



Sustaining the Traditional 'Kasuti Embroidery' by Digital Embroidery Software

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Authors' contributions

This work was carried out in collaboration among all authors. All authors read and approved the final manuscript.

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ABSTRACT

Indian embroideries are popular all over the world and are highly liked [1]. Kasuti embroidery has its own regional identity and has crossed borders to be marketed in different parts of the world. Traditional Kasuti embroidery with ethnic designs and motifs with brilliant colours bear an individual hallmark of Indian textile design [2]. The success factor of Indian regional embroidery 'Kasuti' included: Customer specific designs and products, incorporating global styles" [3]. In the present study, traditional 'Kasuti' embroidery motifs were explored and collected for the creative & innovative designing. Top-ranked motifs were selected for innovative design development and designs were developed with the help of Corel DRAW X3 software. After then digitize the selected designs using Wilcom E2 embroidery software. Respondents evaluated the products on the basis of different parameters like techniques, aesthetic appeal, design placement, uniqueness of design and overall appearance. The study found that all the developed products by using digital embroidery softwares are highly preferred by consumers, they are ready to purchase the developed article. Its looks like traditional hand embroidery.

Keywords: *Kasuti*; digital embroidery; CorelDrawX3 software; WilCOM E2; articles development; price; marketability.

1. INTRODUCTION

India is a secular country with different cultures and traditions. It has a rich heritage of traditional textile. The Indian folk art and embroidery plays an important role in creating new designs in the fashion world. The embroidery, traditionally done, continues as one of the most favoured ornamentation for decoration of apparel as well as home furnishing [4]. To keep up pace with changing winds of times, the traditional folk art is now transformed for contemporary end uses. Computer aided textile designing has now given viable solution to the designing problems. Using this technology, it's easier for a designer to make changes or modify a pattern as the work progresses [5]. Digital embroidery plays an important role in the current fashion world. It is used for inventive work on individual pieces and for mass production of clothing products [6]. Embroidery digitization is the act of turning an image or design into an embroidery pattern for a person or machine to follow. This process allows each part of the graphic to be converted into a stitch type. Most programs will allow the final product to be previewed digitally before being applied to the fabric [7]. Therefore, digital embroidery remains one of the most preferred embellishments for apparel decoration as well as home furnishing [8]. Traditional embroidery done by hand is very time consuming and has high cost of production but in digital machine embroidery, this work is done on computer using specialized embroidery software, which results in more production in lesser time and provides low cost variegated products [9]. Hence, the present study has been planned with the objectives of documentation of traditional '*Kasuti* embroidery' motifs and & transform the selected designs on

Corel DRAW X3 software & Wilcome E2 embroidery softwares. To assess the marketability & similarity in traditional '*Kasuti*' embroidered products.

2. MATERIALS AND METHODS

For the documentation, secondary sources (museum, craft fair, magazines, book, thesis) were explored and Thirty experts were selected as experts in this field for taking the preference for selection of design to convert into digital form. Fifty consumers were selected for assessment and marketability of developed products. The data were coded, tabulated and analyzed using frequency and mean scores to draw the meaningful inferences.

3. RESULTS AND DISCUSSION

The results of the present study, derived by following the prescribed methodology and using standard tools mentioned there in, have been compiled:

3.1 Documentation of Traditional '*Kasuti*' Embroideries Motifs

Traditional designs of '*Kasuti*' embroidery were collected from secondary sources and the data in Table 1 highlights that experts' preferences for traditional '*Kasuti*' embroidery motifs included motif number 21, scoring highest mean score (18.43) and ranked I, followed by motif number 3 (18.26) ranked II, 1 (17.70) ranked III, 25(17.23) ranked IV, 26(17.06) ranked V, 17 (16.93) ranked VI, 10 (16.36) ranked VII, 12 (16.30) ranked VIII, 7 (16.13) ranked IX and 8 (16.00) with rank X.

Table 1. Preferences of experts for selection of *Kasuti* embroidery motifs for design development n=30

Motif No.	Mean score	Ranks	Motif No.	Mean score	Ranks	Motif No.	Mean score	Ranks
1	17.70	III	11	13.56	XXVIII	21	18.43	I
2	15.00	XXII	12	16.30	VIII	22	15.80	XII
3	18.26	II	13	15.43	XVI	23	15.63	XIV
4	15.76	XIII	14	13.70	XXVII	24	14.73	XXIV
5	14.86	XXIII	15	12.40	XXIX	25	17.23	IV
6	15.03	XXI	16	14.66	XXV	26	17.06	V
7	16.13	IX	17	16.93	VI	27	15.60	XV
8	16.00	X	18	15.16	XVII	28	15.13	XIX
9	15.06	XX	19	15.93	XI	29	13.96	XXVI
10	16.36	VII	20	11.93	XXX	30	15.16	XVIII

The other motifs in descending order as per preferences of experts were motif number 19 (15.93), 22 (15.80), 4 (15.76), 23 (15.63), 27 (15.60), 13 (15.43), 30 (15.16), 18 (15.16), 28 (15.13), 9 (15.06), 6 (15.03), 2 (15.00), 5 (14.86), 24 (14.73), 16 (14.66), 29 (13.96), 14 (13.70), 11 (13.56) and 15 (12.40). The least preferred motif was motif number 20 with mean score 11.93 and rank XXX.

