

Original Research Article

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Designing of Diwan cover sets inspired from Chikankari Embroidery using Computer Aided Designing

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ABSTRACT

Under the research work fine embroidered designs of Chikankari were adapted using CAD on diwan cover sets to widen the existing product range with the novel look. Out of total 50 motifs, the top scored 5 motifs were selected and arranged in different ways using rotation, flipping, to form different repeats brick, block dihedral, half drop e.t.c. The developed repeats were assessed on the parameters like size of the motif, placement of the motif and overall appearance. The top scored repeats were then arranged in different styles using single and combinations of motifs (double motifs and triple motifs) for the designing of diwan cover sets. Total 12 arrangement layouts which included 4 each single, double and triple motif arrangement were prepared using COREL DRAW X3. These layout sheets were evaluated by the panel of experts using 5 point rating scale on different parameters i.e. clarity of designs, novelty of designs, design proportion and overall appearance. Diwan cover arrangement no. DWT1, DWS2 and DWD1 secured highest weighted mean scores of 4.52, 4.36 and 4.35 respectively. The judges appreciated the developed motifs, repeats for designing and also had an opinion that the developed designs in the study will help in breaking the monotony of the existing designs and would enhance the range of designing and production of home furnishing articles to embrace the global market.

Keywords

Chikankari embroidery, Motifs, Repeats, Arrangements, Diwan cover sets, CAD

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Introduction

Design is the creative venture of one's own imagination. Inspirations can be derived from any point of source like nature, life, existing art and craft. The scope of designing is as vast as once imaginations. Today in the word of novelty or fashion a lot of experimentation is

being done to adapt different art form and embroideries like Phulkari, Warli, Kasuti, Aipan, Kalamkari and Madhubani e.t.c. to design wide range of textile products. Apart from apparels, motives and patterns of these art form especially Warli has been successfully adapted on home furnishings. The embroidered art in its original form has

more charm, beauty and appeal. The subtle colour, fine and delicate stitches of Chikankari always draw the consumer's attention. Today Chikankari embroidered apparels and dress materials are in trend and treated as fashion products. Chikankari embroidered products are also coming up with new experiments and interventions. The embroidered art of Uttar Pradesh has also widened its horizon by its contemporary application on other household articles. But due to intensive labour involve the cost of these products is quite high especially when it comes to the development of home furnishing articles. Also delicate thread work is perishable in nature and subject to damage with regular wear so require special care, which limit its full use for designing of home furnishing articles used in daily life. The conventional method of designing is time consuming and requires considerable skills to produce a design, hence, various Computer Aided Designing (CAD) software are used nowadays to perform the specialized design functions with quick pace and reproducibility¹. It provides a lot of scope for experimentation in textiles with respect to colour, design and style. The present study was planned with the following objectives:

1. Exploration and adaptation of traditional Chikankari embroidery motifs and designs.
2. Development of design repeats and arrangements for diwan cover set using CAD.

Consumer demand for textiles is constantly changing they want unique, classic and innovative products with respect to designs. CAD in this direction can play a vital role in facilitating the creation of new designs, with endless possibilities. In recent years traditional art and craft become areas of interest for researchers and designers for

creation of novel textile products with assistance of CAD. Motifs inspired from traditional floor art (Aipan) were collected and simulated through Corel for designing and development of female kurties². Indian folk Paintings i.e. Warli, Madhubani were also explored and digitized using CAD for their application on apparels^{3,4}. Similarly traditional Gond painting were also adapted using computer aided designing for designing screen printed apparels so that they can be used for screen printing⁵. Traditional Mandala art from Budha monestries was also explored and adapted for development of centre, all over, border and corner designs suitable for screen printing. Forty five motifs were adapted from the nine mandala motifs and were modified by using CAD⁶. Woven designs for Handloom shawl were developed using CAD. CAD designing aid in gaining accuracy for weaving. These woven designs along with their draft and lift plans were further evaluated by the panel of judges and on the basis of the scores obtained 5 highly preferred designs were selected for fabric construction. These selected designs were finally woven on handloom shawls⁷. The field of home textiles also has been emphasized by the researchers in the recent years by exploring varied types of fabrics, motifs patterns and techniques with CAD. Warli motifs with computer aided designing were used for development of Home furnishing articles. i.e. Dining table cover, Sofa cover set and Diwan cover set⁸. Theme based home furnishing designs were created for drawing cum lounge area by using different designing software's. i.e. Corel DRAW, Adobe Photoshop and Adobe Illustrator. Themes include Black and white (accented neutral colour scheme), contemporary with polka dots, Floral, Natural botanical, Ocean, Silhouette, Sunrise, Traditional, Tribal and Zodiac⁹. Theme based curtains (20) inspired from nature were designed using CAD for girl child's room¹⁰.

