

A Breakaway from the Ritual of Two Dimensionality to Three Dimensionality in Textile Productions: The Case of a Crocodile Haven

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Abstract: *Textile productions have always being in two dimensional forms because of the sorption, thermal and light properties of textile materials. However, the ritual of two dimensionality in textile productions is gradually paving way for the production of solid, three dimensional products such as artificial arteries, sutures and casts for bones that are fractured. The researchers aimed at producing monuments from textile materials since this is very rare in the field. Through rigorous experimentations with diverse textile materials and composite techniques such as appliqué, macramé, and modeling, the researchers were able to produce the crocodile haven textile monument. The Universal Research approach that utilizes studio based research methods with unstructured interviews and observations as data collecting instrumentations pivoted the investigations that resulted in the production of the three dimensional crocodile haven. Randomly sampled respondents consisting of residents at the Paga Crocodile Pond in the Upper East Region and textile craftsmen at Kumasi Central Market and the Centre for National Culture who are well versed in textile production techniques were involved in the study. The findings from the study revealed that it is possible to produce monumental three dimensional forms in textiles that depict the idea of taxidermy if textile designers creatively explore textile techniques and materials. It recommends that to raise the aesthetic value of textile products while boosting their tourism potentials in Ghana, textile students must expand their creativity potentials through numerous experimentations with the ultimate goal of producing three dimensional products.*

Keywords: Three Dimensionality, Crocodile Haven, Macrame, Textile Monument

1. Introduction

Textile products are widely used in varying aspects of Life. This has resulted in improvements in technologies aimed at meeting the demands of the consuming public. The growing trend of textiles have made textile artists to move away from surface textile designing to the use of solid materials for making textile art pieces. Conventional textiles, known by many people to be the use of flexible materials, are gradually shifting to the use of rigid materials to depict flexibility and vice-versa. This study refers to composite techniques as a combination of different techniques such as appliqué, knotting (macramé), and moulding as a unit, in producing a textile monument in a taxidermy form.

Appliqué is a technique whereby pieces of cloth or leather of different colours and textures are stitched or fixed on to a background as a decoration or a picture [1]. This is affirmed by [2] view that appliqué is a French word for applied; it is a process of fabric ornamentation carried out by cutting out different coloured and various shaped materials like pieces of cloth, leather, and feathers, and stitching them onto other contrasting fabric backgrounds using inconspicuous slip stitch. The ideologies of [2] and [1] relatively establish some characteristic features of an Applique product which essentially entails some cut out fabric pieces, a background fabric and a stitching method to firmly join the cut out pieces onto the base fabric.

On the other hand, Macramé as defined by [10] is the method of using decorative knots to form multiples of designs. Macramé is a craftsmanship of enlivening knotting, using only the hands (without the use of hooks or needles) as the main tool for production. Essentially, knots such as square knot, clove hitch, half square knot, overhand, lark's head, and monkey's fist amongst others are used for producing decorative items. Macramé is used for making items such as dresses, bag, placemat, toys, chair back, seats and footwear's [3].

Casting as a method of building a product is normally found in the sculptural, ceramics and engineering fields. According to [2], casting is a process of filling a mould with a material that will harden to take exact copy of the volume and the inner surface detail of the mould. Materials such as Plaster of Paris (POP), cement, bronze, copper, plastics, paper pulp, wax and sawdust are used for casting. Aside these conventional materials for casting, [4] asserts that other soft material such as resin and latex rubber can also be used for casting purposes. In the field of textiles, fibreglass is used for casts for the treatment of fractures in the medical field. Historically, in remembrance of the dead, the Egyptians built temples, tombs, masks, bust and others to commemorate those great persons. All of these forms of art were made in bronze, iron, P.O.P, cement, or stone. And the commonest technique used in monuments has been casting or modeling and they are normally of one figure and not in a form of a scene.

[5] opines that, monument is a piece of work created to remember a person, important event and a cultural heritage. Patton further reiterates that, a monument is used as example of a historic architecture. Monuments have almost always been gigantic structures, placed at a public place or an outdoor area, such as the tomb, market square playground and an entrance of a town. The use of textiles in the production of monument is rare because of the deteriorating nature of textile goods. Textile materials in a test of time may change in response to change of weather. Sculpture, paintings and architecture are over emphasized considering monument. Both indigenous and contemporary art histories suggest that, the use of textile is rare in the production of monument [6].

