REVIEW OF LITERATURE
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Embroidery has many facets. For creative expression, fabrics and threads offer all that is required in the way of colour and texture with malleability to make very simple or very complex design statements. Embroidery can range in scale from a square of five centimeter to a hanging fifteen meter in length, or even more, to suit a small country, cottage or a large public building. It may embellish something useful such as a garment, dress accessory or household article; it may be for decoration only, such as an embroidered wall hanging or have symbolic significance in an ecclesiastical setting.

The aim here is to stimulate ideas for individual interpretation. By experimenting with fabrics and threads, some knowledge of their behaviour may be discovered. The descriptions of basic stitches, their variations, ways in which they might be used, together with the manipulation of fabrics in relation to or combined with threads, provide a foundation on which to design for embroidery.

Some studies were conducted on embroidery aspects - basic stitches and their variation, threads, colour combination, type of materials, etc. The available literature regarding various aspects of embroidery and embroiderers are reviewed under the following heads.
2.1 Origin of embroidery

Joshi (1986) in his study Kudos for kasuti from Karnataka mentioned that, the art of embroidery is of great antiquity throughout the world. Probably of eastern origin, it must surely date back to the very remote ages. There is little doubt that hand embroidery has been widely practised in India since the very early times, though we have no surviving examples of the work dating much before 16th century. May be this is due to its perishable nature.

Further, the author pointed out that, Karnataka kasuti is the spontaneous expressions of the local forms of impulses and emotional responses to the local culture. They are the outcome of the innate desire of mankind to beautify things of everyday use. Even the Mohenjo-daro excavations traces of this art were found.
It is likely that the women folk were largely influenced by the exquisite patterns of the temples. The patterns, designs and decorations prompted them to give expression to this artistic urge. That is the genesis of the delicate pieces of art work, Karnataka kasuti. The impact of religious revival was so great on their minds that they adapted the architectural designs of temples and structures in the vicinity of the temples such as gopuram, deepmala, decorative structures of basic plants, chariots, palanquin, etc., for their motifs. Animals like deers, elephants, horses and birds like swans, parrots and peacocks abounding in the temple yard easily became the first choice of the motifs. The lotus, the sun-flower, jasmine, parijat flowers, etc., found their colourful reproductions on the embroidered work in kasuti.

It is said that, this art originated from rangoli patterns and tattooing motifs.

Varughese (1986) conducted a study regarding Karnataka kasuti and found that most of rural women were ignorant about the origin of kasuti, but presumed that, they acquired the knowledge to embroider kasuti from mothers, grand mothers and neighbours.

2.2 Historical background

Moti (1953) in his study on 'Prince of Wales Museum Bulletin' reported that in the court workshops of the Mughal emperors at Lahor, Ahmedabad, Agra and Fatchpur, the finest
weavers and embroiderers from India worked along side master craftsmen from Persia. As the goldsmith fashioned the beaten sheets of gold and enamelled glowing coloured ornament onto it, so the weaver and the embroiderer and the painter and the dyer used their skills to bring life of jewel-like ornaments on the heavy gold and pieces of dupatta and patta and on the butas that ornamented the body of the fine silk and cotton weaves. The fine painted and embroidered cottons were used not only for garments but for floor coverings, walls of tents, awnings, hangings and as screens to ensure privacy in the royal palaces.

A detailed study on 'kudos for kasuti from Karnataka' was conducted by Joshi (1986). He expressed that ancient literature and sculpture have evidence of the antiquity of the art of embroidery in Karnataka. Magnificent temples with superbly carved sculptures; the ones at Halebid, Belur, Somanathpur, Aihole, Pattadkal and Badami are unsurpassed for the refinement of their sculpture and the delicacy of their carvings. The ruins of Hampi, capital of the once powerful Vijaynagar Empire recall the architectural excellence achieved in medieval Karnataka. Chennakeshava temple of Somanathpur was built in the 13th century, with fine stone work and is the artistic achievement of the Hoysalas. Badami, Pattadkal and Aihole are the temple art of the Chalukyas. The sculptured caves of Badami temples date back to the sixth century when early Chalukya kings ruled over the region. It is from all these architectural treasures in temples and the palaces that
the artists drew their inspiration. The art of hand embroidery has been patronised by every ruler.

From the time of the Moghul emperors to the princes of pre-independence India, artisans excelling in the art of embroidery were kept in court to preserve and promote this art.

