CREATION OF LAMPSHDES USING ECO- PRINTING

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ABSTRACT

The main aim of the study was to produce the prints of fresh leaves and flowers directly onto the fabric, by getting the exact outline and size of the material along with its natural colour. It involves the collection of seasonal leaves and flowers from the immediate surroundings and combining them artistically by directly printing on to the fabric. To conduct the study, the related literature was reviewed, different mordants, mordanting techniques and raw materials were tested and the most suitable mordanting techniques were used which was pre- mordanting and simultaneous mordanting as they produced best results. Evaluation of colour fastness was carried out and the results related to colour fastness to sunlight and washing showed very good results.

Keywords: Eco-printing, fresh leaves and flowers

INTRODUCTION

Natural dyes have a harmonic, resonance and depth that commercial dyes lack and the most fascinating aspects is their glow and charming variability. It is considered that natural dyes yield luster, rich colour, aromatic smell, soft light and shadow, soothing to human eye and so very good source of experimentation on natural fibers as well as on synthetic fibers. Natural dyes have better biodegradability and generally higher compatibility with the environment. They are non-toxic, non- allergic and non- carcinogenic as these are obtained from animals and vegetable matters without chemical processes. Most natural dyes are known for their colour experimentation however they will not adhere permanently to fibers unless they are used in combination with chemicals call mordant. A mordant however is a colour fixative, a substance used to set dyes on fabric by forming a coordination complex or covalent bond with the dye which then attaches to the fabric or tissue.

Using natural dyes, fresh flowers and leaves as the means for printing onto the fabric is known as eco-printing or eco- friendly printing. This is a technique where plants, leaves and flowers leave

their shapes and colour on fabric. The process extracts the plant pigments onto the textile or paper, which is then left to cool. If allowed longer resting time, the textiles or paper can be eco printed by composting them in the earth, rusting with metals in acid (e.g. vinegar) or solar-soaking in water or dye. The prints obtained through this technique will never be repeated as because every leaf on this planet is different, even the two sides of the same leaf are different.

AIM AND OBJECTIVES

- To select the raw material and print the fabric.
- To evaluate the colour fastness of the printed samples.
- To construct the lampshades.
- To check the marketability and consumer acceptability of the lampshades.

MATERIALS

- Cotton fabric was selected for the study because of its easy availability and having good affinity for natural dyes.
- Different seasonal leaves (hibiscus, gulmohar, rose, silver oak, eucalyptus and neem) and flowers (bougainvillea, marigold and rose) were selected for the eco-printing.
- The two mordants aluminum sulphate and ferrous sulphate were used.
- Three mordanting technique i.e., pre- mordanting and simultaneous mordanting were used for the better fixation of the natural dye.

METHODOLOGY

- Scouring of cotton fabric was done by soaking it in 5% of soap solution and then it was rinsed and squeezed.
- Printing was done with the hammer pounding technique, in which the raw material (fresh flowers and leaves) was placed, covered with another piece of cloth, hammered and then finally the residues were removed by washing.
- Colour fastness to sunlight and washing were determined. Standards methods for testing colorfastness to washing and sunlight given by AATCC are ISO 105 C06 and ISO 105 B02 respectively.

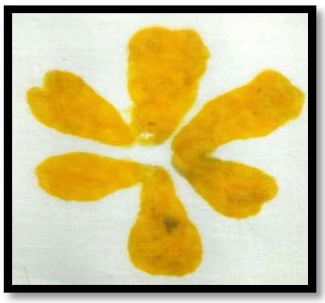
- Ten lampshades were made two of each preferred shape. The marking was done on to the printed cloth according to the measurement of the frame and then the frame was covered with the cloth by hemming the top and bottom of the frame with lining fabric.
- Before checking the marketability and consumer acceptability of the products, the cost of lampshade was estimated by adding the cost of frame, fabrics, chemicals and labor charges. The total cost of products was then calculated. Sales price was calculated by adding 20% profit to the calculated cost price.
- Marketability and consumer acceptance of the final products was assessed by administering the questionnaire which consists of questions regarding the overall appearance, cost and willingness to buy. Suggestions for improvement were also asked by the consumers. Responses were noted, tabulated and analyzed.

