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Design Innovation as a Sustainable Means to Raise Awareness of Ghana's Indigenous Clothing Style

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PUBLIC INTEREST STATEMENT

This study demonstrates how design innovation sustains Ghana's indigenous clothing traditions, fostering cultural pride, and economic empowerment. It highlights fashion's role as a transformative tool for preserving heritage while promoting sustainable development and inclusive identity.

Abstract

Purpose: Indigenous clothing is prioritised as part of Ghana's cultural heritage because it promotes important traditions that sustain cultural identity and diversity. Although clothing has been used to express identity, yet little attention is given to the indigenous Ghanaian royal clothing styles due to the perception attached to it by the Ghanaian youth. The main purpose of this study was to investigate the *'densikran'* clothing style, which reveals sections of the clothing and raises awareness of the Ghanaian traditional royal clothing adorning style.

Methodology/Design: A design-led method was used, employing a studio-based approach and a stylised interpretation method to generate new development through practice. The approach involved simplification, exaggeration, distortion, abstraction, expressionism, and idealisation.

Findings: The study reveals that adinkra symbols illustrated in Adobe Photoshop transform creative concepts for innovative 'Densinkran' cloth design through Simplification, Exaggeration, Distortion, Abstraction, Expression, and Ideation. The hairstyle is used to communicate the status of queen mothers, and the 'atete' cloth piece has a string tied at the waist to prevent it from slipping down.

Practical and Social Implications: The study highlights the potential to use Adobe Photoshop to illustrate adinkra symbols and create unique motifs for 'Densikran' cloth design. The process can streamline the design process, reduce the time and effort required to create intricate Adinkra designs. It propels the emergence of innovative products and services that incorporate custom fabric design, textile printing, and fashion design. Additionally, it preserves Ghana's cultural heritage and empowers local communities to take ownership of their traditional knowledge and skills, thereby developing sustainable livelihoods.

Originality: This study contributes to the existing body of knowledge on Adinkra symbols and their application in design by developing a novel method of illustrating Adinkra symbols using Adobe Photoshop, creating a new design framework for 'Densikran' cloth designing, and providing new insights into the cultural significance of Adinkra symbols in the modern design context.

Keywords
Design innovation, fashion, indigenous clothing style, cultural heritage, illustration, and sustainability

1 | INTRODUCTION

Indigenous fashion is a global practice in which people rely on traditional clothing and textiles to express their cultural practices and heritage. Indigenous fashion plays a key role in society's development and preserves cultural heritage, contributing to the transformation of the country's economy (Nkansah, 2021). The clothing aspects of people determine their practices, belonging, and identity. Clothing styles are used everywhere, but the adornment differs from country to country. Significantly, indigenous clothing connects past events and traditions to modern clothing aesthetics. Scholars (Essel, 2023; Asenso, 2019) have debated the borders of indigenous fashion and textile industries. Ayesu et al. (2023) highlight the significant implications of preserving and promoting indigenous textiles for social, cultural, and economic benefits. Recently, the response to indigenous clothing has focused on kente, fugu, kaptan, kaba, and slit, with little attention paid to 'Densinkran' clothing, making it difficult for people to understand and accept the nature of the fashion in their everyday wear. However, the indigenous clothing and textile industries have challenges in adapting to modern design trends while preserving traditional cultural heritage. 'Densikran' clothing is a draped style of dressing which is made up of three layers: Densinkran (hair cut), 'Atete' (covering the upper part of the human body), and 'Ngusuo' (covering the shoulder part) (Asenso, 2019; Essel,

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2023). The style is mostly prepared with adinkra motifs adorned with matching accessories (jewellery, beads, gold bracelet, armband, knee-band, anklet, and 'kyawkyaw' sandals). The rich cultural heritage is uniquely communicated through the wrapping of Ghanaian traditional cloth, making a profound statement globally (Essel, 2023; Melo et al., 2022; Tulu & Fantahun, 2021). The clothing style is the indigenous traditional fashion of wrapping cloth around the body that covers the upper part of the body, including the breast level, with a hairstyle, sandals, and a matching necklace. Various studies have indicated that indigenous fashion is entwined with the culture and history of the people (Mowlah et tal, 2014).

In the context of global expansion, digital design offers significant opportunities for the fashion and textiles industries to integrate indigenous, sustainable practices to promote innovation (Ojukwu & Tariq, 2019). Digital tools are widely adopted worldwide (Moreschi, 2023), enabling fashion, textiles and graphic designers to advocate for responsible indigenous fashion. However, one of the important areas has been the focus on sustaining the traditional clothing style in modern trends. The integration of traditional clothing style into modern design contexts has been explored in various studies (Dzramedo et al., 2013; Tordzro, 2021; Boateng, 2017). Ojukwu and Tariq (2019) highlighted the need for traditional designers to rethink sustainability in the fashion industry through indigenous culture, but there is a gap in research on the use of sustainable digital tools to illustrate and apply 'Densikran' clothing in modern designs. Recent studies have highlighted the potential of digital technologies in promoting cultural heritage preservation and innovation. Moreschi (2023) indicates that digital designers could significantly advance a more sustainable future by linking indigenous fashion styles with real-world applications. The lack of research on the use of digital tools in illustrating and applying traditional clothing in modern design contexts limits the potential for cultural innovation in the fashion and textile industry. Therefore, this study addresses the research gap by exploring Adobe Photoshop and Illustrator to illustrate 'Densikran' clothing style for modern design applications. Consequently, indigenous fashion helps people understand the cultural significance of clothing and textiles, allowing them to explore diverse clothing traditions, craftsmanship, and respect for cultural heritage (Ojukwu & Tariq, 2019). Understanding the nature of indigenous clothing styles exposes people to cultural traditions, while also preparing individuals to be creative and enhance their professional development (Gebru, 2021).

