

RESEARCH ARTICLE

Adaptation of Traditional Hand-Woven Patterns in the Production of Akan (Twi) Philosophical Designs for Resist-Dyed Fabrics

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Abstract

The struggle for originality by craftsmen has subsequently resulted in the diversity of patterns, designs, and techniques on a loom in arriving at various traditional hand-woven products. These numerous techniques are principally aligned with the loom indicating the sole avenue for the creation of these patterns. This project sought to adapt and produce resist-dyed fabrics of Ghanaian traditional hand-woven patterns. The main objective of the project was to explore an alternative method of producing these patterns other than weaving and subsequently to promote its marketing in terms of variety. The studio-based research method under the qualitative research approach was used to adapt, design, and produce fabrics which mimic traditional hand-woven fabrics commonly using the batik technique. The study resulted in eight (8) resist-dyed fabrics depicting popular kente patterns. The designs are Obaakofo Mmu Man (One person does not rule a nation), Abusua Ye Dom (The extended family is a force), Sika Futuro (Gold dust), Atitire (Dignitaries), Aberewa Bene (Old woman Bene), Damedame

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(Checked pattern), Kyemee (Endowed) and Fathia fata Nkrumah (Fathia befits Nkrumah). The approach is recommended to textile practitioners especially within the dyeing fraternity to create variety and maximize surplus.

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Introduction

Textile has been a major means of preserving the craft, history, and beliefs of ethnic groups around the globe (Dias et al., 2020; Chai-Arayalert et al., 2021; McIntosh & Cartwright, 2022; Chantamool et al., 2023). It is used as a dynamic art form for value addition in the social, economic and religious lives of Africans (Acquaye, Amankwah, & Seidu, 2023). Traditional hand weaving is one of the oldest art traditions in Africa and carries along with an enormous diversity of textiles produced in different weaving centres across the African continent (Cohen, 2019; Adamu & Sitotaw, 2021). The indigenous traditional weaving industry over the years has played a significant role in the identity preservation and economic well-being of Africans (Abdulmalik & Daraojimba, 2022). Predominantly, the tradition of hand-weaving could certainly be aligned to the western part of the continent (Magnavita, 2020), originating from northern Sudan, through to Mali, Nigeria, Benin, Togo, and subsequently Ghana (Sackey, 2002). However, the word "Kente", "Kete", or "Mmɔtane" used throughout Africa and for that matter around the world, is associated with traditional handwoven textiles in Ashanti, Volta, and Northern Ghana respectively, comprising cloths woven by, Akans, Ewes, and some Northern ethnics such as the Dagomba's, Moshie's and Wala's (Lartey, 2017). In as much as different activities involving this skill, in various regions they are all considered as weaving practices, they all, however, end up producing different patterns of the weave which are very significant to the norms, values, and behaviours of the people (Frimpong et al., 2020).

Even though, traditional hand weaving practices come with many dynamics in materials and styles of production by different cultures in Ghana (Afriyie et al., 2023), the orthodox and still sure way of producing the art (patterns) is by interlacing two sets of perpendicular yarns (weft and warp) that are raised and lowered simultaneously to create a shed for an effectively and efficiently inclined piece of handwoven fabric to be produced on the loom. Collier and Tortora (2001), assert that woven fabrics are made from yarns on a simple handloom or highly complex loom. This makes it emphatic that traditional handwoven patterns are best produced by manually operated looms. The wholesomeness of traditional handwoven fabric is very eminent and comes out in a variety of beautiful colours and patterns befitting numerous occasions (Ayesu et al., 2021). The patterns among the lot include *Babadua*, *Akyem*, *Nkyinkyim*, *Apremo*, etc. (Agyemang et al., 2023). The diversifying nature of traditional hand weaving in Ghana has certainly resulted in different patterns and colours that reflect different rationales and meanings.

According to Kadolph (2007), some traditional hand-woven fabric names are based on earlier end-use, the town in which the fabric was woven originally and the person who originated it or the individual to whom the fabric was woven. Traditional hand-woven patterns from the Northern parts of Ghana are characterized by horizontal and vertical line effects in different sizes with colour ranges mostly from white, black, blue, and green tones. Traditional hand-woven patterns from the South – Central and Eastern parts of Ghana (that is, Ashanti and Volta regions), also principally depict geometric-shaped patterns usually handpicked. These patterns irrespective of where they emerge from are either achieved by a shuttling or handpicked weaving activity on the loom, reflecting a fair representation of societal aesthetics. As emphasized by Sackey (2002), well-structured traditional handwoven patterns are predominantly handpicked and shuttled intermittently on the loom during weaving. It seemingly appears that quite a majority of the consumers and admirers of Kente fabric believe that the woven patterns can only be produced by the use of the loom. Again, it is obvious that all weaving communities in Ghana are very much noted with the use of traditional looms in creating these patterns. Although the above is undeniably true; not much effort has been put into establishing other equally feasible ways by which these patterns could be developed aside from the already known approach (weaving on the loom). Therefore, the main objective of this study was to explore an alternative method for the production of these patterns other than weaving and subsequently, to promote its marketing in terms of variety.

Literature review

Resist Dyeing

There are many ways to execute the art of textile dyeing. Several techniques are detailed and ornamental for textile surface embellishment (Osei et al., 2021). Resist dyeing is an ancient technique that dates back to the B.C. era. This ornamental technique is achieved once certain parts of the textile material are prevented from accepting the dyes that the remainder of the material receives. Common resist dyeing techniques embody tie-dyeing, hot wax resists technique, starch paste resist, "tritik", and clamping ways (Belfer, 1972 as cited in Goetz, 2008). Larson et al. (1976) as cited in Jo Ann (2006) affirms that "tritik" and clamping dyeing techniques form part of the common ancient practices of the Japanese.

According to Lakshmanakanth (2011), dyeing provides fancy colours however, once the material has been dyed in a very dark shade, lighter colour patterns will not show when applied. So, to permit lighter colours to show through, such areas ought to be blocked from receiving dye. Any technique meant to prevent the dye is called "resist". Dyeing of items is carried out in three main resist categories: mechanical, chemical, and ikat. A dye can be resisted by mechanical means including sewing, tying, or folding. Alternately, chemical means make use of paste or wax. Krauss (2006) and Gyasi et al. (2023) add that in *ikat* also called *Kasuri*, threads are bundled and

portions resisted (mechanical or chemical), avoiding penetration of dyes before yarns are woven into fabric.