Selected shapes for lampshades

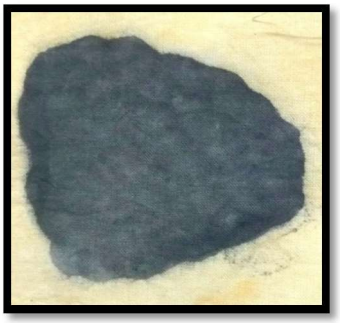
Above shapes of lampshades were selected for eco-printing and construction.

Table 1: Printing of fabric

SAMPLES	STEPS OF PRINTING

 **SAMPLE 1**	• **Step 1 –** Pre-mordanted with ferrous sulphate • **Step 2 –** Placement of marigold flower petals • **Step 3** – Hammered
 **SAMPLE 2**	• **Step 1** – Simultaneously mordanted with Alum • **Step 2 –** Placement of marigold flower petals • **Step 3** – Hammered
 **SAMPLE 3**	• **Step 1** – Pre-mordanted with Alum • **Step 2** – Placement of marigold flower petals • **Step 3** – Hammered
 **SAMPLE 4**	• **Step 1** – Pre-mordanted with Alum • **Step 2** – Placement of grass • **Step 3 –** Hammered

 **SAMPLE 5**	• **Step 1** – Pre-mordanted with ferrous sulphate • **Step 2** – Placement of grass • **Step 3** – Hammered
 **SAMPLE 6**	• **Step 1** – Pre-mordanted with ferrous sulphate • **Step 2** – Placement of rose leaves. • **Step 3** - Hammered
 **SAMPLE 7**	• **Step 1** – Pre- mordanted with ferrous sulphate • **Step 2** – Placement of simultaneously mordanted rose leaf with alum • **Step 3** - Hammered
 **SAMPLE 8**	• **Step 1** – Pre-mordanted with Alum • **Step 2** – Placement of rose leaves • **Step 3** - Hammered

 **SAMPLE 9**	• **Step 1** – Pre-mordanted with ferrous sulphate • **Step 2** – Placement of silver oak leaf • **Step 3** - Hammered
 **SAMPLE 10**	• **Step 1** – Pre-mordanted with Alum • **Step 2** – Placement of silver oak leaf • **Step 3** - Hammered
 **SAMPLE 11**	• **Step 1** – Pre-mordanted with ferrous sulphate • **Step 2** – Placement of simultaneously mordanted rose petal • **Step 3** - Hammered
 **SAMPLE 12**	• **Step 1** – Pre-mordanted with Alum • **Step 2** – Placement of rose petal • **Step 3** - Hammered

RESULTS OF COLORFASTNESS

Colorfastness to sunlight

On exposure of sunlight over progressively increasing time duration, all the samples showed excellent to very good colorfastness to sunlight with respect to color change.

Colorfastness to washing

All the samples showed very good colorfastness to washing with little color change and little staining.

Marketability of lampshades

Figure 1: Responses of the shopkeeper for overall appearance of the lampshades

n=15

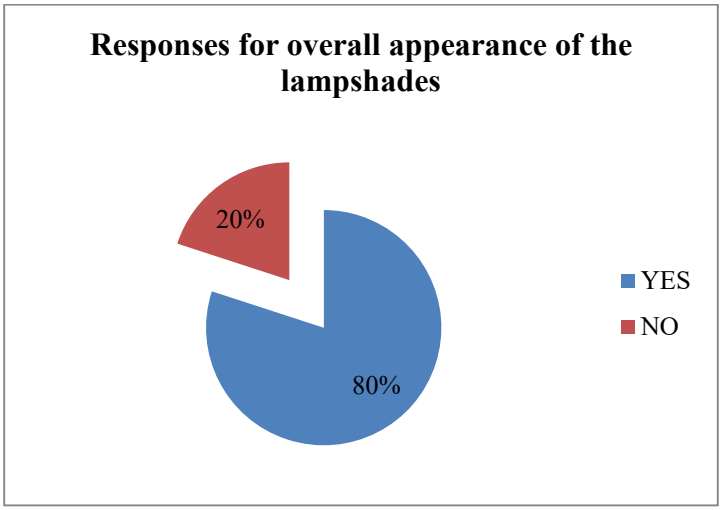


Figure 1 depicts that 80% respondents liked the designs and showed their interest and appreciated the work. The rest 20% of the shopkeeper did not show any interest as according to them there is not much sell of the lampshades these days.

