

Multifunctional Product Design Concept in Mixed-Media Textile Lampshades

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Abstract

Ghanaian society and the world at large have shown a strong interest in the use of lampshades with evidence from hotels and residential dwellings. Table-top Lampshades direct the rays of light to make sight easier for reading whereas bedside lampshades provide romantic illumination and beautification in bedrooms. This art studio research sought to examine lampshades on Ghanaian market; their qualities, significance, shortcomings, etc. as the basis to design and produce inventive lampshades for private and public use. The study was conducted at an art studio condition using Practice-based research design method. Findings show that lampshades serve functional and aesthetic significance in public dwellings and the hospitality industry. Nonetheless, available lampshades on the Ghanaian market lack the multifunctional property as well as a local touch which arguably makes them misfit in Ghanaian context in terms of usage. The innovative results of the studio-produced lampshades revealed the possibility of creating symbolic and multifunctional lampshades which suit specific space and tradition. The study recommends the adoption of such innovative design approach in the creation of interior design and decoration artefacts for residential and public edifices.

Keywords

Product Design, Multifunctional Concept, Textiles, Lampshades, Mixed-Media

1. Introduction

The history of light is the history of lighting equipment, and the shapes of the shade changed with the change of the light source [1]. The rapid increase in

electricity and its convenience in the early 20th century is believed to have given rise to numerous forms of lampshades. A lampshade is the combination of a lamp and a swathe that shades the light from the lamp [2]. Lampshades are manufactured in various shapes, sizes, materials, designs, and colours [3]. Its purpose is to protect the eye from the bulb's glare and to direct light from the bulb in the lamp into the room [4]. Modern lampshades come with interesting functions of beautifying, directing and diluting of light from a lamp. Mini lampshades are put on study tables to provide light and also direct the rays of light to make sight easier. These functions of lampshades make them more useful in households. As established by [5], today lampshades are not only used for a mere lighting, but as an accessory.

Reference [6] considers products which can save time and space by playing more than one role as attractive and therefore multi-functional. There are different ways of producing multifunctional materials that depend largely on whether these materials are structural composites, smart materials, or nanostructured materials [7]. In the modern era, most of the manufacturers and designers try to design such a product which can fulfil all customers' demands covering some extra facilities [8]. While most lampshade designers consider its primary function of directing light rays to a focal point and defending the eyes from the glare of the bulb, this research considers the exploration of African prints with mixed-media technique coupled with the philosophy of "Multiplicity in Purpose" for the design and manufacture of lampshades which can serve dual function.

The aforementioned philosophy is coined by the researchers to qualify the degree of the multifunctional ability possessed by the products which emerged out of the study. Most multifunctional products are known to perform only tangible functions. Reference could be made to the multipurpose table lamp invented by [8] which serves other purposes such as Pen holder, Mobile holder, Speaker, Bluetooth device, etc. The multifunctional ability of the products gained from this study is however embedded in both their tangible functions and their inherent proverbial or conceptual features. Hence, "Multiplicity in Purpose" is to mean a product which can serve either tangible functions, conceptual functions or both tangible and conceptual functions. Also, the philosophy elevates a product to a multifunctional state when it is able to serve a function or more in addition to its main function.

Lampshades have been used globally as powerful tools for a significant progress. In Russia, the Khrushchev government used lampshade to differentiate itself from the Stalinist era and at the same time, to create its own ideology [9]. Using the new lampshade as further explained by the author, the government promoted an accessible and egalitarian image of progress. Reference [10] is of the view that, by using the Shape Semantics, bamboo lampshades can show spiritual and cultural connotation and humanistic care better with its shape. Reference [11] used lampshades significantly in their study to evaluate how shape, bump texture and colour temperature are affected on impression of people of varied origin. This experiment was conducted with Danish students using lamp-

shades as a key instrument.

Empirical studies have shown that researchers who have explored in the area of multifunctional lamp manufacturing are seemingly not employing textiles and mixed-media approach. Reference [8] developed a concept for multipurpose table lamp which features Pen holder, Mobile holder, Speaker, etc. This invention however employed not textiles materials such as printed and plain fabrics, and focuses not on the shading aspect of lamps. The concept again focuses only on table lamps, neglecting floor and bedside lampshades. Reference [12] also invented a Robotic Desk Lamp capable of communicating emotions. This multifunctional lamp invention again employs no textiles and mixed-media. Multifunctional concept adapted in this study focuses on textiles and mixed-media technique in lampshade production for the local and international market.