In Ghana, the use of composite textiles art techniques is rare taking into consideration monuments, for instance, Otumfuo's statue, Dr. Kwame Nkrumah's statue and Yaa Asantewaa's museum; hence, this study will use these techniques to generate flexibility in monuments, and to place emphasis on other avenues of textile which will probably create job opportunities, attract tourists and serve as a decorative piece for some centres.

1.1 History and Philosophy behind Paga Crocodile Haven

The Paga crocodile haven is the most popular crocodile pond in Ghana. It is located in the north-eastern border of the country, some forty (40) km from Bolgatanga, along the Burkina Faso border and 12 km from the town of Navrongo. The Paga crocodile pond is the sacred haven for crocodiles, which are believed to be the totems of the Kassena residents in Paga and its neighbouring villages. For this reason, the crocodiles move freely within the environs of the ponds and even, at times, visit some of the homes of the local people [7].

The mystical Paga crocodile pond is made up of live crocodiles believed to have its oldest crocodile's age as 90 years old. Historically, it is believed by residents of Bolgatanga and the entire Region that a very long time ago, one of the huge crocodiles led a dying, dehydrated man to the pond to quench his thirst without causing any harm to him. The man after recovering his strength pronounced the crocodile pond "sacred" and ordered that no man born of a woman should harm any of these reptiles. Nevertheless, it is also believed by the people that the soul of every indigene of Paga has a crocodile in the pond. Psychologically, the people at Paga believe there will be a dead of a crocodile in the pond if a soul in the society is lost especially important figures in the community.

According to Ghana Tourism Authority, the history of the crocodiles of Paga is tied to Nave (Nah-vey'), Paga's patriarch and founder. Historically, it is related to the Tampela and Kampala in the present day Burkina Faso and begins with Nave's father, Prince Panlogo. Upon his father's death, Panlogo contested for the position of Pio (chief) but lost to his junior brother. Dissatisfied with this turn of events, Panlogo left his sympathizers to the land of Tampela. People who supported his brother followed and the dispute escalated into violence. Panlogo and his followers came to a raging river with no means of crossing the water. In the midst of

their desperation, the people saw a crocodile at the water's edge. Panlogo's people believed the spirits of their ancestors resided in crocodiles where he approached the animal and pleaded for help to cross the river. In beseeching the crocodile, Panlogo swore that in return for its support, from this time forward, neither he nor his followers or descendants would kill or harm any crocodile. This is the justification that crocodiles at Paga pond are sacred. Libations are performed by a priest every day before people are exposed to the crocodile based.

1.2 Monument and Monumental

According to the [8], a monument is used as a noun to signify "a complex body part or construction that is built to honour a particular individual or event", and besides it could signify "an old construction or position that is an important component of a country's history. It does not necessarily mean that all monuments are monumental except they are of great significance. The definition of monumental is something very large or important, or something that has lasting value. A historically notable, important, or of lasting value is termed as monumental.

1.3 Textiles Monument and their Preservation

Textile monuments are basically be explained as monument made with textile material or monuments that employed textiles techniques. Textiles are known to be adversely affected by many external factors like sun and water when used outside a house or a building. These factors make textiles seem inappropriate for monuments as a result of the properties of the textile materials. Such properties as outlined by [9] are:

- a) *Soptive* – that is the ability of the fibre to respond in various ways when they come into contact with different liquid agents. In this way, fibre can be considered as hydrophobic, hydrophilic or oleo phobic.
- b) *Thermal property* – fibre has the ability to respond to heat in different forms. They conduct heat or resist heat to certain limits and, therefore, serve isolative purposes.
- c) *Light* – textiles are generally usually used outdoors and so are constantly exposed to daylight, which has a degrading action on almost all fibres. Daylight has ultraviolet and visible rays that can act directly in a destructive manner on the fibre.

The degree of degradation of textile monument is said to depend on the period of exposure, the moisture content of the air, the amount of sunlight, and the content of pollution in the air. Due in part to the nature of textile materials, they are not mostly kept in the open (exposed to sun and rain) because of its deterioration ability. It is strongly believed that, some monument textiles are kept under a roof to protect it from the weather, unless it is strong enough to withstand the conditions of the weather. However, the areas to keep the textile monuments depend on the type of fibre used and the period of exposure.

1.4 Taxidermy

Taxidermy is the art of arranging, stuffing, and mounting the skins of animals (especially vertebrates) for exhibition (e.g., as hunting trophies) or for other sources of study like classes proof of identity. It can also be simply explained as the preservation of a beloved pet. Mammals, birds, fish, reptiles, and amphibians are the most used vertebrate species of animals used for Taxidermy. Taxidermists; people who practice taxidermy may practice professionally for museums or as businesses supplying hunters and fishermen, or as amateurs, such as hunters, hobbyists, and fishermen. The familiarity with anatomy, sculpture, painting and tanning aids taxidermists in their production.