Figure 2: Responses of the shopkeeper regarding the prints of the lampshades

n=15

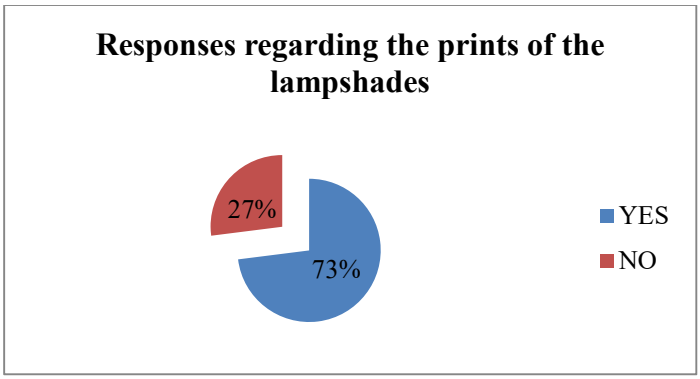


Figure 2 depicts that 73% respondents like the prints of the lampshades. Rest 27% did not like it because they found some of the prints to be light in color.

Figure 3: Responses of the shopkeeper on the basis of their customer's willingness to purchase the lampshades

n=15

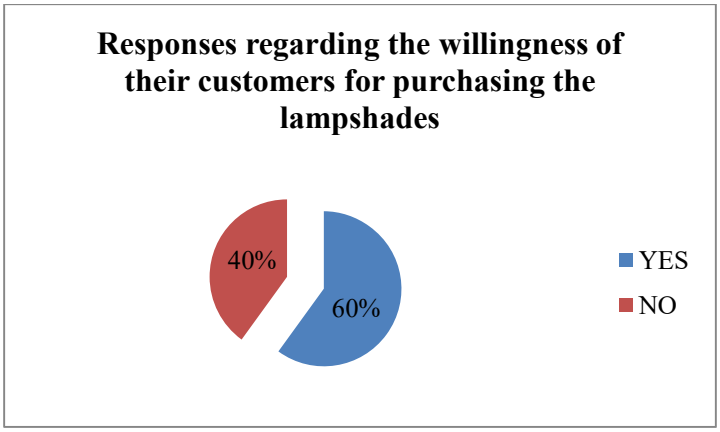


Figure 3 depicts that 60% of the respondents have customers which were willing to purchase the lampshades. Rest 40% of the respondents did not have any customers willing to buy the lampshades.

Figure 4: Responses of the shopkeepers on the basis of their willingness to purchase the lampshades or to place an order:

n=15

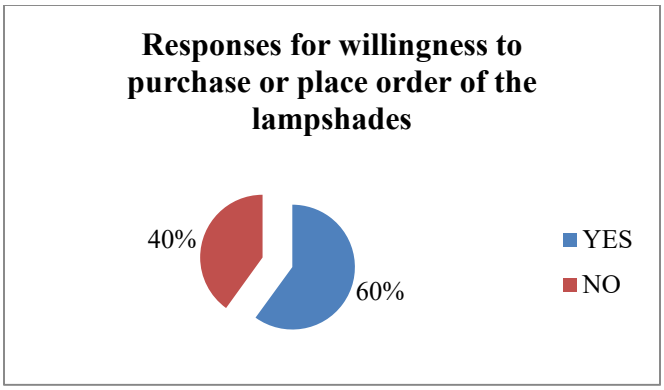


Figure 4 depicts that 66% respondents liked the designs and were ready to buy and place the order for lampshades. As they liked the research work very much and commented that work was excellent and creative. They appreciated the creative technique and showed interest in learning the technique. Rest 44% respondents did not show any interest in purchasing the lampshades because some found the price to be high and some didn't like the prints.