1.1| Literature Review

Awuyah (2012) explores the technique of the Asante Densinkran cloth production. Indigenous clothing styles remain the inspiration for textile designs for many arts-related crafts because of their cultural significance. Essel (2023) indicated that traditional textile design is one of the crafts that produces more fabrics and design patterns. Boadi et al. (2025) stated that indigenous textile fabrics, to some extent, narrate cultural histories, philosophies, and expressions by using symbols and other cultural artefacts. Traditional cloth is hand-woven with intricate designs; for example, kente cloth is a mark of adornment and a way of conveying a specific proverbial message (Lunde, 2018). Another cloth that carries significant cultural heritage is the 'Densinkran' clothing, which is regarded as the symbol of prestige and cultural recognition amongst the Ashantis in Ghana (Asamoah, 2021). It plays a significant role in symbolising, reflecting values, and the proverbial and philosophical meaning within Ghanaian society. 'Desinkran' clothing is purposely reserved for the royal and special people (Nkansah, 2021; Asamoah, 2021). Kumar (2017) and Thompson-Fawcett et al. (2019) established that design innovation is the application of methods of reshaping traditional ways of making an art piece or construction by relying on the use of technologies to advance the precision of the artwork. Understanding the perspectives of using 'Densinkran' clothing provides an opportunity to know the lived experiences and usage of the styles (Darkoh-Ankrah, 2022; Asamoah, 2021). Creating designs from existing styles can improve the design approach and provide solutions to the different meanings attached to clothing styles. Holistically, the physical and social aspects should be accessible and impactful to sustain its representation and cultural significance (Kuhnen & dos Santos, 2019). Hopkins (2021) opined that improving such design should be illustrated to convey visual communication, aesthetic appeal, philosophies, and emotional connection, thereby communicating the ideologies of the cultural representation of the people. Clothing styles are symbols of self-identification, which individuals carry and communicate who they are to society. Improving upon a style of clothing enhances innovation and creativity (Ademtsu et al., 2024).

Clothing styles comprehensively project social sustainability by improving cultural clothing and identity, social cohesion, empowerment and preservation of traditional knowledge (Mensah & Korankye, 2024). Traditional clothing creates employment opportunities and supports the local and rural markets (Nkansah, 2021). Environmental sustainability can be seen in clothing production since the industry relies heavily on natural materials to produce garments; the waste is often reused and repurposed, which encourages waste reduction in the environment (Alaswad et al., 2024). Significantly, indigenous Ghanaian fashion and textiles like kente and Densinkran cloth embody cultural histories, proverbs, and social values, serving as symbols of identity, prestige, and royal heritage. Modern design innovations combine traditional techniques with technology to enhance precision and creativity, while sustainable practices in fashion and textile production promote environmental and social benefits, such as waste reduction. Holistically, these textiles foster social cohesion, preserve indigenous knowledge and communicate cultural ideologies through visual means, reinforcing their role in both cultural continuity and contemporary design solutions (Hopkins, 2021; Darkoh-Ankrah, 2022; Ademtsu et al., 2024).

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2 | MATERIALS AND METHODS

A design-led method was used as a design strategy to connect the design of traditional symbols and transform the nature of motifs without significantly changing the appearance entirely. Design-led is considered a cultural transformation enabled by tools that enable design thinking to explore technology and solve problems. Research through design emphasised the relationship between design research and design practice to produce knowledge and enhance the effectiveness of the process (Jian, 2017). Studio-based practice was employed for the appropriate illustration of the 'Densinkran' clothing and the design of the cloth in the context of industrial and academic understanding, focusing on the Higher National Diploma (HND) of Kumasi Technical University, Ghana. Interviews were conducted to solicit views from participants in the 2023/2024 academic year exhibition and fashion show. A total of 9 participants were purposively selected for the study, including 1 queen mother and 2 royal families from Asem, Kumasi. They provided insight into the symbolic meaning and royal usage of the cloth, 2 students who produced textile designs, 2 contemporary fashion designers (who use Adinkra symbols and patterns in their collections), and 2 traditional weavers from Bonwire and Adanwomase, respectively, for the cloth's physical and aesthetic creation. The participants were selected based on their experience and knowledge of traditional clothing wrapping, as well as their diverse cultural backgrounds, to provide comprehensive insights into the Densinkran clothing style. The key questions include: "Could you explain the specific values or messages that Densinkran communicate when worn?", "Kindly explain the specific symbols or patterns unique to Densinkran? What do they represent?" "Could you demonstrate how Densinkran is traditionally wrapped or worn?". Thematic analysis was used to analyse the interview data. The interview with traditional weavers was strategically integrated; before, during, and after each major stylistic transformation for validation and decision-shaping input. The design process paused at each stage to collect feedback, which helped shape the study.

Literature and relevant design materials were employed in the illustration process using a stylised interpretation approach to convey the symbolic value and importance of Densikran clothing in Ghana. Stylised interpretation is an artistic method that involves reimagining and reinterpreting a subject or concept in a creative way to convey emotions, mood, or message. Parkhomenko (2023) indicated that stylisation reveals the object's true form and conveys the imagery of the subject or subjects in an artwork. The approach evolved through simplification, exaggeration, distortion, abstraction, expressionism, and idealisation. The decision to employ the six-stage process of stylised interpretation, therefore, is a strategic one, motivated by the need to translate a profound cultural symbol into a coherent visual representation for the Densinkran style. Five motifs were selected for the illustrations: 'Adinkrahene', 'Dwennimmen', 'Denkyem', 'Sankofa', and 'Aban'. These motifs were used to represent the richness of the Akan culture and solidify the associated philosophical meanings. The stages were applied sequentially from simplification to the final stage (idealisation). Figure 1 shows the five Adinkra symbols used as motifs for the study.

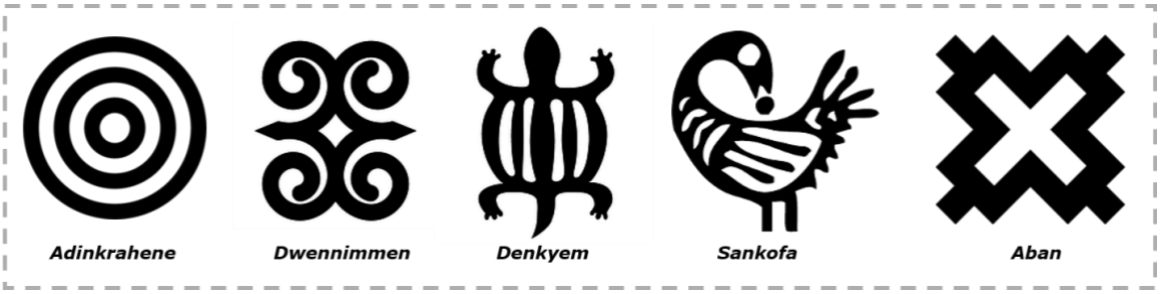


Figure 1. Five selected Adinkra symbols. (Source: Adinkra symbols, 2016).

2.1| Simplification

As a research procedure for illustrating and designing a cloth, simplification was the first step, reducing the complexity of the Densikran cloth to its essential elements. After observing the different Desinkran clothing styles, an approach was used to generate a plan to break the design into components by maintaining its originality and values. The original outline of the motifs on the cloth was simplified and refined to depict the royal family's representation and status. This stage simplifies the motifs, enhances recognition, and creates an impression on viewers. The symbols used to illustrate the cloth were Denkyem and Sankofa. Figure 2 (a-c) presents a simplified arrangement of Denkyem and Sankofa symbols. The full drop or block surface pattern repetition is a popular, simple approach for creating patterns using the motif. This was created by arranging the original motif block using the "Denkyem and Sankofa" adinkra symbol in a grid pattern with the square unit (Figure 2d).

