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How to cite: Guru R, Thennarasu P, Panigrahi S, Kumar R. Study on the Traditional Handloom Textiles in India. Textile & Leather Review. 2022; 5:392-413.

<https://doi.org/10.31881/TLR.2022.34>

How to link: <https://doi.org/10.31881/TLR.2022.34>

Published: 10 August 2022



Study on the Traditional Handloom Textiles in India

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Article

<https://doi.org/10.31881/TLR.2022.34>

Received 24 May 2022; Accepted 31 July 2022; Published 10 August 2022

ABSTRACT

The Indian subcontinent is known in the sector for its diversity in art and its cultural history. It's a very labour-intensive cottage-based decentralized industry, portraying the Indian way of existence that is fond of aesthetics, lifestyle, and sculpture. In India, the textile industry provides direct and indirect employment to millions of people, after the agriculture sector. At the time of determining aesthetic features of fashion products, the motifs, being an integral part of design, play a crucial role. Motif is the most primary unit of a design pattern or the smallest unit. Motifs are repeated in numerous ways to create styles; those patterns are repeated to create a layout. In a pattern or layout, the motif has its personal awesome identity. Generally, every motif is formed from simple layout elements that create various forms of designs, which include geometrical, summary, naturalistic and so forth. The choice of motifs may be inspired through diverse resources, which include nature, and also are intently related to the triumphing natural, cultural, religious and socio-monetary factors in any society. A contemporary look focuses on exploring numerous traditional textile motifs used throughout the Indian subcontinent. Furthermore, a number of famous and maximum commonplace motifs have been advanced through the use of computer-aided designing software programs. In this research article we have presented an overview of the traditional handloom textile application in India.

KEYWORDS

handloom traditional textiles, handloom tools, Banarasi mastery in handloom

INTRODUCTION

The Indian textile sector is growing day by day and it is the second largest job provider after the agriculture sector. The growth of this region is pushed because of the large demand on Indian textile products in the worldwide market. The textile, such as innovative hand woven and embroidery items, is produced by Indian weavers and experts. Indian weavers and craft people are excelling in this field due to the fact that generations of Indian peoples engaged in textile and craft work in historic Harappa and Mohenjo-Daro, which is clear from archaeological excavations and literature. Indian textiles are basically known for their rich heritage [1,2]. They exist as woven, printed, dyed, embroidered and as

paintings representing horde of motifs derived from nature, flora and fauna, architecture, mythology, religion scenes and articles etc. Indian motifs have their own heritage value and boast of the Indian culture linking it to nature, religion and socio-economic factors prevailing in Indian society, such as different social ranks and positions in society, social status, and economic status. Sometimes the prints/motifs remain unchanged but their product changes according to the fashion needs [3,4]. These designs/patterns are also manipulated to suit the present-day needs, like the change in colour combination that changes the self-creativity of designs. Furthermore, the woven fabric has always been of great importance among young traditional artisans for experimenting and developing different fabric surfaces. The study includes an analysis of the most commonly used traditional textile motifs using computer-aided designing software. In recent years, the Computer Aided Design (CAD) technology has been utilized in the textile and clothing industry, thus simplifying the overall process and shortening the path from design to manufacturing. This significantly improves the manufacturing efficiency as well as the garment quality. Computer aided designing is an integral part of modern fashion design education that is needed in order to meet global standards. CAD is the creation of designs and design components on the computer using specialized programs.

HANDLOOM SECTORS IN INDIA

Indian handloom has always enjoyed a special place in the world. It is said that India is a magical land of diversities; nonetheless, every variation is being nurtured in its true shape. The example would be the handlooms. Every handloom product may be very specific as are the individuals who are involved in its production, be it Baluchuri from West Bengal, Pochampally from Andhra, Maheswari & Chanderi from Madhya Pradesh, or Ikat from Orissa. Handloom enjoys the popularity of being a delicate empress on the international market that consists completely of large energy looms. Other than the marvellous products, which can be a treat for the senses, it may be a suitable answer to the burning question and a mode of sustainable fashion. The conventional Indian textile production has one of the best fabric making traditions on the international level. The Indian subcontinent is known in the sector for its diversity in art and its cultural history. It is a very labour-intensive cottage-based decentralized industry, portraying the Indian way of existence that is fond of aesthetics, lifestyle, and sculpture. Indian artisans, weavers, craftsmen, and textile designers have constantly been liked for using natural, environmentally friendly components [4,5]. The artisans create various objects that replicate their creativeness, flavour, and craftsmanship. Handicrafts are as numerous as the Indian groups. The traditional Indian arts and crafts include several sorts, together with paintings, ceramics, home additions, cloth making, needlecraft, and ornaments, with sensitive designs, motifs and a lot more. Indian textiles and crafts are regarded for their traditions, together with poetry, dancing, music, sculpture,