1.5 Composite Textile Art Techniques

In the field of art, there are a number of techniques in every field of art. These techniques serve as procedures for the production of artwork. Techniques in one field of study may differ or may be similar to the techniques in another field of art. Sometimes, there is the composition of techniques from different field to bring out new things or method(s) of production. The term composite can be utilized in different ways and the definition can range from general to very specific. In the broader sense composite can be defined as 'engineered materials made from two or more basic materials with considerably different physical, mechanical or chemical properties and which remain separate and distinct within the finished structure' [10].

Materials to be used are stronger, lighter or less expensive when compared to traditional materials [10]. Some of the art techniques in the textiles field considered based on the fact that the study is narrowed to the use of textile art techniques such as applique, macramé and modelling for the production of the monument in the study.

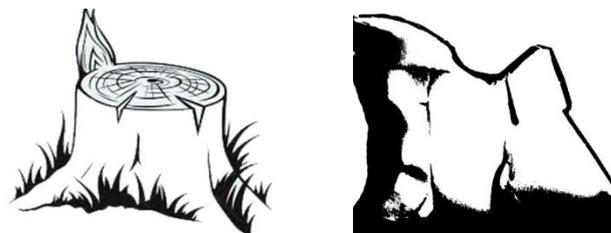
2. Materials and Methods

Appropriate materials were employed aimed at ensuring flexibility coupled with tools to produce the work. The materials used in the project were as follows; foam, macramé cord, lining fabric, glue. The tools employed included, tape measure, brush, sewing machine, scissors and pencil.

The study employed the Universal Research Design Approach. 'The sequence of the universal design process as a guide is useful for people who work in this area, such as designers, researchers, students, etc.' [11]. There are three main stages in this universal design methodology as proposed by [12] and these include the analytical phase, creative phase and executive phase.

2.1 Idea Development

After conducting relevant survey into the varying variables for this project, appropriate sketches were worked on realistic tree stumps shown in Figures 1 and 2 and crocodiles in Figures 4 and 5.



Tree stump A

Tree stump B

Figures 1 – 2: Sketches of tree stumps



Crocodile A

Crocodile B

Figures 4 – 5: Sketches of Crocodiles

Tree Stump Band Crocodile B was chosen for the study due to the exhibition of the qualities commonly found in tree stumps (afforested tree) and the nature (detailed back to enable production of the monument) of Paga crocodile respectively.

2.2 Production of Prototype Crocodile

A prototype model of the crocodile was made to ascertain the expected challenges. Foam was cut into pieces and adhered together to form the crocodile model using glue. The cross-sectional outline of the crocodile was perceived and drawn on paper, cut and placed on the foam. The outline of the cut-out paper on the foam was drawn and cut on the foam as in figures 6 to 8.



Figures 6-8: Cut-out shape for the crocodile model

The upper part of the crocodile was drawn, cut and adhered to the lower part to form the main body. The head of the crocodile was altered to suit/simulate the head of a crocodile. Extra length of foam was cut to extend the tail of the crocodile model. As shown in figure 9, the legs/limbs of the crocodile model were made with folds of foam. They were attached to the main body of the crocodile model as the final model shown in figure 10.



Figure 9: Limb attached to the crocodile model



Figure 10: The final crocodile model

2.3 Dimension of the Crocodile

The dimension of a natural adult crocodile was taken and used for the crocodile monument. The crocodile measures 127 inches (full length), 33 inches (head length), 25 inches (Jaw to Jaw), 23 inches (Snout to Tail), 17 inches (Limbs Length), 16 inches (Diameter), 58 inches (Stomach Diameter), 53 inches (Tail) and 1 inch (Back Scale).

2.4 Modelling of the Crocodile

The foam was cut to the various required dimensions of the crocodile as mentioned afore and joined together using an adhesive or glue as shown in Figure 11. A green lining fabric (depicts the superficial appearance (colour) of the crocodiles) was used to cover the crocodile model and knots (macramé) were made on the body of the crocodile model using a nylon cord as shown in Figure 12 and 13 respectively.



Figure 11: Crocodile Model



Figure 12: Crocodile model covered with green lining fabric



Figure 13: Making of macramé knots

The scales protruding on the surface of the crocodile were exposed through cut outs on the lining fabric as shown in Figure 14. Macramé knots were made to suit the size of the crocodile. The sides and the limbs of the crocodile were covered with macramé mesh while the scales were covered with green lining fabric. The eyes of the crocodile were later fixed with macramé knots. The final crocodile monument is shown in Figure 15.



