

Experimenting Backing Material of Hand Block Printing Table by Using Alternate Sources: All over Double Colour

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Abstract

Block stamps were used to print on textiles. The art of block printing is very unique and labour intensive process, as it makes every piece of cloth one of a kind and different from others, which cannot be achieved with modern printing. Block printing is an ancient Indian art that dates as far back as 12th century. Traditionally, hand carved wood techniques using automated machinery. Jute hessian cloth is used extensively as backing material for hand block printing table. The present study was taken to replace the hessian with other technical textiles like rubberized coir and 100% polyester non-woven backing following the standard thickness of jute hessian. Jute is kept as standard for comparison of results. All the samples were evaluated through a pre-tested questionnaire by 30 members who had sound knowledge on block printing. The results of the study revealed many facts regarding the depth, sharpness, clarity, overall appearance and fineness of the print, coir backing was rated first, considering fineness of print, nonwoven backing is rated to be the best of all samples.

Keywords: Backing materials; Non-woven; Rubberized Coir; Block printing table; Printing

Introduction

Hand block printing is a centuries old Indian art form that utilizes a hand carved teak wood block that is dipped in dye and stamped by hand onto cotton or silk. The design for the block is usually a traditional Indian motif. The motif is traced onto a block by a master craftsman who then chips away at the block to create a stamp. The printing process begins by pre-washing the fabrics in the river to reduce water consumption. The fabric is then dyed, laid flat on a table and fixed firmly to the table with pins. Four to five basic natural colors are used that are then mixed together to form a multitude of colors. The block is then dipped in the dye and stamped firmly by hand onto the fabric. Finally, the fabric is rinsed in the river and hung to dry in the sun, minimizing energy consumption. Good printing requires skill and practice to create uniformity and clear block printing patterns. Small variations in the printing add to the unique charm of these handmade fabrics. In general, the table of the block printing is backed with 24 layers of jute hessian which is a dense woven fabric. Khora material is used as the top most layer on the backing and this khora is pinned firmly to the jute hessian in order to restrict the movement of the khora layers while printing. Study on technical textiles was enormous and the application of these technical textiles in printing as backing materials has been experimented in the present study.

Methodology

A survey was conducted in different block printing units of Hyderabad to illicit information on the type, durability, thickness required and no of layers used for block printing table. The device for collection of data consisted of a pre-tested questionnaire. Based on the collected data, an experiment was conducted by taking 100% recycled polyester non-woven with 800 GSM, rubberized coir and jute as backing material for block printing table. Jute was kept as standard.

A small prototype table was designed with standard measurement. Measurement of 1.5 inch (3.75 cm) was considered as standard thickness for backing materials. The same thickness of 1.5" was maintained throughout the experiment for all the three samples. Two layers of Khora material was used as top most layer of the printing table.

The 100% pure cotton fabric was selected by the panel of judges for experimenting/printing. The fabric selected is scoured, ironed and was printed with all-over double colour block.

The fabric was printed for every 1st, 10th, 20th, 30th, 40th, 50th, 60th, 70th, 80th, 90th and 100th print. i.e., Fabric was printed with all over double colour block at place 1 for 100 times taking 1st, 10th, 20th, 30th, 40th, 50th, 60th, 70th, 80th, 90th, 100th print. The complete process was repeated using non-woven, rubberized coir and jute as backing material and the samples were evaluated. The above-mentioned backing materials were also evaluated for resiliency at every 10th print.

The printed samples were evaluated for sharpness, depth, clarity, evenness, spreading and overall appearance on a 5.0 point rating scale by 30 respondents using a pretested questionnaire. A total of 33 samples were evaluated. Mean was calculated to know the best sample and single factorial Anova was carried out to know the best backing material among the three.

Results and Discussion

The objective of the study was to design a block printing table with alternate backing materials which suits the needs of block printers and improves the quality of printing in terms of sharpness and depth of print.

Evaluation and statistical analysis of printed samples

A total of 11 samples each (e.g., all over double coloured block with non-woven backing at 1st, 10th, 20th, 30th, 40th, 50th, 60th, 70th, 80th, 90th

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and 100th print) which made a grand total of 33 samples were evaluated by 30 respondents on 5.0 point rating scale and the mean ratings were tabulated below.

Sharpness and depth of print

Based on the mean scores it was evident that jute was ranked first followed by non-woven with respect to sharpness of print. Among the samples evaluated for depth of the print, coir was ranked first followed by Jute.

Anova test results revealed that there was no significant difference between the samples printed by using different backing materials like Rubberized coir, Non-woven and Jute. It could be concluded that any of the three backing materials can be used for acquiring sharpness and depth of print (Figure 1).

Clarity and evenness of print-all over double colour

The opinion of the respondents on clarity and evenness of print of all over double colour printed samples were tabulated in the table below.

Majority of the respondents were highly satisfied with the clarity and evenness of print on the printed samples using non-woven, coir and jute. Regarding clarity of print, there was no much difference in mean exists which proves that the clarity of print is same by using three different backing materials.

With regard to the evenness of print, all the samples printed using three different backing materials were rated same by the respondents. There exists a very minor difference in the evenness of print (Figure 2).

Anova Test Results: Single factor Anova was carried out to find

whether there is any significant difference exists between the samples for clarity of print, Null hypothesis was rejected at 5 percent level.

C.D values were further calculated to know the best samples. Jute and Non-woven shares a common group and has higher mean than Coir with regard to the clarity and can be concluded that Jute and Non-woven can be best used for obtaining clarity of print.

With regard to the evenness of print, the null hypothesis is rejected and can be concluded that not all of population means are equal. And there exists a significant difference in the mean values [1-4].