Materials and Methods

Total 50 motifs, inspired from the traditional Chikankari embroidery were collected from different primary and secondary sources. These motifs were further adapted using COREL DRAW X3. The adapted motifs were evaluated by a panel of 30 judges consisting of the faculty members, M.sc and PhD students of the Department of Clothing & Textiles and Department of Family Resource Management G.B.P.U.A&T, Pantnagar, panel of judges evaluated designs at various stages as per requirement. The five point rating scale was used for the evaluation of adapted motifs. The selected motifs were arranged to form different repeats. The top scored repeats were then arranged in different styles using single and combinations of motifs (double motifs and triple motifs) for the home furnishing articles i.e. diwan cover sets. Total 12 arrangements layouts which included 4 single, 4 double and 4 triple motif arrangements for diwan covers were prepared using COREL DRAW X3. These layout sheets were evaluated by the panel of judges using 5 point rating scale on the basis of clarity of designs, novelty of designs, design proportion and overall appearance.

Results and Discussion

The result of design process followed to design Diwan cover sets is discussed below:

Collection of motifs

For the present study, a total of 50 motifs from embroidered designs of Chikankari mainly consisted of stylized floral motifs, stylized animal motifs were collected from various sources like embroidered garments, wooden hand blocks and also from the secondary sources such as books, literature and internet.

Adaptation of motifs

In adaptation, the whole design or a part of the design from the source was modified in a way to develop a motif suitable for screen printing. The adaptations of designs were carried out using the designing software Corel DRAW X3. First Chikankari embroidery designs were simplified and modified to make them suitable to use for screen printing of textile articles. The effect of some stitches i.e. running stitch (*bakhia*), herringbone (*ulti bakhia*), *taipchi*, *murri* (French knot) & *ghass patti* which were commonly seen in Chikankari embroidered articles, were also tried to be adapted through Corel DRAW. Pen tool along with bezier and shape tools were widely used for the creation and modification of motifs.

Evaluation of adapted motifs

The adapted motifs were visually evaluated for their aesthetic appeal, overall appearance and suitability for application on home furnishing articles through screen printing. The adapted motifs were evaluated by the panel of judges, after evaluation, the weighted mean scores were calculated from the responses received from the panel of members for each motif.

Out of total 50 motifs, the top scored 5 motifs (10% of the total adapted motifs) which obtained highest weighted mean scores were selected at this level. It is clearly observed from Table 1, that the W.M.S of the top 5 motifs were ranged between 3.63- 4.60. Motif code 23 was highly liked by the respondents with a total score of 276 followed by motif code 3, 5,39 & 43 with a total score of 264, 260, 238 & 218 respectively.

Development of repeats

The selected motifs were further used to

develop different repeats. A total 60 possible repeats were made from the selected motifs. The motifs were arranged in different ways using rotation, flipping, to form different repeats brick, block dihedral, half drop e.t.c. These repeats were further evaluated to select

top 15 repeats. The developed repeats were assessed on the parameters like size of the motif, placement of the motif and overall appearance. The score for the individual assessed parameter and W.M.S are shown in table 3.

Table.1 Selected motifs for diwan cover sets

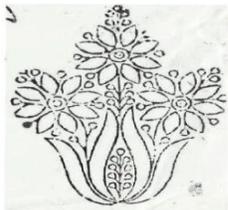
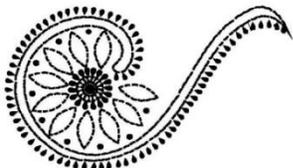
Motif code	Original motif	Adapted motif
3		 Closed herringbone stitch (<i>titishakhiya</i>)
5		 French knot (<i>murri</i>), back stitch (<i>Seedhi bakhiya</i>)
23		 French knot (<i>murri</i>), back stitch (<i>Seedhi bakhiya</i>)
29		 French knot (<i>murri</i>), back stitch (<i>Seedhi bakhiya</i>)
43		 French knot (<i>murri</i>).

Table.2 Expert preferences regarding suitability of selected Chikankari motifs on furnishing articles

