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EXPANDING FASHION CREATIVITY THROUGH JUTE AND SHREDDED WASTE FABRIC CONCEPT

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ABSTRACT

Purpose: This study explores the practice of reuse and recycling in the fashion world, specifically focusing on producing fashionable garments using jute and shredded fabric. The purpose is to address environmental challenges while creating aesthetically pleasing products.
Design/Methodology/Approach: The study employs a studio-based practice approach, where jute and shredded fabric pieces are carefully reused and recycled to create garments for runway exhibitions. The creative-reuse flow model is utilised in the creative process, incorporating dyeing and tuck-in as embellishing techniques.
Research Limitation: This study is limited to using jute and shredded fabric pieces in garment production. However, further research could explore the application of other recycled materials and their impact on the fashion industry.
Findings: The findings from the production process reveal that achieving the actual colour (black) through dyeing was challenging due to the raw nature of the jute material. This study addresses environmental challenges associated with producing fashionable products by promoting reuse and recycling in fashion. It highlights the potential for sustainable practices in the industry and encourages audience appreciation for recycled fashion garments.
Practical Implication: Utilising shredded fabric pieces and jute in garment production reduces textile waste, diverting tons of discarded clothing from landfills. This promotes a circular fashion economy where materials are reused instead of discarded.
Social Implication: This study addresses environmental challenges associated with producing fashionable products by promoting reuse and recycling in fashion. It highlights the potential for sustainable practices in the industry and encourages audience appreciation for recycled fashion garments.
Originality/Value: This study offers a unique approach to garment production by combining the concepts of reuse, recycling, and aesthetics in fashion. It provides insights into the creative process and demonstrates the potential for environmentally friendly practices in the industry.

Keywords: *Fabric. garments. jute. recycled. reuse*

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INTRODUCTION

Dynamism in fashion has influenced consumers' reactions to such changes, increasing their tastes and preferences (Garcia, 2022). This has resulted in the fashion industry adopting a quick-response philosophy in producing varying garments of fibre types for consumers (Katkar & Bairgadar, 2010). A phenomenon that has increased the disposal of garments is one of the significant contributors to environmental pollution (Claudio, 2007). This canker has influenced researchers and manufacturers to adopt a more sustainable and eco-friendly approach to addressing it. In supporting this, Kim et al. (2011) pointed out that an ideal sustainable practice has been the core of concentration by varying fashion companies in solving the pollution problem. Additionally, artists and designers in the fashion industry have joined the suit to adopt healthy practices that further seek to solve the problem, even though Kamis et al. (2018) attributed that 80% of the production affects the environment caused by fashion designers. The choice of the 3Rs (Reduce, Reuse and Recycle), widely employed in the fashion world by manufacturers and artists, further seeks to reduce pollution. Fashion artists in contemporary times have employed different materials that are disposed of in the environment through the concept of reuse and recycling to produce aesthetically pleasing articles that consumers can use. The use of bio-degradable and non-degradable materials remains a vital inspirational source. A typical example of such bio-degradable material, jute, is reused or recycled by artists to produce articles addressing the pollution problem.

Gokul (2019) cites Harsha Puthussery, an artist who employed jute in marking carry bags in an eco-friendly effort to reduce plastic usage in society. This craft initiative focused on creatively offering a bio-degradable product (jute) for consumers to limit or tackle plastic pollution carefully. In the same creative trajectory, Raghu (2016) cites the production of modified jute material in India for mobile products such as bags, which can be affected by liquid products. This production path sought to reduce the plastic usage for packaging bags. Contrary to that, Adjei et al. (2016) revealed in their study findings that the indigenes of northern Ghana purchased jute products in limited quantities but preferred plastic alternatives due to their bright colours and long-lasting ability.

As an organic item, Falak (2018) opines that jute, coupled with other fabric blends, is used for clothes that are comfortable and smooth to the skin without causing any harm to the wearer and, subsequently, the environment. With such benefits coupled with further contributing to reducing the pollution of the environment and adopting bio-degradable materials, this study seeks to produce runway garments from shredded fabric pieces and jute in the environment.