2.3 Embroiderer

Kudos for kasuti from Karnataka have been reported by Joshi (1986). Kasuti work has always been purely a domestic art, usually done by peasant community. This peasant art is inborn and is the family tradition passed on from generation to generation. Usually after the mid day meals, the rural women assemble together for their gossip along with the embroidery kit. The progress of work does keep on till sunset. The work is done as a hobby, for their own use.

Varughese (1986) conducted a study on 'Towards revival of Dharwad kasuti' reveals that, in the village, only women were engaged to do this needle craft. They belonged to the age group of 15 to 75. Village women performed the work during the leisure hours.

Grewal (1987) from her study on 'Chamba Rumal : Poetic imagery of pahari miniatures' pointed out that the folk style embroidery is done only by women lacking delineation. Its popularity can be judged from the fact that a girl's accomplishment in the craft influenced her matrimonial
negotiations. The embroidery transfers the poetic imagery of Pahari miniatures on to fabric.

2.4 Embroidery techniques

Findings reported by Joshi (1986) on 'Kudos for kasuti from Karnataka' indicates that, there are four types of stitches known as gavanti, murgi, negi and menthi. Gavanti stitch is a double running stitch. Simple, vertical and diagonal lines can be worked in this style. Murgi stitch is zig zag and ladder type, creating a complete ladder on both sides of the cloth. Under no circumstances should a knot be put up at the end of the thread either before starting the work or at the end.

Almost all possessed a beautifully embroidered sample cotton piece (Varughese, 1986) of one metre in length with all traditional motifs. On the contrary, institutions treasured a matti cloth book. Four types of stitches Gaonthi, Murgi, Negi and Menthi were used. This cloth book was used for reference for personal use as well as in business transactions. The type of stitches used were running, cross, horizontal, zig zag, back darning and vertical and the stitches were known by specific names. Running and back stitch was called Gaonti, Negi was named as darning stitch and produced a woven effect. Menthi denoted a cross stitch. Murgi meant zig zag stitches like a ladder. White and cream colour materials were used to do kasuti as a cloth sample and the colour of other background materials were black, purple, blue, pink and green.
Till date the long and short darning stitches remain the main important stitch in phulkari (Grewal, 1986). The stitches are so compactly done on the fabric surface as to give the impression of designs being woven into the fabric. Meticulous counting of thread and juxtapositioning of darning stitches produced innumerable designs. Herring bone stitch, satin stitch, blanket stitch, chain stitch, running stitch and stem stitch are the other stitches originally used for the embroidery. Earlier the darning stitch was made by counting the thread, from the wrong side of the fabric. Currently, the outlining of the designs either traced with charcoal powder or it is block printed on the right side.

Varughese (1987) in her study on 'Revival of chikankari embroidery' found that, the stitches used in chikankari were back stitch, darning, stem, satin, French knot, buttonhole and herring bone stitch. Transparent material is used for the ground and solid parts of the design are filled with herring bone stitch on the wrong side, which produces, shadow effect.

A study on 'Chamba Rumal poetic imagery of Pahari miniatures' conducted by Grewal (1987). In her study she has mentioned about stitching technique. The work is so finely carried out on both the sides of the fabric that it is difficult to tell the right side from the obverse. For filling, double satin stitch is simultaneously executed on both the sides.
Double running stitch and stem stitch are used for outlining. The motifs are drawn and outlined in black.

Mittal and Paul (1989) described the embroidery techniques in their article "success story of craftsmanship", i.e., Gold and Silver embroidery of Laknow revealed that design transforming was done by two methods, tracing and using graph. Very few were found doing it by free hand drawing. Laid stitch, chain stitch, running stitch, satin, stem and cross stitches were prominently used to embellish the design.

The results of a survey conducted by Grewal (1990) on 'Variegated embroiderers of Rajasthan' reveals that, before starting the embroidery the design was stencilled on the fabric with the help of wooden blocks on which the designs have been carved. For printing the design outline the blocks were first dipped in a paste of fuller's earth and gum and are then pressed on to the fabric which is spread on a flat surface. For tracing of design a perforated paper is rarely used.

Mochi bharat is worked out in chain stitch done with a hook needle called katarni or ari. For doing the embroidery, the fabric has to be held firmly under tension, hence embroidery frames are used for smaller piece. Bigger pieces are put on a larger rectangular frame called addan, whereas Heer Bharat is with double satin stitch, herring bone stitch, interlacing stitch and buttonhole stitch.
2.5 Threads, colour and colour combinations

A study was conducted "Phulkari folk embroidery from Punjab' by Grewal (1986) concluded that, originally soft, untwisted pure silk floss called pat, strong and lustrous was used. The thread usually sold by vendors was obtained from Kashmir and Bengal. Although, the lustre and sheen of the threads has remained unchanged, rayon floss is being used for embroidery these days. At present almost all colours are being used for the embroidery. Colour combinations depend on the colour of the ground fabric.