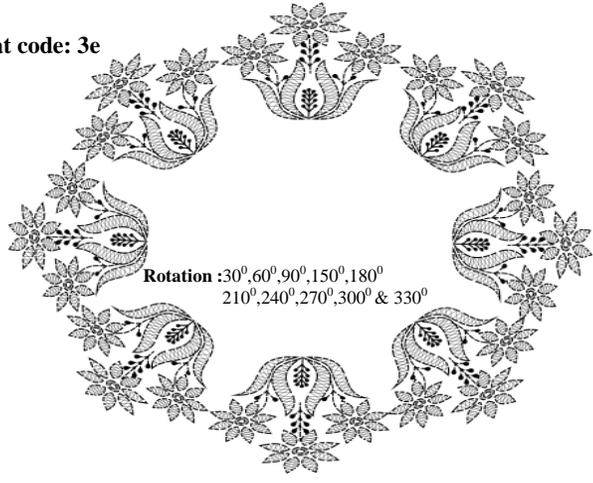
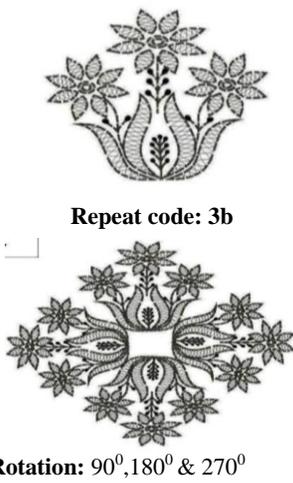
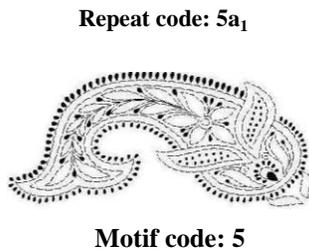
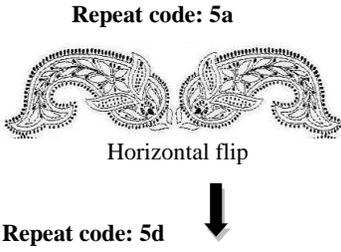
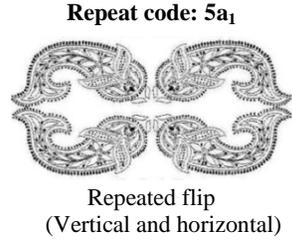
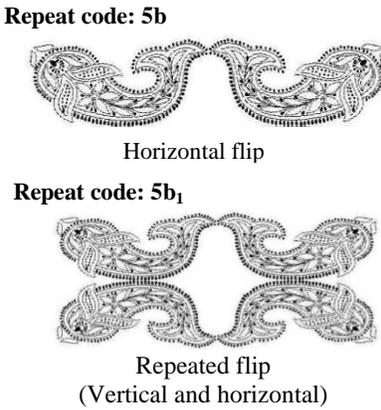
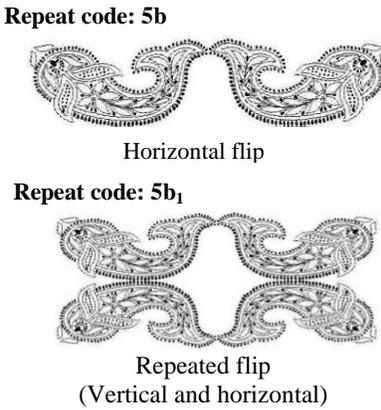
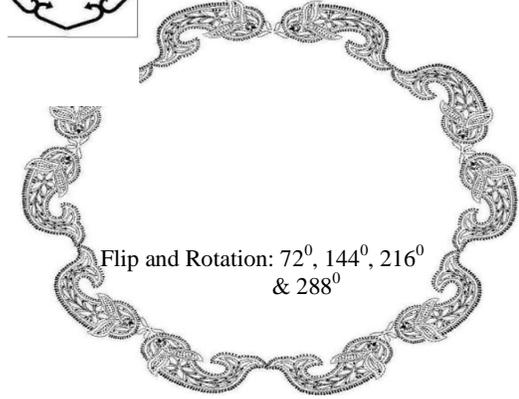
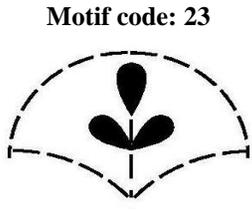
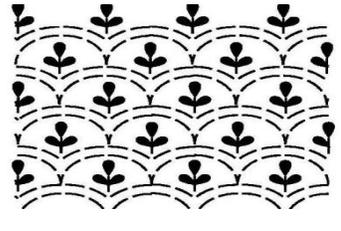
Motif code	Score			Total score	W.M.S	Rank
	Suitability of motif for screen printing	Aesthetic appeal	Overall appearance			
3	117	129	135	264	4.4	II
5	115	128	132	260	4.33	III
43	116	111	107	218	3.63	V
23	119	132	144	276	4.60	I
39	129	116	122	238	3.97	IV