THEORIES UNDERPINNING THE STUDY

The theories of fashion sustainability, waste management, and fabric dyeing underpin the study. It incorporates the concept of the 3Rs (reduce, reuse, recycle) to promote sustainable practices in the fashion industry. It recognises the environmental impact of increased

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production and disposal of clothing, emphasising the need to address waste generation. The study also explores the process of dyeing fabrics, highlighting the chemical forces and factors that contribute to effective colouration. Artists and designers are recognised for reusing and recycling materials to create fashionable products while addressing environmental challenges.

Fashion Designers Exploring The Concept of The 3Rs

Garments that cover the wearer's skin or protect one's nakedness have subsequently transformed into contributing large portions of the world's waste. This is mainly due to the quick response philosophy adopted by fashion industries to increase production (UNEP, 2007, cited in Shakya, 2016). Galloway (2016) opined that such production increases and lower prices have resulted in consumers buying more products, increasing consumption. This has influenced the rapid disposal of used clothing or garments into the environment, increasing pollution in the surrounding area. Joung and Park-Poaps (2013) and Shakya (2016) cite waste generated from textiles and apparel into two distinct categories (Figure 1): pre-consumer textile waste and post-consumer textile waste.

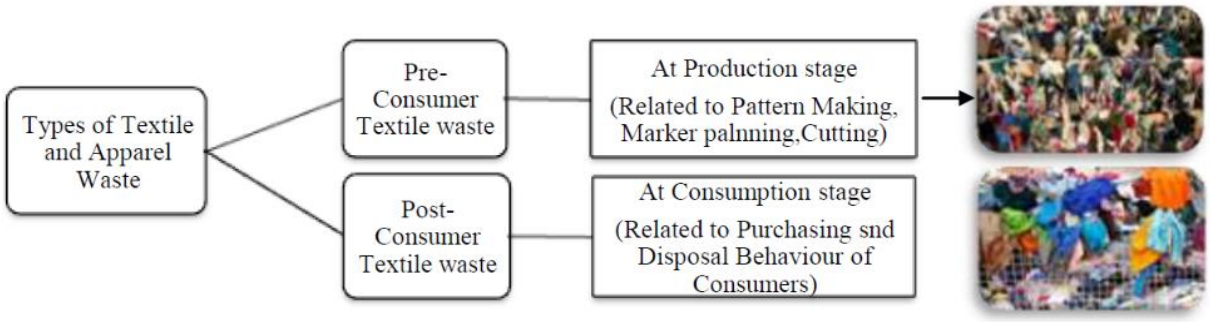

Figure 1: Sequence of Waste Generation in the Textile and Apparel Industry (Source: Shakya, 2016)

With such difficulty, designers have continually adopted the 3Rs (reduce, reuse and recycle) concept to ensure fashion sustainability and waste management. Higginbottom (2019) cites a design studio, PLANQ, managed by Anton, Dennnis and Jons, for ensuring sustainable innovation to address environmental waste. The PLANQ design studio manufactures furniture and backdrops (Plate 1) from textile waste such as flax, old and shredded jeans, army uniforms, recycled suits and coffee bags. Higginbottom cites fashion artists Victor and Rolf for employing recycled materials (vintage garments) in haute couture (Plate 2). They attribute recycling as a means of expression rather than a goal, reflecting a thoughtful and conscious design attitude.

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Plate 1: Furniture and Backdrops made from textile waste

Plate 2: Haute Couture made from recycled materials (vintage garments)
(Source: Higginbottom 2019 at http://www.tactiletrends.com/)

Inferring from the 2018 London Fashion Week statement, two designers, Vim and Omi, transformed plastic bottles and wool materials in producing clothes (Moore, 2018), as shown in Plate 3. This indicates that fashion can be used as one of the best mediums for waste recycling.