Figure 14: Scales protruding from the surface



Figure 15: The final crocodile monument

2.5 Production of Tree Stump

Foams of varying lengths were cut out and adhere to each other to form the shape of the tree stump as shown in Figures 16 and 17. A brown lining fabric depicting the natural colour of the tree stump was adhered and creases made on the surface as shown in Figure 18. Green yarns were also glued on the brown lining fabric to simulate grass.



Figures 16 and 17: Adhering the parts using glue



Figure 18: Prepare the surface using a brown lining fabric and green threads

2.6 Production of Grass

Green yarns coupled with other fabrics were used for the production of the grasses using a method known as quilting. Monochromatic brown was used to depict some areas of the grass that have withered. The yarns were scattered on a base fabric that was laid on a table shown in Figure 19 to ensure the undertaking of the quilting technique. A green lining fabric was then laid on the yarns, sewn as shown in Figure 20, in rectangles and then cut to expose the yarns which depict the grass as shown in Figure 21. A pair of scissors is used to open up the lining fabric as shown in Figure 22.



Figure 19: Yarns scattered on the base fabric



Figure 20: Sewn fabrics and yarns



Figure 21: Cutting and Opening of lining fabrics



Figure 22: Cutting to expose the top lining fabrics

2.7 Simulated pond (Painting of Pond)

Painting on a blank substrate (carpet) was done using blue colour to simulate coolness and to depict the pond as shown in Figure 23. Tints and shades of blue were introduced to depict lighter areas and darker areas of the pond. Areas closer to the grasses or land were painted in darker tone coupled with lighter tones for areas far from the grass.



Figure 23: Simulated pond (Painting)

3. Results and Discussions

The study exploited macramé, modelling, appliqué, and painting techniques, to produce friendly crocodile's monuments, pond, grasses and tree stumps to depict the Paga Crocodile Haven in the Upper East Region of Ghana.

3.1 Crocodile Monument

This crocodile monument as shown in Figure 24 was made to simulate the realistic crocodile based on the studied features at Paga. Modelling and macrame techniques were combined to produce this project. A foam's thickness of about 1/8 inch was used to model the body of two crocodiles. However a foam with a thickness of 1/4 inches was used in modelling to get the groove and ridges of the crocodiles where it was difficult to join. Attaining a flexible crocodile became problematic due to the heavy nature of the foam. The researchers therefore resorted to the use of a 1/8 inches foam to model all the parts of the crocodile. Macrame technique was exploited to depict the rough nature of the crocodile's skin where the knots were made in layers. A pale green lining fabric was manipulated using the applique technique which serve as a base on which the macrame effects were created. The macrame (reef knot) for the upper part of the crocodile was sparsely done due to the sparse scales at the back of the crocodile. The knots were made closely packed at limbs and the sides, lymphs, stomach area and tail. Another type of knot (clove hitch) was used for the side of the eyes.

3.2 The Tree Stump

The production of tree stump as shown in Figure 25 was vital to give an illustration of the site of Paga Crocodile Haven. The selected design was modelled with foam and lining fabric attached to the model by the use of adhesive. Brown lining fabric was used and given a creasy effect to suit the colour and surface of tree stump respectively. Grass-like effect was depicted using green yarns on some portions of the tree stump to depict green grass.



Figure 24: Crocodile monument



Figure 25: Tree stump monument



Figure 26: Grass monument



Figure 27: Painted pond sheet

3.3 The Grass

With the grass as shown in Figure 26, different colours shades of green, brown and wool balls were used. Consideration was made in relation to the arrangement of the colours to depict the grass effect. This is based on the fact that, grasses due to their exposure to sunlight and other abrasions make the top lighter as compared to the base of the grass as observed at the haven. Grasses taper towards the end where an innovative quilting technique was used to obtain these results.

3.4 Painted Pond Sheet

A carpet was initially used to simulate the pond as shown in Figure 27. The back of the carpet was then painted to simulate the wavy nature of water. The background of the carpet was painted turquoise blue, and then white was used to achieve the surface waves. The painted pond sheet looked rigid at its edges when water is taken into consideration. The edges were cut into indefinite shape, rearranged to simulate the irregular water bank.

3.5 Test and Evaluation of Project for Usability

The works were subjected to test and evaluation to ascertain its usefulness. The works were arranged to simulate Paga crocodile haven in the morning and evening to note how the

environment looked like. The composite textile art monuments were exhibited both indoor and outdoor at different places to test its feasibility.

