotton into yarns, (b) hand-spun cotton yarns and (c) factory-processed cotton yarns (Source: Field Research, 2025)

This change enables them to meet the increasing demand for woven smock strips. However, it also diminishes the craft's cultural significance and reduces the economic opportunities that women previously relied on in this trade.

> *"One positive influence of modernisation on the raw material sourcing is the availability of industrial processed yarns throughout the year."*

This confirms the view of Abubakari (2021) and Doragia (2022) that modernisation has enhanced the supply of materials for smock production by making yarns more consistent, cheaper, and available year-round, thereby alleviating earlier seasonal and quality limitations. On pricing, one yarn supplier explained that:

> *"Anything dealing with importation deals with the dollar. Once the dollar rises, the cost of threads also goes up, and that affects the price of smocks."*

While this shift has removed several operational bottlenecks and increased production scale, it also raises cultural concerns by conservators and scholars such as Seidu et al. (2017), who maintain that imported and synthetic yarns often lack the tactile qualities and embedded cultural meanings of locally produced cotton, thus weakening links between cloth, craftsmanship, and place-based.

3.1.2 Smock Yarn Dyeing

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Traditional smock yarn dyeing in Northern Ghana has depended on natural materials and slow, labour-intensive methods. Dyestuffs such as *dzata* (burnt plant matter or ash, as moulded in Figure 4(a)), fresh indigo leaves (see Figure 4(b), and a local catalyst called *baba* are mixed in deep pits. Dyers burn *dzata*, mix the ash with water, stir in indigo leaves until the bath turns frothy and greenish.



Figure 4. (a) *Dzata* and (b) IndigoLeaves (Source: Field Research, 2025)

One respondent explained:

> "*The traditional dyeing process begins with the preparation of both the yarn and the dye pit, which we call garramang*."

After preparation, warp yarns are dyed using resist patterns created by tying specific sections with rubber strips, as illustrated in Figure 5(a). The yarns are subsequently immersed in earthen pit-dye baths for approximately three days, as shown in Figure 5(b). This method maintains stable temperatures, controls oxygen exposure, and enables complete immersion of long yarns. Compared with rubber basins, the pit-dyeing process produces deeper, more uniform colouration. During dyeing, *baba* (a mordant that enhances the dye's potency) is periodically added to deepen colour and enhance sheen. The pits promote indigo fermentation and ensure consistent dye fixation. A master dyer explained:

> *"The pit keeps the dye alive and strong, so the yarns take the colour properly."*

Another respondent observed:

> *"These pits belong to our fathers and must be used the right way; that is how we protect the craft."*

It is therefore notable that the pits serve both technical and cultural functions, reinforcing Daboya's reputation as a centre of traditional smock dyeing. After periodic inspection, the yarns are removed, air-dried, and oxidised to achieve a rich blue hue, as depicted in Figure 5(c).



Figure 5. Traditional Indigo yarn dyeing, daboya (a) cotton yarns (b) dyeing in pit and (c) dyed yarns (Source: Field Research, 2025)

One participant noted:

> *''To achieve full natural dyeing, the process can take up to a month."*

In recent times, modernisation has introduced faster, more powerful methods of dyeing yarns. Many local dyers now use synthetic indigo, which delivers stronger colour, reduces dyeing time, and meets market demands for consistency and durability. One dyer noted that:

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"With synthetic dyeing, I finish in three days what used to take three weeks; clients now expect that speed."

Although natural dyeing techniques possess significant cultural value, they exhibit lower wash, light, and abrasion fastness than both domestic and imported synthetic dyes. This limitation presents challenges for artisans attempting to balance traditional aesthetics with the functional demands of contemporary textile markets. This observation is consistent with Fried et al. (2022), who note that while natural dye methods provide cultural depth, they are less effective in terms of wash, light, and abrasion fastness than both local synthetic and imported yarns. Modern materials have influenced contemporary design preferences. Dyers are increasingly employing non-traditional warp colours and metallic embroidery yarns to meet evolving consumer demands. As one dyer remarked:

"Younger buyers often say they do not want the usual blue available on the market. They prefer something fresh that they can wear in town."