Hann (2005) also stipulates that resist printing involves creating a barrier on areas of the material to stop penetration of the dye. The resist is created by block or stencil on the surface of the material in particular areas, which have been planned as such. Once the entire fabric is immersed in a dye bath, the unresisted portions in the material will then take up the dye, with the original colour of the material preserved by the resist created earlier. Resist dyeing methods are applied to decorate textiles in colour by partially resisting the fabric or fibre before dyeing. In this, the ornamental motifs are not produced by weaving or by embroidery, painting, or appliqué work on the fabric. The designs are created by leaving some portions of fabric undyed. After dyeing, the patterns emerge against a coloured ground, in the original colour of the base material. The process can be repeated for producing multi-coloured designs (Gillow & Barnard, 1991).

Martin (2009) also gives a similar interpretation of resist dyeing and writes that a resist is employed in cloth painting and other direct application techniques to regulate the spreading rate of the dye. A skinny line of resist is applied onto the fabric; it enters the fibres, dries, and creates an insoluble barrier that controls the flow of dye. To ensure the effectiveness of dyeing, the resist line should enter deeply into the opposite side of the material to be dyed. Resists are carried out by brushes, pipettes, silkscreens, paper corns, squeeze bottle silkscreens, or by spattering, rolling, sponging, etc. for various effects. Resist could also be water-based, primarily solvent-based, or created with natural products. Resist dyeing is a prominently used technique of applying colours or designs to clothes. A substance that is resistive to the dye prevents it from entering into some portions of the material, whereas others that are unengaged take up the dye. Tie-dyeing involves covering some areas of the material tightly with special threads before colouring. After dyeing has taken place, threads are removed to expose the tied zones in the original fabric colour. Complicated patterns may be designed by repetition of the method with another dye. In applied resist dyeing, the design is expressed on the fabric with a substance like paste or wax. Once colouring and removal of the resist substance are complete, the resisted areas in the pattern are discovered within the original cloth colour. This method may be repeated many times (Victoria & Albert Museum, 2016). All the writers talked about resist dyeing as a method of preventing the dye from reaching all surfaces of the fabric, thereby creating a pattern. The resistive materials used are generally thread or wax.

Research Methods

The studio-based research method (Marshall, 2010) under the qualitative research approach was used to adapt, design, and produce fabrics to mimic traditional hand-woven fabrics using batik technique. This scientific research technique (studio-based) involves conducting research within a controlled studio environment, allowing for a combination of theoretical exploration and

practical experimentation (Marshall, 2010; Donkor & Ossei-Gerning, 2023). It is particularly suitable for creative and design-oriented projects where hands-on production and artistic expression play a significant role. Also, studio-based research provides a platform for artists, designers, and researchers to explore innovative ideas, refine techniques, and develop new processes. It often involves iterative cycles of experimentation, analysis, and reflection, enabling researchers to gain insights and make improvements throughout the research process. This approach was therefore used to experiment on the feasibility of batik art in the production of Ghanaian Kente woven patterns. In this case, the four main steps in batik manufacturing processes were used. These include preparation of the fabric, application of wax, dyeing and removal of wax (Febriana et al., 2020; Febriana et al., 2023). Initially, three different substrates (mercerized cotton, plain broadloom woven fabric, and plain traditional-loom woven fabric) were tested to ascertain the most effective and efficient one, with particular reference to the absorption of the dye. This experiment was done with vat dyes. Subsequently, mercerized cotton was selected as the most preferred substrate for the study with its accompanying vat dyes, sodium hydrosulphide and hydroxide chemicals. Paraffin wax served as the main resist material.

In executing the actual production using the studio-based research method under the qualitative research approach, the researchers employed the aesthetic-action research module by Marshall (2010). This module makes use of four (4) clear progressive steps that ensure activity in the studio comes out successfully. Each step aided in what is to be done to achieve the expected results. Mercerized cotton fabric widely used in the textile industry for the production of printed and dyed fabrics became significant in this project. The four steps are observation, reflection, planning, and creating. The aesthetic-action research module is presented in Figure 1.

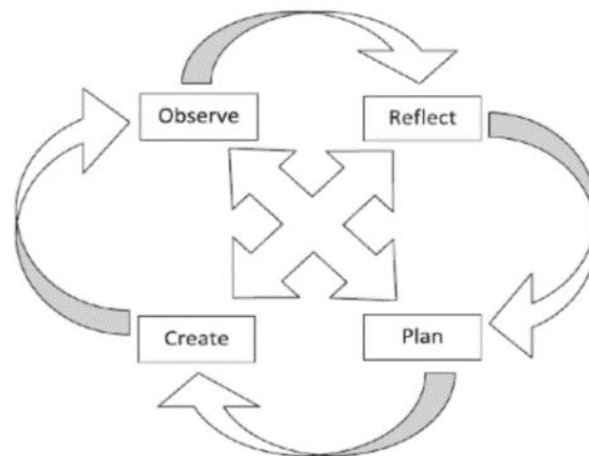


Figure 1. Aesthetic-action research cycle

Source: Marshall (2010).

Observation: In an attempt to establish a better understanding of the patterns to be worked on, a critical observation exercise was carried out in the various selected communities. Both the

ancient and contemporary patterns were investigated and gathered to aid further reflections. How such patterns are created and combined into separate meaningful designs, were carefully looked at. Both common and uncommon colour ranges for creating these patterns with their respective meanings were also considered. In doing these, the nature and symbolism of these patterns and colours came to light, aiding the researcher in the subsequent activity.

Reflection: Researchers, after a thorough observatory exercise, reflected and analyzed how data gathered at the previous step, could together be utilized into meaningful ideas. Symbolism and meanings of patterns and colour were all thought thoroughly, in order to ascertain their effective utilization in the creation stage. Reflective activities at this stage aided in which patterns could best be put together in a single design and their meanings and symbolism thereof.

Planning: This step ensures that all thoughts built up at the reflective stage are put together into a plan from which expected designs will be created. Cutting of possible patterns on paper to enhance the actual creation of patterns and the entire design were conducted at this stage. Patterns were proportionally cut out to fit into actual yardages of working space. This aided expected unit repeats in the final works.

