

Epiphanic Revival: Exploring Metallic Finishes on Batik Fabrics in Ghana

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Abstract

Batik fabric is an integral part of the traditional cloth culture of the Ghanaian traditional setting. However, the batik fabric has marginal usage due to its casual visual appearance. This studio practice seeks to explore the epiphanic revival in the use of metallic finishes on batik substrate to create an enhanced visual appearance with embellished aesthetic sensibilities and diversified use. The researchers adopted the studio-based approach of the qualitative design to manipulate handmade tools, techniques (collagraph) and the batik fabrics through experimentation to produce a glittering mercurial batik fabric which is typically an industrial practice. The studio practice took place at the Textile Design and Technology studio, Takoradi Technical University, Ghana. The traditional batik fabric was manipulated through fabric decoration techniques in accordance with studio-based practices. The Addie model was adopted as a methodological approach in the analysis, design, development, implementation, and evaluation processes of the experimentation processes of the study. Findings revealed that the hand techniques used in the production process for the metallic prints produced interesting accidentals finishes and effects that machine work cannot achieve, producing new discoveries of visual enhancements of traditional batik fabric. Traditional batiks became mercurial with glittery effects. The metallic prints on the fabric also changed its consumption pattern from mere casual fabric to classic and cosmopolitan fabric for varied uses suitable for wearable to non-wearable.

Keywords

Batik, Tie Dye, Metallic Prints, Finishes, Visual Appearance

1. Introduction

Textile Finishing has been the quest of the textile industry both cottage and me-

dium to large scale to improve the functional finish of textile materials. These cottage industries are small to medium scale and are in the informal sector. The informal sector has been the main driver of employment growth in Africa for decades, absorbing rising urban populations ... it's where Africa's youth bulge is going to find their livelihoods [1].

In the narrow sense, textile finishing is the final step in the manufacturing process of fabric aimed at providing properties that the customer will value [2]. Finishing is the term for chemical and mechanical processes used on fabric after it is manufactured but before it is cut and sewn into garments or made into other products. Textile finishing is used to achieve desired effects and it can have aesthetic or functional benefits. Finishing processes might modify a fabric's final appearance, make it softer, or improve elements of its performance.

[3] espouses that, textile finishing is the term for chemical and mechanical processes used on fabric after it is manufactured but before it is cut and sewn into garments or made into other things. He adds that, textile finishing is used to achieve desired effects and it can have aesthetic or functional benefits. [3] further explains that finishing processes might modify a fabric's final appearance, make it softer, or improve elements of its performance. Whichever process is done, textile finishing makes fabric more appealing to the consumer.

Many elaborate treatments have been developed to render textile material more attractive either by improving their appearance or by imparting some properties not normally possessed. In Ghana, most of the finishing treatments are carried out on fabrics produced in the large-scale textile industry. Little attention is paid to textile products emerging from the cottage textile industries like the Batiks and tie-dye. Appearance enhancing finishing treatment such as metallic printed patterns is done on wax prints and fancy prints like wooden. It is uncommon to find this type of appearance enhancing finish applied on our local batiks and tie dye. Batik and tie-dye production are a collective craft that is widely practiced across the globe. Batik has a very old history in Ghana and West Africa.

Batik and tie-dyed fabrics are popular finished textiles on the local Ghanaian market. The fabrics are characterized by graceful and multi-colored designs manifesting planned to accidental designs. Batik and tie-dye industry play very important role in the socio-economic growth of the local economy by helping to generate income, improving livelihoods and it is a means through which people solve their clothing needs.

[4] explains that batik and tie-dyeing craft used to be a huge source of income generation for many Ghanaian artisans. [4] further notes that batik and tie-dye fabrics and products strongly contributed to Ghana's tourism sector-incomes. However, in recent times, the production of batik and tie-dye fabrics has taken a retrogressive path due to massive competition with an assortment of different types of fabrics on the Ghanaian market. One of the key reasons why many consumers have started opting for other fabrics rather than locally manufactured batik and tie-dyed fabrics is the final finishing treatment given them [5]. Batik on the other hand is given very simple finishing treatment such as rubbing of

wax on fabric surface and subsequently ironing of the fabric to give it some lustre.