2. Materials and Methods

The chief material used in the production of the lampshades is textiles (printed and plain fabrics). The mixed-media approach adopted in this study allowed for the use of other materials such as wood, aluminium metal, electrical wires, bulbs, plugs and adhesives (synthetic glue). The study employed Practice-based research design method with observation and interview as data gathering tools. Practice-based research design is an original investigation undertaken in order to gain new knowledge partly by means of practice [13]. This research design was used in the establishment of multifunctional lampshades through artistic practice. The population for the study was lampshade users and sellers within the Kumasi metropolis. Out of this population, fifteen (15) lampshade users, three (3) hotel managers and twelve (12) lampshade sellers were sampled with the purposive sampling technique for the study. Purposive sampling is a practical and a more efficient tool when used properly [14]. Due to the practical nature of purposive sampling technique, respondents were able to provide enough evidential truth in support of the study with respect to the types of lampshades found in hotels and sales outlets in Ghana. Descriptive analysis was used and the goal is to describe the phenomenon and its characteristics [15], in this case the nature and usage of lampshades. With interview guide and observational checklist, the views of the participants were solicited and used as a reference in design and production of the innovative lampshades. **Figure 1** is a conceptual framework developed to guide the study.

The conceptual framework out of the researchers own's creation features five (5) phases. The first phase (Problem Identification) allowed the researchers to interact with their environment to get a clear picture of the need for lampshades which can serve multiplicity of purpose. After identifying the problem, the researchers conceived ideas on multifunction lampshades at the second phase of the model through series of sketches. The final sketch models were established at the third phase of the framework. These sketch models were established considering their ability to fit into the fourth phase of the framework (Production).

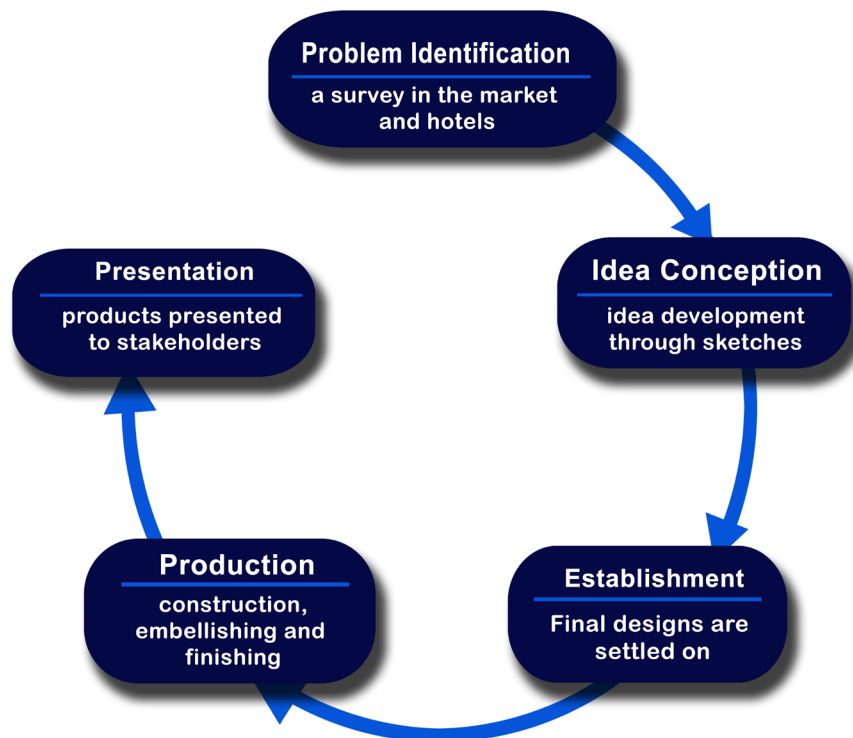


Figure 1. Conceptual framework. Source: Studio practice.

The lampshades were constructed, embellished and finished at the fourth phase. The final phase of the framework (Presentation) allowed the researchers to present the products to stakeholders.