structure, carpentry, metalwork, craft, portrays, and embroidery. Handloom enterprise has constantly performed a crucial function in generating employment. The Indian handloom enterprise has always been top-notch. Its history goes back to the Indian Valley Civilization. Handloom quarter provides a fresh change in the particular richness of guide skill and diversity. The sector is also recognized as the second largest employment provider after the agricultural sector. Absolutely, handlooms have an extraordinary capacity in this regard as they keep being important, not only for maintaining the prevailing craftspeople but also for offering gainful employment, both fulltime and part-time, to an increasing number of financially unstable and dispossessed weavers [6,7].

India has one of the richest traditions of making woven textiles from different materials and using a variety of techniques for the processing of materials, for weaving and for embellishing. Each region has its distinctive style and technique. Even within the region there are variations in styles of weaving and designs, which have been retained because of distinct cultural traditions expressed through their ceremonies and rituals. The salvis of Patan wove different styles of sarees for their Gujarati clients, preparing auspicious motifs on the body of the saree for the Hindu communities and geometric designs for the Voras. For the maharashtrians of the Deccan, they wove the nine yard saree with a plain striped body carrying a rich border and pallu. Those woven for export to the Far East had different motif yet again. The popularity of Indian textiles, especially hand printed textiles, was high ever since the ancient times [8,9].



Figure 1. Fabric of the Indo-European cotton trade in pre-Mughal times

The Mughal brocade is important for students of Indian textiles as a number of Indian textiles of very fine quality are often identified as Persian.



a)



b)

Figure 2. a); b) Fabric for the Mughal time's sash

The history of textile design in India, though obscure, is of considerable interest, particularly in relation to the origin of the art of naksha making and the place it has occupied in the development of ornament. Today, Banaras is one of the most important weaving centres where naksha bandhas function. So skilful are the craftsmen that their services are requested for from distant parts and it is they who tie the design for the silk and brocade weavers of Surat as well as for the intricate gold and enamel weavers of chanderi.

THE PROCESS OF MAKING NAKSHA IN BANARAS

Naksha may be defined as the indigenous equipment for weaving complicated designs on handlooms. It takes the position of the jacquard of modern weaving but is reduced to simplicity since the whole equipment consists only of a group of threads and no complicated moving parts. The whole idea is to weave one complete design with a group of threads and duplicate it on the fabric wherever it is required by attaching these threads to the loom and to the threads of the fabric in a suitable way.

Winding the naksha string on a parita

The naksha string is a strong multistrand, one usually made locally. It is available in hanks and is known as pindi. The hank is opened out and separated for weaving. This is done by placing it on what is called a swift (natai). From the swift it is transferred on to a swift of a different shape called parita [10-12].



a)



b)

Figure 3. (a) Ganga Jamuna brocade, Varanasi; b) Naksha bandhas of Banaras

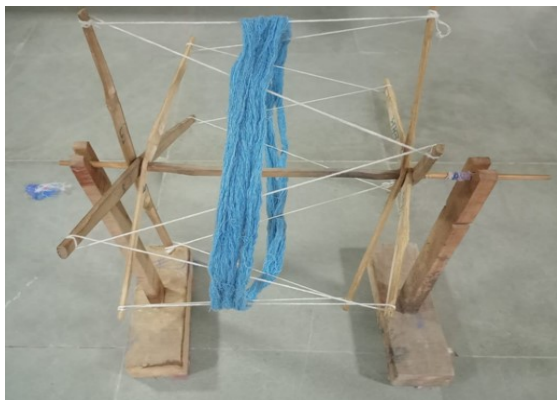


Figure 4. Hank making machine used in a handloom



Figure 5. Warp bobbin and weft pirn packages

Warping the naksha string

From the parita the strings are arranged side by side. The parita is placed on the floor and the naksha maker pulls out the string and winds it diagonally on two sticks driven in the ground at a distance of 40 to 42 inches. If the design requires 400 threads, which is calculated depending upon the size of the design and the type of yarn used and the number of threads of yarn required per inch of the cloth that is the number wound on these two sticks.

Putting a lease thread

It is important that these threads do not entangle. It should be possible for one to take out these threads in successive order i.e., first one, second, third, etc. In order to be able to do this, a lease thread is attached.