Creation: Actual production of all brainstormed ideas manifested at this stage. At this point, eight (8) different traditional handwoven designs of two yards were constructed with respective dimensions, waxed and subsequently, dyed into full-coloured Kente fabrics.

Ethical Considerations

The confidentiality and anonymity of the participants were taken into consideration throughout the research process.

Findings

Creation of Fabrics Using Resist Dyeing Techniques

Owing to the peculiar practical approach, a general procedure of producing these patterns using the concept of creation through drawing and employing the other appropriate resist techniques was affected. Patterns that were used, emerged from original ones that have been woven on looms as communicated, by interviews conducted and observations made. Actual product designs and productions were conducted and completed under the following sub-headings:

Developing / Constructing the Patterns

Traditional hand-woven patterns as established by the researchers through observation and interviews are formed by geometric shapes, principally rectangles, squares, zigzags, and occasionally, polygonal and triangular shapes. According to Owusu-Baah (12th June, 2017, personal communication), patterns found in virtually all traditional handwoven Kente fabrics, such as *Kosan*, *Fa Hia Kotwere Agyemang*, *Puduo* or *Obaapa*, *Kyemfre* etc. originated from events such as wars, generosity of chiefs and well-meaning societal members, moments of heroism in

society and many other related events. He further stressed that Adanwonmase as a weaving community, for instance, had its form of weaving until those notable circumstances of naming emerged, hence, the current patterns. Therefore, in developing the same patterns for this project, the measurements and other common features associated with these already existing patterns/designs were observed, analyzed, and migrated to the substrate. In all, eight (8) separate designs of two (2) yards each, were orchestrated. Therefore, to register these designs on the substrate, desired patterns were cut out using cardboard and pencilled carefully in their respective locations on the fabric, whereas, other patterns were measured, and carefully executed with pencil on the supposed mercerized cotton substrate. Below are some of the very common traditionally existing patterns which were inculcated into the designs:

Fa Hia Kotwere Agyemang– This is a pattern associated with the late King of the Asante Kingdom, Agyemang Prempeh I. According to Sarfo Kantanka (27th July, 2017, personal communication), the late King was estimated, as the pillar of generosity with regards to all poverty-related issues, and therefore, whoever experiences hardship and made the King aware is subsequently, taken care of. Others also say that the name Agyemang in the contest of Asanteman was used to describe every King of the Asante due to their element of benevolence. Owing to this assertion, a woven pattern was designed in a pillar-like nature, to signify how reliable Asante Kings are. Figure 2 shows *Fa Hia Kotwere Agyemang* pattern.



Figure 2: *Fa Hia Kotwere Agyemang* pattern

Kosan or *Nkyinkyim* as presented in Figure 3 is a zigzag pattern associated with the element of success. It is obvious that no one on earth achieves success without some level of difficulty, therefore, the pattern was designed to reflect the ups and downs that characterize our everyday life and subsequently lead us to success. The pattern, therefore, signifies how rough or smooth the road to success looks to appear in all our endeavours.



Figure 3: *Kosan* or *Nkyinkyim* pattern

Obaapa or *Puduo*– literally means a virtuous woman or a pile of goodness. In our societies, women are seen as managers of the home due to their versatility in discharging duties. Therefore, this pattern was designed to honour and indicate the pile of goodness our women are made of in society, as shown in Figure 4.



Figure 4: *Obaapa* or *Puduo* pattern

Akyempim– The chain-like pattern that crosses each other to form a solid unit was named after the *Akyempimhene* of Asante due to his toughness, strength, and power. The *Akyempimhene* possesses so many characteristics which are strong and scary, hence, the chain-like woven pattern depicts his fearfulness and strength. The *Akyempim* pattern is shown in Figure 5.

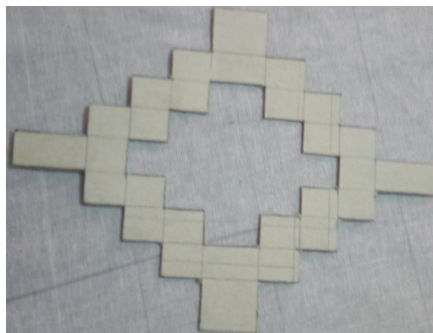


Figure 5: *Akyempim* pattern

Kyemfre - The name depicts fragments of earthenware, especially found in archaeological sites. As a pattern denoting experience, it has been designed in the shapes of broken pieces of old pots to reflect how the pots have experienced life over time and how much experienced the potter himself. *Kyemfre* pattern is presented in Figure 6.



Figure 6: *Kyemfre* pattern

Kyeretwie means, "the hero who caught the leopard". This historic achievement by Kwabena Boakye had coincided with the birth of Sir Osei Agyemang Prempeh II, and therefore, was named after him as Osei Kyeretwie, before his enstoolment later, as the Asante King. To perpetuate the historic event and name, a woven pattern was created subsequently, in honour of him. The pattern created with both thick and thin lines symbolize the difficulty through which Kwabena Boakye the hero, captured the leopard (Gyimah, 27th July 2017, personal communication). The *Kyeretwie* pattern is presented in Figure 7.

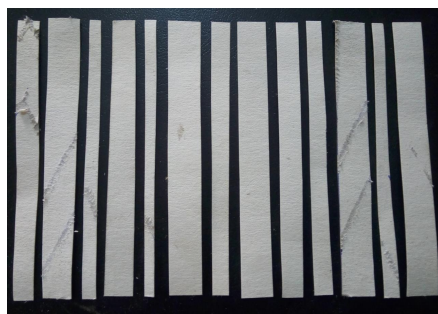


Figure 7: *Kyeretwie* pattern

Initial Pencil Works / Waxing Stage

By the very nature of some patterns and designs used, not all pencil works in each piece of the finished work were registered and waxed during this stage. While some pencil works were carried out with just a rule Figure 8(a), others were done using paper patterns Figure 8(b).