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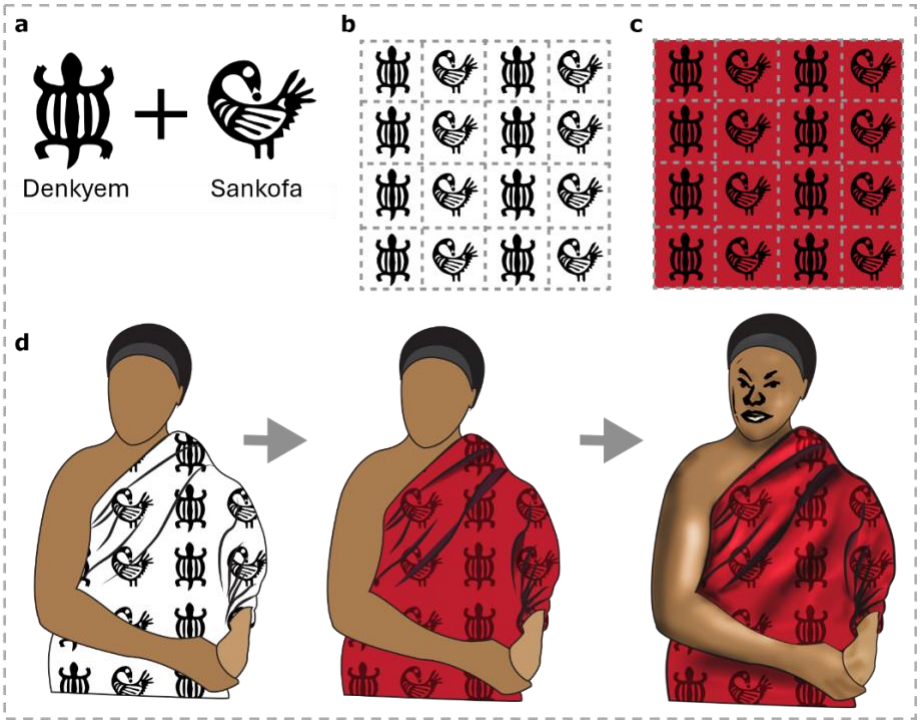


Figure 2. Simplification of Adinkra motifs (a) two adinkra symbols used as motifs (b) simplified arrangement of the motifs (c) an illustrated cloth for representation, (d) designed pattern from simplification (authors own creation, 2024)

2.2| Exaggeration

The second step was to emphasise the styles of the densinkran and draw to a specific feature for dramatic effects. A well-known Ashanti cloth, kente, was selected for elaboration because of its motifs and symbolic association with the Ashanti tribe, reflecting its philosophy. The design inspiration for the Desinkran clothing was derived from several designs, in varied colours and geometric shapes. Emphasising the shapes of the motifs, the exaggeration was implemented to show the relationships of the motifs in the cloth, and the aesthetics of the motifs link to the overall composition of the design components by drawing the motifs in solid forms to understand the relationships among the exaggerated forms. Figure 3a presents the five selected adinkra symbols used as motifs for the cloth. Figure 3a shows the arranged motifs indicating Adinkrahene in an enlarged position, and Figure 3b presents the illustration of the exaggerated adinkra symbol patterned fabric on a female figure.



Figure 3. (a) The "Adinkrahene" centrally positioned and enlarged relative to the other adinkra symbols to demonstrate "exaggeration," utilizing various colours (usually found in kente cloths) to highlight the interrelation of the motifs within the clothing and the aesthetic qualities associated with the overall design composition, (b) illustration of the exaggerated adinkra symbol patterned fabric/cloth on a female figure (authors own creation, 2024)

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2.3| Distortion

At this point, the symbols and motifs used on the cloth were altered to determine the shapes. After modifying the original shapes and altering the proportions, they were put into perspective to see how the design behaves, making samples to facilitate execution. Variations of design elements and thought were generated and manipulated through shaping, form, colour and arrangement. This was done continually until a suitable motif emerged for appropriate design representation, as shown in Figure 4 (a-g).