Tying up the naksha threads in the middle

The naksha threads are tied in the middle to prevent the threads from becoming loose and giving way during the succeeding processes. The naksha is finally supported in a vertical form. Therefore, a bamboo stick is used, to which all these naksha threads are tied individually or sometimes in group of 4, 8 etc. The loops are taken so that the strings remain fixed firmly. One person takes the threads so that the strings remain fixed firmly. One person takes out each thread in succession and hands it over to the other person who ties the knot.

The naksha making frame

The frame is made in dimensions to suit different sizes of naksha. Generally, the naksha maker sits on the floor and does the work.

Fixing the bamboo stick

As mentioned in above paragraph, all the naksha threads are fixed with the bamboo stick. It is to be fixed to the naksha making a frame on one side.

Arranging the naksha threads

One end of all the naksha threads is fixed to the bamboo stick, which in turn is fixed to the naksha making a frame. Now the other end remains. This is also fixed to the opposite side of the frame tightly by the naksha maker. Here the threads will be in small groups at irregular intervals. If they are at irregular intervals, it would be difficult for the naksha maker to pick up each thread to make the naksha. In order to arrange each thread at regular intervals a process called putting the shivren is adopted. This is simply twisting another thread round each of the naksha threads in such a way that all the naksha threads are laid side by side at regular intervals. This is done at both sides of the frame so that the spaces between each thread of the naksha are the same at both ends.

Tying up of the kheva threads

The kheva threads are tied on to another thread by the side of the naksha threads in groups. These are tied in groups so that the naksha maker can pick each thread conveniently rather than taking one thread, since they are in groups and are liable to get themselves entangled. Therefore, a lease is put for these threads as well.

For starting the design, a tracing is placed in front. This traced design is divided into a definite number of parts longitudinally. The naksha threads are also divided into exactly the same number of divisions, this being marked by the colouring of naksha threads at intervals. The traced design will also be divided

vertically into a defined number of parts. The naksha maker transfers this part of the design into the corresponding divisions of the naksha thread by using this needle [13,14].

Looping the kheva

The loop is to be made in every kheva thread so that it may be supported by a string later on.

Introducing a separate thread (nathia)

A separate thread is introduced through every kheva thread.

Setting up the naksha on the loom

The loom is first to be set up by tying the paggia thread or horizontal threads. There will be as many paggia threads as there are naksha threads. Each naksha thread and end is tied to a corresponding paggia thread. Two people are generally required for this work. When all the naksha threads are tied to the paggia thread the loom is ready to work.

Duplicating the nakshas

When a number of looms have to work on the same design it is not necessary that a separate naksha is made for each loom. When one naksha is made it can be duplicated. The original one is tied in a vertical way and attached to horizontal threads of equal number. The interlacing arrangement of the vertical threads is transferred to the horizontal threads by lifting the vertical threads which is done by taking out the kheva. Any number of naksha can be duplicated from one original.

Table 1. Most common motifs used in traditional Indian textiles with their symbolic use [1-3]

Symbols	Connotation	Category
Conch Shell or Shank	Cosmic space	Kantha embroidery
Creeping vine		Phool Patti Ka Kaam
Elephant	Power, goodluck, strength	Kantha embroidery, Kasuti embroidery
Fish	Fertility, life, force, purity	Kantha embroidery
Gosse or Hansa	Spiritual purity	Kasuti embroidery
Kamal	Power, wealth, women's beauty, peace	Kantha embroidery
Kalash	Success, good fortune	
Ambi or Carrey Design	Fertility	Kantha, Chikankari embroidery
Parrot	Passion, lovers association	Kashida
Peacock	Immortality, courtship	Parsi
Rudraksh	Ascetic charm	South woven sarees
Sun	Health	Kantha embroidery

Symbols	Connotation	Category
The Tree of Life	Protection, nourishment, renewal	Crewel embroidery, Kalamkari, Kantha embroidery

Table 2. Classification of traditional textiles Indian on the different area [1-2]