The transition from natural to synthetic dyeing methods underscores the tension between preserving cultural heritage and addressing contemporary market requirements. Although synthetic dyes facilitate faster processing, consistent colouration, and enhanced durability, their widespread adoption may diminish the unique characteristics of traditional smock craftsmanship. To sustain the cultural and economic significance of the smock, it is necessary to investigate hybrid strategies that integrate indigenous dyeing practices with recent advances in natural dye technology, thereby achieving performance and aesthetic qualities comparable to those of modern textiles.

3.1.3 Smock Strip Weaving

Modernisation is altering the production methods employed by smock weavers in Northern Ghana. While traditional handlooms continue to play a significant role in daily activities, many artisans are now adopting modernised looms to improve production efficiency, as shown in Figures 6(a), 6(b) and 6(c). These modernised looms differ in construction from traditional narrow-strip looms, enabling broader and more efficient weaving.



Figure 6. (a) Narrow Loom and (b) Metal Loom (Source: Field Research, 2025), and Merchanised Loom (Source: Sedzro et al., 2025)

The smock strip-weaving process begins with the design and arrangement of the warps, locally known as katente. At this stage, weavers determine the pattern and colour composition, as shown in Figures 7(a) and 7(b). Once the yarns are prepared, looms are employed to weave them into smock strips. Modernisation has led some weavers to adopt advanced broad metal looms, while recent innovations have introduced mechanised looms designed specifically for smock weaving (Sedzro et al., 2025). These modern looms offer significant advantages, including the ability to produce wider strips and expanded design possibilities compared to traditional narrow-strip weaving, as shown in Figures 7(c) and 7(d). Additionally, modernisation has facilitated greater design diversity and increased production capacity.

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Figure 7. (a) Designing of warp yarns, (b) laying of warp yarns, (c) weaving on narrow loom and (d) weaving on a modernised metal broad loom (Source: Field Research, 2025)

These technological advancements have generated significant economic benefits. Sedzro et al. (2025) argue that mechanised weaving improves the efficiency of woven strips and enables smock weavers to better meet market demand, thereby expanding economic opportunities. Aminah (2021) also reports that 70% of artisans who adopted mechanised weaving techniques experienced increased income, demonstrating the tangible benefits of contemporary production methods. One respondent supports these findings:

> "*After I switched to mechanised weaving, my production efficiency improved, and my income increased. I can confidently say that modern methods enhance productivity and earnings*."

However, these technological advancements come with high cultural costs. Traditional handweaving skills, passed down through generations, are increasingly threatened by technological innovation. These skills are not only production techniques but also vital expressions of cultural identity and heritage (Asinyo et al., 2021; Fobiri et al., 2024). Amissah (2022) and Nunoo et al. (2021) argue that the decline of handweaving endangers both the survival of the smock craft and the fabric's symbolic importance as a marker of Ghanaian heritage. As one respondent observed:

> "*I fear that mechanisation could erode the unique cultural value of smock garments because of their mechanical nature*."

Consequently, both artisans and scholars emphasise the necessity of preserving the handmade qualities, traditional patterns, and authenticity that define smock weaving. As one respondent stated:

> "*Adopting new tools and materials can improve production efficiency, but often diminishes the distinctive qualities of handwoven textiles. The value of an authentic smock lies in its craftsmanship, the narrative it embodies, and its cultural significance."*

3.1.4 Smock Sewing

Smock producers obtain woven strips (see Figure 8(a)) and assemble them into garments known locally as *fugu*. Traditionally, these strips were stitched together by hand, as shown in Figure 8(b). With modernisation, sewing machines are now used for this process, as depicted in Figure 8(c).