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Plate 3: Clothes made from plastic bottles and wool materials (Source: Moore, 2018)

Therefore, the 3Rs concept can be adapted to reproduce new economic value products and manage waste production sustainably, thereby reducing environmental pollution.

Dyeing As a Fabric Decoration Method

The act of decorating fabrics using dyes in a process called dyeing has, throughout generations, been practised by craftsmen and individuals worldwide. This process predominantly affects colour change in a fabric when dyes made in a soluble form are exhausted in situ in the fibre structure of the fabric. This phenomenon resists the removal of such dye molecules due to their absorption by the fabric upon contact. Khattab et al. (2020) opine that dyes are quickly diffused and distributed in the dyeing process, interacting effectively with the fibre structure. This essentially points to the fact that such a process leads to the permanent bonding of dye molecules with the inner structure of the fabric within a stipulated length of dyeing time. The action of dye molecules forming permanent bonds with the fabric is primarily attributed to chemical forces that occur when such elements are in contact. It is, however, observed that these chemical and bonding forces, such as ionic and vande wals forces coupled with covalent bonds, essentially play vital roles, leading to such permanent linkages. These fibre structures lose their strength and, in most cases, are entirely damaged in an attempt to remove such dye molecules from the fabric. It is important to note that these dyes, irrespective of their origin, have an inherent ability and strength that place the fibre structure in-situ to effect colour change. For an effective dyeing process, the fibres must be within a suitable region to form irreversible bonding linkages with the dye molecules coupled with the proper temperatures and length of time. Moreover, the right hue to be produced in the fabric would depend on the fibre's morphology and the consistency of the dye bath.

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Factors in Ensuring Effective Colouring on Fabrics

The colouring procedures in a fabric that ensure the appropriate shade largely depend on certain factors: dyeing time (DyT), potency and concentration of dyes and their additives, and the structure of the fabric. The migration of dye molecules in-situ to the fibre structure occurs within a specific time frame, known as dyeing time (DyT). The time spent by the fabrics in the dyeing bath determines their shade, which is light, medium or dark. Wisbrun (2011) affirms that the quality of colours achieved depends on when these fabrics stay in the vat. This means that the shade of colour produced in a fabric when placed in a vat for about 5 minutes would vary from that of 15-30 minutes due to the amount of dye molecules absorbed by the fibres within a specified time range. In addition, the potency and concentration of the dye, coupled with its additives, play an active role in colouring a fabric. This is, however, affected by the humidity, temperature, and storage chambers that house these elements. LabCE (2018) states adequate bonding with tissues when dye concentration is more significant in the vat. Furthermore, for such bonding to occur, the P^H and temperature of the dye bath should be appropriately set to facilitate the affinity of the dyes, ensuring an adequate colour shade. The right colouring effect to be produced is pivoted on the observed factors. However, it cannot be accessible if the ratios and consistencies of the dyes coupled with their additives are not worked out to conform to the structure of the fabric and its fibres. This is to position that the compactness or loose nature of a fabric made of natural fibres would require certain dyes and concentrations from man-made fibres to achieve the needed shade.

Artists and designers widely practise the concepts of reuse and recycling in the fashion world to address environmental challenges or issues coupled with producing fashionable products of aesthetic value. Considering this, the study employed the studio-based practice approach to carefully reuse and recycle jute and shredded fabric to produce garments for runway exhibitions.

RESEARCH METHODOLOGY

The study employed the studio-based practice approach using the creative-reuse flow model for the design and production processes, exploring shredded fabric pieces and biodegradable jute materials in developing runway garments. Exercising the studio-based practice, dyeing and tuck-in were used to colour and embellish the jute material, respectively. Influenced by the concept of the 3Rs, the *creative-reuse flow model* (Figure 1) was constructed to aid in the creative process carefully.

