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Adaptation of “Sanjhi” art using laser cut work technique for designing of handicraft articles

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Abstract

Textile designing has been an ancient art and perhaps the most ancient craft of India. There is great need to revive the traditional records of textiles by giving fascination to the Indian textile pieces by introducing the innovative designs of “Sanjhi”, the art of hand cutting designs on paper, is a typical art of Mathura in Uttar Pradesh, which has persisted and flourished for many years in various parts of India. The second part of experimental work that included adaptation of Sanjhi art motifs for designing apparel and handicraft articles using CAD software such as Corel Draw and Adobe illustrator and development of articles through advanced laser cutting technique. This study is an effort to integrate the traditional art and craft with laser cutting technology to enrich the field of textile designing.

Keywords: CAD software, “Sanjhi” art, laser cutting

Introduction

Textile designing has been an ancient art and perhaps the most ancient craft of India. Gradually designing has become a more intellectual endeavour over a period of time. The designs on the fabric are achieved by a great variety of techniques. The rich craft heritage of India is unique and diverse as its customs and traditions.

‘Sanjhi’ the paper cutting art of Mathura and Vrindavan in Uttar Pradesh still carrying on this age-old tradition. ‘Sanjhi’ is a ritualistic craft, this craft involves the cutting of an intricate stencil depicting scenes from the life of Lord Krishna and the use of this paper stencil in making Rangoli. ‘Sanjhi’ art was traditionally done by hand which is tedious, time consuming and laborious process. Also, the exact replications of motif in design are not possible by hand cutting technique. There is no doubt that every effort is to be taken to preserve the traditional crafts. However, to popularize these art and crafts and to get decent income for craftsmen, these crafts have to be incorporated in to contemporary scenario especially through textile designing.

It was an effort to bring the unexplored treasure of Indian art and craft, revived by the introducing the newly developed design through CAD software from the motifs of ‘Sanjhi’ paper cutting craft and approach to transform the ‘textile designing’ into more creative and innovative way. Laser cutting is a method of using laser beams to cut the materials according to the design. The advantages including extreme accuracy, clean cuts and sealed fabric edges to prevent fraying make this method of designing very popular in the fashion industry. The aim of the present study were attempted to introduce laser cutwork design by adaptation of traditionally restricted folk ‘Sanjhi’ art, to new textile experimentation, using CAD designing. It can also increase the income of the artists by giving them a new media to exhibit their art. This will also help in promoting the traditional art and can be done to preserve this art from extinction.

Objectives

1. To collect the designs of “Sanjhi” art and adapt them for developing designs for handicrafts articles using CAD.
2. To evaluate the developed designs and apply selected designs on handicrafts articles using laser cutwork technique.
3. To assess the acceptability of the prepared products and determine their cost.

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Methodology

Research methodology is a systematic and scientific way followed for the investigation of research problem with reliability and optimum accuracy. The aim of investigation for this study was to adapt the motifs of Sanjhi art for designing and composition of handicraft articles using laser cutting technique.

Collection of “Sanjhi” motifs

Various motifs and designs of “Sanjhi” art were collected from the primary & secondary sources including journals,

internet, available literature and through visit to various retail outlets showcasing these crafts.

Adaptation of Sanjhi art motifs for design development:

The motifs and designs of “Sanjhi” art were created and used for the development of new designs. The designing was done through CAD software’s i.e. Corel draw X6 and Adobe illustrator CS5.1

A total of 10 designs for handicrafts (5 each for hand bags and 5 each for file folders) were created