2.1. Survey on Sale and Use of Lampshades in Kumasi

A survey was conducted in Samba hotel at Adum-Kumasi, Joyflux hotel at Asokwa-Kumasi and Lizzie hotel at Top-high near KNUST-Kumasi. The features of lampshades were studied in these hotels and the market (lampshade shops at Adum-Kumasi) to find out their shortcomings. Hotel managers, prospective lampshade users and lampshade sellers were interacted with in order to confirm the identified problem. The survey discovered that there were no multifunctional lampshade on the market and in the hotels. The available lampshades do not reflect the Ghanaian cultural setting. Again, the lampshades were not furnished with African prints. Researchers were not allowed to capture images at the hotels. However, observations and interview conducted with the hotel managers gave a clear evidence of the absence of multifunctional lampshades in the facilities. **Figure 2** presents samples of lampshades found on the Ghanaian market.

In **Figure 2** is seen three types of lampshades: Floor lampshades, Table-top lampshades and Bedside lampshades. The floor lampshades are taller than the table-top lampshades, while the table-top ones are in turn taller than the bedside ones. The floor lampshades are designed to have larger shades to complement their height, whereas the table-top ones and the bedside ones come in



Figure 2. Lampshades on the Ghanaian market. Source: Field survey (lampshade shops at Adum-Kumasi).

medium and smaller sizes respectively. Nevertheless, none of the lampshades shown in the figure are multifunctional. Again, African prints are not incorporated in the design nor does any bear the image of African traditional designs.

2.2. Idea Conception

The benefits of lampshades motivated the researchers to find a means of adding other qualities to render them multi-functional. This motivation by the researchers stems from the fact that, lampshades on the Ghanaian market lack the multifunctional (features) as well as a (traditional Ghanaian) touch. They only rely on electricity to perform their magic of beautification, and therefore lie idle when the lights are off. Lampshades, with or without electricity must titivate their surroundings. Study materials such as pens, pencils, books etc. during and after their usage could be held in good position beside lampshades. This calls for the addition of extra features as addressed by this study.

Ideas on multifunctional products were conceived after the survey toward the construction of multifunctional lampshades. Both sketching and idea generation techniques are regarded to be tools for stimulating creativity in design [16]. The multifunctional lampshade designs were therefore created through series of sketches with Adobe Photoshop software. The sketches were made with ideas from natural objects and multifunctional product concept. Local products and philosophies were taken into consideration in sketching the items. Four multifunctional lampshade designs were arrived at. **Figure 3** shows the inspirational board which gingered the sketching of the multifunctional lampshades.

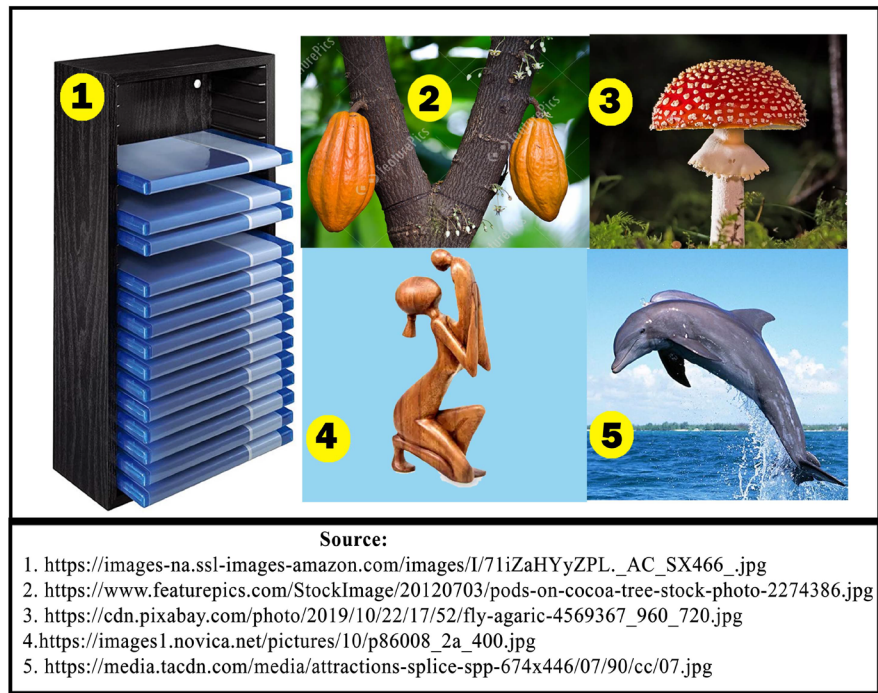


Figure 3. Inspirational board.