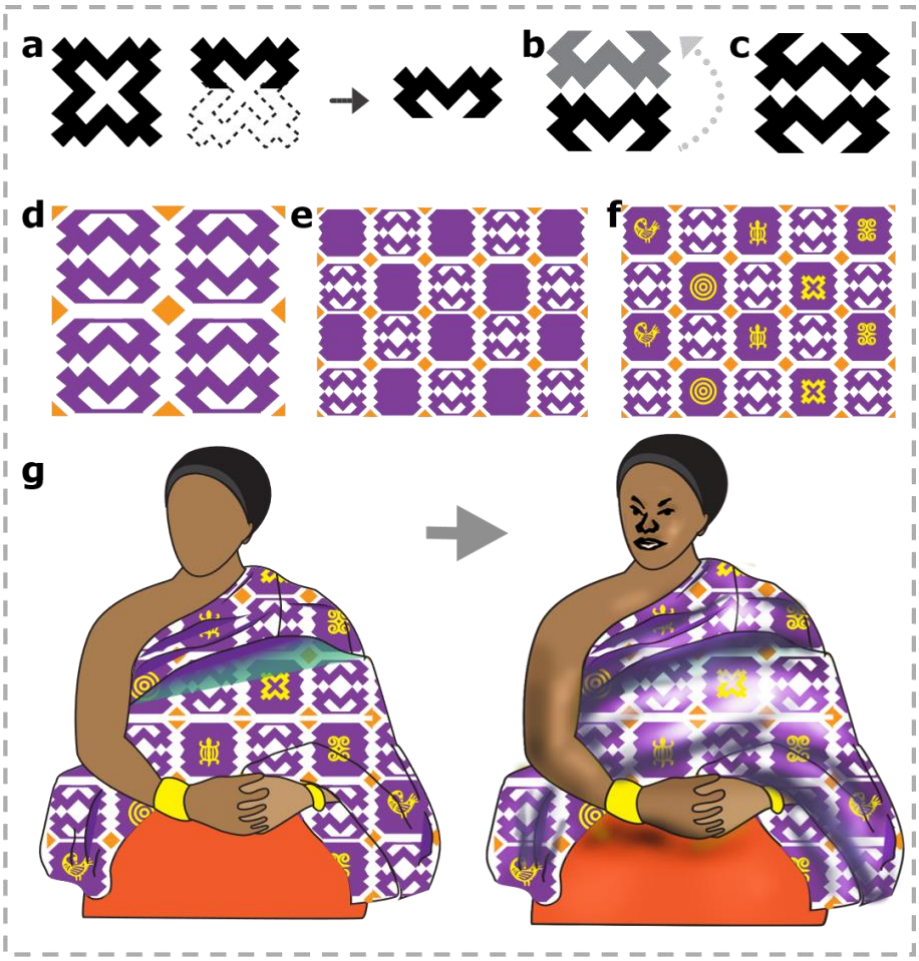


Figure 4. (a) Distortion of Aban symbols (*First, the Aban adinkra symbol was selected. Half of the symbol was cut off horizontally*), (b) reflection of a cutoff form of the Aban symbol (Secondly, the cut-off part was transformed, then reflected, and mirrored on the top), (c) reflection and distorted section put together (*afterwards, the distorted two half symbols were put together to create this shape*), (d) arrangement pattern of distorted symbols with geometric shapes (*the distorted adinkran symbol was used to create a pattern. some geometric shapes were added with contrasting colours to make it visually appealing*), (e) Half drop style of pattern arrangement (*half drop style was adopted for the pattern arrangement, where the arrangement is offset by half in a vertical column. this is one of the means to make the design less formal*), (f) the placement of 5 selected adinkra symbols together with the distorted aban symbols (*different kinds of adinkra symbols were placed in the pattern design cloth*) and (g) illustration of the distortion stage on a pattern fabric/cloth worn on the human body (*distortion pattern of fabric/cloth on a human figure*) (authors own creation, 2024)

2.4| Abstraction

This stage examines the entire shapes, complexity and form before breaking down the symbols and motifs into basic shapes and forms. At this stage, the various components of each symbol and form were labelled according to the particular design used. In the illustration above, the essential part of each symbol has been removed and modified to reduce its complexity. In this regard, the idea or concept is to have the silhouette shape for the "abstraction", as shown in Figure 5 (a-d).

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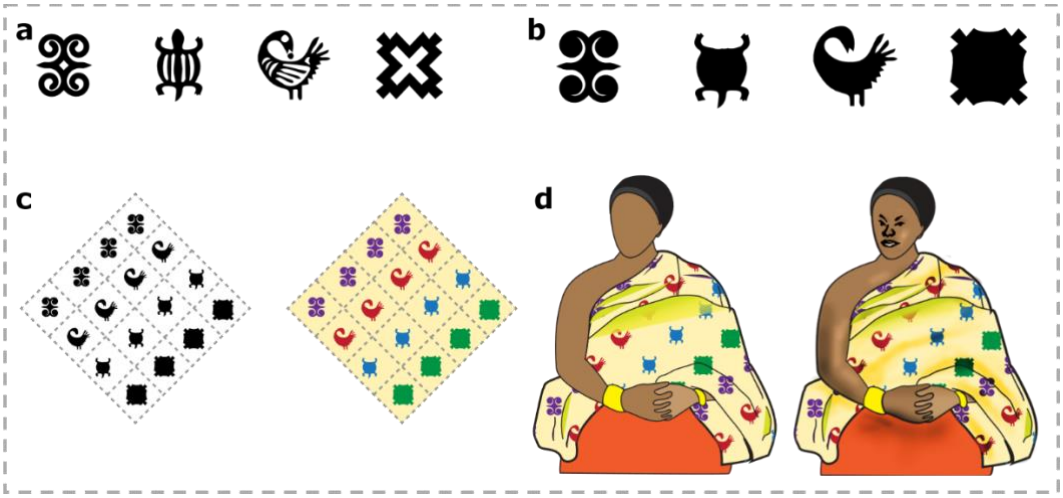


Figure 5. (a) The four main adinkra symbols used for the "abstraction stage are Dwennimmen, Denkyem, Sankofa, and Aban (*The four main adinkra symbols are Dwennimmen, Denkyem, Sankofa, and Aban*), (b) silhouette shape of the selected Adinkra symbols for abstraction (*the silhouette shape of the adinkra symbols*), (c) a diamond pattern arrangement was used by simply repeating shapes arranged in diagonal rows with colours, (d) illustration of the abstraction stage on a pattern fabric/cloth worn to demonstrate its appearance on the human body (*an illustration of the abstracted pattern on a figure*) (authors own creation, 2024)

2.5| Abstraction

This stage considers the nature of the designs, patterns, or motifs, and how they convey the message of philosophies or emotions through bold, vibrant colours and textures, for the representation and expression of the design concepts.

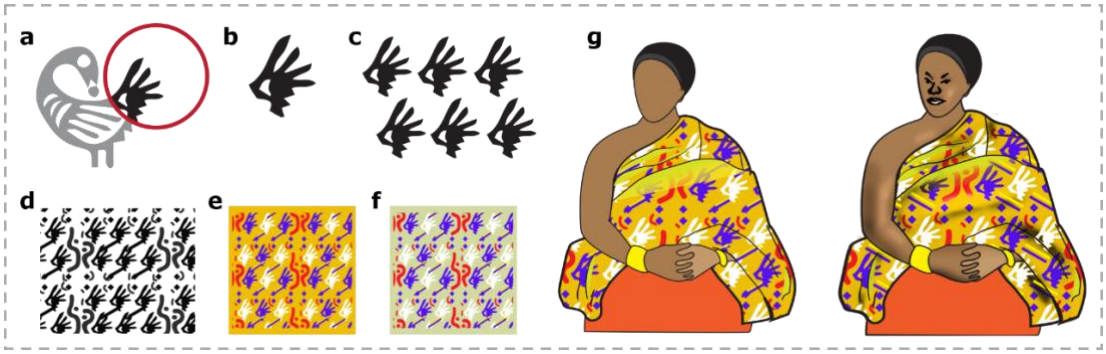


Figure 6. (a) Inspiration was taken from the tail feathers of the bird, (b) this is the outcome of the tail feathers of the bird (the sankofa adinkra symbol) to create a motif, (c) patterns design from the motif of the sankofa tail, (d) other forms of geometric and organic shapes were added to the pattern to express a variety of our indigenous, (e) bold and vibrant colours were added to create textures that express the design concept, (f) an illustration of the expressionism stage with a pattern fabric/cloth worn by a female human figure (authors own creation, 2024)

2.6| Idealisation

This is the final stage of the illustration, where the design or subject is projected to represent the Densinkran design in an idealised manner and to identify which design elements would be feasible for the Densinkran clothing style. At this stage, all five Adinkra symbols were used to illustrate the design. All five selected symbols are shown in Figure 1. Figure 7 presents the arranged adinkra symbols in plain and wrapped forms.