Conclusively, the top ten preferred *Kasuti* embroidery motifs were motifs numbered 1, 3, 7, 8, 10, 12, 17, 21, 25 and 26 and were selected for design development.

3.2 Creation and Selection of Created Designs

The data in Table 2 reveals that design number 4 was most preferred by experts scoring highest (18.77) and ranked I, followed by design number 26 (17.77) ranked II and design number 11 (17.57) which ranked III.

The other preferred stylized designs of *Kasuti* embroidery in descending order were design number 6 (17.27), 1 (16.47), 2 (16.37), 3 (16.37), 12 (16.20), 14 (16.17), 9 (16.17), 28 (16.13), 22

(16.10), 20 (15.87), 19 (15.73), 16 (15.70), 15 (15.60), 18 (15.57), 17 (15.43), 21 (15.43), 24 (15.37), 25 (14.93), 23 (14.63), 27 (14.63), 29 (14.57), 13 (14.13), 7 (13.90), 5 (13.73), 8 (13.43) and 10 (13.33). Design number 30 was the least preferred stylized design which ranked XXX with mean score 11.67.

The data inferred that design number 4, 11 and 26 were top three ranked stylized designs of *Kasuti* embroidery which were selected for preparation of design placements for selected textile articles (Plate 1).

3.3 Simulation and Selection of Colour Ways for Digital Embroidery

All the developed colour ways were evaluated by a panel of thirty experts and the data related to their preferences for developed colour ways of each selected articles.

Table 3 Preferential choices for colour ways of *Kasuti* embroidery for digital embroidery on selected products: The data in Table 3 accentuates the preferences of experts for developed colour ways of *Kasuti* embroidery for selected products.

Table 2. Preferential choices for stylized ‘Kasuti’ embroidery designs for product development n=30

Design No.	Mean score	Ranks	Design No.	Mean score	Ranks	Design No.	Mean score	Ranks
1	16.47	V	11	17.57	III	21	15.43	XIX
2	16.37	VI	12	16.20	VIII	22	16.10	XII
3	16.37	VII	13	14.13	XXV	23	14.63	XXII
4	18.77	I	14	16.17	IX	24	15.37	XX
5	13.73	XXVII	15	15.60	XVI	25	14.93	XXI
6	17.27	IV	16	15.70	XV	26	17.77	II
7	13.90	XXVI	17	15.43	XVIII	27	14.63	XXIII
8	13.43	XXVIII	18	15.57	XVII	28	16.13	XI
9	16.17	X	19	15.73	XIV	29	14.57	XXIV
10	13.33	XXIX	20	15.87	XIII	30	11.67	XXX

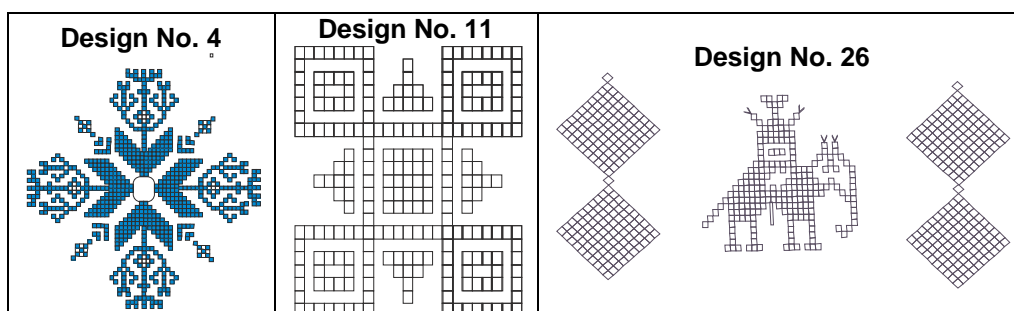





























Plate 1. Selected stylized ‘Kasuti’ embroidery designs for design placement

Table 3. Preferential choices for colour ways of ‘Kasuti’ embroidery for selected products n=30