The inspirational board features five existing items out of which the sketch models emerged through sketches. These items as numbered from 1 - 5 include; a CD rack, cocoa plant, mushroom, mother and child sculptural piece and a dolphin. These existing items were purposely chosen by the researchers as inspiration to start the sketches. The sketches were done in series of stages beginning with an existing item to a final design. Technically, additions and subtractions were done at subsequent stages to the existing items during the sketching process to achieve the four (4) sketch models as seen in **Figure 4**.

2.3. Establishment

The final multifunctional lampshade designs were established after series of sketches. These sketch models are shown in **Figure 5**. The designs 2, 3 and 4 assume their multifunctional status with a backing philosophy of “Multiplicity in Purpose”. This philosophy allows a product to serve dual purposes which may not necessarily be a tangible function.

2.4. Production of Selected Designs

2.4.1. Production of Design One (1)

The design one (1) was built upon to come out with the first product (floor lampshade). This involved series of stages as illustrated in **Figure 6**. At the first stage, various parts of the lampshade which required the use of a wood as determined by the sketch were cut out of a three (3) inch-plywood. The parts were assembled by joining with nails at the stage two and were decorated with African print at the third stage. The decoration involved wrapping of African prints on

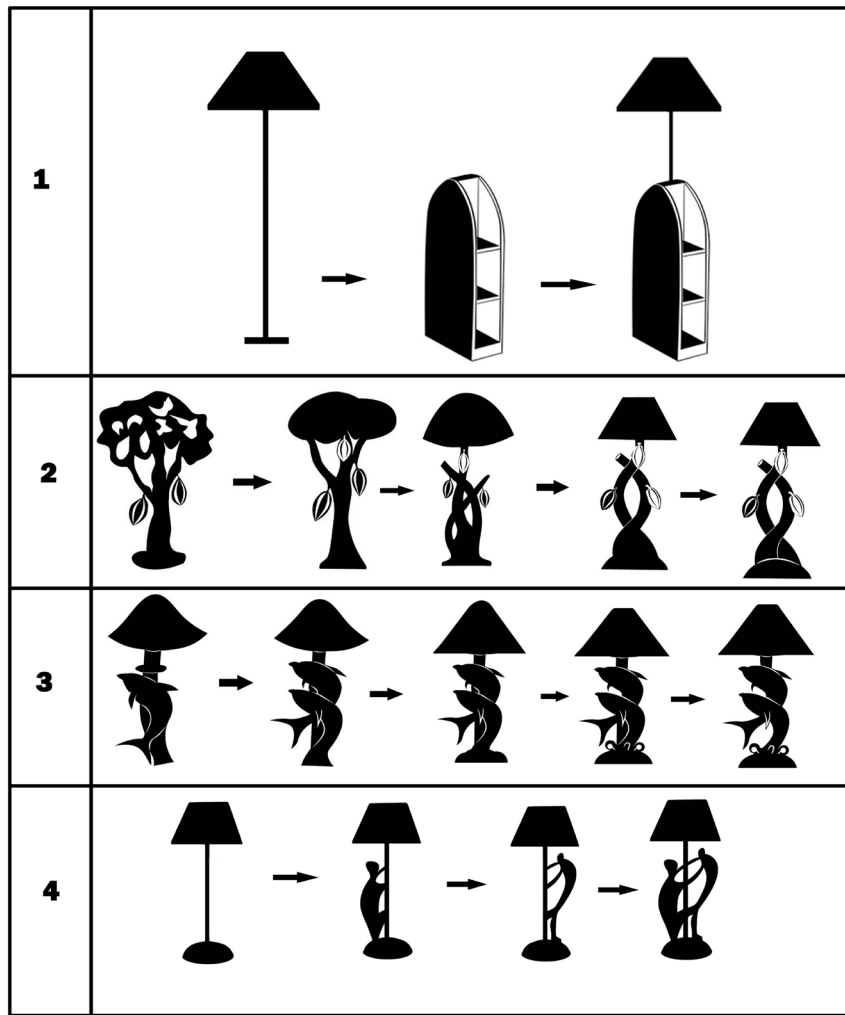


Figure 4. Sketches of the multifunctional Lampshades. Source: Studio practice.