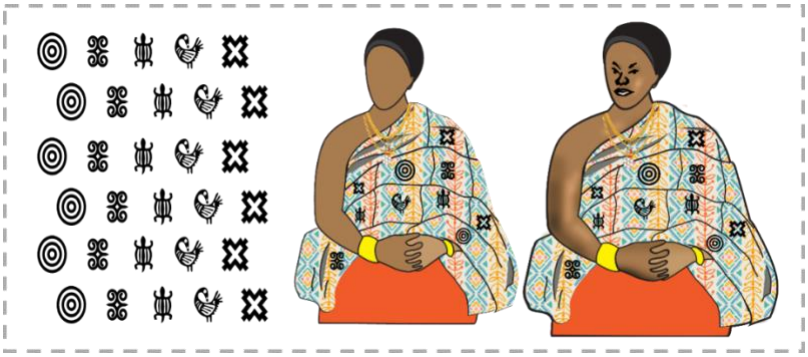


Figure 7. An illustration of the idealisation stage, including accessories like jewellery, bracelet (authors own creation, 2024)

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3 | RESULTS AND DISCUSSION

A search for cloth production in various towns and villages in Ashanti revealed that most weavers and stripe sewers primarily used kente stripes and other metallic materials to produce and construct traditional cloth. The motifs used on the kente stripe and other fabrics are designed out of proportion, making it difficult to relate the design effect and rhythm of the clothes. Some of these motifs are cut off and discarded, causing environmental problems (Ibrahim et al. 2025). The study sought to employ an alternative design approach to illustrate the royal Ashanti's unique clothing for contemporary designs. The philosophical basis for this study, "African philosophy", emphasises the importance of understanding culture and tradition on their own terms (Ngangah, 2020). This is rooted in a nuanced understanding of cultural expression, interpretation and the importance of preserving the 'Densinkran clothing style and understanding the unique expression of Ashanti culture and the philosophy of their cultural symbols. The design was assessed by traditional weavers at Bonwire and Adawomase to determine its success based on cultural authenticity and aesthetic appeal. Cultural authenticity determined the correct identification of the Densikran clothing design, approval by the Asante royal, and correlation between stylised symbols and traditional oral description. While the aesthetic appeal evaluated the behavioural intent and visual preference. Throughout the process, the design outputs were rejected at the distorting stage, when a distorted version of the Aban symbol was projected to a traditional weaver. He responded, "This is not the Akan symbol, and it does not represent any meaningful symbols. You have removed a section of it, and it is now a different symbol". The response led to some corrections, and no design output was rejected at the final idealisation stage because earlier rejection had already addressed cultural blunders.

3.1| Densinkran Hair Style

The densinkran hairstyles were projected to illustrate the various styles. The representation of Densinkran's hairstyle revealed that it is used to communicate the status of a queen mother in the Akan tribe. Adobe Photoshop and Adobe Illustrator were used to illustrate the hairstyle's two-dimensional positions. Both Illustrator and Photoshop were selected because they integrated image editing, colour application, image input, and output, and also served as a means of generating ideas. The software provides modifications to the digital image, including size and colour adjustments. Although processing live images is challenging in Photoshop, the software enables the creation of a simulated scene. After shooting the hairstyles, the images were stored on a computer for processing. With the application of Photoshop, the designs were rendered, edited, and zoomed to show different perspectives. A series of beautification processes was applied to the images to achieve ideal picture effects, with the desired image highlighting the style of the densinkran hairstyle. This revealed the hair's darkness and showed the extension of the charcoal solution's effect onto the forehead. The smearing of the charcoal-like substance or solution or painting of the hairstyle is done only on the hair, but some parts of the forehead receive some of the painting to depict the image of a crown.

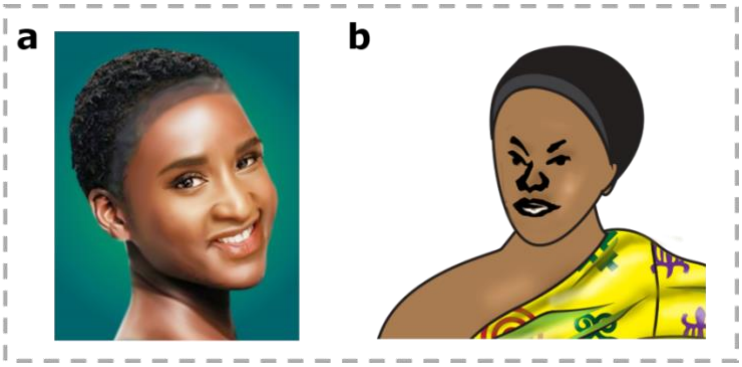


Figure 8. 'Densinkran' hair styles in a modified and illustrated form (a) An image enhanced and modified in Adobe Photoshop with "Densinkran" Hair Style, (b) an illustration of a female human figure demonstrating with "Densinkran" Hair Style (authors own creation, 2024)

3.2| Atete Cloth Piece

The illustrations of the atete cloth piece were edited after the image was processed. The picture was stimulated to see the size and height of the cloth. It was discovered that a string ('Nbommu', which means tie or knot) is seen in the lower section of the human body. This string was used to hold the 'atete' cloth in place or prevent it from slipping down. Colour rendering was applied to differentiate the atete and Nbommu to avoid seeing them as a single image.

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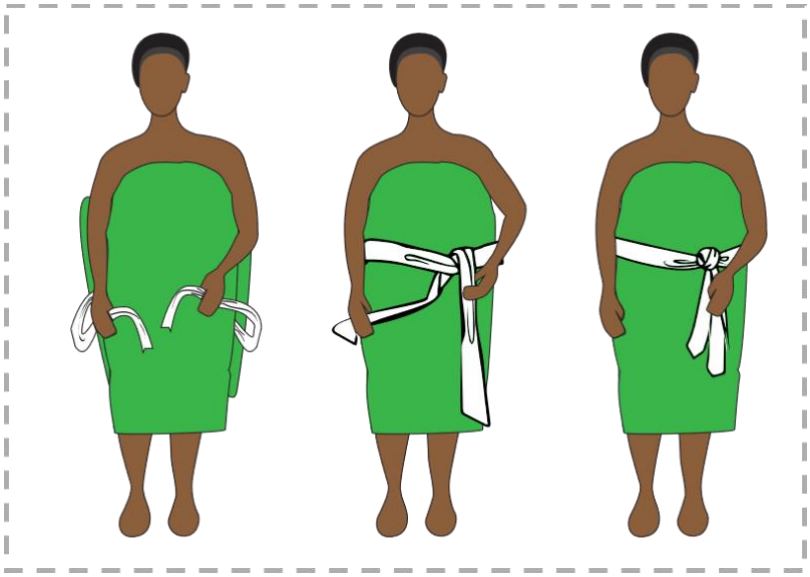