Figure 5: Responses of the shopkeeper on the basis of the quoted price of the lampshades:

n=15

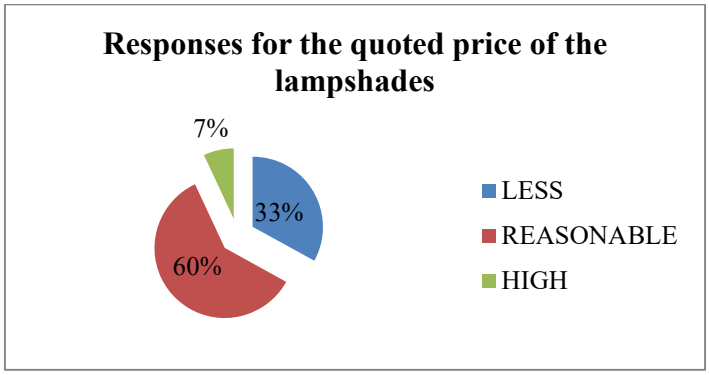


Figure 5 depicts that 60% of the respondents find the quoted price of the lampshades to be reasonable and were willing to buy, while 33% of the respondents find the quoted price of the lampshades to be less and they suggested the price to be a bit higher (i.e., range between 700-2500). Rest 7% of the respondents find the quoted price a bit high (suggested the range between 700-1200).

Consumer acceptability of the lampshades

Figure 6: Responses of the consumers on the basis of appearance of lampshades

n=30

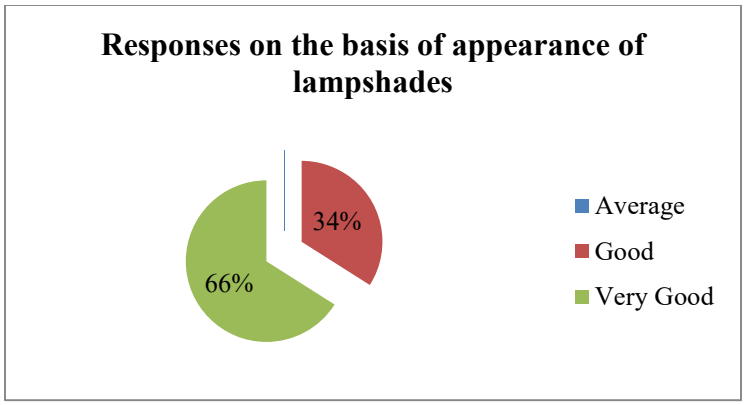


Figure 6 depicts that the 66% consumers liked the appearance of the lampshades very much. They find the designs were very good and appealing. Rest 34% consumers find the appearance of the lampshades little appealing as they suggested that more color combinations could have been tried.

Figure 7: Distribution of the responses of the consumer regarding the quoted price of the lampshades

n=30

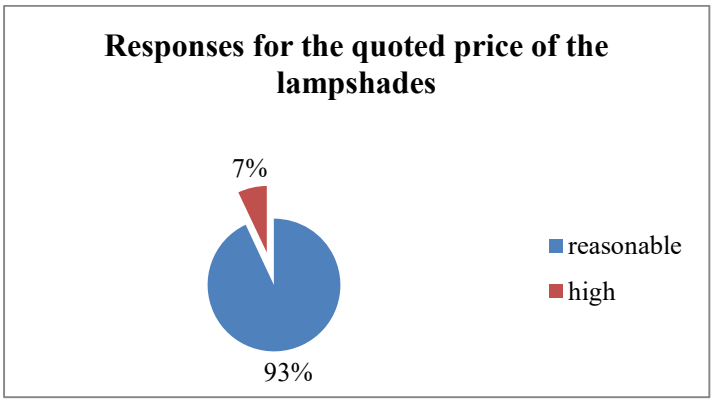
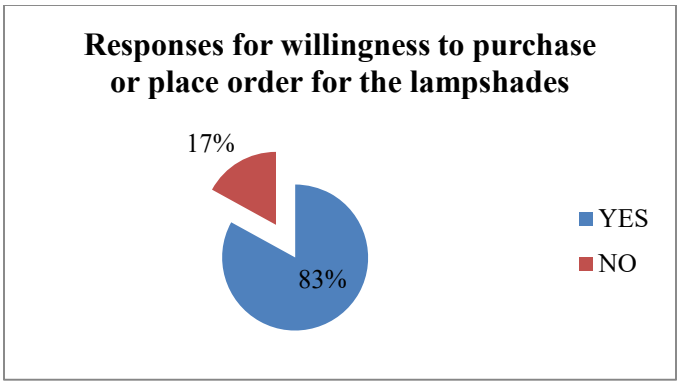