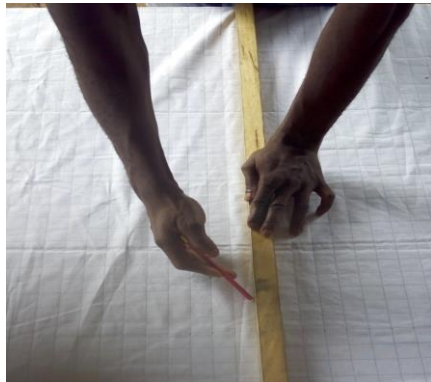


Figure 8(a): pencil work with a rule



Figure 8(b): pencil work with a pattern

Therefore, others that did not need any pencil activity before first dyeing, were reserved and treated as such. Prior to maiden dyeing, already made initial pencil works were secured with a resistive material. To do this, a pen-like shaped foam was dipped into the molten wax and drawn on all supposed designs in pencil (both in lines and solid patterns), until each impression was waxed. However, wax applied onto surfaces must favourably penetrate pores in the fabric, in order to prevent unwanted liquids or dye solutions from entering. Figure 9 (a, b, c and d) shows the waxing activities on the fabric.



Figure 9 (a)



Figure 9 (b)



Figure 9 (c)



Figure 9 (d)

Waxing activities on the fabric

First Colour Dyeing

After all initial waxing activities, fabrics were grouped into two: those that require full immersion and others that need to be table dyed. The categorization was important because it helps in registering all colours effectively by ensuring that table dye activities are done and covered before total immersion exercises. To conduct the actual dyeing process, the required proportions of respective colours were fetched and put in separate bowls. Right amounts of mordant (sodium hydroxide and sodium hydrosulphide) were added and mixed with warm water. After forming the various dye solutions, all fabrics were folded and soaked in mild water to allow a higher rate of dye affinity. Those supposed to be table-dyed were later spread on the dyeing tables and with the help of a tjanting tool, dyes were collected to fill the required areas. On the other hand, dye solutions meant for fabrics with total immersion were poured into bigger basins, and the right amount of cold water was added before finally, soaked fabrics were immersed and stirred thoroughly to induce even dyeing. All dyeing activities in this research were carried out with a cold dye bath owing to the high allergic nature of wax to heat. Figure 4 (a, b) shows first-dyed fabric samples.

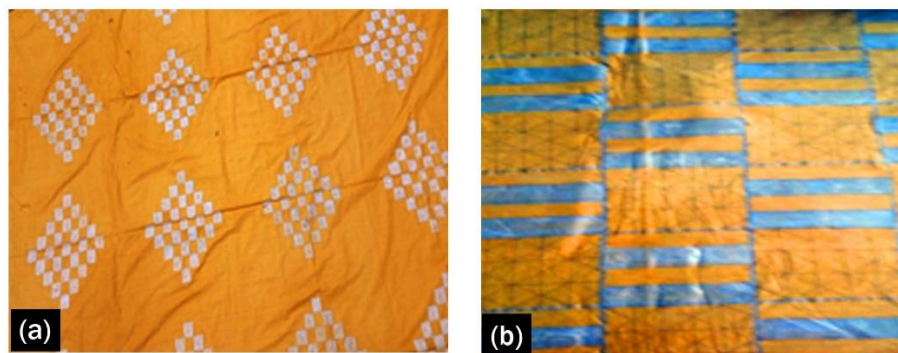


Figure 10 (a & b): Some first-dyed samples

Second Waxing and Dyeing

After initially dyed works have been dried fully, they were brought back to the table for all second waxing activities to be conducted. However, additional pencil works were carried out on some of the designs before the second waxing. To proceed with dyeing the second colours, the same actions in preparing dyebath at the first stage were repeated to form the various dye solutions. Fabrics were then folded, soaked in water, drained, and finally immersed in their respective dye solutions. With the help of the rubber gloves, fabrics were stirred intermittently

to ensure even dyeing for between a period of 10-15 mins, after which all fabrics were drained and dried, awaiting the last stage. Figure 11 (a, b, c & d) shows second-dyed fabric samples

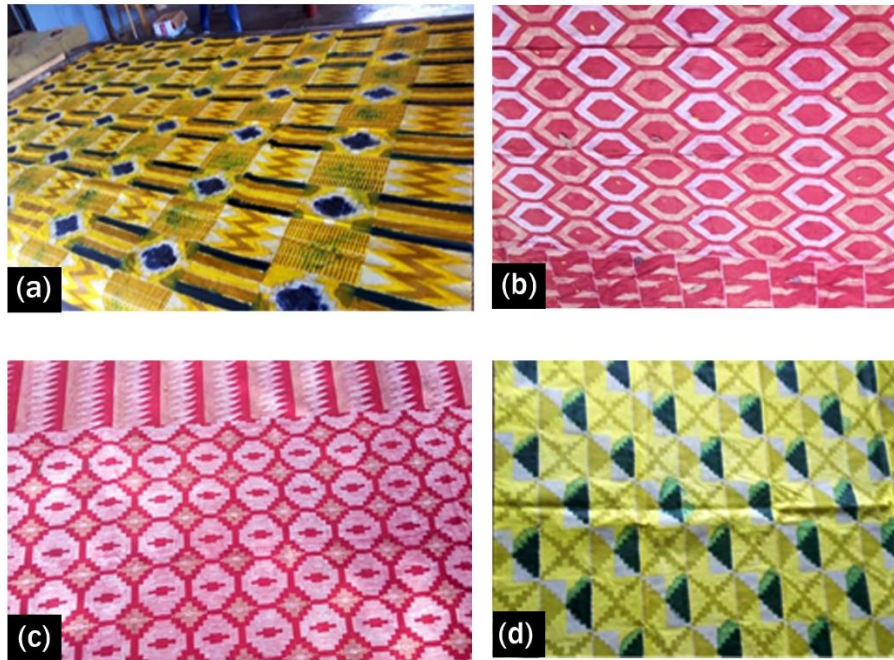


Figure 11 (a, b, c & d): Second-dyed fabric samples

Final Waxing and Dyeing

At this stage, all final waxing activities were conducted by blocking with wax, particular areas on various fabrics, which have been dyed already and do not require any colour from subsequent dyeing activities. It must, however, be noted that dyeing, particularly stirring activities, must be carried out in a softer way owing to the heavy-wax nature of various fabrics at this point, to avoid excessive cracks in the fabrics during dyeing. Just as it happened in two previous stages, all works were folded after waxing, soaked and dyed accordingly for 10-15 minutes, drained and later exposed to fallow, awaiting dewaxing. Figure 12 (a & b) illustrates the final waxed/dyed effects of different patterns selected for the study.