Varughese (1986) did a study on 'Towards revival of Dharwad kasuti' and noticed that, cotton and silk threads were used for kasuti. Silk threads were usually picked from the tassels of a new sari. The pallu of old saris also constitute a good source of embroidery silk. Almost all colours were used abundantly. They are green, red, yellow, pink, orange, dark maroon, brown followed by white and the colour combinations were purple-pink, yellow-green, red-green, red-black, white-red, orange-blue and yellow-white.

Varughese (1987) from her study on 'Revival of Chikankari embroidery' showed that, earlier white thread was used to embroider on white material only. Now, coloured thread were seen very much matching to the background material like dark purple thread worked on a light purple background or contrast like green or brown thread on white
material. Instead of white background materials a variety of pastel and dark colours is being introduced like light green, light blue, light pink, light purple, light yellow to dark colours like black, dark maroon, dark blue, dark purple, dark yellow, etc.

The results of a survey conducted by Grewal (1987) on 'Chamba Rumal: poetic imagery of Pahari miniatures' reveals that, untwisted silk floss (pat) was used earlier to fill the motifs. Now-a-days twisted rayon thread in blue, chrome yellow, pink, magenta, red, fawn, brown, purple and various shades of green were used. Traditionally the embroidery was done on rough quality material khaddar, and fine quality, mill made fabric halwan and tassar silk of offwhite, red, green and indigo colours. These days a large variety of fabrics comprising poplin, linen, terrycot, silk, organdie, and khadar are used. A wide range of mill dyed, pastel shades white, cream, sky blue, lilac, lemon yellow and fawn colour.

A study of 'success story of zari craftsmanship' was taken up by Mittal and Paul (1989) found that beads sequins, salma, sitar, badla, tiki, gijai, silken thread, metal thread (Gold and silver) and their imitation, pearls, etc., are used. For base fabrics, silk, georgette, satin, organza leather, cotton, synthetics, tissue and velvet were used. The main colours used by most of the embroiderers were black, red, golden, silver, yellow, green, violet and purple for background.
Grewal (1990) conducted a study regarding, 'Variegated embroideries of Rajasthan' revealed that earlier untwisted silk floss called pat was used for embellishing the fabrics. But, these days mill-dyed cotton threads are used for the purpose. Bright, vivid yellow, red, green, white, turquoise and crimson colours are used for doing folk embroideries of Rajasthan i.e., Mochi Bharat, Heer Bharat.

2.6 Semiotic symbolism

According to the epics (Bhagavadgita, 1969) the birth of religious motifs the nectar (Amrit) was required by the gods so as to enable them to overcome the demons. The demons also shared in the work of churning, they also being interested in nectar. As the churning progressed and soon various things began emerging from the sea, the sun, moon, Goddess Lakshmi, Airavata (white elephant), Kamadhenu (cow), Lotus, Swastika, Conchshell, Parijata tree, white horse panchakalyani and then emerged the Dhanvantari who was to become the physician of the Gods. Only after finding nectar, the churning of the ocean came to a successful end. Lord Vishnu assumed the form of Mohini distributed the nectar to Gods and there was no nectar left for demons. Finally Gods fought valiantly and drove the demons away from Heaven. The various steeds (Vahana) of Gods were the following. The eagle is the steed of Lord Vishnu. Goddess Laxmi stood gracefully on the lotus, holding lotus in her hands. Goddess Saraswati is seated on a peacock. The
God of love Kamdev, is seated on a parrot and Lord Shiva on a bull.

Curt (1969) expressed that, to the Indian communicant, the linga is not merely a symbol of masculine capacity of fertility and reproduction. While it comprises and conveys these meanings and it is the very presence of the god head Shiva. Linga as the god's fundamental form (mulavigraha) and superior sublimity.

Swastika, the mystical design has remained associated with the vedic deities and their eventual Hindu successors, Brahma and Vishnu. Swastika's orthodox definition as an "auspicious mark", token of "good fortune, well being and success".

Swan is commonly sacred to the female divinity as goddess of love.