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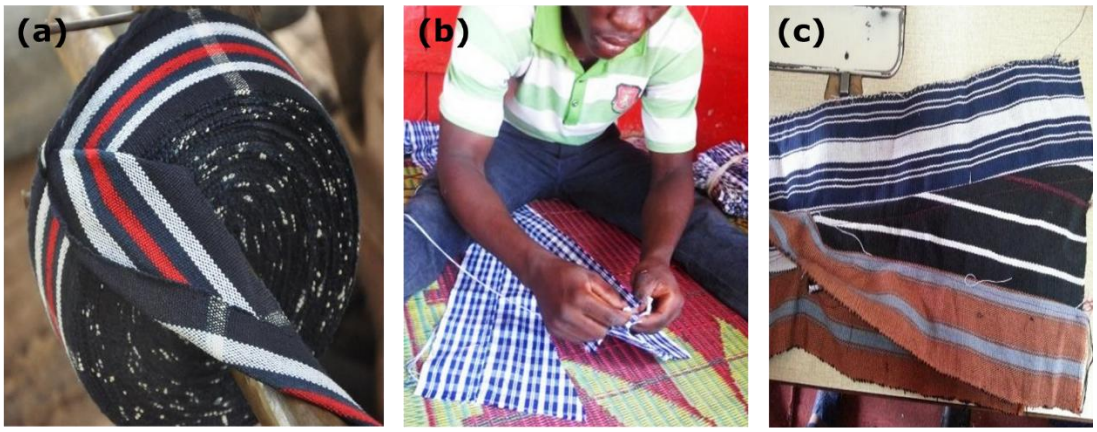


Figure 8. (a) Woven strip of smock (b) hand stitching of woven strips together (c) machine stitching of woven strips (Source: Field Research, 2025)

In the past, once the woven strips were joined, the garments were entirely hand-stitched, as shown in Figure 9(a). This process required considerable time, skilled craftsmanship, and meticulous attention to detail. The finished garments were valued for their durability, tactile qualities, and artistic uniqueness. Each smock was made from narrow woven strips, featuring distinctive necklines and patterns that demonstrated the maker's expertise and regional identity. Historically, white was the predominant colour because it effectively kept the body cool in the savannah climate. Over time, artisans incorporated red, green, and yellow tones, reflecting a broader acceptance of contemporary tastes and fashion trends (Dzitse, 2024).

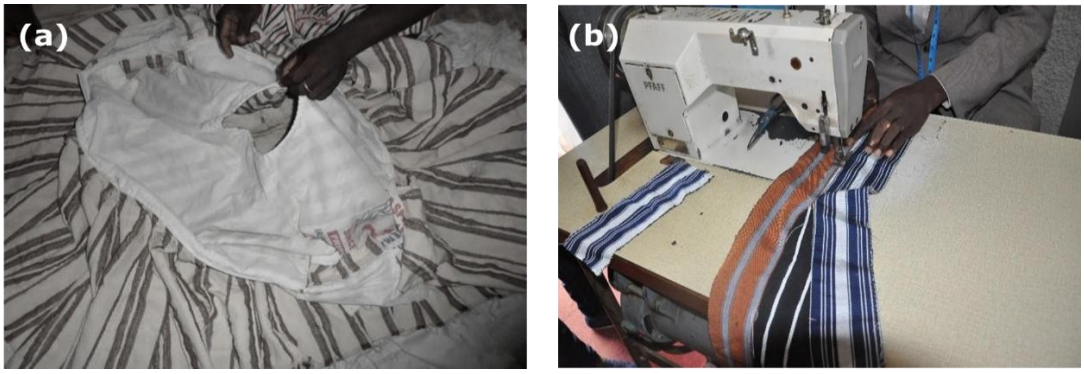


Figure 9. (a) Hand sewing of smocks and (b) machine sewing of smocks (Source: Field Research, 2025)

Recently, the sewing stage of smock production exemplifies broader changes linked to modernisation. As demand has increased both locally and internationally, the limitations of handstitching have become more apparent. The introduction of machine sewing, as shown in Figure 9(b), provides a practical solution that enables faster production and greater consistency. This transition has broadened economic opportunities throughout the value chain. Producers can now fulfil large orders from fashion retailers, schools, and export traders, a scale that was not achievable with manual stitching. A designer stated:

> *"Machine sewing has streamlined my process, allowing me to complete more pieces for customers and meet increased demand."*

Another respondent explained:

> *"Since adopting a sewing machine, I have increased my productivity from one smock in two days to three or four per day. This has improved my earnings and enabled me to accept larger orders."*

While machine sewing offers clear economic and productivity benefits, it also raises cultural concerns. Some respondents worry that the speed and uniformity of machine stitching may reduce the personal touch and uniqueness that define traditional hand-sewn smocks. As one craftsman noted:

> *"Hand sewing gives the smock a soul. Every stitch tells a story. Using machines is faster, but the emotional value is less."*

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Despite these sentiments, other respondents view mechanisation as a necessary evolution for the survival and competitiveness of the smock industry. They argue that integrating machine sewing with traditional design can preserve the smock's cultural identity while meeting contemporary market expectations. A respondent emphasised:

> *"Modern sewing machines enable access to larger markets while preserving traditional design elements. These machines facilitate the maintenance of established patterns and styles with increased efficiency and precision."*

Overall, modernisation has transformed smock design and production from a purely artisanal craft into a semi-industrial process. The adoption of machine technology has increased productivity, supported the local economy, and expanded market access. However, maintaining a balance between traditional craftsmanship and efficiency remains a key concern for designers and other stakeholders who view the hand-sewn smock as both clothing and cultural heritage.

3.2| Impact of Modernisation on Smock Consumption

Modernisation, driven by globalisation, has transformed the use of Ghanaian smock garments. Essel and Amissah (2015) report that smocks were historically reserved for ceremonial and symbolic purposes and were closely associated with the cultural and spiritual practices of Northern Ghana. Recent lifestyle shifts and greater global exposure have broadened the smock's functions. Younger urban consumers now choose smocks that express both cultural identity and contemporary fashion preferences. These individuals favour smocks that combine traditional weaving and embroidery with modern, lightweight, fashionable designs suitable for daily wear. This trend has boosted the popularity of slim-fit and casual smocks, which are often paired with jeans or trousers. As a result, designers are incorporating smock fabrics into contemporary dresses and jackets for smart-casual wear. The use of advanced materials, vibrant colour schemes, and gender-inclusive tailoring has positioned smocks as versatile garments suitable for diverse consumer groups, as illustrated in Figure 10.



Figure 10. Smart Casual Smocks Garments (Source: Field Research, 2025)

One customer indicated:

> *"The smock is no longer restricted to funerals or special occasions. Lighter versions are now frequently incorporated into everyday attire and are often paired with casual clothing such as jeans. This adaptation has improved both comfort and the garment's perceived fashionability. Furthermore, social media has contributed significantly to the popularisation of the smock among younger individuals, who seek to appear contemporary while maintaining a connection to cultural heritage."*

Designers and artisans are increasingly incorporating smocks into accessories such as handbags, hats, and other fashion items. They employ innovative patterns and contemporary colour schemes to enhance the modern appeal of these products, thereby increasing their attractiveness in both domestic and international markets (see Figure 11).

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Figure 11. Accessories made with smock (Source: Field Research, 2025)

The transition to modernised smock designs has facilitated innovation and business expansion. Artisans increasingly incorporate bold patterns, lightweight fabrics, and refined cuts to enhance the visual appeal and comfort of garments. These innovations have increased the garment's marketability and expanded its global presence. Nevertheless, several participants and scholars have expressed concerns regarding the potential erosion of cultural significance. Fan and Zhou (2020) caution that as traditional garments are commercialised, their symbolic and artisanal meanings may be diminished by prevailing market trends. One interviewee warned:

> *"Superficial adaptations that prioritise aesthetic appeal over cultural context may compromise the authenticity and heritage of traditional garments such as the smock."*

This perspective is consistent with Kashi (2024) argument that the mass production of textiles for global markets can reduce them to fashion items, thereby disconnecting them from their original functions. Another participant expressed a similar concern:

> "*The mass production of smocks for the open market can negatively impact the livelihoods of local artisans and reduce the distinctive qualities of hand-woven smocks. Therefore, achieving a balance between commercial expansion and the preservation of cultural traditions is essential*."