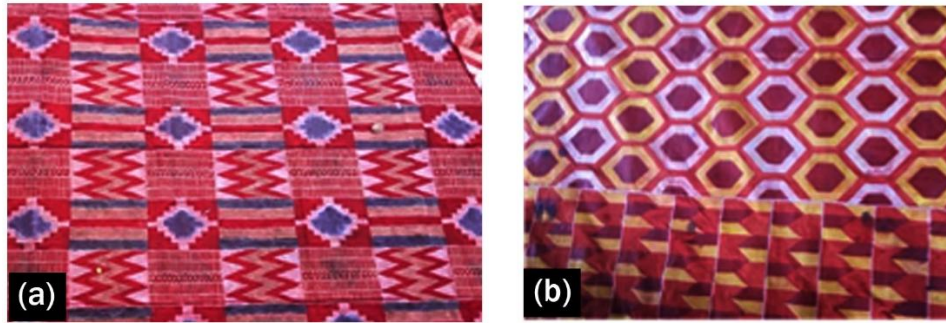


Figure 12 (a & b): Some final dyed samples

Dewaxing/ Ironing

Dewaxing as the name suggests is meant to detach the wax used as the main resistive material, from the fabric. To dewax, the fabrics were immersed one after the other, in a barrel of boiling water. Due to the high allergic rate of wax to heat, the wax in the fabric is instantly washed-off, once it gets exposed to the boiling water. Heated fabrics are then washed gently with mild water in a basin to get rid of excess wax hanging on the fabric surface, before exposing them to dry briefly for ironing. All waxed fabrics were rendered the same treatment until every resistive material was removed. After actual dewaxing exercises, fabrics were exposed under the shade to dry to the bone state to aid ironing.

Results

This section discusses the results of created traditional hand-woven patterns with regards to their aesthetic, conceptual and philosophical basis for the development of a variety-based approach to producing traditional hand-woven patterns. Figure 7 (a-h) shows the results of the studio practice.

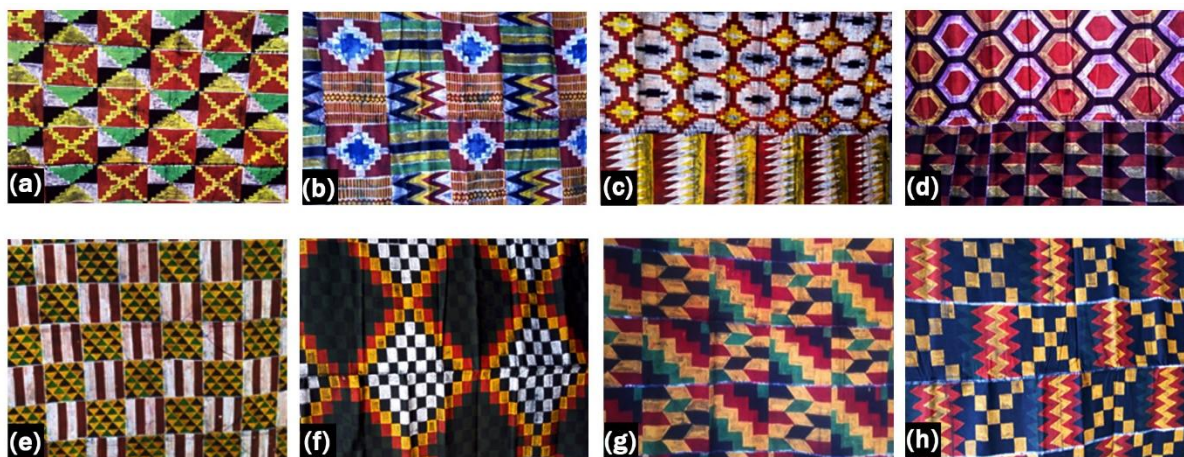


Figure 13: Results. (a) *Obaakofo Mmu Man*, (b) *Abusua Ye Dom* (c) *Sika Futuro*, (d) *Atitire*, (e) *Aberewa Bene*, (f) *Damedame*, (g) *Kyemee*, (h) *Fathia fata Nkrumah*

Discussion

Project One: *Obaakofo Mmu Man* design

The *Obaakofo Mmu Man* design in Figure 7a, which translates to "one person does not rule a nation" carries a powerful message of unity and collective responsibility (Boateng, 2019). The chain-like pattern running from the top-left to the bottom-right corners and vice versa symbolizes the strong bond and shared destiny among the Ghanaian people (Asamoah-Yaw, 2020). The design emphasizes the importance of individual contributions towards the common goal of growth and development (Adu-Gyamfi, 2021). The patterns on *Fa Hia Kotwere Agyemang* further reinforce the idea that progress is achieved through the combined efforts of the community (Owusu-Ansah, 2022).

Culturally, the rich colours used in the *Obaakofo Mmu Man* design, ranging from yellows to greens, reds, and complemented by black and white, symbolize the potential prosperity of the Ghanaian people, particularly those living in the forest zone (Boateng, 2019). The design serves as a reminder of the strength and unity that can be harnessed when people work together towards a common agenda (Asamoah-Yaw, 2020). The cultural significance of the design lies in its ability to promote a sense of shared identity and purpose among Ghanaians, transcending individual differences and encouraging positive growth (Adu-Gyamfi, 2021).

The design is characterized by the harmonious arrangement of joined and disjointed units of the *Fa Hia Kotwere Agyemang* pattern (Owusu-Ansah, 2022). This unique composition represents the idea that even in the face of disagreements, the ultimate goal should be to achieve positive progress (Boateng, 2019). The design elements, including the chain-like effect and the balanced use of colors, create a visually striking and meaningful representation of unity and growth (Asamoah-Yaw, 2020).

The creation of the *Obaakofo Mmu Man* design in batik showcases the innovative techniques employed by Ghanaian textile artists. The intricate patterns and precise arrangement of the *Fa Hia Kotwere Agyemang* units demonstrate the skill and creativity of these artisans (Boateng, 2019). The use of traditional weaving techniques, combined with the symbolic representation of unity and progress, highlights the innovative approach to preserving cultural heritage while promoting contemporary values (Asamoah-Yaw, 2020; Adu-Gyamfi, 2021).

Project Two: *Abusua Ye Dɔm* design

According to Boateng (2021), the *Abusua Ye Dɔm* design in Figure 7b, which translates to "the extended family is a force," highlights the unity and strength that can be found in variety. Asante (2020) suggests that the juxtaposition of *Nkyinkyim* (many roles in diversity) and *Akyempim* (diamond-like) patterns represent the multiplicity of roles and attributes that people share within a community. According to Owusu-Ansah (2022), the interspaced linear patterns of various sizes and arrangements symbolise the multitude of societal identities, including young,

old, tall, short, fat, and lean. The artwork shows that when individuals with various backgrounds and specialities unite, they may create a powerful, harmonious force (Agyeman, 2019).