Products	Selected design placement	Colour ways for digital embroidery (Mean Scores)		
		Colour way-I	Colour way –II	Colour way –III
Double bed sheet with pillow covers	I			
				
				
		2.06	2.33	1.60
		Rectangular tetrad colour scheme	Triad colour scheme	Split complementary colour scheme
Roman blind	II			
				
				
		2.03	1.83	2.10
		Suquare tetrad colour scheme	Triad colour scheme	Split Complementary colour scheme
Cushion cover (set of five)	III			
				
				
		2.36	2.03	1.60
		Complementary colour scheme	Triad colour scheme	Rectangular tetrad colour scheme

The data regarding the preferences for prepared colour ways of *Kasuti* embroidery reveals that colour way II was the most preferred colour way for double bed sheet with pillow covers which scored highest mean score (2.33) followed by colour way I (2.06) and colour way III (1.60) .

The data delineates that for roman blind, colour way III was the most preferred colour way scoring highest mean score (2.10) followed by colour way I (2.03) and colour way II (1.83).

The data also represents that for cushion covers, colour way I was preferred, scoring highest mean score (2.36) followed by colour way II (2.03) while colour way III was least preferred scoring lowest mean score value 1.60.

It is thus envisaged that in *Kasuti* embroidery, colour way II prepared using split complementary colour scheme was selected for double bed sheet with pillow covers, colour way III (analogous colour scheme) for roman blind and

colour way I prepared using complimentary colour scheme was selected for cushion covers.

3.4 Digitization of Embroidery Designs

The selected designs with preferred colour ways were transformed into digital embroidery form assigning design size, length of stitch and their density as per the type of traditional embroidery stitch using Wilcom E2 embroidery software. Perusals of the data unveils that the stitches used in traditional *Kasuti* embroidery are *gavanti*, *murgi*, *negi*, *menthi* (cross stitch) whereas in digital form the stitches used were cross stitches with stitch length 3-4 mm having stitch density 8-12 stitches/cm and *Gavanti* stitch length 1-2mm with stitch density 15-20sttiches/cm.

3.5 Development of Products and Calculation of Cost

Products were developed with selected stitches, colour ways, design placements and on selected fabric. Developed products are presented in Plate 2.

3.6 Cost Calculation of Developed Products

The cost was calculated on the basis of raw materials used, embroidery threads, design punching & embroidery and finishing. The cost of '*Kasuti* embroidery' digital designs applied on double bed sheet with pillow covers was Rs. 4500, on roman blind was Rs. 3500 and on cushion cover (set of five) was Rs. 3000.

3.7 Assessment of Market Potential of Developed Products

The developed products were exhibited in the Department of Textile and Apparel Designing, CCSHAU, HISAR and got assessed by fifty consumers. Opinion of consumers pertaining to the suitability of selected traditional embroidery motifs, created stylized designs, placement of designs, color combination, workmanship and marketability, traditional look, preferred technique was sought using three point continuum scale.