Many production centers across the country have stagnated in terms of production outputs; and indeed, only few have survived the competition on the local market. [4] stresses emphatically that even those that have survived dedicate most of their production hours to other income-generating activities such as screen printing. Preliminary studies carried out by the researchers indicated that a number of people do not go in for Batiks because of the mono visual appearance and finish.

Finishing of textiles is mostly carried out in the major textile industries across in Ghana [6]. The finish is a treatment given to a fabric, to alter its appearance, handling-touch or performance. The primary purpose is to make the fabric more suitable for its end use. The processes cover any general treatment given to clean and iron fabrics and create special variations of them by using chemical treatments, dyeing, printing, etc. to make fabric attractive and aesthetically pleasing. The large and medium scale textile industries in Ghana also apply finishes to their final dyed and printed products. Some of these finishes are temporal while others are permanent. Some of the temporal finishes include optical fluorescence, softening agents and calendaring just to mention a few. Example of permanent finishes, added to the printed or dyed fabric, include printing of golden or silver metallic paste on fabrics making it more attractive and appealing. However, this is not the case with the Ghanaian cottage industries producing fabrics for local consumption.

1.1. Research Question

What possible methods can be adopted for the application of metallic finishes onto batik and tie dye cotton fabric?

1.2. Purpose of the Study

The purpose of the study is to enhance batik and tie dye fabrics surface by applying metallic finishes to improve its attractiveness and functionality.

2. Review of Alternative Techniques for Handmade Metallic Prints

A historical exposition into the historical perspective of metallic finishes, suggested that metallic finishes known then as brocade or gold pattern were produced by printing with block a vanish or some adhesive matter on the fabric and then by means of another block, dipped in the metallic powder transferring sufficient quantity of it to the adhesive matter [7]. This was a typical handicraft technique which has been adopted.

[8] added that application of gold or silver is done in three different ways. These include printing using a metal powder, application of gold or silver glitters and the use of metal dust mixed with printing paste and directly applied to the cloth with wooden blocks (positive blocks design in relief or stencil). [8] sup-

ports the claim by [7] that in the early days of metallic application, synthetic adhesives were initially printed on cloth and then the gold or silver dust was sprinkled on them. The final stage which is very important is the introduction of heat to make the prints permanent. [8] continues to state that as early as 5th Century there is evidence of block printing in India using metal substances. He added that the exact origin of printing with metal however remain obscure and that in the 16th century poetry illustrate that printing with metals were done on articles of clothing as festivals weddings and not for ordinary use. These production processes were basically hand craft oriented.

The definition of handicraft is extensive, including historic techniques and contemporary innovations, approaches of organizing work and creativity, but materializing the sense of handicraft rather than industrial practices and production. Traditional textile design processes might be considered conservative; textile crafts materialize cultural identities of the community. For example, traditional costume as a material culture is used to express identities and exclusivity [9]. [10] is of the view that there is a paradigm shift, which offers an extensive platform and that many contemporary designers are now adapting the potential of traditional craft in their work and rebirthing practices often with very “non-traditional” ends. Together with a concern for zero-waste and for re-cycling, a new dynamic is emerging between traditional handicrafts applications and the modern fashion and creative industries.

The zero-waste and re-cycling concept becomes a viable panacea for the creation of collagraph blocks, promoting green and sustainable art practices in traditional craft ecosystem. In the researchers view, craft is the classification of styles of artwork where utilitarian and decorative works of art are made solely by hand techniques and supporting basic tools. In textiles, there are numerous ways in which a textile artist can embellish the surfaces of fabrics. This assertion is a justification of this study choosing hand craft applications for enhancing the appearance of batik and tie dye.