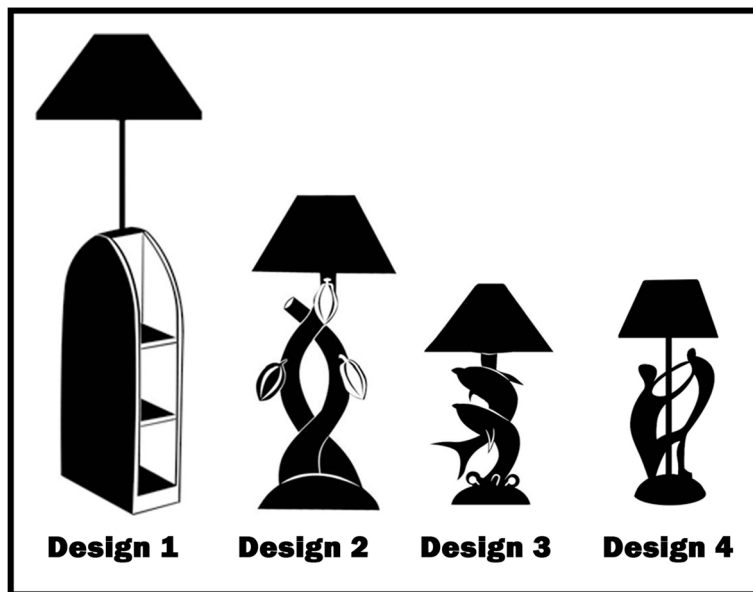


Figure 5. Final designs. Source: Studio practice.

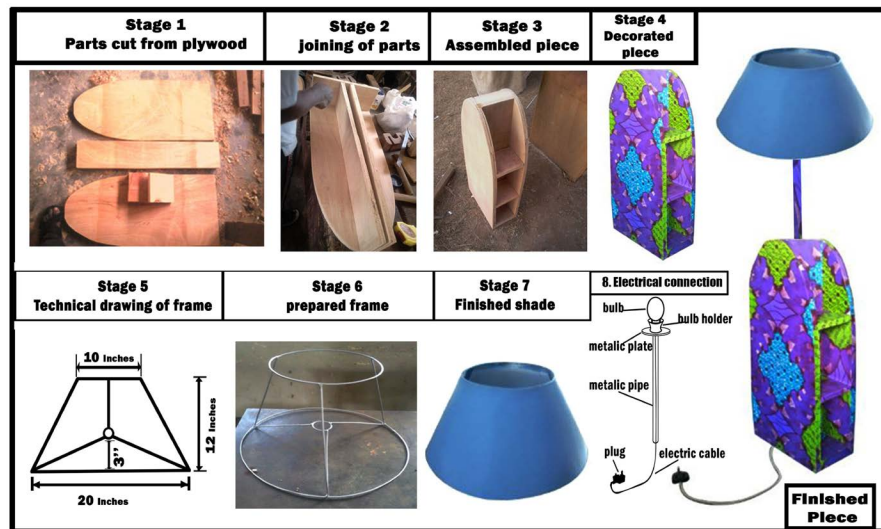


Figure 6. Production of lampshade (design 1). Source: Studio practice.

the article with the help of “Super Adesivo-adhesive” and “Fevicol sh” synthetic glue. At the fourth stage, the dimensions of the shade frame were illustrated by technical drawing. The frame was built at the fifth stage out of an aluminium metal. This was done by welding pieces of the aluminium metal together as determined by the technical drawing. The shade was formed at the sixth stage by wrapping a plain fabric (sea blue colour) on the prepared frame.

The shade and the base/body of the lampshade were assembled together. However, an aluminium metal pipe was erected to cater for the electrical connections and also connect the shade to the base. The body of the lampshade is made of shelves to carry items like books and pens.

2.4.2. Production of Design Two (2)

The nature of design two (2) required carving in order to achieve a proper execution. The lamp base which was inspired by a cocoa tree was carved out of sese (a soft wood used for carving in Ghana). This wood was chosen due to its ability to be chopped off during carving to unveil interesting shapes. The carved piece was decorated with African prints to give it a local and interesting touch. The subsequent stages include; preparation of frame for the shade, preceded by a technical drawing, formation of the shade by wrapping the fabric around the frame, electrical connections and assemblage of the various parts to form the complete lampshade. **Figure 7** shows the various stages taken to produce the lampshade design two (2).