Region	Traditional textile techniques used
Northern Region	Kashmir: Kashida, pashmina shawls, Namda crewel embroidery, Gubba - applique, Jama war or Kani shawls wovens. Himachal Pradesh: Chamba Rumal, Kinnauri Shawls-Kullu or Jama war wovens. Punjab: Phulkari or Bagh embroidery
Western Region	Gujarat and Rajasthan: Mochi stitch embroidery, mirror work embroidery, Patola – Resist-dyed and woven, applique work, patch work, Parsi embroidery, Bandhani, Ajrakh, Bagru Prints, Sangneri, Kota Doria
Central Region	Uttar Pradesh: Chikankari embroidery, applique, Phool Patti Ka Kaam, Zardozi, Banarasi Silk-Varanasi Madhya Pradesh: Chanderi, woven
Eastern Region	West Bengal: Kantha embroidery, Daccai Jamdani- woven, Tangil-woven. Bihar: Sujani, woven, Muga silk, Bhagalpuri silk- Bhagalpur. Odisha: Pipli applique, Sambalpuri fabric-Sambalpur, Ikkat- Resist dyed and woven. Arunchal Pradesh, Nagaland, Manipur, Meghalaya, Mizoram, Tripura: Creative weaving with geometrical patterns Sikkim: Lepcha, Woven
Southern Region	Andhra Pradesh: Amru & Himru woven, Mangalagiri -Pochampalli, Resist dyed and woven, Dharmavaram sarees, woven, Kalamkari, and Lambadi embroidery. Goa: woven, Kunbi fabric Maharashtra: Paithani brocade-Aurangabad, Narayan Peth sari-Solapur Tamil Nadu: Kangiveram, woven Hyderabad: Pochampalli Chennai: Madras checks Mysuru: Mysore silk Karnataka: Kasuti, woven

Banarasi Mastery in Handloom

Kashi, Banaras, Varanasi is a city in India with a lineage of many millennia. Nurtured by the holy Ganges, the traditions of this continuously inhabited and oldest city in the world have been influenced by history, religion and custom. The great 15th century mystic poet and weaver of Varanasi, Sant Kabir, threaded in allusions to weaving in his verses. With the traditional knowledge, stories and folklore associated with its making passed on through the guru shishya apprenticeship system, the legendary

weavers of Varanasi are masters of a multiplicity of complex textile making techniques. Woven on indigenously made looms, their mastery is apparent not just in their ability to create but in their knowledge and usage of a wide range of fibres [15,16].

The weavers of Banarasi are masters of many complex weaving techniques. It is a combination of the age old techniques of weaving, the skill of the weavers and the ability of designers to adopt and to innovate to suit modern tastes. From the Kadwa and the Phekua to the Cutwork and the Urtu, each technique is individual and distinct. In addition, within each category there are variations and adaptations. All woven on indigenously made looms, a wide range of fibres are used, from the finest cotton yarns to the coarsest, from wild silks to the most refined. The weavers' expertise in using metallic Zari yarns of gold sliver set them apart from all others. Over 50,000 weavers continue to follow their hereditary parampara adapting and innovating for changing time. In the past their clientele extended across India and all over the world, from princely palaces to the draping for monasteries, from the demands of couture houses and fashion ramps to weddings. The weaving carries on for both the everyday as well as special occasions [17].



a)



b)



c)



d)

Figure 6. a); b); c); d) Handloom fabric

Kadwa/Loom Embossed Technique

The most prized of Banarasi brocades that have been celebrated in verse, in painting and in prose would probably have been woven in the colloquially called Kadwa technique. This mathematically precise skill creates ornamented patterning that appears to be embossed onto the textile. In the Kadwa technique the complexity lies in the use of extra weft threads. These threads are wrapped onto bamboo spools/tills and are passed individually by hand through the preset warp to create the elaborate designs, colouring and shadow effects that are the hallmark of the Kadwa. A textured layered feel and look is rendered onto the textile, bringing in another dimension to the weave. The versatility of the Kadwa technique allows for further ingenious adjustments and fine tunings and has over time been adapted by skilled masters to produce a range of distinctive textile specialties. These specialties range from the Shikaargaah, Kimkhwaab, Urtu and Jangla to the Baluchari, Meenakari and Rangkaat weave. The Kadwa brocades are usually woven with fine silk threads of differing thickness, depending on the final use of the textile. Metallic yarns of gold and silver are added to the floral, geometric or all over patterning for greater depth and glitter [18,19].