[11] agrees with [12] that surface printing such as collagraph is one of the ways in which a craftsman can embellish a fabric surface which may also be referred to as mono print application. A collagraph is a relief print made from a flat printing plate and various found objects. The objects are arranged in a collage style and glued to the base (the plate) which is then sealed, making it waterproof and allowing one to use it over and over. The plate can be cardboard, Plexiglas (acrylic sheet) chipboard, mat board, wood, or any other sturdy surface. Possible items such as lace, buttons, threads, and other objects that will give texture. [11] added that creating the collagraph plate itself is a great collage project itself and an excellent printmaking activity which adapts relief and intaglio techniques. It is inexpensive, as the variety of materials used denotes thin Masonite, heavy cardboard for the base and assortment of papers and mat board scraps; fabrics, trims, laces; tapes; modelling paste; sandpaper; found objects such as washers; scissors and exact to knives; polymer medium; white glue; brushes; and spray plastic containers and sealer.

[12] explains collagraph as a means of getting colour and pattern on fabric and embellishing and enhancing the design with a three-dimensional design. The blocks or stamp are used to enhance a design on fabrics.

[13] and [14] contends that block printing is a carved stamping method in which a surface is carved to create “white” (sometimes negative) space. Whether wood, stone, linoleum, or rubber, the carved surface is basically a stamp that can be used to create impressions on a fabric. [14] further suggests that carved block printing, also known as xylography, originated around the fourth century in China and initially found use in printing textiles and an example of block printed products is the textile printing found on a block-printed tunic dated from the fourth century. Printed fabrics from block printing shows perfect imperfections of prints that cannot be replicated.

3. Materials and Methods

The researchers adopted the studio-based approach of qualitative design. The studio practice employed artistic methods and processes to explore various forms of hand craft applications of metallic finishes to enhance batiks and tie dye fabrics. Through experimentation, manipulation of handmade tools and the batik fabrics a glittering mercurial batik fabric was produced which is typically an industrial practice. The studio practice took place at the Textile Design and Technology studio, Takoradi Technical University, Ghana. The competencies, skill and the practice path of the researchers made possible the execution of the innovation of creating metallic prints onto handmade batik and tie dye.

This studio practice seeks to explore the epiphanic revival in the use of metallic finishes on batik substrate to create an enhanced visual appearance with embellished aesthetic sensibilities. The intended metallic print on the fabric is to change the consumption pattern from mere casual fabric to classic and cosmopolitan fabric for varied uses suitable for wearable to non-wearable.

This studio practice created innovative hand technique production process for the metallic prints and produced new discoveries of visual enhancements of traditional batik fabric after metal prints. Traditional batiks became mercurial with glittery effects. This serves as a form fabric decoration strategy, revealing to cottage and small-scale practitioners how metallic prints can be achieved with handmade tools and processes. The Addie model was adopted as a methodological approach in the analysis, design, development, implementation, and evaluation processes of the experimentation processes of the study. The studio-based approach and the Addie methods were used in conjunction because it offered an extensive platform for reflective engagements, experimentation, and manipulation of processes under consideration and again applying learning from the processes to develop competencies. The two methods resulted in an approach that allowed for continuous improvement to the creative processes to the final creation. **Figure 1** conceptualizes the methodological approach.

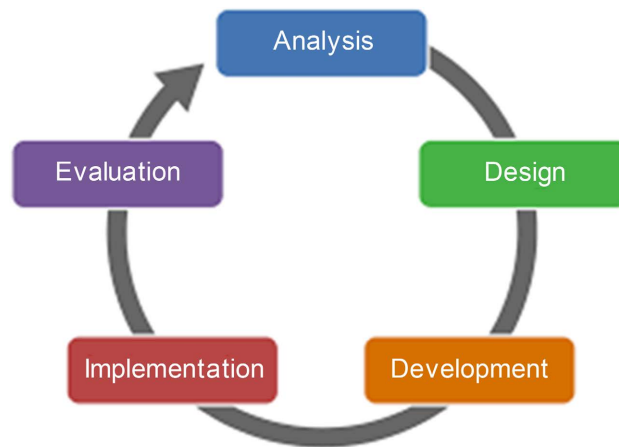


Figure 1. Addie Model Adopted as methodological approach.