3.5.1 Composition of the monuments (Indoor)

The various compositions were exposed to 40 viewers comprising lecturers, students and other workers to assess and give their opinion on the appropriate composition that gives the sense of Paga crocodile haven both indoors and outdoors.

Table 1: Total population of respondents at the exhibition site

Respondents' Portfolio	Number of Respondent
Lecturers	7
Students	24
Other workers	9
Total	40

3.6 Positioning of the Grasses

After painting, the crocodiles, tree stump and the grasses were composed to simulate Paga crocodile haven. This was done in arrangement so as to enable the choice of appropriate composition that well-simulate the pond and grasses as shown in Figure 28 and 29.



Figure 28: Setting of the grasses on the simulated pond



Figure 29: Introduction of shade before the grasses

3.7 Positioning of the Crocodile Monument

The crocodiles were placed at different positions so as to get the appropriate one to suit the study as shown in Figures 30-32.





Figures 30, 31 and 32: Setting of the crocodile monuments in the composition

3.8 Composition of Tree Stump, Grasses, Crocodiles and Pond (Indoor Environment)

The tree stump, grasses, crocodiles were arranged on the simulated pond in different compositions as shown in Figures 33-35 so as to finally select the appropriate composition based on the views of the respondents.



Figures 33-35: Various Compositions

A total population of thirty-four representing about eighty-two percent (18%) opted for composition B. This was selected out of the lot by the inclusive views of people based on the fact that, the features were well-organized and well-simulate a Paga crocodile haven in the Upper East Region of Ghana.

3.9 Composition of Tree Stump, Grasses, Crocodiles and Simulated Pond (Open Environment)

Aside the monuments not being friendly to the open environment due to rainfall and exposure to the sunlight, the researchers exposed the monument to the open at the New Site of the Faculty of Art building to take note of the effect of the composition. About forty (40) viewers, comprising of lecturers, students and other workers came to observe and give their comments on the composition and the monuments produced. The viewers easily recognize Paga Crocodile Haven at a glance. They were able to identify the various components. The composition in the open as compared to the enclosed place gave a clear perception of a simulation of the Paga crocodile pond. The simulated pond was cut irregularly based on the fact that, a pond, especially Paga crocodile pond does not have a sharp straight edge. It was suggested if a crocodile with an opened mouth was created due to the fact that crocodiles usually open their mouth on land. Five (5) of

such suggestion were made. Figure 35 was considered by viewers as with a good composition in relation to the other compositions. Twenty-nine respondents made this suggestion.



Figures 36-38: Various Compositions (Open environment)

After a good comparison between the outdoor/open and indoor/closed compositions of the monuments, the respondents suggested that, bright light is required as seen in the open area composed monuments whiles the monuments should be kept in a large enclosed area so as to prevent the adverse effects of rain and sunlight in the open.

Conclusions and Recommendations

Textile art as an innovative area plays a vital role in the lives of people in most parts of the world for aesthetic and economic development. Its benefits, uses and significance are enormous and should not be ignored in developing countries. Nevertheless, this form of art is not popular in Ghana and as a means of popularizing and making it significant in Ghanaian art; the project was embarked upon to explore the subject of building textile monuments that can equally simulate the scene of Paga crocodile haven, though with few limitations that hindered its simulation. It was also found out in the study that; Textile art techniques could be combined effectively to create any monumental artistic piece of high aesthetic value. Wild and fearful animals can be made friendly by simulating their natural settings as proven in the study. The idea of taxidermy could as well be represented using textile techniques and materials. Though most monuments are exhibited in rigid forms, they can as well be exhibited in their natural flexible state.

These recommendations have been forwarded by the researchers for the attention and implication of policy makers in the tourism industry, textile designers and practitioners as well as textile students:

- 1) Textile artists should be able to use the numerous art techniques and employ different textile materials to create relatively expensive and highly aesthetic works of art that bear a lot of significance for national development.

- 2) Artist should be able to employ and manipulate the numerous art techniques to present monuments in their natural state.
- 3) Textile artists should use the numerous art techniques to simulate animal and scenes which are not accessible to make teaching and learning easy and assessable
- 4) Ministry of tourism adopt such technique as a means for promoting tourism in Ghana.
- 5) Textile artists should be able to explore with different textile materials and techniques to create relatively high aesthetic works of art in order to promotetextile art and also use it as a model for artistic expression.
- 6) Textile art is also recommended for artists as a means of exploring different materials other than those employed in this study to bring about variety in textile art and to foster creativity.

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