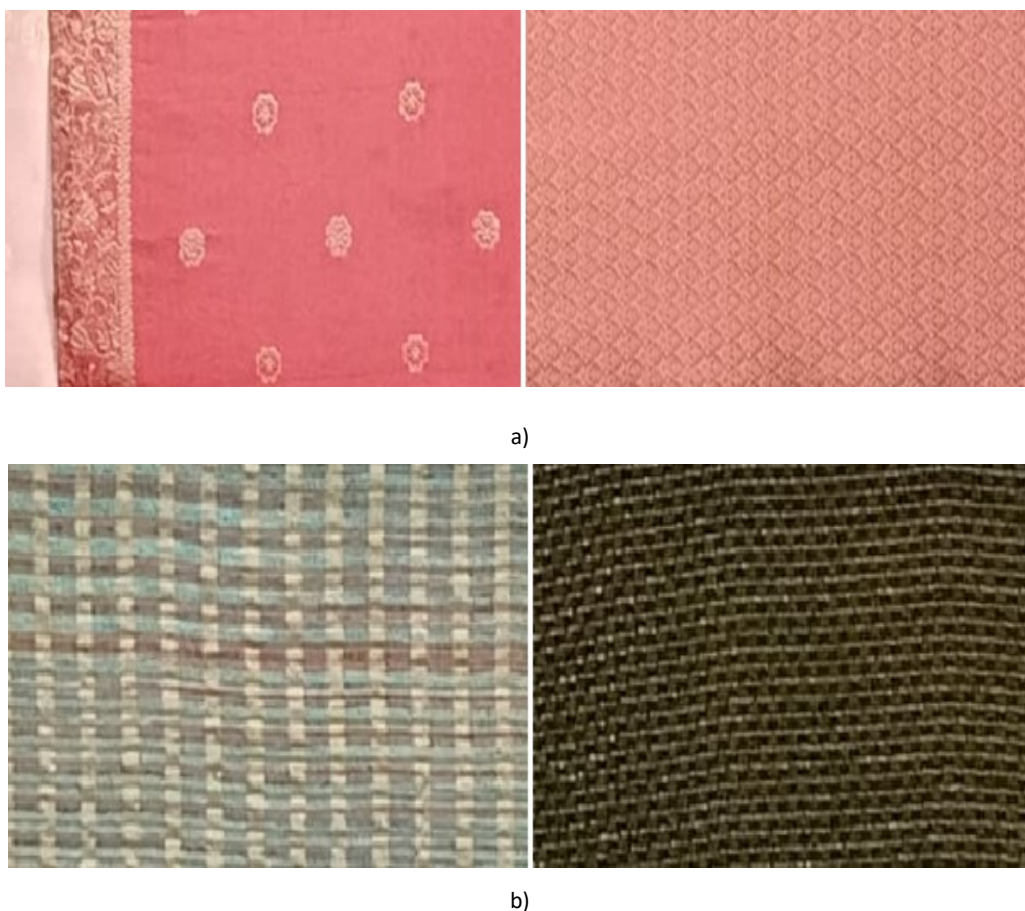


Figure 7. a) Kadwa embossed technique; b) Kadwa embossed technique on handloom fabrics

Phekua Technique

The Phekua technique is a mathematically precise repeat weave in which the design is replicated right across the textile field. It is woven in a manner that is similar to the Kadwa/loom embossed technique, as here, too, extra weft tillis are inserted to create the patterns. However, unlike the Kadwa technique, the extra threads are not interlocked in the weaving but they float at the back of the fabric. These threads are not cut off on the finished textile. The Phekua technique is usually used in heavy brocades of silk, gold and silver zari.



Figure 8. Phekua technique on handloom fabrics

Cutwork Technique

The cutwork technique is a repeat pattern weave with the design replicated in regular intervals over the textiles. It is woven in a manner that is similar to the Phekua technique, as the extra weft tillis creates the patterns and the threads float at the back of the fabric. However, in this technique, the threads are carefully and finely cut off giving it the name “cutwork”. This technique is usually used for fine cotton, silk and zari textiles to create transparency and contrast.