Figure 9. An illustration of a female human figure demonstrating "atete cloth with the "Nbommu (tie or knot) (authors own creation, 2024)

3.3| Ngusuo

The Nguso was the last cloth to use on the body. It is a large piece of fabric that adorns the body, including the shoulders. The cloth features Asante adinkra symbols associated with royal families. The clothing, along with its symbols, was processed to modify, edit, and zoom in on a drape's cloth effectiveness. It was revealed that some Adinkra symbols were oriented upside down, which does not represent their intended meaning and significance. These motifs were modified, resized, and adjusted to depict the royal representation of the drape style through image rendering in various perspectives. Colour contrast and brightness were applied as an innovative way to modify the original tone and optimise the colour layer of the graphic image. This ensured the entire image achieved the desired effect of the densinkran clothing, so the audience could have a more intuitive experience of the densinkran clothing fashion style.

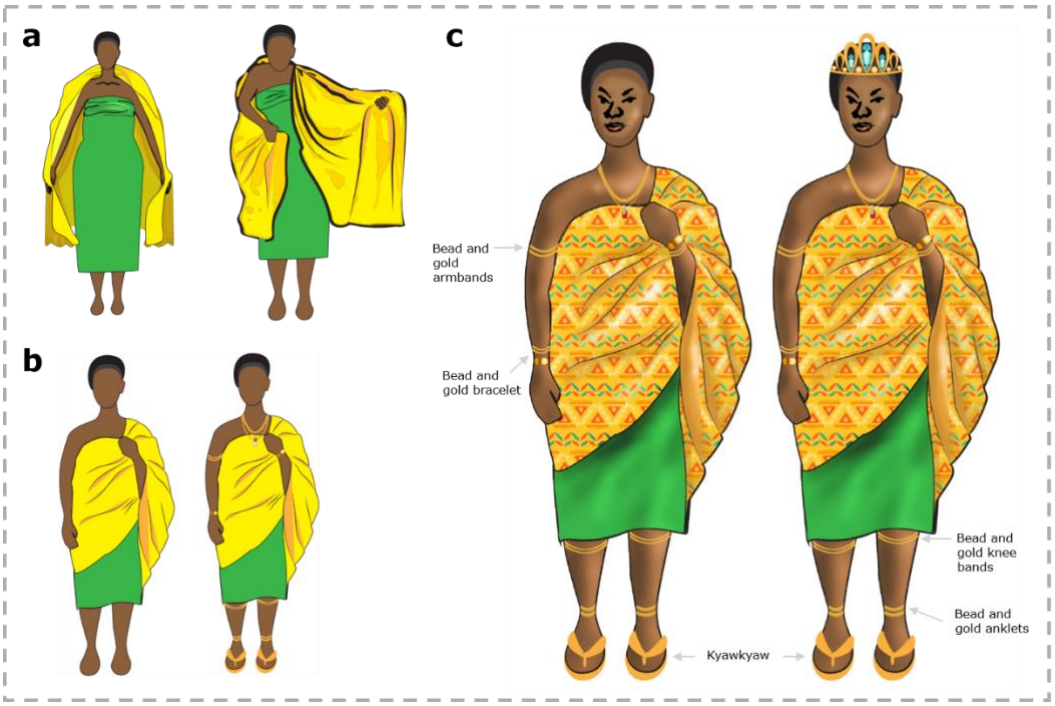


Figure 10. (a) The process of wrapping Nguso on Atete cloth (an illustration of a female human figure demonstrating "Nguso cloth and how it is worn on the top part of the human body), (b) The final stage of illustrated Nguso cloth (an illustration of a female human figure demonstrating the final stage of the "Nguso cloth), (c) the illustrated 'Densinkran' cloth with matching accessories (authors own creation, 2024)

3.4| Core Geometric Proportion of Adinkra Symbols

Using stylised techniques can creatively reimagine traditional Adinkrahene, Dwennimmmen, Denkyem, Sankofa, and Aban and explore possibilities. The core geometric shape and key structural features of each symbol differ. Adinkrrahene has a concentric circle geometric shape and is radially symmetrical, with infinite potential for circular rings. Dwennimmen has an interlocking spiral shape and four-part rotational symmetry with overlapping

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curvilinear lines. Denkyem has an asymmetrical animal form and structural features of representational shape (crocodile) built from curved biomorphic lines. Sankofa has a heart shape and bilateral symmetry around a central axis, and the Aban has a grid of square cross-shapes and a modular square grid with cross-like motifs at cardinal points. Simplifying the Adinkrahene symbol yielded a stark design for digital use. Magnifying the symbol creates a powerful target effect, emphasising its size by exaggerating it out of proportion, making the symbols progressively wider and indicating an ever-expanding impact. Unevenly skewing individual horns breaks the perfect symmetry of Dwennimmen, altering its original shape and suggesting an internal struggle. Distorting it creates psychological tension. Representing the crocodile solely through its pattern of scales emphasises the concept of adaptability as something surface-level and external. The Sankofa symbol expresses reaching back into the past; thus, it is not wrong to look back for what you have forgotten. The bird's head is straining backwards, facing its tail with an egg clutched tightly, expressing the revisiting of the past. Inspiration was drawn from the tail feathers to create a pattern inspired by the symbol. The pattern includes geometric shapes to convey the design's variety. Figure 6 shows the expression of the tail of the Sankofa bird used as a motif. The Aban symbol offers rich opportunities for stylised manipulation. By subjecting Aban symbols to alteration, the symbols were distorted into various forms to obtain shapes that better represent their natural look and express the features. Half the symbol was cut off and placed horizontally to depict a different shape. The new form could be seen mirrored on the top of the symbol. The process offers a new way to modify and infuse traditional symbols, particularly the Densinkran clothing style, with creativity. Learning a stylised approach in Adobe Photoshop to create new motifs expands students' creative horizons. This finding is affirmed by Jian (2017), who reports a strong relationship between what is learned and practice for the proper exploration of design thinking and knowledge. The findings from the 6-stage stylised interpretation reveal a central concern about how to respect royal protocols and traditional weavers' concerns about authenticity while simultaneously creating designs that youth and commercial markets adopt and value. This friction is not merely academic; it directly affects curriculum development, lecturer training, students' output and the survival of Ghanaian fashion heritage.