3.1. Analysis

During the analysis stage, the current state of the batik and tie dye was studied. The visual appearance and their appeal to user's and potential users were observed. Its casual wear-effect as everyday wear was noted. Critical questions like: what is the current state of the batik tie dye was posed? Again, pronging query like why improve the visual appearance? What is the visual change that is desired and what methodologies can be used to improve the current visual appearance to diversify use? Sumila Mohammed, Safo-Ankama Kweku and Josuah Animall being textile professionals and studio practitioners engaged critically, scaffolded ideas and analyzed the current visual appearance of the locally produced batik tie dye to find how possible the appearance could be enhanced. Two (2) fabric samples were under consideration (**Figure 2** and **Figure 3**). Two (2) fabrics samples were selected to represent the batik and tie-dye classification of this group of fabric decoration technique. This is because all batik and tie dye batiks fabrics in Ghana possessed major essential characteristics in term of fabric type (mercerized cotton) as substrate, the only difference is the design concept as visual appearance which is based on the creative ability of the artist. This allowed for easy sampling. Colour consideration as enhancement was also analyzed as an element for visual appearance changer. Gold and silver prints were considered as possible spot colours for visual enhancement. The gold and silver metallic prints were the only two colours considered for the visual enhancements because the objective was to adapt to industrial enhancement practices which is basically gold and silver print enhancements. Another vital issue discussed thoroughly was what visual change is desired and what will that change in visual appearance contribute aesthetically to its departure and consumption pattern from mere casual fabric to classic and cosmopolitan fabric for varied uses suitable for wearable to Non wearable. Durability of the enhanced batik was also thought through during the analysis stage, the feel, handle, extra weight, spill, and stain resistance because it was envisaged that the gold print design density will create a water-resistant finish to give the fabric a character of versatility and diverse use.

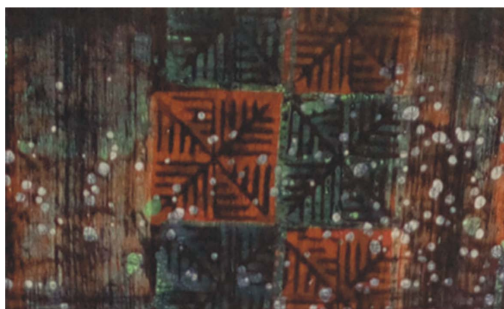


Figure 2. Batik sample (Source: Studio Work, 2023).

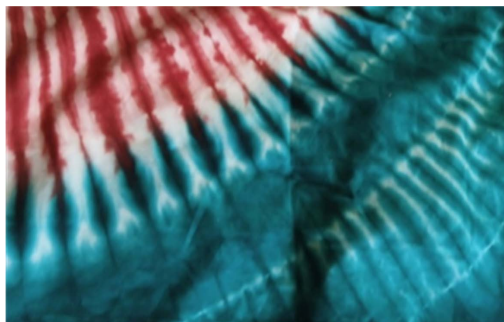


Figure 3. Tie dye sample (Source: Studio Work, 2023).

3.2. Design

The design stage looked at the strategy for production, general procedure for execution. The ideation and incubating period. The design concept for creation of the blocks and the alternative design transfer processes. At this stage the researchers conceptualized prototyping and also allowed for preliminary pre-tests before agreeing on blueprints. This firmed up design thinking before moving on to real development and actualization. As textile professionals with extensive studio and academic experience, Sumila and Safo brought into the study ideas for conceptualization and realization of the analyzed challenges. This was as a result of constant studio practice and experimentation coupled with ideation by Joshua. For effective practice of producing gold prints on the batik fabrics the researchers considered golden base and metallic powder/glitters as an appropriate metallic print paste as shown in **Figure 4** and **Figure 5** because of the cotton substrate.



Figure 4. Golden base (Source: Studio Work, 2023).



Figure 5. Metallic powder/glitters (Source: Studio Work, 2023).

The preparation of metallic ink was dependent on the quantity of fabrics available for printing. This process was very critical, because it is the appropriateness of colour and print that will transform the batik fabric from the traditional look and give it a more contemporary visual appeal.

Table 1 below shows the recipe for the printing of the batik and tie dye samples.

The following studio procedure was used for the preparation of the metallic printing paste, below are the step-by-step procedures. The processes adopted were basic, making it possible to be practiced at any cottage or small-scale industry (**Figure 6** & **Figure 7**).

Table 1. Recipe for preparation of metallic paste.