Nevertheless, the modernisation of smock consumption has produced several positive outcomes. It has generated employment opportunities, facilitated the growth of local industries, and enhanced Ghana's cultural visibility globally. As noted by one respondent:

> "*Modernisation offers both opportunities and challenges. While the smock is gaining global recognition and promoting employment and economic growth, there is a risk that younger generations may lose their connection to the symbols and rituals that give the garment cultural significance. Finding a balance between these outcomes remains a vital concern*."

Overall, modernisation has transformed the Ghanaian smock from a traditional garment into a versatile and globally recognised fashion item. Although these developments have fostered creativity and economic growth, they necessitate a careful balance between cultural preservation and innovation. Maintaining this equilibrium requires collaboration between artisans and designers, the implementation of heritage-based branding, and comprehensive consumer education. These approaches are crucial to preserving the smock's cultural significance as it evolves within global fashion and contemporary consumer markets.

3.3| Impact of Modernity on Smock Distribution

Modernisation has transformed the distribution of Ghanaian smocks from local, trust-based exchanges to a structured, national, and export-oriented network. Historically, sales occurred mainly through community markets and personal referrals within production regions, where the smock possessed significant social and cultural value (Majeed et al., 2025). Urbanisation and increased digital connectivity have enhanced access to markets and information across Ghana, thereby promoting the wider distribution of cultural products both domestically and internationally (Toku et al., 2024). The study finds that smocks are currently distributed through various channels, including market stalls (as shown in Figure 12), freelance vendors, urban boutiques, and bespoke orders for special occasions. Boutiques

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in urban centres, including Accra, Kumasi, Takoradi, and Tamale, have developed segmented markets based on consumer preferences, pricing strategies, and brand identity (Dzramedo et al., 2023).



Figure 12. Smocks on display for sale

E-commerce and social media have significantly altered distribution patterns. Numerous merchants utilise platforms such as WhatsApp, Facebook, and Instagram to advertise and sell products directly to customers, thereby eliminating the need for intermediaries. According to one merchant:

> *"Social media enables us to connect with individuals in Accra and internationally. When I post a new design, I often receive an order that day."*

Digitalisation has transformed distribution channels in Ghana's smock industry. E-commerce and online platforms provide traders and artisans with access to wider markets and improved profitability. Awuah (2025) demonstrated that mobile money services support revenue growth for small and medium-sized enterprises (SMEs) by streamlining payment processes and expanding the customer base. These results suggest that digital trade infrastructure is essential for sustaining competitiveness in the informal textile sector. A smock merchant noted:

> *"In contrast to previous practices, most of my clients now discover my products through social media platforms and place orders via Facebook, WhatsApp, or Instagram."*

Mobile payment systems and logistics applications have improved both transaction speed and reliability. Acheampong and Boateng (2023) contend that mobile money interoperability enhances operational efficiency and business turnover within Ghana's small and medium-sized enterprise (SME) sector. The integration of cashless payments with organised courier networks reduces transaction risk and strengthens trust between producers and consumers. Within the smock value chain, these technological advancements facilitate faster distribution and enable direct transactions between northern producers and urban or diaspora buyers, thereby reducing dependence on intermediaries. A merchant note:

> *"Mobile money has significantly transformed my sales process. Previously, customers in Accra would send cash through intermediaries, a process that often took several days. When customers pay by phone, I receive the funds immediately and can dispatch the smock via a delivery company on the same day. This system has minimised financial losses and strengthened trust with my buyers."*

Another participant reported a similar experience:

> *"The adoption of courier applications and mobile payment systems has enhanced the speed and security of my business transactions. I no longer face delays from intermediaries or concerns about fraudulent transfers. When customers pay via mobile money, I can confirm payment immediately, allowing the rider to collect the parcel without delay. Although occasional network outages cause challenges, the system generally operates efficiently."*