4 | CHALLENGE OF USING ADOBE PHOTOSHOP IN ILLUSTRATING DENSINKRAN CLOTHING

Exploration has become an additional way to gain in-depth knowledge of products and other clothing, especially with digital tools. Meanwhile, some respondents who patronise fashion activities expressed that over-reliance on digital tools like Adobe Photoshop might lead to a loss of cultural authenticity and traditional techniques associated with densinkran clothing. One respondent who is into textile design expresses optimism about the design, indicating that it is an attempt to create awareness about the Adinkra motifs and what they stand for, but is worried about how Photoshop might accurately replicate the intricate details, patterns, and texture found in traditional Densinkran clothing. Boadi et al. (2025) emphasise that Adinkra motifs, which do not reflect their philosophy, do not represent and cannot communicate meaningfully to the indigenous people, depriving craftsmen of the ability to downplay such motifs. Adobe Photoshop helps to speed up design illustrations, but the illustration might lack the tactile experience and depth of traditional fabrics, making it difficult to fully appreciate the texture and quality of the clothing. Chudi-Duru (2023) opines that the tactile effects of a designed fabric play an important role in the aesthetics, functionality, and interaction with the environment. Relying on Adobe Photoshop for illustrations might make the design process vulnerable to technological issues, such as software glitches.

5 | IMPLICATIONS OF FINDINGS

The impact of digital tools on sustainable indigenous fashion design practices is significant in Ghana's fashion and textile industries. Highlighting sustainable practices in traditional 'desnsikran' clothing style can educate consumers about environmentally friendly fashion and inspire fashion designers and innovators to create culturally sensitive and socially responsible products that promote environmental sustainability and cultural preservation. Adobe Photoshop illustrations can be used to illustrate and modify Adinkra motifs for 'Densinkran' clothing design. However, while Adobe Photoshop has proven effective in promoting a sustainable tool for designing 'desinkran' clothing, it has the tendency to affect the indigenous local industry's sustainable practices. As Chakraborty and Sadachar (2023) highlight, cultural practices positively influence attitudes toward slow fashion, but not toward the environment. The growing trend of sustainability may bring about competition among fashion designers, but unless they are entrenched in the use of digital tools, materials, and methods to maintain the practical realities of the designs. Using these tools, streamline the design process and reduce the time and effort required to create intricate Adinkra designs. Altering the nature of the Adinkra motifs may risk losing their natural appearance and respect, which can lead to cultural insensitivity and offence or cultural appropriation. The representation of cultural symbols can negatively convey incorrect naming and misinterpretation of their philosophical meanings in the Ghanaian context of costume (Tordzro, 2021). Showcasing the traditional 'densinkran' clothing style through Adobe Photoshop illustrations can provide economic opportunities for local communities, promote cultural exchange, and empower artisans to preserve their traditional craft and take ownership of their traditional knowledge and skills to develop sustainable livelihoods. However, the perpetuation of stereotypes through Adobe Photoshop illustrations can reinforce negative attitudes and perceptions towards Ghanaian culture (Darkoh-Ankrah, 2022).

The creation of Adobe Photoshop illustrations can support education and research initiatives focused on traditional textiles, fashion, culture and costume or cultural heritage, promoting a deeper understanding of the significance and meaning behind traditional densinkran clothing styles. However, the reliance on Adobe Photoshop

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illustrations can create dependence on technology, potentially undermining traditional craftsmanship and skills. Kuhnen and Santos (2019) argue that illustrations are an important application method for publicising brands and advertising products, in which perceptions and aesthetics are organised to create symbolic and relevant visual communications that resonate in today's technologically advanced environment. The 6-stage stylised interpretation is replicable but requires content-specific modification for each textile and fashion style. HND students can apply it after training in the cultural and oral history collections of indigenous artefacts. Despite the oral narratives on the selected symbols and the corrections, the design applies to all aspects of Ghanaian textiles and fashion. The key to successfully transferring the stylised interpretation approach to students' collections or work is to pair every design approach with a research action. The method was applied to the Densinkran clothing style; therefore, for an HND student project, a duration of two (2) semesters is efficient and requires no expensive equipment.

6 | LIMITATIONS OF THE STUDY

Since the illustrations of the Adinkra motifs Hairdo, Atete, and Ngosuo were created in Adobe Photoshop, a challenge arose because the preferred colours and textured nature of the consumers or audience were unknown. The colours used for the design and motifs remained unchanged, as reshaping them could alter their representation, potentially leading to misinterpretation of Asante traditions. The study's sample size may seem appropriate for exploratory but phenomenological research within a single technical university. Still, it could be insufficient for generalising to all Ghanaian technical universities, traditional weavers, and fashion designers. The study focused on the Densinkran clothing style for the 6-stage method; the same principle may not apply to other indigenous clothing, such as fugu, due to its construction techniques.

7 | CONCLUSION AND FUTURE STUDIES

The study illustrated Densinkran clothing in Adobe Photoshop, a contemporary software for idea generation and design illustration. With this illustration, Densinkran clothing should not be made to create excess fabric waste, as this would promote environmental sustainability. The research employed a stylised interpretation approach of design illustration to communicate the symbolic importance of the Asante indigenous royal clothing style, promoting the sustainability of the Densinkran clothing in Ghana. The stylised interpretation approach provides an innovative design approach by simplifying, exaggerating, distorting, abstracting, expressing, and idealising the Densikran clothing style and its motifs on the cloth, thereby integrating the philosophy of wearing Densikran clothing into the design and its absorption, thereby preserving Ghanaian cultural practices. It is recommended that graphic and professional designers, fashion designers (HND Students), photographers, and design illustrators adopt a stylised interpretation approach to ensure sustainable design, awareness creation, and the preservation of traditional designs through software. Also, HND students apply the full 6-stage method as part of their final-year project. The method transforms Densinkran clothing style into a flexible, meaningful fashion trend. Therefore, students must balance creativity with cultural values and respect to foster preservation and sustainability in the design, fashion, and creative industries.

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DATA AVAILABILITY STATEMENT

Data sharing applies to this study upon an acceptable request from the corresponding authors.

ETHICAL APPROVAL STATEMENT

There is no ethical approval for this study.

CONFLICT OF INTEREST STATEMENT

The authors declare that there are no conflicts of interest related to the research, authorship, or publication of this article.

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

During the preparation of this manuscript, the authors used DeepSeek AI software to correct some grammatical constructions. All research design, data collection, analysis, interpretation of findings, and conclusions were developed by the authors. After using this tool, the authors carefully reviewed and edited all suggested text and take full responsibility for the accuracy and integrity of the manuscript.