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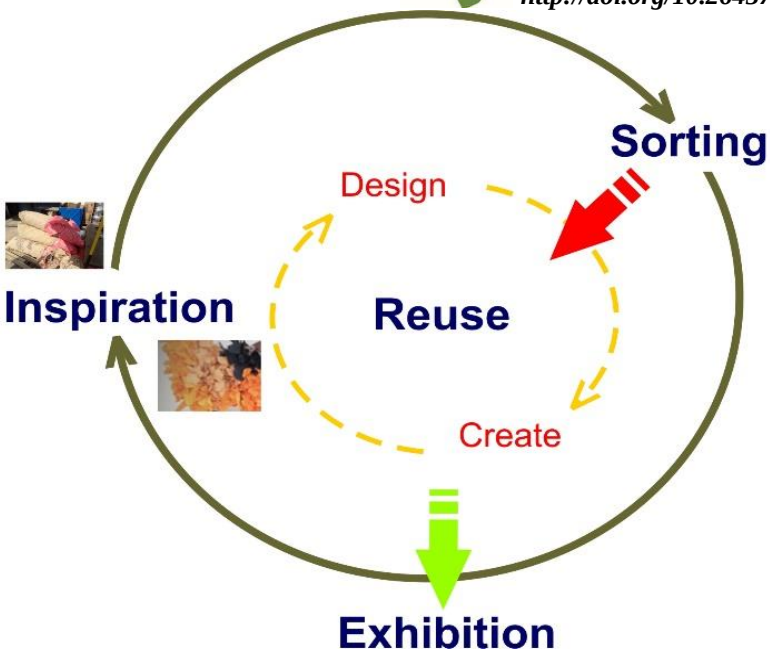

Figure 1: Creative-reuse flow model

Inspiration Stage

With the core goal to contribute to addressing the environmental issues, ideas, thoughts and creative concepts from contemporary artists dovetail into the inspiration stage of the model. In that regard, jute (Plate 4), widely popular in the packaging of onions in the Ghanaian market, was selected for the production process. Conceptually, these jute materials are embedded in the struggles and challenges of the users in their daily activities, which dovetails the philosophy of the huge jute sacks installation by contemporary artist Ibrahim Mahama. This further plays into that of the fabric pieces (Plate 5).

Plate 4: Jute materials used in packing onions.

Plate 5: Fabric pieces

Sorting Stage

Brainstorming on that ideology, materials (jute and fabric pieces) were gathered from the field under this stage. Fabric pieces gathered from the surroundings were cut into appropriate sizes. The jute materials from the market were cleaned, dried in the sun and coloured using a black vat dye.

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Reuse Stage

Most contemporary artists have utilised items from the environment that have exceeded their life span in producing works of art. These works are essentially driven towards communicating a message. As stated early on, inspirational sources were utilised for alternative garments under the reuse stage, sub-categorized into *design* and *creation*.

Design

This creatively details the design concept for the garments, which included a mood board that subsequently influenced the sketches.

Design Concept

Mizizi, as the name of this collection, means roots in Swahili, as depicted in Plate 6. The inspiration behind this collection is man's innate desire to go back to the source of life. As a people, Africans have been significantly inspired by Western culture in how we dress and express our fashion, but underlying all the glamour of Western Civilisation is the African's desire to find themselves, their people, their beliefs, and their own. It is the desire to go back to our roots and feel good and happy in our skin because we finally found our way back home. There is an Akan proverb that says: *se wo fi na wosan kofa a yenki* which translates to mean, “it is not taboo to go back and fetch what you forgot”.

The Mizizi collection hopes to teach us that we must return to our roots to move forward. This concept is physically expressed in the materials and style of the collection pieces. Underlying the colourful fabrics is the jute material, which is locally known as the "Cocoa Sac", and emanating from its pores with bright colours are more trendy and modern fabrics. The coloured fabrics we cut into pieces and each run through the holes in the jute material to make a strong knot, which metaphorically means that our African Roots are embedded deep in our subconsciousness, so no matter how far we go, no matter where we are, if we dig deeper, we will find that our roots never left us. Illustrated in Figure 8 is the mood board for the mizizi collection.