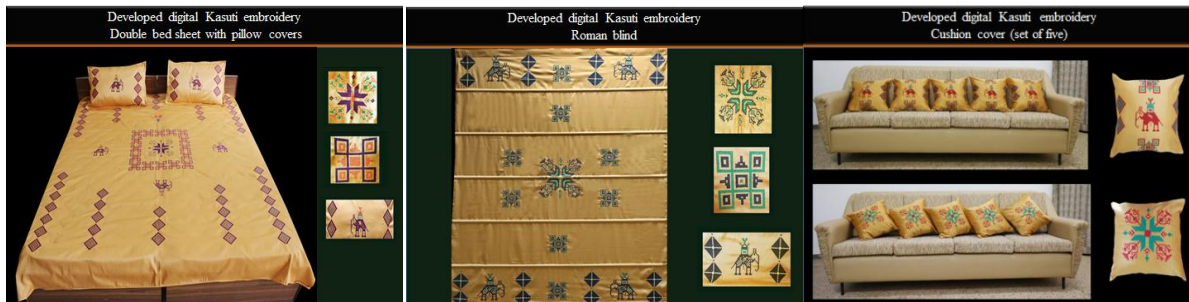


Plate 2. Developed products with digital embroidery software

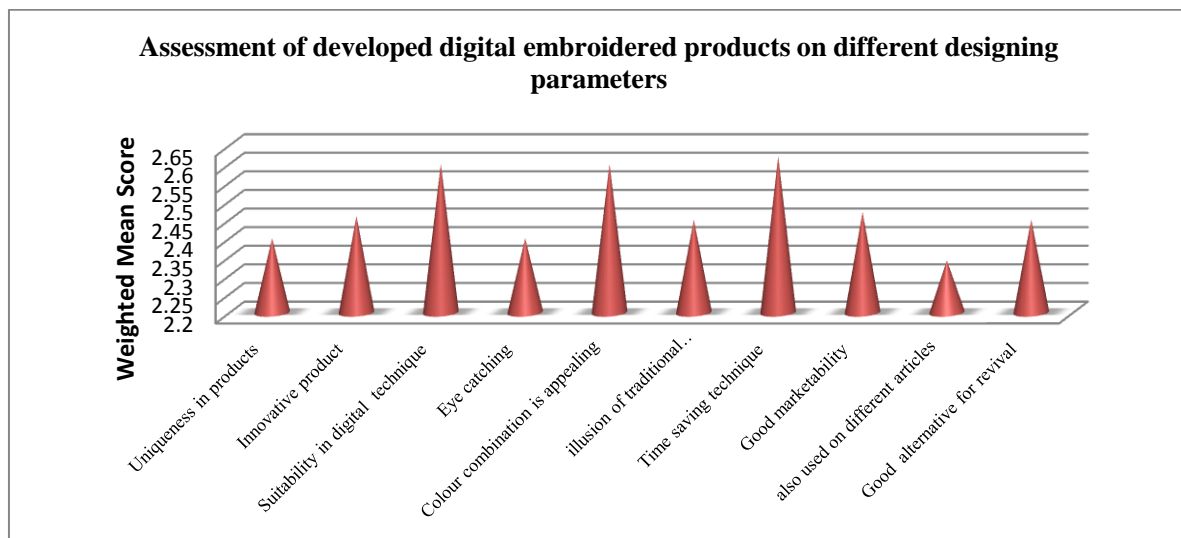


Fig. 1. Assessment of developed digital embroidered products

The study found that all the respondents rated the developed products with digital embroidery technique are excellent and also observed that, many respondents were ready to pay more than the suggested price.

Preparation of Design Catalogue: The design catalogues was prepared in printed and e-form on 'Innovative designs 'Kasuti embroidery'. The catalogue comprised of 200 collected motifs, 30 selected embroidery motifs, 30 created designs and 15 colour ways to develop a repository of designs.

4. CONCLUSION

Traditional Kasuti embroidery has its own unique significance and purity [10]. In the fashion term, today's consumers have demanded traditional made-ups. The cost of traditional hand embroidery is very high as the process of making this embroidery takes a lot of time [11,12]. Therefore, by using digital software, we have tried to sustain & preserve the cultural embroidery heritage along with meet the demand of the consumers. Hence digital embroidery products will be available to all consumers of different income groups.

COMPETING INTERESTS

Authors have declared that no competing interests exist.

REFERENCES

1. Sapra K. Adaptation of traditional motifs of Gujrat to digital embroidery. Master's thesis, Department of Textile and Apparel Designing, I. C. College of Home Science, CCS Haryana Agricultural University, Hisar – 125004, Haryana, India; 2015.
2. Bennur S, Gavai L. Regional traditional Indian embroidery Kasuti: Key success factors to reach the international markets. Journal of Textile Sciences & Engineering. 2015;5(3):1-3.
3. Tiwari A, Anjali. Traditional embroideries of India - An overview; 2019. Available: <https://textilelearner.blogspot.com/2019/03/traditional-embroideries-india.html>
4. Chauhan A. A brief study of soft furnishings- inspiring luxury in the interior spaces. Asian Journal of Applied Science and Technology. 2017;1(9):303-304.
5. Yadav N, Sangwan N, Teneja L. Apparel designing using computer technology. Man made Textile in India. 2006;44(4):149-150.
6. Anonymous, Types of embroidery machines and their functions; 2018. Available: <https://clothingindustry.blogspot.com/2018/01/types-embroidery-machines.html>
7. Hudson C; 2022. Available: <https://www.wise-geek.com/what-is-embroidery-digitizing.htm>
8. Poelo A. Machine embroidery and embroidery digitations; 2009. Available: <http://article24909-machine-embroidery-andembroidery-digitization.html.asp>.
9. Rastogi S. History of Indian Embroidery; 2013. Available: <https://www.scribd.com/document/132595483/History-of-Indian-Embroidery>
10. Upadhaya H. Traditional embroideries of India; 2017. Available: <https://www.slideshare.net/hemaupadhayay/traditional-embroideries-of-india-76836145>
11. Dewan D, Hooda A. Cost effectiveness of computerized embroidery. International Journal of Advance Research and Innovative Ideas in Education. 2015; 1(4):65-68.
12. Kaur K. Knitwear product development using Kasuti embroidery motifs. Master's thesis, Department of Apparel and Textile Science, College of Home science, Punjab Agricultural University, Ludhiana-141004; 2013.

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