The design holds significant cultural meaning in Ghanaian society. It reflects the importance of the extended family system and the value placed on community support (Boateng, 2021). The design serves as a reminder that when individuals unite their efforts, they can overcome challenges and achieve success (Asante, 2020). The use of colours like red, green, blue, and yellow in the design symbolizes the journey of growth, from suffering to success, that a community may experience when working together (Owusu-Ansah, 2022).

The *Abusua Ye Dɔm* design features a combination of diamond-like (*Akyempim*) and zigzag (*Nkyinkyim*) patterns, interspaced with linear patterns of varying sizes and arrangements (Agyeman, 2019). These elements create a visually striking and harmonious composition that reflects the core significance of unity in diversity (Boateng, 2021). The background of the design, formed by the linear patterns, represents the strong bond that exists within the community (Asante, 2020).

The batik *Abusua Ye Dɔm* design demonstrates the creative methods used by Ghanaian textile makers. These artists' expertise and inventiveness are evident in the complex combination of *Nkyinkyim* and *Akyempim* patterns and the thoughtfully placed linear parts (Boateng, 2021). Asante (2020) and Owusu-Ansah (2022) showcase the creative method of conserving cultural heritage while advancing modern values through the utilisation of traditional weaving techniques and the symbolic depiction of unity and strength in diversity.

Project Three: *Sika Futuro* design

The *Sika Futuro* design in Figure 13(c) means "gold dust," and in Ghanaian tradition, it is a potent emblem of prosperity, wealth, and richness (Ayesu et al., 2021; Osseo-Asare, 2021). According to Boateng (2019), the *Akyempem* pattern, which is widely used and symbolises power and firmness, serves to bolster the notion of financial security and stability. The combination of these patterns represents the concentration and building of wealth (Asamoah-Yaw, 2020). The *Fa Hia Kɔtwere Agyemang* pattern, which denotes complete dependence on a wealthy patron, deepens the design's overall significance (Adu-Gyamfi, 2021).

Ghanaians attach tremendous cultural significance to the *Sika Futuro* design because it embodies the values and aspirations of the country (Ayesu et al., 2021). According to Osseo-Asare (2021) the design acts as a reminder of the significance of pursuing prosperity and financial security. The usage of the colours red and yellow, which are connected to energy and gold, respectively, highlights the importance of achievement and money in culture (Boateng, 2019). Asamoah-Yaw (2020) underscores the importance of wisdom and knowledge in the pursuit of prosperity with the use of the *Kyemfre* pattern, which symbolises experience, along the design's border.

The design is characterized by the dominant use of the *Akyempem* pattern, which is joined together to create a sense of solidity and strength (Ayesu et al., 2021). The *Fa Hia Kotwere Agyemang* pattern, depicted in white with black spots, is strategically placed between the joined *Akyempem* patterns, adding visual interest and symbolic meaning (Osseo-Asare, 2021). The border of the design features the *Kyemfre* pattern, which represents experience and wisdom (Adu-Gyamfi, 2021). The use of red, yellow, and white colours in balanced proportions contributes to the overall visual appeal and cultural significance of the design (Boateng, 2019).

The use of batik technique to create the *Sika Futuro* design showcases the innovative techniques employed by Ghanaian textile designers. The intricate arrangement of the *Akyempem* and *Fa Hia Kotwere Agyemang* patterns demonstrates the skill and precision of these artisans (Ayesu et al., 2021). The incorporation of the *Kyemfre* pattern along the border adds a unique dimension to the design, highlighting the creativity and innovation of the weavers (Osseo-Asare, 2021). The use of traditional weaving design in batik techniques, combined with the symbolic representation of wealth and prosperity, showcases the ability of Ghanaian designers to adapt and innovate while preserving cultural heritage (Asamoah-Yaw, 2020).

Project Four: *Atitire* design

Figure 13(d) *Atitire* design is a modern cloth that honours well-respected and accountable members of Ghanaian society (Asante & Opoku-Asare, 2022). The two separate portions of the design each have a significant value (Boateng, 2021). According to Asamoah-Yaw (2020), the upper portion showcases an intricate pattern of polygons organised in a diagonal flow, symbolising the journey of accountability and leadership. The numerous attributes and virtues of the honoured people are represented by the tiny polygonal shapes within each bigger shape, which are coloured red, yellow, white, and purple (Adu-Gyamfi, 2021). Because it honours and celebrates people who have made noteworthy achievements in society, the *Atitire* design has great cultural significance in Ghana (Asante & Opoku-Asare, 2022). The layout conveys the significance given

Its distinctive two-part composition is what distinguishes the *Atitire* design (Asante & Opoku-Asare, 2022). A whole design of polygons grouped in a diagonal flow is featured in the upper portion, giving the piece a dynamic and dynamic feel (Boateng, 2021). The smaller polygonal shapes that are portrayed in purple, white, yellow, and red within each bigger shape give the design depth and visual appeal (Adu-Gyamfi, 2021). The *Kyemfre* pattern, which stands for bravery, is incorporated into the lower portion of the design. It is coloured yellow, orange, purple, and black to match the fabric's overall look (Asamoah-Yaw, 2020).

According to Asante and Opoku-Asare (2022), the design of *Atitire* demonstrates the creative methods used by modern Ghanaian designers. Boateng (2021) highlights the dexterity and proficiency of the designers by the elaborate placement of polygons in the upper portion of the

design. Designers' ability to combine traditional components with modern aesthetics is demonstrated by the lower portion of the design's inclusion of the *Kyemfre* pattern (Asamoah-Yaw, 2020). According to Adu-Gyamfi (2021), Ghanaian designers are demonstrating their originality and innovation in producing modern fabrics that respect cultural traditions through the use of brilliant colours and a two-part composition.