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Plate 6: Mood board for the Mizizi collections

RESULTS AND DISCUSSION

The study focused on producing garments using jute fabric and incorporating embellishing techniques through computer software and sketching. The garments were showcased in a fashion show to promote collaboration between jute traders and designers and emphasise the use of jute fabric in the fashion industry. Detailed sketches (Plate 7) were created to visualise the materials and colours to be used in the final construction of the garments. Computer-aided software, specifically Adobe Illustrator, was utilised to illustrate the garments on fashion figures.

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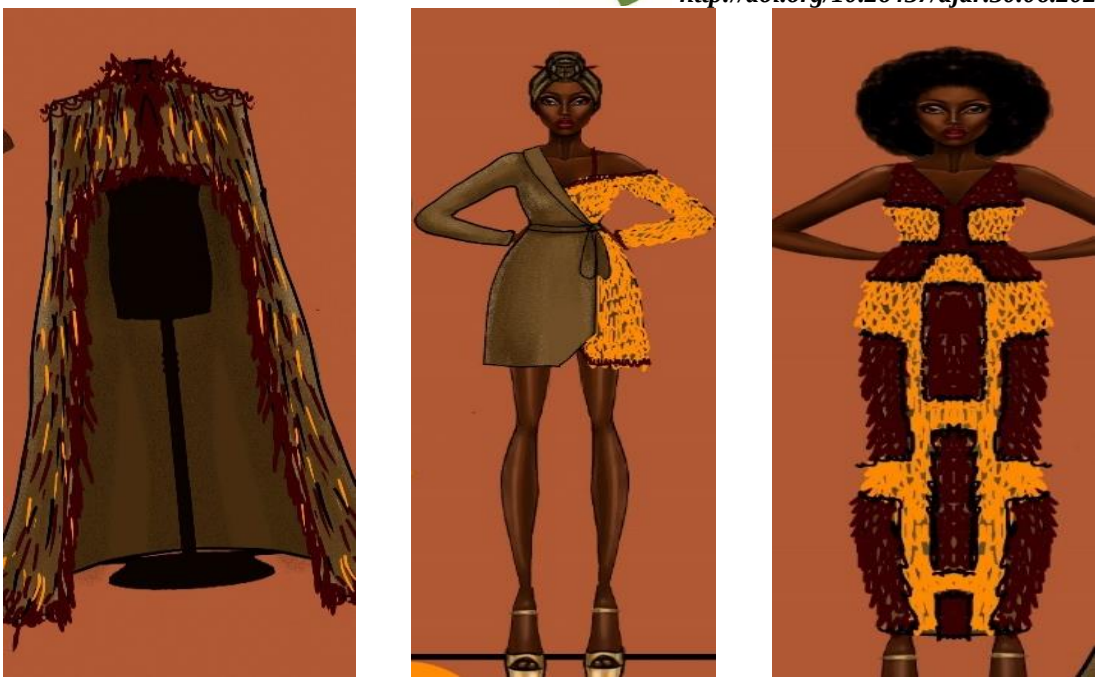

Design 1 Design 2 Design 3

Plate 7: Sketches for the Mizizi collections

Create

The development of the garments carefully entails pattern making, dyeing, sewing and embellishment. These activities were coordinated to achieve the maximum output. This agrees with Yang and Lee (2020), arguing that sketches influence how each garment section is patterned. Using appropriate measurements, patterns were drafted on brown paper with the necessary allowance. The drafted patterns were subsequently placed on the jute material and cut out. A leuco compound was created by mixing caustic soda (two spoons), sodium hydrosulphide (three spoons) and a black vat dye in water. The drafted pattern was immersed in the concentrated VAT solution for 5-10 minutes. After the said dyeing time, the jute was removed and dried in the sunlight. These dyed patterns were joined by sewing with an industrial sewing machine. Running stitches were employed to secure the patterns.