Design-HB1

Design-HB2

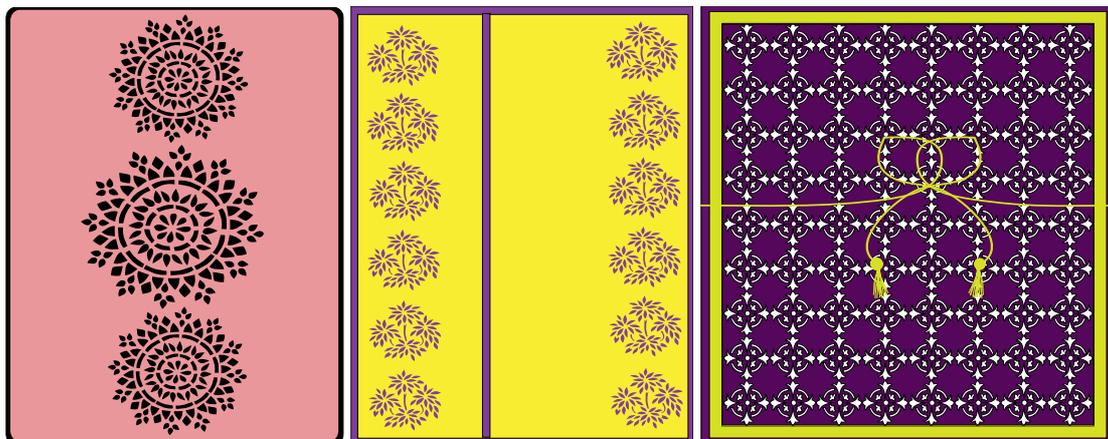
Design-HB3



Design-HB5

Design-HB4

Plate 1: Developed Designs for Han bags



Design FF1

Design FF2

Design FF3



Design FF4

Design FF5

Plate 2: Developed Designs for File folders

Evaluation of the developed designs and product development

The developed designs were evaluated by a panel of 30 judges including 10 staff members, ten students of Ethelind College of Home Science and ten boutique owners/ shopkeepers for the selection of one most preferred design from each category, totalling 4 designs. The evaluation was done on the following parameters- Arrangement of motifs, Appropriateness of designs for particular product, Colour combination, Extent of relation to *Sanjhi* art and Overall appearance. All the selected designs were applied on handicrafts articles using Laser cutting techniques.

A five point ranking Proforma was used for this purpose. The products were scored as 1, 2, 3, 4, and 5 corresponding to poor, fair, good, very good and excellent respectively. The selected designs were applied on the fabric for development of handicraft articles using laser cutting technique.

Cost determination and assessment for acceptability

The cost of each product was calculated on the basis of raw material used, laser cutting charges, stitching and finishing charges. 25% profit margin was added to the actual cost to get the sale price of the products. All the prepared products were

further subjected to visual evaluation by the same panel of the judges to assess the acceptability of the developed products. The parameters used for the evaluation of the prepared products were suitability of the fabric used, colour combination, neatness and clarity of the design, economic feasibility and overall appearance. The acceptability of prepared product was assessed within the group and overall as well.

Results and Discussion

Results are based on experimental work and are presented through subjective analysis and tables. Discussions are made for elaborate interpretation of results. The developed designs were evaluated visually for the selection of most preferred designs for laser cutting and the results are reported in Table 1, Table shows that among the prepared handbag designs, highest score (4.76) was given to design no. HB1 and the second highest score (4.6) for the design no. HB 4. Table 2 reveals that among the developed designs for the file folders, design no. FF5 got the highest score (4.78), and design no. FF1 got second highest score (4.76). The prepared designs are shown in plate 1 to plate 2

Table 1: Average scores of visual evaluation for selection of developed designs for Handbags

D. N.	Arrangement of motifs	Appropriateness of designs for particular product	Colour combination	Extent of relation to <i>Sanjhi</i> art	Overall appearance	Average score
HB1	4.83	4.8	4.86	4.73	4.6	4.76*
HB2	4.2	4.13	4.03	4.06	4.16	4.11
HB3	4.5	4.5	4.5	4.56	4.43	4.49
HB4	4.6	4.73	4.6	4.73	4.5	4.6**
HB5	4.16	4.6	4.63	4.6	4.43	4.48

* = Highest Score, ** = Second Highest Score

Table 1 clearly shows that among the prepared handbag designs, highest score (4.76) was given to design no. HB1 (Plate 1), it scored highest due to its color combination and arrangement of motifs however appropriateness of the design

for particular product and extent of relation to *Sanjhi* were main attributes contributing for the second highest score (4.6) for the design no. HB 4 (Plate 1).

Table 2: Average scores of visual evaluation for selection of developed designs for File Folders

D. N.	Arrangement of motifs	Appropriateness of designs for particular product	Colour combination	Extent of relation to <i>Sanjhi</i> art	Overall appearance	Average score
FF1	4.8	4.83	4.86	4.6	4.73	4.76**
FF2	4.2	4.13	4.03	4.06	4.16	4.11
FF3	4.5	4.5	4.5	4.56	4.43	4.49
FF4	4.16	4.6	4.63	4.6	4.43	4.48
FF5	4.9	4.9	4.8	4.8	4.5	4.78*

* = Highest Score, ** = Second Highest Score

It is evident from the Table 2 that among the developed designs for the file folders, design no. FF5 (Plate 2) got the highest score (4.78) due to the arrangement of motifs and appropriateness of the design for particular product, while design no. FF1 (Plate 2) got second highest score 4.76.

Product Development-For the product development Rexene

fashion fabrics was selected in the same colour of selected designs for the development of the handicraft articles. Laser cutting was done at Hari Om lasers, uttam Nagar, New Delhi. The laser cutting was done on the Rexene fashion fabrics according to the design was set on the coral draw CAD software X6, on laser cutting machine. Laser cut fabrics were Stitched carefully according to the size & Design.