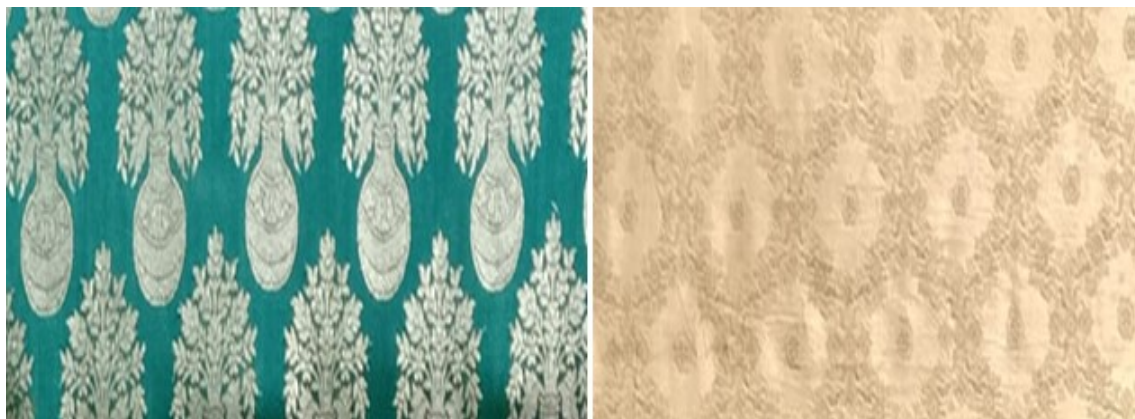


Figure 9. Cutwork technique on handloom fabrics

Urtu Technique

The specialized Urtu technique is an adaptation of the Kadwa/loom embossed weaving technique. Colloquially called Banarasi Hunar, the Urtu technique represents the ability of the brocade weavers to manipulate the loom in a manner that others cannot. In the Urtu technique the weaver manoeuvres the base patterning of the textile field itself. Through this manipulation they create a combination of several grounds on the very base of the textile weave. This can include an assemblage of the plain weaves, the satin weave and the twill weave, among others. Using silk warps, this manipulation of the weft and the extra weft tillis creates a base patterning that adds a 3D look to the textile. Further ornamentation with motifs and jaal/trellis adds to the luxurious beauty of the textile.



Figure 10. Urtu technique on handloom fabrics

Motifs Advanced Using Computer-Aided Designing Software

The motifs and patterns used in traditional Indian textiles were critically studied and scrutinized in different categories mentioned in Tables 1 and 2. Moreover, some motifs were developed systematically by using computer-aided designing software solutions as shown in Figure 5. The motifs were developed by using CAD solutions, including abstract naturalistic motif, flower motif and geometrical motif. The aforementioned motifs are most commonly used in traditional Indian textiles. It is an attempt to give art connoisseurs an opportunity to embrace the traditions alive with the touch of contemporary, which connects human soul and mind. Thus, emotions are evolved by adoring them.

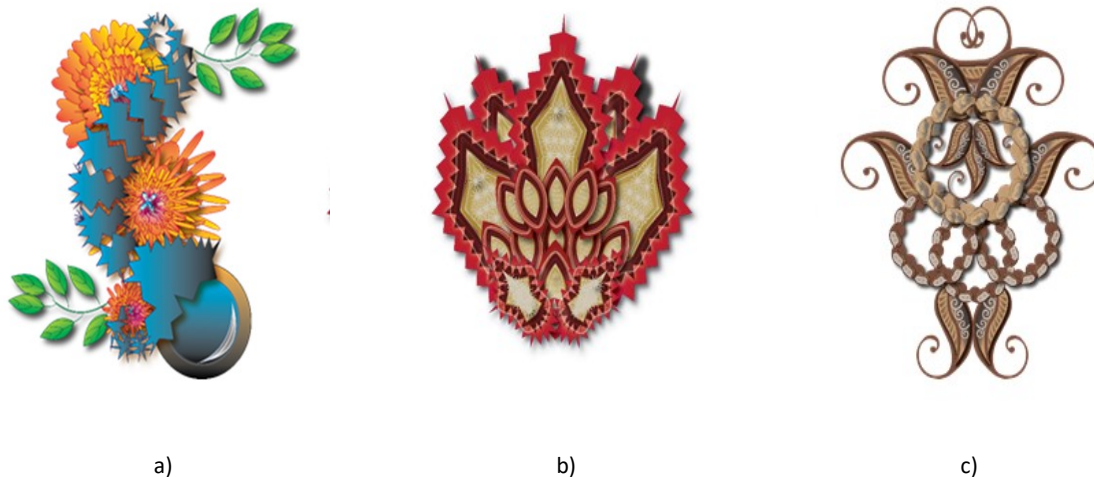


Figure 11. (a) Abstract naturalistic motif; (b) Flower motif; (c) Geometrical motif

Technology of Handloom

Many tools are used to produce a handloom weave. At the centre is the loom. However, there are several processes to be carried out before a weaver can sit at the loom. For instance, the weaver has a choice of using threads that are spun by hand or by mechanical means. These hand-spun threads are spun on a charkha spinning wheel. The charkha spins cotton or silk fibres into threads. The threads are spun into differing thicknesses according to the weaver's needs. Thicker threads are used for tapestries and home furnishings, while finer threads are woven into saris.

The spun thread that is ready to be woven is then stretched on a huge drum to straighten it. This process is called warping. Post warping, the stretched yarn is treated with a coating that strengthens the fibre. This process is carried out on the street and hence is known as street sizing. The yarn is now ready for the loom. In Banaras, a variety of looms are used. Draw loom is a complex loom which is now rarely seen. However, in ateliers of luxury Banaras weavers, the most skilled of craftsmen still produce silk and zari textiles on this loom. On this kind of loom, the threads are hung from the frame and attached to the floor. This frame allows for a criss-cross pattern to emerge downwards. The weft threads are manually pushed through the warp threads by the weaver. This movement can also be done through a rod called shuttle [20,21].