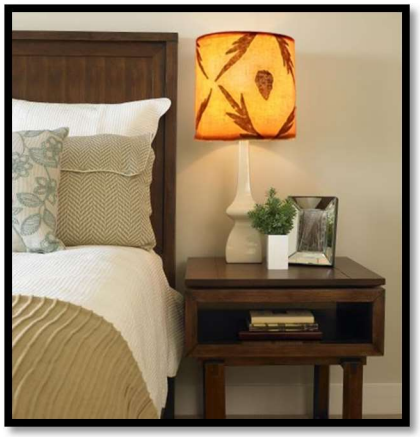
Figure 7 depicts that 93% of the respondents found the quoted price reasonable and 7% respondents found quoted price high.

Figure 8: Responses of the consumers regarding the willingness to buy or place and order for the lampshades

n=30



The above figure 8 depicts that 83% of the respondents were willing to purchase the lampshades as they like the technique and the creative work. They found the designs and technique very innovative and interesting. Rest 17% of the respondents did not show any interest in purchasing or buying the product as they found the quoted price very high and they had less interest in lampshades.



DESIGN 1

DESIGN 2

DESIGN 3

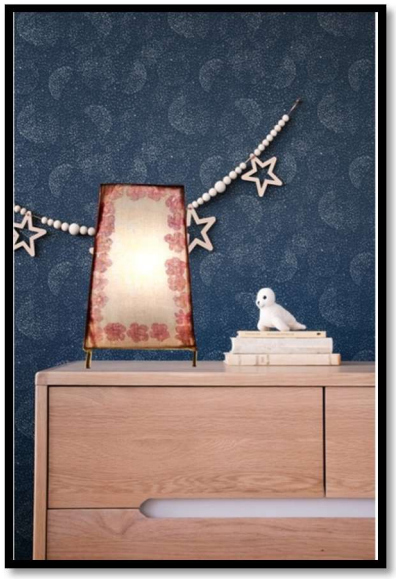
DESIGN4

DESIGN 5

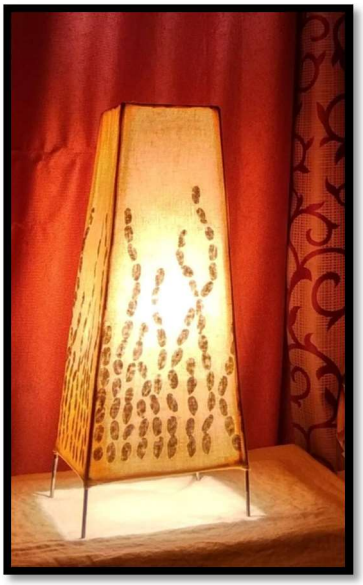
DESIGN 6

DESIGN 7

DESIGN 8



DESIGN 9



DESIGN 10

Conclusion

Fashion trends are fragile in today's world and the consumers demand innovative changes over the existing fashion. In such situation our surroundings full of different species of leaves and flowers play a very important role as it gives the freedom to experiment. Hence this study proved to be a successful endeavor both from the consumer as well as the market point of view. It has shown that with little creativity and innovativeness, it is possible to produce something useful and aesthetically pleasing from naturally present materials in the surroundings.

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