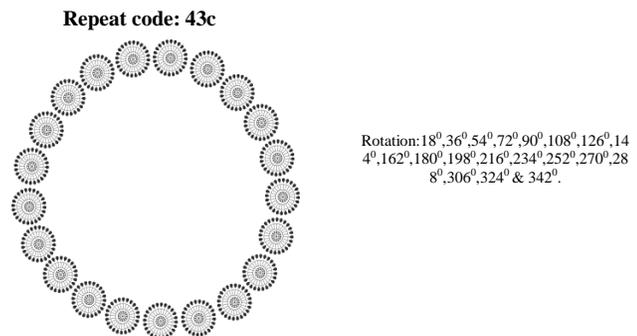
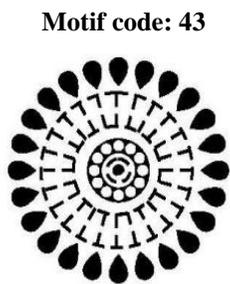
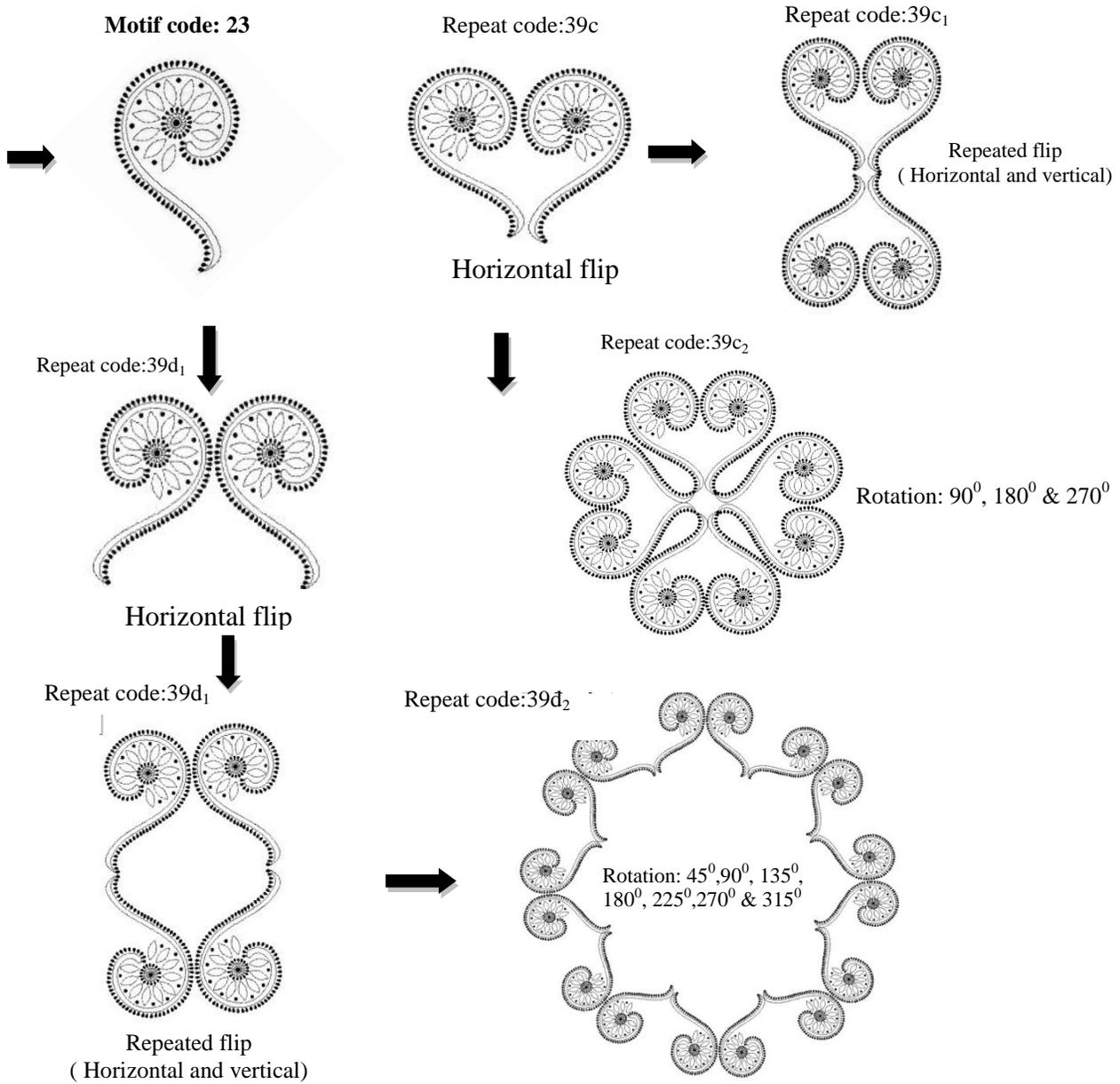
Table.3 Experts preference for the developed repeats