Hand Bag (Hb1)

Hand Bag (Hb2)

File Folder (Ff1)

File Folder (Ff2)

Plate 3: Image of developed Handicraft Articles (Hand bgs and File folders)

Table 3: Cost of Laser Cut Hand bags

Items	Hand bag I (HB 1 mauve colour)			Items	Hand bag II (HB 2 red colour)		
	Consumption	Rate(₹)	Value (₹)		Consumption	Rate (₹)	Value (₹)
Cut length of the (mauve colour) Rexene fabric	1 meters	200/meter	200	Cut length of the (red colour) fashion fabric	1/2 meters	200/meter	100
Cut length of the (black colour) Rexine fabric	1meters	200/meter	200	Cut length of the (black colour) Rexine fabric	1/2meters	200/meter	100
Laser cutting charges	(1/2 hours)	600/hour	300	Laser cutting charges	(1/2 hours)	600/hour	300
Stitching charge	-	-	500	stitching charge	-	-	500
Actual cost (₹)			1200	Actual cost (₹)			1000
Profit (25%) (₹)			300	Profit (25%) (₹)			250
Sale price (₹)			1500	Sale price (₹)			1250

The results were obtained with a small difference in cost of the Hand bags. Laser cutting charge and stitching charge were same for both hand bags, the only difference was obtained in

the consumption of the fashion fabric and lining fabric in hand bag I. The sale price of hand bag I is higher (₹ 1500) than hand bag II (₹ 1250).

Table 4: Cost of Laser Cut file folders

Items	File folder I (FF1 mauve colour)			Items	File folder II (FF2 red colour)		
	Consumption	Rate (₹)	Value (₹)		Consumption	Rate (₹)	Value (₹)
Cut length of (mauve colour) Rexene fashion fabric	1/2 meters	200/meter	100	Cut length of (red colour) Rexene fashion fabric	1/2 meters	200/meter	100
Cut length of (black colour) Rexene lining fabric	1/2 meters	200/meter	100	Cut length of (black colour) Rexene lining fabric	1/2meters	200/meter	100
Laser cutting charges	(1/3 hours)	600/hour	450	Laser cutting charges	(1/2 hours)	600/hour	300
stitching charge	-	-	400	stitching charge	-	-	400
Actual cost (₹)			1050	Actual cost (₹)			900
Profit (25%) (₹)			265.5	Profit (25%) (₹)			225
Sale price (₹)			1312.5	Sale price (₹)			1125

It was observed from the table that the cost of laser cut File folder I (₹1312.5) was quite higher than File folder II (₹1125). Fabric charges and stitching charges were same for both hand bags; the only difference was obtained in the laser cutting charges. The laser cut design of file folder 1 was finer than file folder II, thus it consume more time in laser cutting.

Acceptability of developed Handicraft products

Among the handicraft products, prepared Hand bags HB1 was

rated highest and ranked I with the acceptability score of 4.66, while HB 2 scored 4.56 marks and was ranked second. This was due to its colour combination, and overall appearance. In case of File folders, the results of acceptability scores were similar to the results of visual evaluation. While comparing, the overall ranking of all handicraft products were also evaluated for the overall ranking and results in reported the Table 5. HB1 was the ranked I and HB2 ranked II. FF3 ranked III and FF2 ranked IV.

Table 5: Acceptability of developed Handicraft products

	Articles	Suitability of Fabric used	Color combination	Neatness and clarity of design	Economic feasibility	Overall appearance	Acceptability	Rank within groups	Overall rank
Hand bags	HB1	4.4	4.9	4.8	4.8	4.9	.76	I	I
	HB2	4.4	4.7	4.7	4.4	4.6	4.56	II	II
File folder	FF1	4.6	4.5	4.7	4.2	4.7	4.54	I	IV
	FF5	4.4	4.7	4.7	4.4	4.6	4.56	II	III

Summary and Conclusion

Textile designing is the most demanding and emerging field as it is full of scope and creativity but many individuals become quite lost when confronted with the task of finding “inspiration”. The rich craft heritage of India is unique and diverse as its customs and traditions. These crafts not only cater to the day-to-day needs of the people but are also used for decorative and religious purposes. From the study it is concluded that the *Sanjhi* artisans mostly depict traditional motifs of Hindu mythology along with human figures, natural floral, animal and bird’s motifs using paper cutting technique by hand and scissor. The introduction of this art on textiles helps to preserve these designs and open new avenues for the designers working in the field of textile designing. This study is an effort to integrate the traditional art and craft with laser cutting technology to enrich the field of textile. The designs prepared by CAD were successfully applied on handicraft articles using laser cutting and all the prepared articles were highly appreciated and well accepted with regards to visual evaluation and cost effectiveness.

Recommendations

The rich and diverse cultural folk arts of India must be utilized to create the plethora of innovative designs in order to create ethnicity and uniqueness in the handicraft articles. This will not only add the variety in the products but also helped in preserving the rich tradition of our country. Further the fast laser cutting technique is a green technology that produces exclusive designs without the use of dyes and harmful chemicals which in turn protect our environment.

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