Plate 8: Cut out fabric pieces tuck-in through the porous of the jute material

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Embellishment was carried out on the surface of the jute material using the cut-out fabric pieces. Due to the porous nature of the jute material, the cut-out pieces (in different colours) were carefully rolled around the tip of the scissors and tucked in (Plate 8) through the pores of the jute material. This activity was carried out to embellish certain portions of the garment. Underlying was done using a very light fabric in the garments to prevent the hairy projections from ensuring comfort to the wearer. The choice of light fabric was deemed necessary so as not to increase the weight of the garments further.

The combination of jute and shredded fabric pieces creates a distinctive aesthetic. The variety of shredded fabrics softens the natural coarseness of jute. The juxtaposition of these materials adds depth and texture to the garments, offering designers new opportunities for creative expression.

Exhibition

At this year's Graduate Fashion Show of the Department of Industrial Art at the Kwame Nkrumah University of Science and Technology, the final design garments (Plate 9) were showcased on a runway. The use of recycled materials, especially jute, resonated with audiences and fashion critics who value eco-friendly practices. The finding corroborated Rana (2024), who revealed that the garments conveyed a message of environmental consciousness, aligning with the broader movement toward ethical fashion.

Highlighted early on, the study of Akter et al. (2022) supports the finding that garments further seek to contribute to the more prominent artist's creative trajectory of addressing the bulk of waste generated by the apparel and textile industry. The concept of reuse was applied to harness jute and shredded fabric pieces in the creative process.

The creative-reuse flow model emphasises flexibility and experimentation. The process of deconstructing and reconstructing fabric pieces inspired more artistic freedom, pushing them to experiment with unconventional shapes and structures, leading to highly innovative runway pieces.

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Design One

Design Two

Front

Back

Design Three

Plate 9: Exhibition of the garments at the 2019 Graduate Fashion Show in KNUST

Outcomes of The Creative Process

Jute materials sourced from the Adum market in the Ashanti Region of Ghana were averagely heavy and characterised by hairy projections on their surface. This hairiness was carefully burnt off or cut using a low-burning fire and scissors. Due to its coarse structural nature coupled with

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those above early on, the actual colour in black was not fully achieved at dyeing, even though the colour obtained was suitable for the garment.

The dyeing process, particularly with natural dyes, enhances the organic and sustainable feel of the garments. This finding agrees with the study of Pranta and Rahaman (2024), which noted that jute absorbs dye uniquely, producing rich, earthy tones. The shredded fabric pieces provide varied colour patterns, creating a visually dynamic final product suitable for high-fashion runway presentations.

This study addresses environmental challenges associated with producing fashionable products by promoting reuse and recycling in fashion. It highlights the potential for sustainable practices in the industry and encourages audience appreciation for recycled fashion garments.

CONCLUSION

Jute fabric has some unique characteristics that can be a good fibre material for producing fashionable outfits. The embellishment of jute fabric can render it suitable for fashionable products and enhance its aesthetic qualities. The project will serve as a platform to educate the general public, especially fashion designers, on the benefits of embellishing jute fabric for fashionable outfits. The study offers fashion designers, jute sellers and art teachers first-hand information on embellishing jute for fashionable outfits.

Utilising shredded fabric pieces and jute in garment production reduces textile waste, diverting tons of discarded clothing from landfills. This promotes a circular fashion economy where materials are reused instead of discarded.

Fashion production using jute and shredded fabrics directly addresses the industry's waste problem by minimising the need for virgin materials and promoting recycling. This reduces the strain on natural resources and helps conserve ecosystems.

Shredded fabric pieces and jute offer unique textures and look that can create distinctive, one-of-a-kind garments. Designers can innovate by blending recycled materials with contemporary styles, sustainably developing fresh trends.

Finally, the study's results will encourage collaboration between jute sellers and fashion designers, aiding business growth and development.

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