2.4.3. Production of Design Three (3)

The third lampshade also employed a carving technique with inspiration from a dolphin as seen in **Figure 8**. The piece was carved from a sese wood as seen in the previous design (lampshade design 2). The succeeding stages of frame preparation, shade formation, electrical connections and assemblage of the various parts was done following the same procedure employed in design two (2).

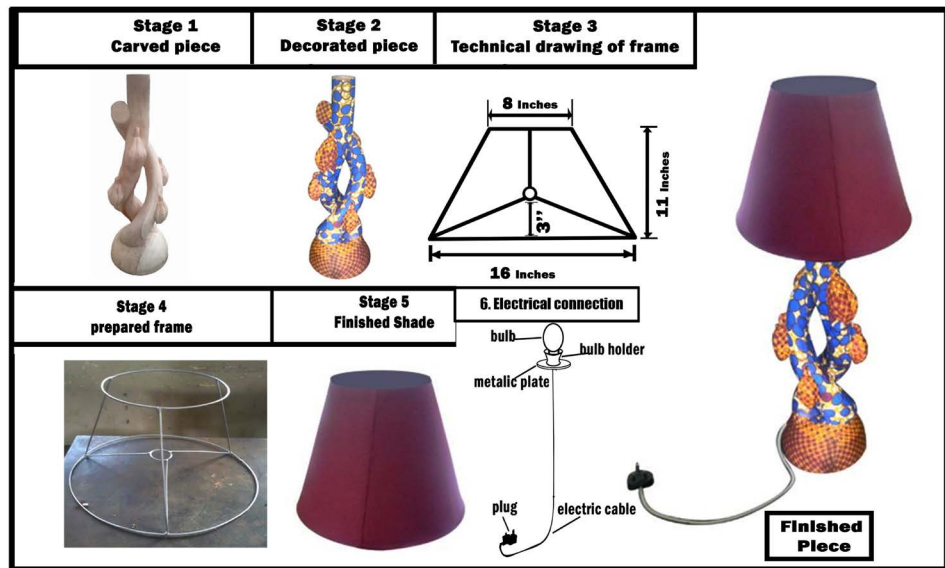


Figure 7. Production of lampshade (design 2). Source: Studio practice.

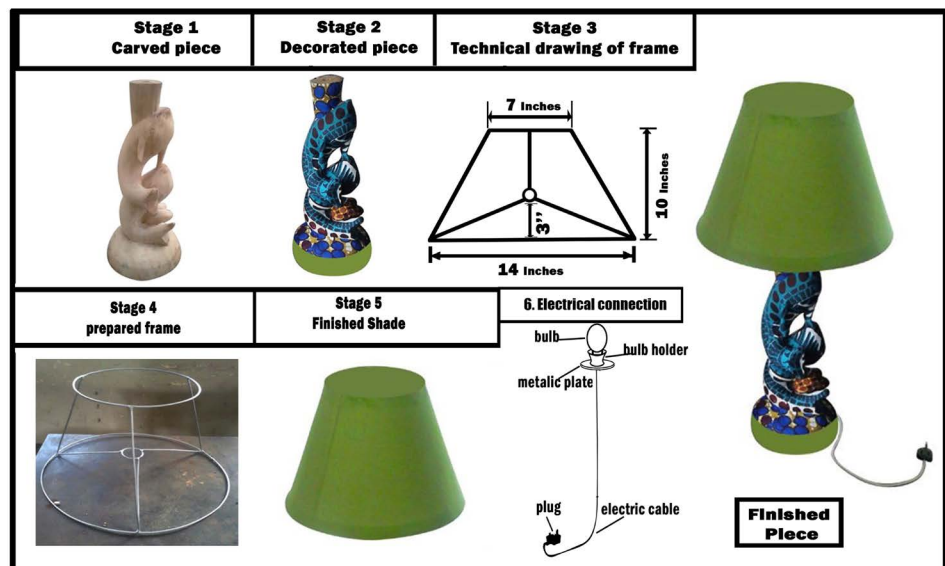


Figure 8. Production of lampshade (design 3). Source: Studio practice.