Although these collaborations enhance efficiency and visibility, they also shift bargaining power toward intermediaries and retailers, frequently diminishing the earnings of traditional artisans (Ahmad et al., 2025; Gupta & Modi, 2023). Despite recent advancements, digital participation within the sector remains inconsistent. Persistent challenges such as limited digital literacy, inadequate product photography, and unreliable delivery performance continue to erode consumer confidence in online sales platforms (Technavio., 2025). A significant proportion of sellers lack the technical and visual skills necessary for effective product presentation, thereby diminishing buyer trust and reducing repeat purchase rates. Persistent deficiencies in last-mile logistics further intensify these challenges, leading to

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delivery delays and weakened customer relationships. From a socio-economic perspective, modernisation has broadened participation in the distribution chain, with women and youth increasingly active in trading, marketing, and delivery. A merchant remarked:

> "*Historically, smock sales were predominantly conducted by men; however, an increasing number of women now participate in this business, both online and in market settings*."

Modernisation has expanded the distribution of smocks, improved market access, and increased producers' incomes as they adapt to changing conditions (Asare et al., 2019). Nevertheless, it has also revealed deficiencies in technical skills, infrastructure, and cultural heritage preservation. Therefore, achieving sustainable growth in the smock industry requires balancing digital innovation with heritage protection, efficient logistics, and transparent branding to ensure authenticity and maintain competitiveness.

4 | IMPLICATIONS OF FINDINGS

The study demonstrates that modernisation has created both opportunities and challenges throughout the entire value chain of the smock. These developments have significant practical, social, and policy implications. The integration of mechanised weaving, digital marketing, and synthetic materials has increased productivity and broadened market access. Amankwa et al. (2023) contend that while digital marketing and related technologies expand market reach, they also introduce cultural challenges. In the absence of targeted interventions, these technological advancements risk undermining traditional craftsmanship and cultural authenticity. Sedzro et al. (2025) similarly note that mechanised weaving improves productivity but may compromise authenticity. Policymakers and development agencies are encouraged to implement strategies that foster technological advancement while safeguarding indigenous skills. Providing training in mechanised weaving, digital literacy, and quality control equips artisans to adapt to industry changes while preserving cultural heritage. This recommendation aligns with Nuamah-Gyambrah et al. (2016), who advocate for training and deliberate interventions to balance tradition with technological progress.

The findings indicate that small-scale producers require increased institutional support. Many artisans continue to encounter barriers to accessing credit, advanced equipment, and technical training, which restricts their competitiveness in both local and international markets. Effective collaboration among government agencies, non-governmental organisations, and financial institutions is necessary to develop funding mechanisms and business development services tailored to rural small-scale producers. Establishing robust producer cooperatives can enhance bargaining power, lower operational costs, and facilitate collective product promotion. This approach aligns with Nartey et al. (2025), who recommend targeted financing, improved access to modern equipment and business services, and the formation of strong cooperatives to strengthen bargaining power, reduce costs, and improve branding. Furthermore, modernisation has transformed the socioeconomic roles of women and youth within the smock value chain. Women are increasingly involved in spinning, dyeing, and retailing, while youth are leading digital innovation and social media marketing. These changes offer opportunities to advance gender equality and youth employment through skills training and entrepreneurship. Amissah (2022) confirms that women have transitioned from minor roles such as spinning and dye gathering to full participation in weaving, facilitated by apprenticeships and the removal of cultural taboos.

Additionally, the study identifies widespread concerns regarding the loss of cultural identity resulting from mass production and commercialisation. Boadi et al. (2023) report that mass production, the introduction of new tools, and commercial pressures have altered original patterns, colours, techniques, and symbolic meanings. Implementing certification schemes for authentic smock products, promoting heritage-based branding, and incorporating cultural education into design training may help preserve authenticity. This strategy aligns with the endorsement of the Worldwide Responsible Accredited Production (WRAP) certification to improve ethical, labour, and environmental standards in the textile and apparel sectors (Walter & Pethile, 2025). Collaboration among artisans, designers, and cultural institutions is essential to maintain the symbolic and artistic integrity of the smock (Osei et al., 2021)

The study further reveals that digitalisation presents a strategic opportunity to expand Ghana's textile exports. E-commerce and social media platforms now connect textile producers with both domestic and diaspora markets. This development aligns with the Virtual Ghana Trade E-Commerce platform, launched

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by the Ghana Export Promotion Authority (GEPA) in 2023, which aims to promote Ghanaian products, facilitate access to foreign markets, and support post-clearance processes in export destinations. Enhancing digital infrastructure, improving product photography, and establishing reliable logistics and delivery systems would increase consumer trust and enhance international competitiveness. In summary, modernisation provides a viable pathway for revitalising Ghana's smock industry when guided by inclusive, culturally sensitive, and innovation-driven policies. A coordinated approach involving artisans, government, industry stakeholders, and academia can ensure that the smock value chain remains economically viable and culturally resilient within an increasingly globalised textile sector.