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REFERENCES

Ademtsu, J. T., Acquah-Goulbourne, R., & Yayra, A. K. (2024). Clothing and accessories as a form of artistic expression. *Asian Journal of Advanced Research and Reports*, 18(8), 169-175. https://doi.org/10.9734/ajarr/2024/v18i8719

Adinkra Symbols (2016). Adinkra Symbols & Meanings. Retrieved October 11, 2025, from https://www.adinkrasymbols.org/

Alaswad, M. H., Fiad, N. S., Muhammad, R. R., Muhammad, K., Farghaly, S. T., & Hassabo, A. G. (2024). Achieving environmental sustainability using the art of patchwork in contemporary clothing design. *Journal of Textiles, Coloration and Polymer Science*, 21(2), 459-466.

Asamoah, F. N. (2021). "An indigenous innovative touch": The significance of the kente cloth in Asante culture. In The Asante World (pp. 188-200). Routledge.

Awuyah, I. K. (2012). *Exploiting techniques in Asante indigenous hand embroidery for Adinkra cloth production* (Master's Thesis, Kwame Nkrumah University of Science and Technology) https://ir.knust.edu.gh/handle/123456789/4046

Ayesu, S. M., Acquaye, R., Howard, E. K., & Asinyo, B. (2023). Promotion and preservation of indigenous textiles and culture in Ghana. *East African Journal of Education and Social Sciences* (EAJESS), 4(1), 15-29.

Boadi, M. A., Frimpong, C., & Seidu, R. K. (2025). The influence of change on indigenous strip-woven fabrics in Ghana. *Journal of Asian and African Studies*, 60(1), 593-616. https://doi.org/10.1177/00219096231176740

Boateng, B. (2017). Cultures of property: African cultures in intellectual and cultural property regimes. In The Routledge Companion to Cultural Property (pp. 295-309). Routledge.

Chakraborty, S., & Sadachar, A. (2023). Can a connection with indigenous cultural values encourage sustainable apparel consumption? *Journal of Fashion Marketing and Management: An International Journal*, Vol. 27 No. 1 pp. 80–99, https://doi.org/10.1108/JFMM-07-2021-0191

Chudi-Duru, C. C. (2023). Surface design texture: An indispensable element of design for African printed fabrics. BOOKS/FESCHSCHRIFTS, 1. https://www.nigerianjournalsonline.com/index.php/Feschschrifts/article/view/4163

Darkoh-Ankrah, K. (2022). Representations of clothing in selected Ghanaian literature. *Kairos: A Journal of Critical Symposium*, 7(1), 56-70.

Dzramedo, B. E., Ahiabor, R., & Gbadegbe, R. (2013). The relevance and symbolism of clothes within traditional institutions and its modern impacts on the Ghanaian culture. *Journal of Art and Design Studies*, 13(1), 1-14.

Essel, O. Q. (2023). Telling the Indigenous Ghanaian Fashion Cosmovision: The Case of Royal Ahenema Sandals. In: Gardetti, M.Á., Larios-Francia, R.P. (eds) Sustainability Challenges in the Fashion Industry. Sustainable Textiles: Production, Processing, Manufacturing & Chemistry. Springer, Singapore. https://doi.org/10.1007/978-981-99-0349-8_16

Gebru, A. K. (2021). The piracy paradox and indigenous fashion. *Cardozo Arts & Ent. LJ*, 39, 607.

Hopkins, J. (2021). Fashion design: The complete guide. Bloomsbury Publishing.

Ibrahim, M., Howard, E. K., Amos, E., Fobiri, G. K., Schall, M., & Oppong, D. (2025). Sustainable practices of fabric waste among small-scale garment enterprises in the Kumasi metropolis. *Sustinere: Journal of Environment and Sustainability*, 9(1), 52-61. https://doi.org/10.22515/sustinere.jes.v9.i1/411

Jian, S. (2017, October). Research-led design practice: A new approach of research through design. In Proceedings of Arts & Humanities Conferences (No. 6008270). International Institute of Social and Economic Sciences. https://ideas.repec.org/p/sek/iahpro/6008270.html

Kuhnen, G., & dos Santos, C. T. (2019). Perception and expression in the universe of fashion illustrations. *ModaPalavra e-periódico*, 12(23), 273-293.

Kumar, R. (2017). Prospects of sustainable fashion design innovation. *International Journal of Textile and Fashion Technology*, 7(6), 5-14.

Lunde, K. S. (2018). Ancient, indigenous and iconic textile motifs in contemporary fashion case study: Defining concepts through textile designs: Appropriation, Collaboration, Provenance and Identity. In The Social Fabric: Deep Local to Pan Global; Proceedings of the Textile Society of America 16th Biennial Symposium. Presented at Vancouver, BC, Canada; September 19 – 23, 2018. https://digitalcommons.unl.edu/tsaconf/1093/

Melo, B., Beresford, T., & Broega, A. C. (2022). Fashion design and production through the social economy lens: Contributions and challenges for a holistic approach. *Advances in Science and Technology*, 113, 139-148.

Mensah, R. O., & Korankye, V. (2024). The role of fashion in crime symbolism in Ghana, West Africa. *Deviant Behavior*, 46(3), 347–364. https://doi.org/10.1080/01639625.2024.2346330

Moreschi, J. (2023). Sustainable digital design: Integrating environmental considerations in the digital design process. (Masters thesis, Politecnico di Milano). https://www.politesi.polimi.it/handle/10589/223062

Mowlah, A., Niblett, V., Blackburn, J., & Harris, M. (2014). The value of arts and culture to people and society. Available at: https://www.understandingsociety.ac.uk/research/publications/publication-522416/

Ngangah, I. C. (2020). Parameters for determining Core cultural symbols: A philosophical analysis. International *Journal of Innovative Research and Advanced Studies* (IJIRAS) Volume 7 Issue 2.

Nkansah, J. N. (2021). The future of education in Ghana: Promoting critical pedagogy through problem-posing education. *Systemics, Cybernetics and Informatics*, 19(7), 160-179.

Parkhomenko, K. (2023). Implementation of stylization method into system of professional art educational process. *Revista Educación*, 47(2), 254-284.

Thompson-Fawcett, M., Kitson, A., & Barry, J. (2019). Enhancing cultural aspirations in urban design: The gradual transformation by Indigenous innovation. *Urban Design International*, 24, 271-279. https://doi.org/10.1057/s41289-018-0075-y

Tordzro, N. D. (2021). Decolonising African costume and textiles: Naming, symbols and meaning in the Ghanaian context (Doctoral dissertation, University of Glasgow). https://theses.gla.ac.uk/id/eprint/82319

Tulu, A., & Fantahun, T. (2021). Re-thinking teachers' education curricula through indigenous curriculum construction principles: College of Teachers' Education If Focus in SNNPRS and Sidama Regional State. *Ethiopian Journal of Education Studies*, 1(1), 1-25. https://doi.org/10.20372/29wxt765

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