Project Five: *Aberewa Bene* design

Asante (2023) describes the *Aberewa Bene* resist-dyed cloth (Figure 13(e) as a design made in honour of Bene, an extraordinarily brave elderly woman. According to Boateng (2021), the design represents a person's capacity to work effectively while abiding by specific regulations and standards. Adu-Gyamfi (2021) states that the broad lines, positioned vertically and coloured in red and white, symbolise the power and purity of character identified with Bene. Bene's brave acts have brought about balance and harmony, which are symbolised by the harmoniously placed groups of triangle forms depicted in yellow, green, and black colours (Asamoah-Yaw, 2020).

In Ghana, the designed fabric (resist-dyed fabric) known as *Aberewa Bene* is highly valued culturally because it honours and celebrates the bravery and remarkable attributes of an older woman (Asante, 2023). The design's historical association with women emphasises how important it is to value and acknowledge the achievements made by women to Ghanaian society (Boateng, 2021). But in recent years, men have also started to wear and admire the fabric, realising the universal values of bravery and fearlessness that the design embodies (Adu-Gyamfi, 2021). The *Aberewa Bene* fabric has cultural importance since it encourages and honours people's fortitude and resiliency, regardless of gender (Asamoah-Yaw, 2020).

Asante (2023) highlights the visually arresting aspects of the *Aberewa Bene* designed fabric. Bold, vertically oriented lines coloured in red and white establish a powerful and eye-catching base for the design (Boateng, 2021). The fabric gains depth and visual interest from the skillfully placed clusters of triangle shapes in yellow, green, and black (Adu-Gyamfi, 2021). When these design components are combined, the result is a composition that is visually appealing and well-balanced, effectively communicating the symbolic meanings connected to the fabric (Asamoah-Yaw, 2020).

Ghanaian textile craftsmen' creative use of unique processes is demonstrated by the invention of the *Aberewa Bene* resist-dyed cloth (Asante, 2023). The employment of resist-dyeing methods, such batik or tie-dyeing, shows the artistry and dexterity of these artisans in producing elaborate patterns and designs (Boateng, 2021). Adu-Gyamfi (2021) asserts that the utilisation of various hues, such as red, white, yellow, green, and black, accentuates the proficiency of artists in crafting aesthetically captivating and significant pieces. Asamoah-Yaw (2020) highlights the adaptability and inventiveness of Ghanaian textile artisans through their creative and daring use

of traditional techniques to produce a contemporary design that honours the courage and ideals of an individual.

Project Six: *Damedame* design

Drawing inspiration from draft game patterns, the *Damedame* resist-dyed fabric design in Figure 13(f) has a rich metaphorical value (Asante, 2023). Harmony and togetherness are suggested by the distinctive diamond-shaped patterns on the background (Boateng, 2021). Every coloured roll of the diamond-shaped pattern has an intermittent black and white draft-like arrangement that breaks up the monotony of the design and gives the composition a feeling of balance (Adu-Gyamfi, 2021). The design's meaning highlights the value of critical thinking and thoughtful decision-making, particularly for individuals in positions of authority (Asamoah-Yaw, 2020). As in the draft game, deliberate choices are essential to avert chaos and guarantee a prosperous future (Kantanka, 2017, as referenced in Asante, 2023).

Asante people of Ghana place great cultural significance on the *Damedame* resist-dyed fabric (Asante, 2023). According to Boateng (2021), the design's strong use of red, green, gold, and black has profound cultural significance. The Asante people's rich past and identity are symbolised by these colours, according to Kantanka (July 16, 2017, personal communication) as stated by Asante, (2023). Gold reflects their plentiful mineral riches, black represents their distinct skin tone, green represents the labour of their ancestors, and green represents their land's beautiful vegetation (Adu-Gyamfi, 2021). According to Asamoah-Yaw (2020), the Asante people's cultural identity is reflected in the *Damedame* design, which uses these colours as a source of pride.

The *Damedame* resist-dyed fabric's eye-catching design components define it (Asante, 2023). The background of the design is covered in a variety of distinctive diamond-shaped patterns that foster harmony and cohesion (Boateng, 2021). Each coloured roll of the diamond-shaped design has an intermittent black-and-white draft-like arrangement that gives depth and visual intrigue to the fabric (Adu-Gyamfi, 2021). These design components work together to produce a composition that is both aesthetically pleasing and culturally relevant (Asamoah-Yaw, 2020).

The inventive methods used by Asante textile artists are demonstrated by the production of the *Damedame* resist-dyed cloth (Asante, 2023). The employment of resist-dyeing methods, such as batik or tie-dying, shows the artistry and dexterity of these artisans in producing elaborate patterns and designs (Boateng, 2021). The application of culturally significant colours—such as red, green, gold, and black highlights artists' capacity to forge deeply meaningful compositions that honour the identity and legacy of the Asante people (Adu-Gyamfi, 2021). The inventive way that Asante textile artists have adapted draft game patterns into textile designs is a testament to their inventiveness and originality (Asamoah-Yaw, 2020).

Project Seven: *Kyemee* design

The *Asantehemaa* (Queen Mother of the Asante) was the intended recipient of the unique *Kente* textile pattern, the *Kyemee* resist-dyed fabric (Figure 7g), which has profound symbolic significance (Asante, 2023). The design's prominent usage of the *Kyemfre* pattern symbolises knowledge and experience (Boateng, 2021). The fabric's falling border, which highlights the significance of the Queen Mother's experience, is defined by a full rendition of the *Kyemfre* pattern (Adu-Gyamfi, 2021). The *Kyemee* cloth's primary fabric section flows from the top-right corner to the bottom-left corner, combining the *Kyemfre* and *Fro Dua Pa* patterns (Asamoah-Yaw, 2020). This pattern combination represents the Queen Mother's responsibility for choosing and enstooling an Asante chief or king, an undertaking that calls for great

According to Asante (2023), the Asante people of Ghana place great cultural significance on the *Kyemee* resist-dyed fabric. Only the *Asantehemaa* wears the cloth, emphasising her special position and regal authority (Boateng, 2021). Due to her role in choosing and enstooling the chief or king, the Queen Mother holds great importance in Asante society (Adu-Gyamfi, 2021). Asamoah-Yaw (2020) highlights the significance of the Queen Mother's wisdom and understanding in completing this important duty, highlighted by the prominent presence of the *Kyemfre* pattern in the fabric, which represents experience. According to Asante (2023), the final *Kyemee* fabric's usage of green, red, yellow, and black hues symbolises the significance and worth of the black lady in her Ghanaian community.