The confidence intervals were further calculated to determine the likely ranges for the differences and to determine whether the differences are practically significant. The test results revealed that Jute and Non-woven shares a common group and have significantly higher means than coir. Jute and Non-woven can be used for obtaining evenness of print.

Spreading and overall appearance-all over double colour

It was clearly evident from the above table and figure that the spreading of print on all the samples was poor i.e., hardly there was no spreading found in the samples. Among the backing materials used for printing, non-woven was rated very poor with no spreading of print followed by jute. There was little spreading noticed in the samples printed with coir as backing material.

With regard to the overall appearance of print, non-woven backed printed sample at 40th print was rated as very good by majority of respondents, followed by jute at 1st print as good.

Coir backed all over double colour printed samples were rated as average to good by majority of respondents.

Anova single factor was carried out to know whether any significant differences found between the means. The test results showed that the null hypothesis was rejected at 5 percent level of significance and conclude that not all population means are equal for spreading of colour.

Further analysis was carried out by following Tukey method to know which two groups share the same mean with regard to spreading. The interpretation of results revealed that jute and non-woven shares common mean and have significantly less mean than coir, i.e., non-woven and jute can be used to get best results without spreading of print.

Anova single factor test results for overall appearance revealed that, there was no significant difference between the means of samples printed by using different backing materials like rubberized coir, non-woven and jute. It could be concluded that any of the three backing materials can be used for acquiring overall appearance of print (Figure 3).

Conclusion

Study conducted on the block printing table and block printers, had shown that there was a definite need to improve the performance of the block printing table. Even though there was much scope for improvement of hand block printing table, unfortunately in India this field was not much identified and negligible work had been carried out. The present study was conducted by altering the backing material of the block printing table with recycled non-woven of 800 GSM, rubberized coir and jute. The three table prototypes were developed with standard measurements. All the three prototype tables were laid with layers of rubberized coir, non-woven and jute with a standard thickness of 3.75

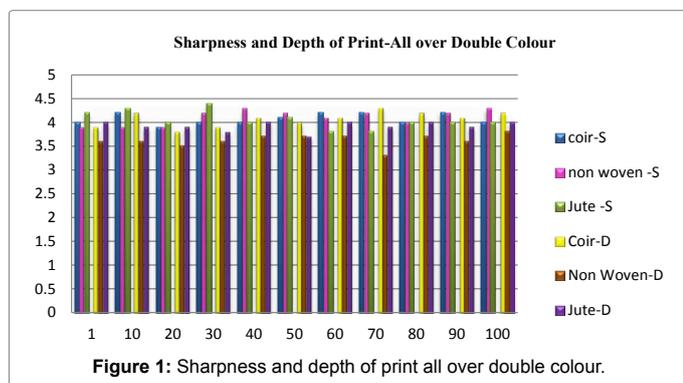


Figure 1: Sharpness and depth of print all over double colour.

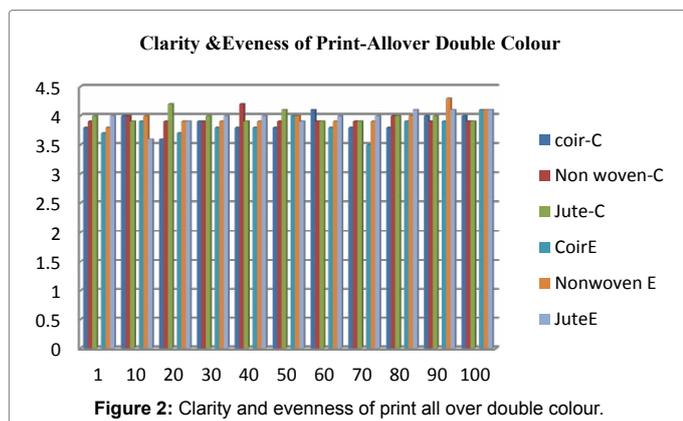


Figure 2: Clarity and evenness of print all over double colour.

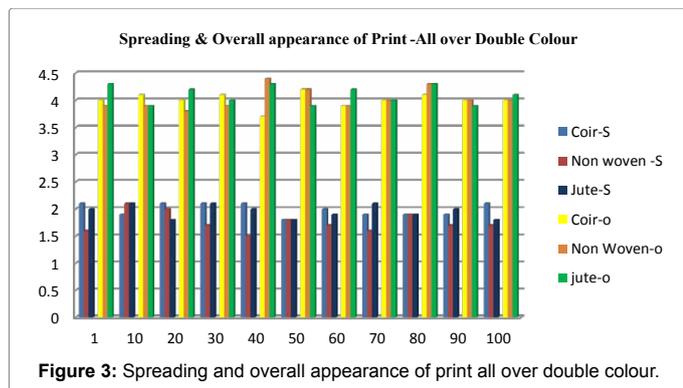


Figure 3: Spreading and overall appearance of print all over double colour.

cm, which was suggested as an ideal thickness by block printers in the survey. The cotton fabric with non-woven wadding was printed with pigment prints for 100 prints and the thickness reading was noted at every 1st, 10th, 20th, 30th, 40th, 50th, 60th, 70th, 80th, 90th, 100th print. The performance of these three backing materials were assessed using a pretested questionnaire by 30 respondents in terms of sharpness of print, depth of print, clarity, evenness of print, spreading and overall appearance. The results of the study were statistically analysed [5-8].

The findings of the study are - all the samples printed using coir, jute and Non-woven backing materials were liked equally thereby

making these backing materials suitable for printing table. Regarding the depth of print, coir was rated first followed by Jute. All the samples were rated equally for clarity and evenness of print. Non-woven was rated very poor with no spreading of print followed by jute. Samples printed with non-woven backing is rated best in overall appearance.

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