Type of Handloom

Pit loom

The pit loom is a large loom where the weaver sits directly with his feet in a pit and uses foot pedals to move the frame. The complex mechanism of a pit loom needs great flexibility and mastery to

operate it. Unlike the draw loom, it has a horizontal mechanism which allows the weaver to chain and fix the warp yarn between rows of pegs.

Frame loom

A frame loom holds a mechanism similar to the pit looms. This framework is also complex, because its frame, rods and panels are tied perpendicular to each other. The weft threads are passed either manually by the weaver or through shuttles. These looms are relatively economical. They are portable and are regarded as efficient in the weaving of small garments like scarves, dupattas etc.

Jacquard loom

The jacquard loom is a complex frame that enables the weaving of intricate patterns on the textile, such as brocade, damask and tapestry. It can also be used as an attachment to powered looms in order to increase the efficiency of weaving. It is even used to produce patterns on knitted fabrics. The jacquard system uses a chain of punched cards which controls the weaving of patterns on cloth.

Once the weave is ready, if required, the task of trimming the hanging threads on the reverse of the fabric is carried out. This is usually done by the female members of the weavers' family. The weave then goes through the final step of washing and ironing to smoothen out the creases and make it ready for sale [22].

Table 3. The basic tools used in the handloom textile industry [1,13]

S. No.	Tools name	Specification details
1	Manual paper	It helps cut the sheets to required lengths
2	Brown rectangle sheet	Thick brown sheets are used to punch and fix to the jacquard machine
3	Measuring scale	It is used to mark the inches on the brown sheet before starting to punch
4	Hammer	Helps to punch the cards by striking on the punch tool
5	Graph paper	These are used to draw designs and become reference for card punching
6	Nail paint	Helps to mark on the jacquard punch plate
7	Containers	To boil the yarns
8	Metal rods	Metal rods help to lift yarns from containers
9	Spinning wheel	Helps in turning fibre into thread
10	Spindle	Threads are rolled to spindle to load in the fly shuttle
11	Fly shuttle	Holds the spindle with plain and sari threads (gold or silver)
12	Jacquard machine	Holds the punch cards
13	Punch cards	The cards are perforated to create the designs
14	Rubber bands	Thick rubber bands are used to carry out the tie process
15	Handloom	The loom helps to weave the saree and produce the final product
16	Spools	Holds the threads that are taken to roll warp threads
17	Warping machine	Helps to roll the yarn of required length to a warp beam

S. No.	Tools name	Specification details
18	Warp beam	Holds the base threads which enables the weaving process
19	Heddles and reed	The yarn passes through heddles and reed

Handloom Textiles Made for the Fabric Process

Pre-loom: Pattern-making process (Part I)

At the heart of every sari is naksha or pre-design. Once a design is selected, it is drawn on graph paper and punched on perforated cards. These cards are called naksha patta. Naksha pattas are created for each small design. Usually a Banarasi saree required hundreds of naksha pattas. The naqshaband is both an artist and a designer who takes care of the aesthetics and the technicalities of the weaving process.

Dyeing (Part II)

Dyeing requires repeated immersion of the yarn into boiling water. After softening and degumming the yarn, it is immersed fully in the dye in order to achieve the exact colour which is indicated by the naqshaband. It is usually done with acid dyes. It requires humongous precision in maintaining the temperature of the water that affects the colour of the dye, along with the duration of immersion.

(Part III)

Warp-winding process (Step 1. A)

Warp winding is essential for making the threads suitable for weaving. This process uses hanks or cones which are units of yarn coiled together. These units are then unwound on bobbins according to the desired pattern and length for weaving. Winding is important to ensure a smooth texture and to remove all the tension in the warp.

Pirn or weft winding (Step 1. B)

In this form of winding, a wheel (charkha) and a metallic shaft are connected together. The hank with the yarn is placed on the wheel and the pirn is put over the shaft. As the wheel rotates, the yarn gets transferred from the hank to the pirn.

Special care should be given while winding:

- Uniform tension needs to be ensured
- The groove of the pirn should not be filled
- The pirn should be wrapped with yarn to its full capacity



Figure 12. High speed winder used in handloom sectors

Sizing process (Step 2)

This process is essential to avoid any breakage of the yarn. It is done by applying the sizing liquor to the warp yarn either by hand or by machine. The material used for sizing is starch; sizing is done before warping in handlooms and after warping in the mill sector. With the exception of sari, once the weaving is done, the final textile is desized by washing.