N=30

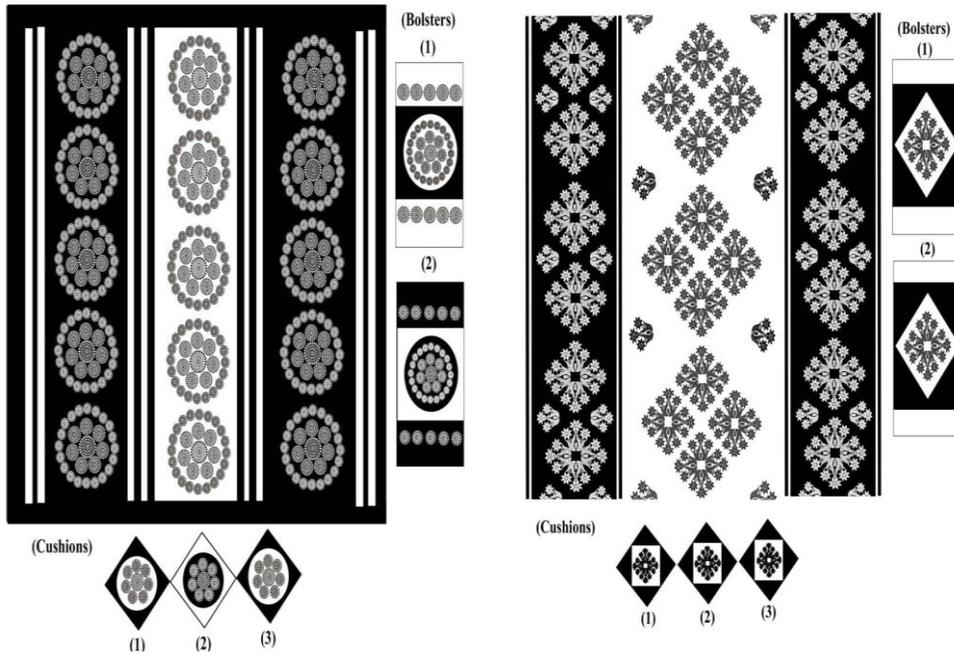
Design code	Size of the repeat	Placement of the repeat	Overall appearance	Total score	W.M.S	Rank
3b	120	125	121	366	4.06	II
3e	103	106	105	314	3.48	XIII
5a	112	114	117	343	3.82	V
5a ₁	116	120	115	351	3.9	III
5b	115	108	108	331	3.68	X
5b ₁	115	118	113	346	3.84	IV
5d	104	101	102	307	3.41	XIV
23e	109	104	102	315	3.5	XII
39c ₁	115	110	112	337	3.74	VII
39c ₂	112	108	109	329	3.65	XI
39d ₁	115	109	109	333	3.7	IX
39d ₂	110	112	114	336	3.73	VIII
39d ₃	118	126	123	367	4.07	I
43c	101	97	98	296	3.28	XV

Table.4 Selected repeats for the design development

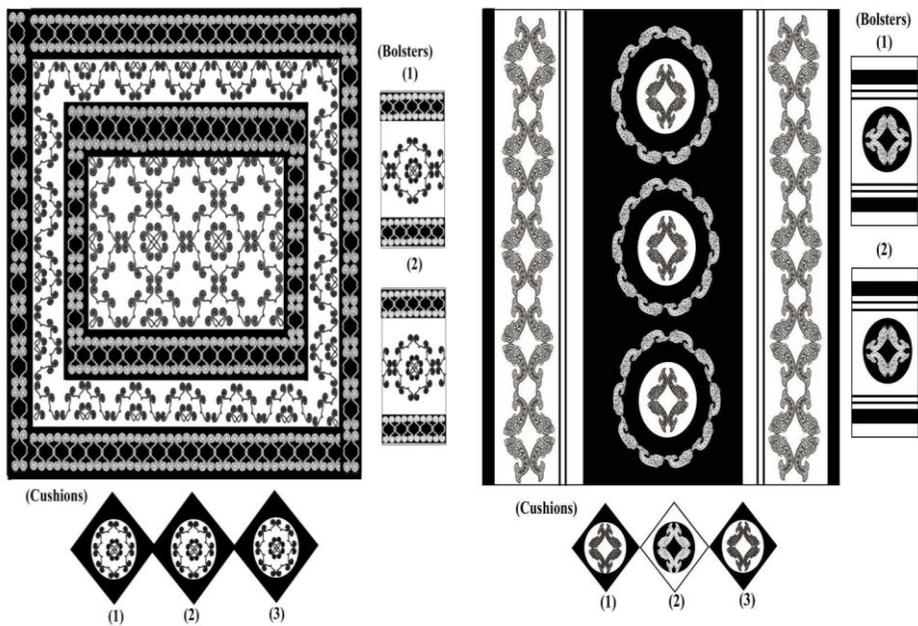
<p>Motif code: 3</p>	<p>Repeat code: 3e</p>  <p>Rotation : $30^{\circ}, 60^{\circ}, 90^{\circ}, 150^{\circ}, 180^{\circ}, 210^{\circ}, 240^{\circ}, 270^{\circ}, 300^{\circ}$ & 330°</p>	
<p>Repeat code: 3b</p>  <p>Rotation: $90^{\circ}, 180^{\circ}$ & 270°</p>		
<p>Repeat code: 5a₁</p>  <p>Motif code: 5</p>	<p>Repeat code: 5a</p>  <p>Horizontal flip</p>	<p>Repeat code: 5a₁</p>  <p>Repeated flip (Vertical and horizontal)</p>
<p>Repeat code: 5b</p>  <p>Horizontal flip</p> <p>Repeat code: 5b₁</p>  <p>Repeated flip (Vertical and horizontal)</p>	<p>Repeat code: 5d</p>  <p>Flip and Rotation: $72^{\circ}, 144^{\circ}, 216^{\circ}$ & 288°</p>	
<p>Motif code: 23</p> 	<p>Repeat code: 23e</p>  <p>Brick repeat</p>	