2.4.4. Production of Design Four (4)

The first stage in the production of design four (4) as seen in **Figure 9** is a carved piece which connotes unity in the Ghanaian setting. Two people are seen to be holding each other in the piece, suggesting togetherness. It was inspired by a mother and child piece as seen previously in **Figure 3** (the inspirational board).

2.5. Presentation of Final Products

The products were presented to customers including hotel managers through exhibition. Potential customer's comments were noted. The comments received from the general public and potential customers on the final lampshades were excellent. They also highlighted the commercial viability of the products.

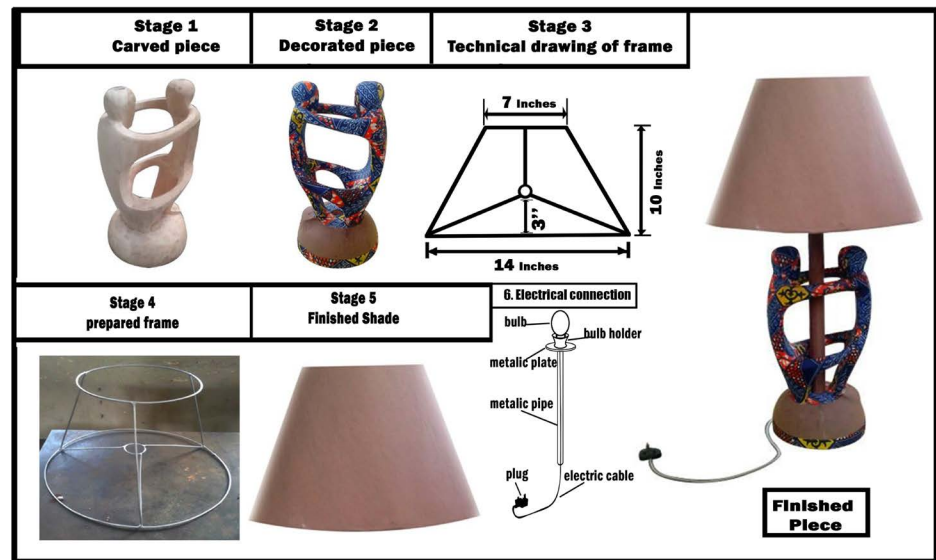


Figure 9. Production of lampshade (design 4). Source: Studio practice.

3. Results and Discussion

A survey conducted in hotels and the market revealed the absence of multifunctional lampshades. The available lampshades had no local touch making them symbolically misrepresentation within Ghanaian cultural setting. They only serve a purpose of directing the rays of light to a focus and protecting the eyes from the naked light rays. Most hotel users and lampshade marketers were of the view that, lampshades which serve other purposes (multifunctional lampshades) was a great concept that would promote their businesses.

The information gathered from the lampshade users and sellers initiated the idea of 'Multiplicity in Purpose' which is the philosophical concept of the study. The study gave rise to four multifunctional lampshades shown in **Figure 10**. They include a floor lampshade, a table-top lampshade, and two bed-side lampshades.

3.1. Result 1: Floor Lampshade

The first product which emerged out of the study is a 62 inches high floor lampshade shown in **Figure 10**. The product was developed taking inspiration from CD (Compact Disc) racks. It is a multi-functional textile lampshade which is designed to carry multiple items in addition to its main purpose of dismissing darkness and directing light to a focal point.

CD racks are capable of carrying multiple CDs within its inherent spaces. This concept was adapted to come out with a multifunctional lampshade capable of carrying multiple items in its shelves. The African prints incorporated in the product are exhibiting the beauty of Ghanaian local print to the outside world. Reference [17] is of the view that, aesthetics is a valuable element in the purchasing of items by customers. Aesthetically, the product serves as a decorative piece as championed by the African print and functionally, the product serves as



Figure 10. Results of the study. Source: Studio practice.

a lampshade and shelves. Using things for multiple purposes is always beneficial and require creative minds to invent such ways [18]. This product was purposefully created to serve different tasks to cut down cost in purchasing separate items to serve certain purposes.

3.2. Result 2: Table-Top Lampshade

The second result is a 32 inches high Table-top lampshade. This piece was carved out of a sese wood to depict the shape of a cocoa tree bearing fruits. Technically, mixed media includes all forms of art that employ more than one material in their composition [19]. The mixed-media technique allowed the exploration of various materials and techniques making the product an interesting art piece as well as a lampshade.