Name of substance	Amount/quantity
Metallic powder (fine glitters)	100 grams
Gold Binder or water based Platisole paste.	1 litre



Figure 6. Mixing of fine glitters to binder (Source: Studio Work, 2023).



Figure 7. Stiring of composition into even consistency (Source: Studio Work, 2023).

- 1) Pour 1 litre of golden water-based binder or plastisole into an empty container.
- 2) Add 100 g of golden metallic powder to the binder or plastisole.
- 3) Stir to form uniform consistency as shown in **Figure 7**.
- 4) Golden Metallic print paste is ready for use.

3.3. Development

At this stage the results from the blueprint forming the prototypes allowed for the creation of all elements of the design concept of the block to match the overall design and plan of work. This allowed for the creation of all the hand blocks and collagraph. This stage also allowed for the addition of all details, like colour, gold prints, design concept adopted. The researchers at the stage adopted reflective reasoning and artistic iterative processes. Testing was also a key component in the development stage. This allowed for the checking of accuracy of prints, checking of design impression misfits, repetition deficiencies, print paste viscosity and consistency. This stage ensured the prevention of basic errors.

The collagraph block printing technique was adopted, modified and employed in the creative process for the creation of the blocks for the metallic paste transfer.

Preparation of the Blocks

The following are step by step procedures used in the production of the block and subsequent printing of the metallic paste on batik.

The researchers drew inspiration from found artificial objects identified and assembled various objects of interest ranging from bicycle parts, keys, and laptop accessories. A hard wooden surface suitable to hold the various items for creative arrangement was cut into a suitable size and shape in the form of a block.

Using craft glue, the researchers artistically composed these objects mentioned earlier onto a 6 inches square wooden platform (block). After being satisfied with the arrangements and composition of the objects, the craft glue was applied to each of the components and firmly attached to the wooden platform. The researchers allowed the glue to dry completely to ensure that the objects remain firm and secured to the wooden platform during the printing process. When the process of creating the block was completed a small paint brush was used to apply the metallic paste onto the prepared collagraph block (**Figure 8-12**).



Figure 8. Objects for collagraph (Source: Studio Work, 2023).



Figure 9. Application of adhesive (Source: Studio Work, 2023).



Figure 10. Wooden platform (Source: Studio Work, 2023).

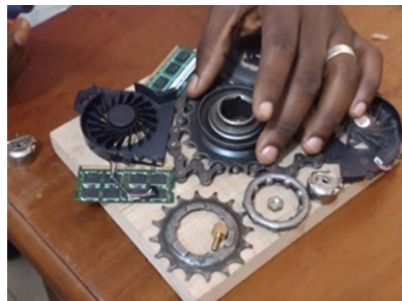


Figure 11. Adjustment of object (Source: Studio Work, 2023).



Figure 12. Final collagraph block (Source: Studio Work, 2023).

3.4. Implementation

Once all parameters and quality issues were checked through testing (no design misfit, repeat pattern, achieving the principle of unity in design with diverse elements, no high or overly projecting element on the block, firm and secured gluing of elements to the block, and a well-mixed gold glitters to binder), a test print and experimental process was made to examine and correct challenges that

may arise during printing. The next stage was implementation. The final pilot test was further carried out, this made possible for the whole batch of batik ad tie dye fabric to be printed with metallic prints. A small paint brush was used to apply the metallic paste onto the prepared collagraph block as seen in **Figure 13**. At this point the textile professionals and textile students critiqued the preliminary samples for quality, colour matching, simple crocking effects and fastness to laundry using basic traditional methods like rubbing and washing respectively. **Figure 14** shows preliminary test and sample.

Studio Practices Recorded to Help Other Artists in Their Practice

This phase entails transferring tried designs and impressions from the collagraph block to the substrate material. It involved converting the conceptual ideas at the analysis phase into creation and actualization. The following studio practice regime was followed. To achieve effective exposure of the fabric to the collagraph block during design transfer, the batik tie dye fabric was ironed. The top right part of the batik fabric was gently placed on the inked collagraph to effect transfer of impression as shown in **Figure 15**. The palm was used to exert pressure on the tie dye fabric to ensure that the fabric picked up the impression of the collagraph as shown in **Figure 16**. **Figure 17** presents impression after transfer. In order not to avoid the spread of the first print, the sample print was allowed to dry before placing the other parts of the fabric onto the collagraph block. This action was repeated throughout the whole batch. The gold printed fabric was subjected to heat press machine as shown in **Figure 18**, to permanently fix the metallic paste to the fabric with a heat temperature of 180°C for 5 seconds.