Design arrangements for Single Diwan cover set

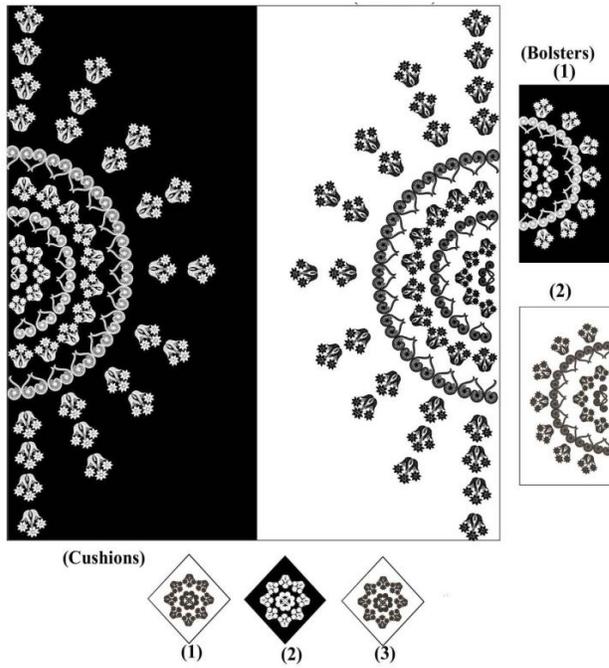


DWS1
Design arrangements for Double motif Diwan cover set

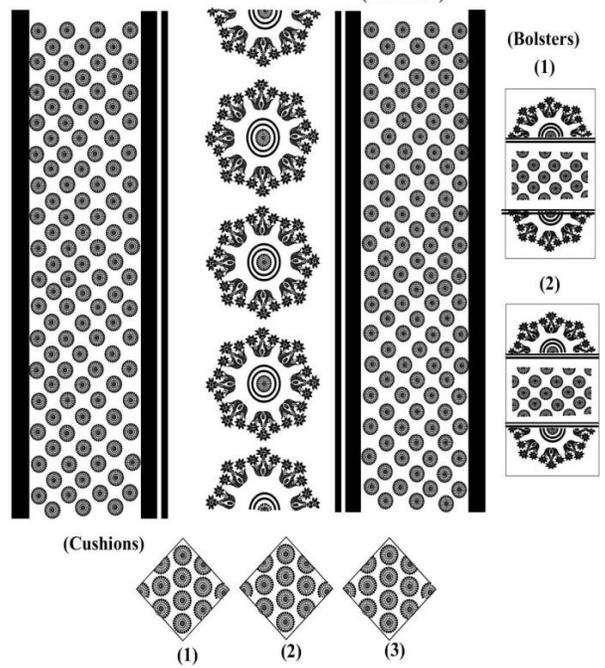


DWS3

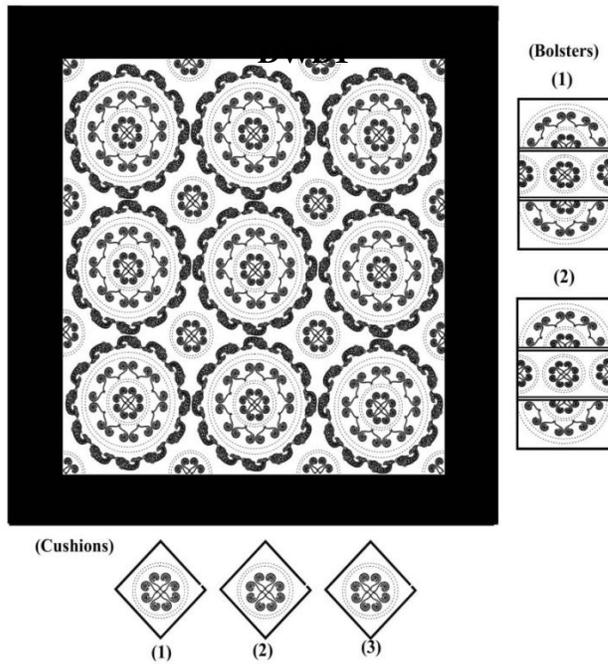
DWS4



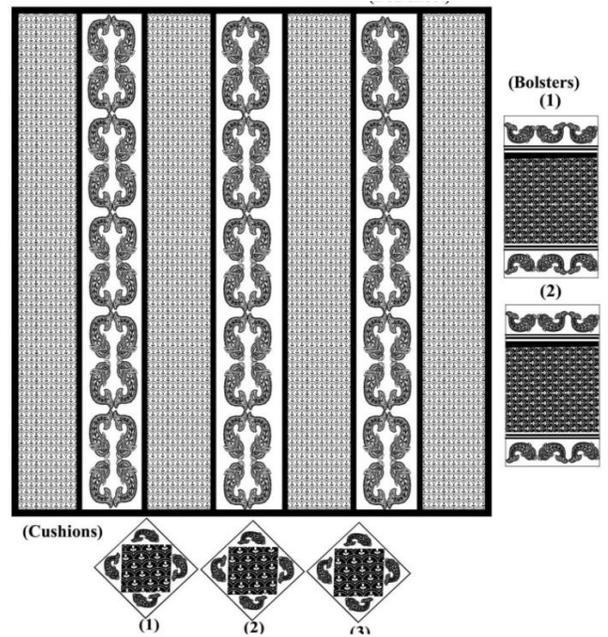
DWD1



DWD2

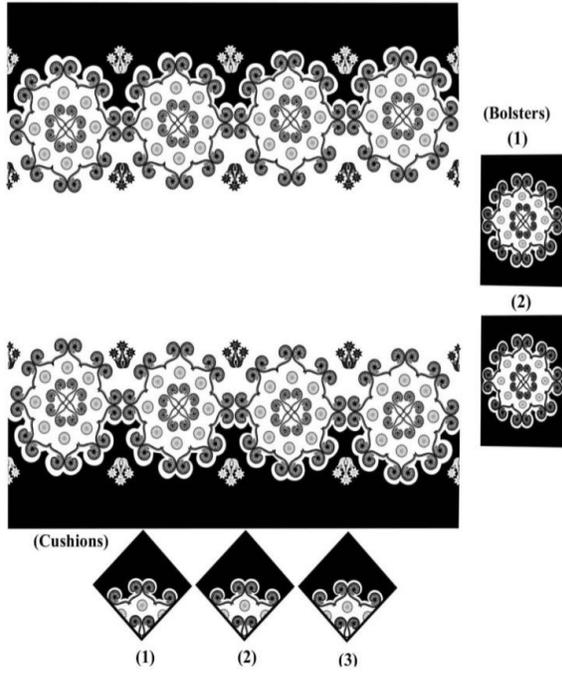


DWD3

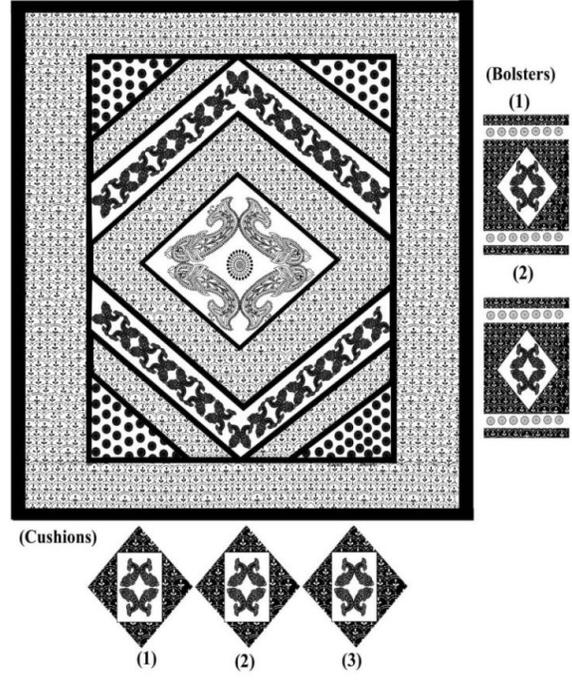


DWD4

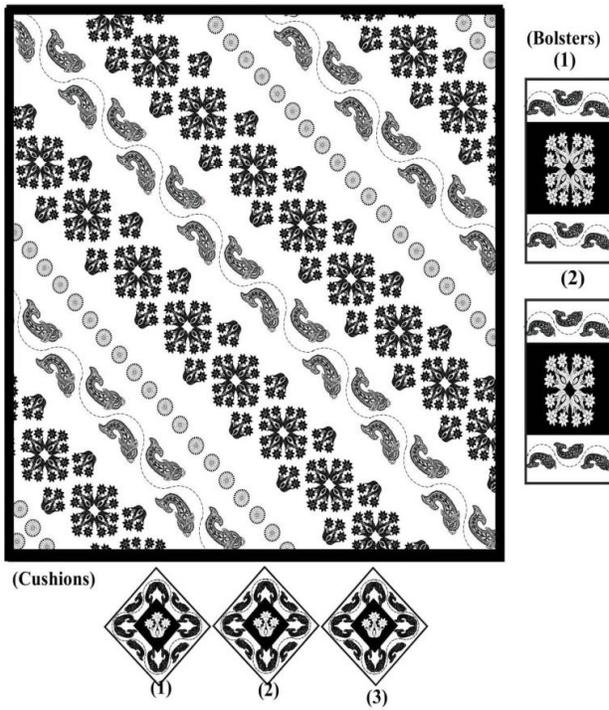
Design arrangements for Triple Diwan cover set



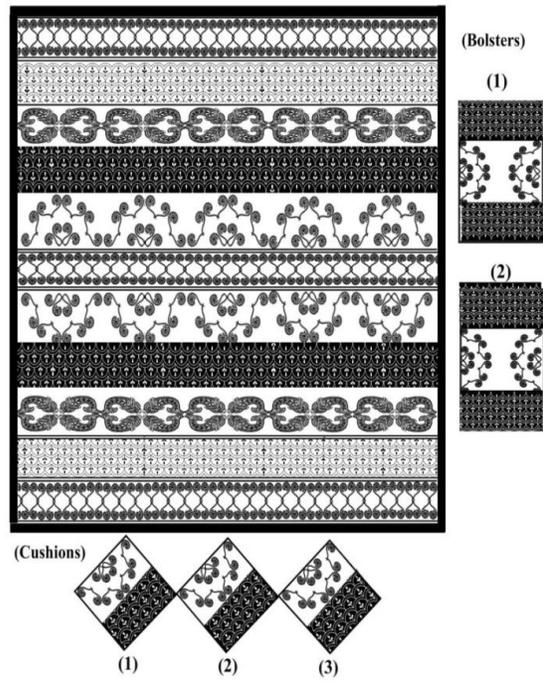
DWT1



DWT2



DWT3



DWT4

Table.5 Evaluation of design layouts for Diwan cover sets

N=30

Diwan cover sets	Clarity of design	Novelty of design	Design proportion	Overall appearance	W.M.S
DWS1	130	120	120	122	4.10
DWS2	132	129	127	135	4.36
DWS3	112	114	117	117	3.83
DWS4	128	122	124	124	4.15
DWD1	129	132	130	131	4.35
DWD2	127	120	121	120	4.06
DWD3	131	128	122	125	4.23
DWD4	141	126	125	128	4.33
DWT1	139	135	131	138	4.52
DWT2	129	121	122	125	4.14