This product was developed with inspiration from a cocoa tree which is abundant in Ghana. Cocoa is the main stay of Ghana's formal economy [20]. Ghana comes in mind when one speaks of cocoa [21]. The lampshade was therefore developed with inspiration from a cocoa tree to conceptually exhibit Ghana's pride as one of the major producers of cocoa beans in the world. The multifunctional concept of this product is based on its ability to serve as a decorative piece, a lampshade and a promoter of local products such as cocoa and African prints. The absence or presence of the shade still makes the piece a decorative one.

3.3. Result 3: Bed-Side Lampshade

The third product is a bed-side lampshade inspired by a dolphin. It comes with a height of 24 inches designed to serve as a decorative piece and a lampshade. Humility is a key instrument to a successful life. The product features a carved

piece with inspiration from dolphins portraying the value of humility and interdependence.

A dolphin is a powerful aquatic mammal. It has good resolution acuity underwater and in air, is highly sensitive to light, especially at the shorter wavelengths appropriate to the underwater photic environment, and probably has good movement detection capabilities [22]. In the final lampshade design, the dolphin is seen in the carved piece to be carried by its fellow dolphin. This philosophically suggests the submissiveness and interdependence attributes suggestion that, one needs to be humble and submissive in order to become successful through the assistance of others. The saying, “the people you meet on your way up the ladder are the same people you meet on your way down” therefore becomes applicable here. With the absence of the shade, this product could be placed beside a bed as an art piece. The incorporation of the fabric is to promote African prints. The concept behind the product makes it a philosophical art piece as well as a lampshade.

3.4. Result 4: Bed-Side Lampshade

The final product resulting out of the study is a bed-side lampshade decorated with both printed and plain fabric with philosophical backing of “Multiplicity in Purpose”. The idea was generated from a “mother and child” sculptural piece. The design features two people holding each other in an abstract form. This piece was achieved through carving and portrays unity and togetherness in the society. Conceptually, the pole and the shade of the article represents an umbrella under which people come together to achieve a common goal. The product serves as a lampshade and art piece.

Using this multi-functional product, one is provided with a lampshade, a conceptual art piece, decorative piece, textile material etc. which would have been costly if they were purchased as separate items from the market.

3.5. Summary of the Lampshade Designs

Table 1 shows a summary of characteristics of the various lampshade designs.

Table 1. A summary of characteristics of the lampshade designs.

<i>Design 1</i> Floor Lampshade	<i>Design 2</i> Table-top Lampshade	<i>Design 3</i> Bed-side Lampshade	<i>Design 4</i> Bed-side Lampshade
1) It is 62 inches high	1) It is 32 inches high	1) It is 24 inches high	1) It is 32 inches high
2) It was Inspired by a CD rack	2) It was inspired by a cocoa plant	2) It was inspired by a dolphin	2) It was inspired by a mother and child sculptural piece
3) It was constructed by joining plywood with nails.	3) It was constructed by carving	3) It was constructed by carving	3) It was constructed by carving
4) It has shelves to hold items	4) It portrays the beauty and the importance of cocoa plant	4) It is a conceptual lampshade which portrays humility	4) It is a conceptual lampshade which portrays unity and togetherness in the society
5) It serves as a lampshade	5) It serves a lampshade	5) It serves as a lampshade	5) The pole and the shade conceptually represent an umbrella
6) It serves as a decorative piece	6) It serves as a decorative piece	6) It serves as a decorative piece	6) Two abstract people are holding each other under the shade, signifying unity.
			7) It is a decorative piece

4. Conclusion and Recommendations

Lampshades are known to be providing and shading light to a focal point in order to protect the eye from the bulb's glare. The study has revealed the possibility of introducing multifunctional concepts in lampshades. With mixed-media technique, the textile lampshades were produced to perform beyond their usual functions. The products serve as conceptual art pieces, item carriers with the help of shelves, decorative articles and lampshades. The products promote the rich Ghanaian cash crop (cocoa) and the rich African prints. This study lays a foundation in the area of multifunctional product design with a focus on textile lampshades. With this foundation, it is recommended that the unemployed would adapt the concept to reduce unemployment rate in the country. The study also recommends the adoption of such innovative design approach in the creation of interior design and decoration artefacts for residential and public edifices. The concept can also be incorporated into the curricula of art and design training programmes for wider benefits.

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Conflicts of Interest

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

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