The distinctive design components of the *Kyemee* resist-dyed fabric define it (Asante, 2023). The entire *Kyemfre* pattern is represented in the fabric's border, or "fell," which frames the main fabric area in a visually arresting and significant way (Boateng, 2021). The *Kyemfre* and *Fro Dua Pa* patterns are mixed together and organised in a diagonal flow from the top-right corner to the bottom-left corner to make up the main fabric area (Adu-Gyamfi, 2021). These design components work together to produce a composition that is both aesthetically pleasing and culturally meaningful, reflecting the Queen Mother's place and function within Asante society (Asamoah-Yaw, 2020).

Asante textile artists' use of creative techniques is demonstrated by the production of the *Kyemee* resist-dyed cloth (Asante, 2023). Boateng (2021) highlights the proficiency and accuracy of these artisans in crafting elaborate patterns and designs through the employment of resist-dyeing methods including batik and tie-dye. Adu-Gyamfi (2021) notes that the utilisation of colours that hold cultural significance, such as green, red, yellow, and black, accentuates the ability of craftsmen to craft meaningful compositions that embody the significance and worth of the black woman in Ghana. The creative and inventive way that the *Kyemfre* and *Fro Dua Pa* patterns were combined to create a cloth that represents the Queen Mother's role and duties is demonstrated by the main fabric area (Asamoah-Yaw, 2020).

Project Eight: *Fathia fata Nkrumah* design

The mix of *Nkyinkyim* (various roles in diversity) and *Damedame* (draft-like) patterns gives the *Fathia fata Nkrumah* resist-dyed cloth, which translates to Fathia befits Nkrumah, a strong symbolic meaning (Asante, 2023). The diagonal orientations of the draft-like pattern, which is positioned between the *Nkyinkyim* pattern, produce squares on the background, signifying the firmness and strength that unify the complete design (Boateng, 2021). The portrayal showcases the flawless partnership between Nkrumah, the previous president of the Republic of Ghana, and his spouse Fathia, who was the country's first lady during that period (Adu-Gyamfi, 2021). The combination of Nkrumah's *Damadame* pattern and Fathia's *Nkyinkyim* pattern, which symbolises her many duties, symbolises their combined might to thwart any forces that would undermine their work (Asamoah-Yaw, 2020).

Ghanaians place a great deal of cultural significance on the *Fathia fata Nkrumah* resist-dyed cloth, which symbolises the close relationship between two important personalities in the nation's past (Asante, 2023). The artwork highlights the value of cooperation and support among one another in Ghanaian culture by honouring the unification and complementary roles of Nkrumah and Fathia (Boateng, 2021). The design's usage of the colours red, green, and yellow represents the goodness and prosperity that the Ghanaian people experience when they devote their time and energy to the expansion and improvement of their country (Adu-Gyamfi, 2021). Asamoah-Yaw (2020) notes that the *Fathia fata Nkrumah* fabric serves as a reminder of the beneficial effects that solid relationships may have on a country's prosperity.

An exclusive blend of *Nkyinkyim* and *Damedame* designs in Figure 7h defines the "Fathia fata Nkrumah" resist-dyed cloth (Asante, 2023). Positioned between the *Nkyinkyim* pattern and the draft-like *Damedame* pattern, the result is a visually arresting background of squares with diagonal orientations (Boateng, 2021). Adu-Gyamfi (2021) states that the arrangement of patterns reflects the link between Nkrumah and Fathia, fostering a sense of power and unity between them. In addition to adding visual appeal and cultural value, the design's usage of the colours red, green, and yellow (Asamoah-Yaw, 2020).

The unique techniques used by Ghanaian textile artists are demonstrated by the development of the "Fathia fata Nkrumah" resist-dyed cloth (Asante, 2023). The ability of these artisans to create complex patterns and motifs is demonstrated by their use of resist-dyeing techniques, such as batik or tie-dyeing (Boateng, 2021). The fabric design's inventive fusion of the *Nkyinkyim* and *Damedame* patterns demonstrates the inventiveness and inventiveness of Ghanaian textile artists in their portrayal of historical personalities and cultural values (Adu-Gyamfi, 2021). The "Fathia fata Nkrumah" fabric's meaning and attraction are further enhanced by the use of colours that have cultural significance (Asamoah-Yaw, 2020).

Conclusion

The study concludes that patterns found in virtually all traditional handwoven Kente fabrics, such as *Kosan*, *Fa Hia Kotwere Agyemang*, *Puduo* or *Obaapa*, *Kyemfre*, etc originated from events such as wars, generosity of chiefs and well-meaning societal members, moments of heroism in society and many other related events.

Having to project traditional handwoven patterns through dyeing has broadened the avenues by which production in this area could be maximized with variety to ensuring the satisfaction of users in terms of preference. However, working with this technique is comparatively faster regarding production. It is as well not heavier as those woven on the looms, due to the kind of substrate which was employed for this study. Patterns produced by this very technique, are hugely characterized by cracks in designs as a result of periodic bleeding of dyes into unwanted areas during production, rendering fabrics the typical batik looks. Owing to these, it may not be seen to have totally represented the image and value that comes along with originally woven fabrics on the loom, but would also live to satisfy the masses who for financial reasons, are not able to patronize originally woven ones from the loom. That notwithstanding, this trend of producing the traditional handwoven patterns, is an innovation to the already existing techniques (actual loom weaving and printing of patterns), with features equally desirable, unique and comfortable to wear. Dyeing of these traditional handweave patterns from the study has become an eye-opener to many who are involved in this area of work to start looking keenly at the enormous prospects that come along with it as they seek to maximize production and increase the preference base of the venture.

The study recommends the need for dyeing (batik) professionals to be more creative in their design approaches. Creativity becomes more obvious when enough experimentation and collaboration are entertained in our everyday working schedules. It is a fact that dyeing activities are locally, predominantly and conventionally limited to basic stamping of motifs and other similar approaches to designs, failing to build the creative skills of professionals in this domain. Therefore, batik artists must explore and experiment as the study has sought to achieve, collaborating to induce uniqueness into their works and making them compete fairly in both the National and International Markets.

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Conflicts of Interest:

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Disclaimer Statement

This investigation is separate from any thesis that is submitted to a university in order to be awarded a degree; rather, it is an independent study. The study and analysis conducted by the authors led to the findings, results, conclusions, and suggestions made in this book; these do not always represent the beliefs or viewpoints of any academic school.

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