5 | LIMITATIONS OF THE STUDY

The study used a qualitative case study approach and purposive sampling, selecting 25 participants from the smock production and trading centres. This design aimed to explore processes, meanings, and participant perspectives within the value chain rather than produce statistically representative findings for the wider smock industry or Ghana's textile sector. While participants represented key stages, the sample and method limit coverage of all actors and practices, leaving smaller-scale producers, transient traders, and those outside established clusters underrepresented. Findings should be seen as illustrative rather than comprehensive accounts of modernisation processes.

Data were primarily derived from self-reported interviews and focus groups, supplemented by participant observation and triangulation. Despite these measures, responses reflect perceptions and may be affected by recall or social desirability bias, especially regarding economic performance, productivity, or cultural impacts. Economic outcomes were not independently verified. The research prioritises socio-cultural and organisational dynamics over formal economic measurement and does not establish causal links or quantify the full extent of modernisation effects across the value chain.

In terms of generalisability, the study advances analytical rather than statistical claims. It provides contextually grounded insights into how modernisation interacts with artisanal value chains characterised by informal governance, apprenticeship-based skills, and selective technological adoption. Findings may be transferable to comparable indigenous textile systems facing similar structural and cultural conditions. Overall, the study deepens conceptual and contextual understanding of modernisation within a specific traditional textile value chain, consistent with the methodology and supporting the cautious, context-specific conclusions presented.

6 | CONCLUSION AND FUTURE STUDIES

This study examined how modernisation has affected the smock value chain in Ghana through a qualitative case study of selected production and distribution settings. The results show that modernisation has changed sourcing, dyeing, weaving, garment making, distribution, and consumption in selective ways. New technology has increased production, design options, and market reach, but it has also limited traditional skills, artisanal work relationships, and the cultural meanings tied to smock making. Modernisation has not replaced traditional methods; it has been added to them in specific ways. Both machine and hand processes are used throughout the value chain, as people make practical choices based on available materials, costs, market needs, and cultural acceptance. This mix means the smock value chain is not fixed or fully industrial, but flexible and shaped by local social and cultural factors, not just by standard models of industrial change.

The main contribution of this study is to clarify how modernisation is understood, used, and limited in a traditional, artisanal textile value chain. By examining modernisation across all stages of production, distribution, and use, the study goes beyond focusing on single techniques or style changes and provides a complete picture of how the value chain is changing. The study does not aim to make broad claims about the industry or to measure economic impact. Instead, it offers specific insights to inform policy, design, and development planning to balance technological change with cultural sustainability. The findings suggest that successful modernisation in traditional textile systems should be gradual, locally based, and mindful of how work is organised, how knowledge is passed on, and the importance of cultural meaning. Future research should build on this work by using mixed methods and comparing different regions and textile traditions. Studies that use numerical data to examine productivity, income, and market outcomes would help us better understand the effects of modernisation. Long-term research is

also needed to see how ongoing use of technology changes training, work relationships, and cultural meaning in the smock value chain over time.

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DATA AVAILABILITY STATEMENT

Data sharing is not applicable to this study due to the qualitative nature of the research and ethical restrictions on participant data.

CONFLICT OF INTEREST STATEMENT

The author declares no conflict of interest.

ETHICS APPROVAL STATEMENT

The confidentiality and anonymity of respondents were assured.

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

During the preparation of this work, the authors used OpenAI's GPT-4 for brainstorming. After that, they reviewed and edited the content as needed, and they take full responsibility for the content of the publication.

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