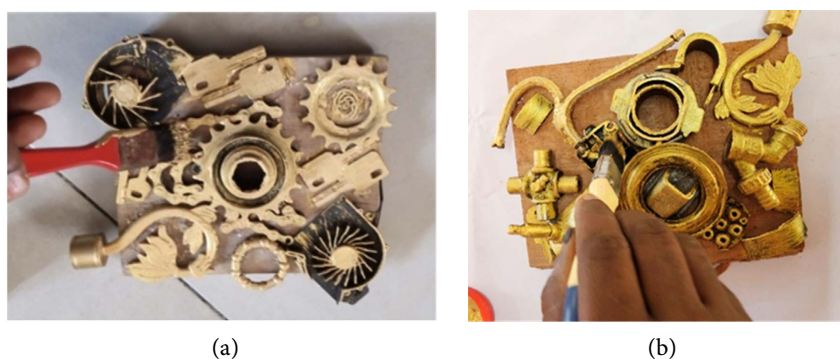


Figure 13. (a) & (b): Applying gold metallic paste (Source: Studio Work, 2023).

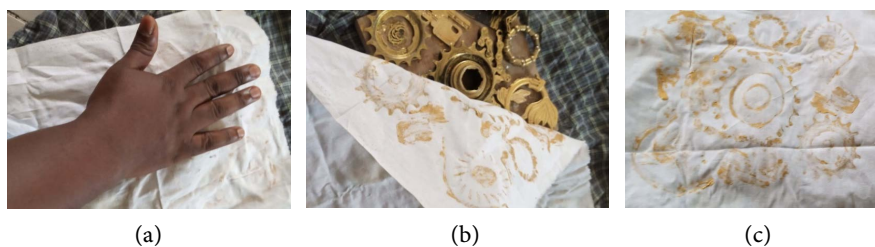


Figure 14. (a), (b) & (c): Preliminary test and sample (Source: Studio Work, 2023).



Figure 15. (a) & (b): Fabric suspended and placed on coated collagraph block.



Figure 16. Hand pressed on fabric against collagraph block (Source: Studio Work, 2023).



Figure 17. Impression after transfer (Source: Studio Work, 2023).



Figure 18. Fabric subjected to heat press machine (Source: Studio Work, 2023).



Figure 19. Enhanced batik (Gold print) (Source: Studio Work, 2023).

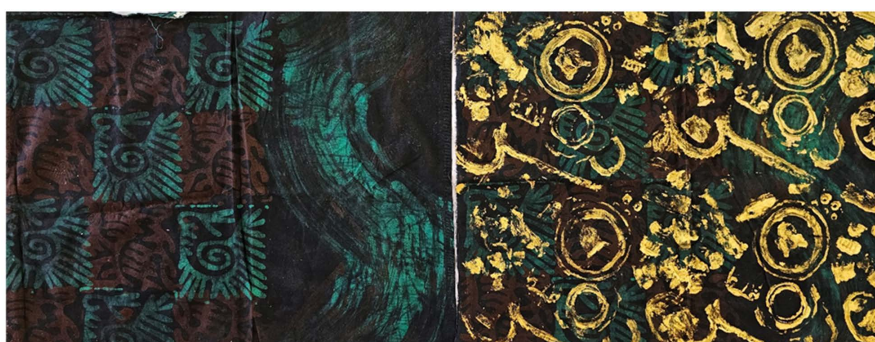


Figure 20. Original batik and enhanced batik (Gold print) (Source: Studio Work, 2023).

The final finished product is presented in **Figure 19** showing the depiction of the batik enhanced with gold print. The effect produced a glittering mercurial batik fabric which is typically an industrial practice. This is a result of the collagraph technique which falls under a monoprint approach, a single effect impression which can be achieved by any cottage setup for fabric decoration. **Figure 20** presents the comparison of the visual characteristics of the original batik and the enhanced batik with gold print.