Figure 13. Sizing process

Warping process (Step 3)

This process involves winding the yarn of the bobbin onto the weavers beam before weaving. This parallel winding of the yarn is called warping. It is a method that unwraps the bobbin yarn lengthwise onto the beam to achieve the required length for the textile. Warping is performed on an enormous drum. It enables the weaver to calculate the thread count and the final warp length. Warping can be done in 2 ways, street warping and sectional warping.



a)



b)

Figure 14. a); b) Warping process

Drafting process (Step 4)

Drawing or drafting is usually done a day before weaving. After the yarn is laid out lengthwise onto the beam of the loom, the ends of the warp yarn are passed through the eye of a heald wire in the heald shaft in order to straighten the thread. Each heald shaft consists of a number of heald wires. In saris, separate drafting can be used to make the border (pallu) and the body.



Figure 15. Drafting process

Denting process (Step 5)

Here all the warp thread ends are inserted through the dents in the reed of the loom. The open space between each wire in the reed is called a dent. It is in these dents that the threads move up and down. The reed functions like a comb that controls the separation of the threads. Helped by a hook, the warp thread is made to pass through the dent. This process is usually done by women. The dented yarn is then placed upon the loom for weaving and various techniques are used, such as jamavar, tanchoi, Phekua and Kadwa [23,24].



Figure 16. Denting process

Looming process (Step 6)

The loom is a weaving mechanism which helps in integrating the warp and weft threads in order to create the final fabric. The loom has to be composed in a systematic manner so that it is compatible with the threads for weaving. Under looming, the weaver makes sure that the warp threads are tied in the movement. This step helps in preventing yarn breakages. If required, the weaver makes adjustments to the above in order to ensure adequate tension in the warp threads for the easy interlacing of the warp (Tana) and weft (Bana).



Figure 17. Looming process

Weaving process (Step 7)

At this stage, the final interlacing of warp and weft threads takes place to make the textile. The weaving takes place when the weft threads are inserted in the fixed warp setting. One warp thread is called an end and one weft thread is called a pick. The warp yarn is run from the back to the front of the loom. The three basic techniques in the process are: shedding, picking and beating.

Traditionally, the Banarasi sari is woven on a pit loom where the warp is lifted above ground and the weft is made to pass through a shuttle.

Post loom

Final finishing is done at this stage if the product requires it and then it is sent for embroidery. Otherwise, all textiles are sent for the cutting process, which involves cutting of leftover threads on the reverse side of the fabric.



Figure 18. Final finished product

CONCLUSIONS

- Most of the conventional Indian textiles of various states use naturalistic motifs inspired by various factors, which include surroundings, availability of uncooked fabric, cultural values and ideals, ethnicity and faith. The motifs, along with leaves, flowers, elephants, peafowl, tree of life, lotus flower and many others, had been inspired by the flora and fauna.
- The aforementioned motifs were depicted on material surface to shape a sample via extraordinary embroidery techniques and using various kinds of stitching.
- The present paper focuses in particular on the evaluation of these motifs used in different traditional textiles of diverse Indian states, accompanied with the development of a few designs for variety improvement by using computer-aided software program solutions.
- The hundreds of thousands of peoples worry about the use of these several traditional Indian fabric strategies within the method of production of such unique products.
- The computer-aided design solutions are playing an important position in revival of these traditionally used motifs with the aid of editing them in accordance with what the current marketplace calls for.
- The weavers have unique skills, comprehension of colour, texture and function, and capacity for rapid adaptation and production of small yardage in a variety of designs.

- Handloom cloth has become an important foreign exchange earner on account of its ability to meet the needs of fashion markets, producing even a hundred metres of fabric in a particular design or colour combination to meet the individual taste of the consumer.
- Importance of the handloom sector in the nation's economy has been recognised by the government at the policy planning level, since independence.
- The industry has a long tradition of excellent craftsmanship, forming a part of the country's cultural heritage- a pulse beat of Indian cultural life.
- The formulations regarding the handloom sector in the new textile policy are based on the experience of the implementation of earlier handloom development programmes.

Author Contributions

Conceptualization – Guru R, Thennarasu P, Panigrahi S ; methodology – Guru R ; formal analysis – Guru R, Thennarasu P, Panigrahi S; investigation – Guru R, Kumar R; resources – Guru R; writing-original draft preparation – Guru R, Thennarasu P; writing-review and editing – Guru R, Thennarasu P, Panigrahi S; visualization – Guru R, Kumar R; supervision – Guru R, Thennarasu P, Panigrahi S. All authors have read and agreed to the published version of the manuscript.

Conflicts of Interest

The authors declare no conflict of interest.

Funding

The authors do not receive any grant or financial support from any organisation or supporting bodies.

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