DWT3	119	112	115	115	3.94
DWT4	128	116	120	118	4.01

Note: DWS: Diwan cover set with single motifs, DWD: Diwan cover set with double motifs, DWT: Diwan cover sets with triple motifs

Acceptability of the developed Diwan cover layouts were assessed by experts in the form of mean scores calculated on different parameters i.e. clarity of designs, novelty of designs, design proportion and overall appearance. In case of clarity of design, experts had given highest preference to DWD4 (141) followed by DWD4 with a total score of 139, whereas DWS3 scored lowest i.e. 112 by the experts. In terms of novelty of designs arrangements DWT1 and DWD1 were highly liked by experts with a total score of 135 & 132 respectively. For design proportion experts highly preferred DWT1 followed by DWD1 with a total score of 131 & 130 respectively. Similar trend was also noticed for overall appearance, where highest scored was obtained by arrangement DWT1 with a total score of 138 followed by DWS2 and DWD1 with a total score of 135 & 131 respectively. Data in Table 5 clearly shows as per experts views, amongst all the developed arrangements Diwan cover arrangement no.

DWT1, DWS2 and DWS2 were highly liked with the weighted mean scores of 4.52, 4.36 and 4.35 respectively whereas arrangement number DWS3 was least preferred with lowest W.M.S of 3.83.

In conclusion, the present study was a preliminary step in the direction of creating adapted Chikankari designs using computer aided technology which can open new avenues for the designers to fulfill the ever changing demands of consumers, especially for those who hunt for the ethnic design in textile products. The developed adapted Chikankari motifs would also expand the existing design base for home furnishing products using different methods i.e. block printing, screen printing, weaving etc., especially in small scale industries.

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