3.5. Evaluation

At this point the researchers sought to find out the effectiveness of the process, material usage, tools, and activities, investigating the achievement of project objectives, impact of the innovation the acceptability and also identifying physical changes and modification of the enhanced batik fabric. The gold print enhanced the batik fabric, transformed it and gave multiple uses to the batik in the contemporary space. The attained visual characteristics made it more exotic in feel and appearance exhibiting perfect imperfections of prints which are difficult to replicate by any other printing methods. The addition of the metallic gold print also added some weight to the fabric and covered production defects from the batik processes. This is supported by [6] textile finishes are crucial in helping improve fabric appearances and enhance visual attractiveness. They further note that it helps in producing variety in fabric visual looks through the addition of prints and dyes to improve feel appropriateness, making the useful and more

specific to end use specification.

For the acceptability of the innovation, comments were sought from textile students on the batik fabric. This same group of students had the opportunity to critically observe the batik without the enhancement. Finished metallic print works from the studio practice were showcased to forty (40) textile students to share views on their acceptability or other wise of the enhanced batiks fabric.

On the issue of innovativeness, eighty 80% of the students representing majority were of the view that this batik enhancement procedure can revive the cottage batik industry. Significant majority forming seventy-eight 78% were astonished and expressed likeness for the appearance (gold glittery effect) and touch of the new look of the batik as compared to the regular batik fabric. After critical interrogation of the process and procedure by students and appreciators it became evident to them that the processes and the materials for production can be sourced from their environment and can also be carried out in any micro to small scale cottage industry.

Strikingly on the issue of the gold printed batik and durability, it was observed that the enhanced fabric became much heavier and firmer and more lustrous after ironing. It was noted that the gold print also impacted some level of water resistance finish, giving the enhanced fabric a character of spill and stain resistance as a result of the metallic print density on the surface of the fabric. This was deduced after a comparative visual and feel analysis was carried out on the traditional batik and the enhanced batik.

Maintenance (laundry and ironing) of metallic print enhanced batik was same under same conditions as the traditional batik. The was as a result of the permanent fixing process used to heat set the metallic prints into the pores of the mercerized cotton that serves as the foundation fabric. The laundry and ironing characteristics comparatively with that of the traditional batik remained unchanged. Noticeably the ironing processes rather enhanced the lustrous effect of the golden prints making it more appealing than the traditional batik (**Figure 21**).



Figure 21. Textile students appreciating final samples and comparing it to the original state (Source: Studio Work, 2023).

4. Conclusion and Recommendations

The addition of gold prints to the conventional and regular batik and tie dye in the Ghanaian communities and cottage textile production centres is an innovation for solving the mono visual appearance of the batik. The innovative approach of additional fabric surface enhancement to regular batik creates awareness for the small scale and cottage textile industry of a contemporary application technique available. The process for enhancement also enables the products from the cottage industry practitioners to become competitive to product from medium to large scale textile producing companies who add final gold and silver finishes to enhance their products. This will economically affect the livelihood of small-scale cottage textile practitioners, promote and sustain economic growth and productivity [15]. Informal employment in economic growth is important to facilitate developing countries in safeguarding the decent work, productive employment, and inclusive growth agenda mentioned in Sustainable Development Goals (SDG). The work enhancement and growth strategy will in a long-term help accelerate Ghana to address some of the Sustainable Development Goals, 1 (No Poverty), 8 (Decent work and Economic growth), and 10 (Reduced inequalities) thereby promoting product preference among small scale cottage texture industries and improving livelihood of practitioners.

Textile students and practitioners should explore other fabric decoration enhancements to embellish other Ghanaian indigenous cloth production processes such as Tritik, Fugu and Kente as a strategy to promote contemporary usage and application possibilities.

The strength of the findings informed the study to recommend that youth agencies in Ghana can also explore the viability of cottage textile as alternative job creation venture.

Again, youth intervention programmes with aim of building entrepreneurs and skill acquisition can adopt this innovation approach to build local economies.

Conflicts of Interest

The authors declare no conflicts of interest regarding the publication of this paper.

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