Joshi (1984) in his study on 'Religious motifs in Textile designs' revealed that, among the motifs in mythology, important ones that are used in textile designing are the nine jewels including Lakshmi or Padma the goddess of fortune, the conch shell, the elephant, the swastika, sun and moon. The lotus or padma is god's first and foremost motif that symbolises spiritual consciousness of pure knowledge leading to truth.
The lotus motif

It is said the lotus flower is favourite of Lord Krishna and the Janmastami is incomplete without the lotus flower. During the course of churning Lakshmi came to the surface with a lotus in her hand and a huge lotus, under her feet. The lotus in her hand 'Varadhas' denoted a bestower of boons, while the one as her steed indicates the earth, wealth as stated in Padma Purana. Most of the wedding cards carry the picture of bride holding a lotus in her hand. It is a reminder of the marriage of Shiva and Shakti. The lotus motifs are used in the Ajanta caves and other temple curtains.

Swastik motif

The Indians have their swastik form, symbol of knowledge leading to spiritual progress. In the words of Lord Krishna in the Gita "I exist in all things and all things exist in me". Swastika comprising a world of meanings, a symbol of goodluck. It is drawn in front door steps during religious function, carved permanently on the front door of houses, swastik printed shawls are worn by purohits for ceremonial purpose. In short it is a welcome sign on all occasion.

The Conch shell motif

The conch shell having risen on the foam, has been known as goddess Lakshmi’s brother. It holds honourable place with other deities in worship. According to Mahabharata when
the death of Ashwathama was narrated to Dronacharya and when he asked Yudhisthira (*Dharma*) to verify, Lord Krishna blew the conch shell and thus saved the debacle, by hiding the identity. Even today it sounded as a bugle call in many temples and ashrams early in the morning and last at night. Even the gods are given a holy bath (*Abhishek*) by pouring water, milk, curd, turmeric and kunkum water with this shell. The deities have their special musical instruments for making sounds Lord Vishnu has his conch shell, Lord Shiv his damaru (drum), Krishna has his flute and Saraswati her veena.

**Elephant motif**

It is a symbol conquest of spirit over matter and a magnet for attracting wealth. It is also famed for his wisdom memory and activity being formally used as speed animal in times of war. The elephant figures are carved in the rock cut temples in Mahabalipuram, and in Halebid and Hampi stone sculptures in Karnataka. In Karnataka - Mysore the Dassara festival is incomplete without the processions of majestically decorated elephants. The elephant is also carved in front doors of Indian houses with a garland in his trunk to welcome the goddess Lakshmi. Elephant motifs are used in curtain cloth, patola saris, tie-dye sarees, paithani and banaras brocade sarees.
Peacock motif

In India, the peacock is a national bird. The famous peacock throne (*sinhasana*) of the Moghul emperor was a glittering magnificence for it had as a background, the peacock with spreading figures made of gold and precious stones. Peacock is a steed of goddess Saraswati, the goddess of learning. Most of the schools and educational institutes, libraries have at the head of the entrance this image of goddess Saraswati. Peacock motif is a must for Patola, Bandani Kanjeevaram, Mysore and Bangalore silk sarees.

Parrot motif

In general folk belief, the parrot is the bird of truth and is the reported of incidents, showing unusual interest in other people’s affairs. It is also known as a bird of knowledge, which can benefit more by instructions. Parrot is associated with matters of love and as such held sacred. The parrot is famous since Moghul times, the emperors and queens held parrots in their hands. It is exclusively used in sari borders, pallu, in patola and tie-dye sarees.

A study of 'Chamba Rumal : Poetic imager of pahari miniature' was taken up by Grewal (1987) pointed that, Vaishnava cult of the 17th and 18th century has strongly influence the arts and the crafts of the Himachal Pradesh. Thus, the paintings and the embroidery of the area depict various mythological legends such as Rasmandala scenes from
Bhagavada Purana - Krishna’s dance with Gopies and Gopanies with Radha in the centre. In Ashtanayika, the varigated moods of a heroine. In the battle of Kurukshetra theme, headless soldiers with blood oozing out of their bodies are depicted to convey the ferocity of the battle. Conventional musical instruments are embroidered in Rukmii haran and Minjar Mela Jalooes themes and Ransingha, dholak, dholakies, karnel and Khartala were the musical instruments were used in Rag-ragini themes.

The results of a study conducted by Patil (1990) on folk arts of Karnataka reveals that, there was lot of resemblance in folk motifs and design patterns of tattooing, rangoli, mehandi and kasuti of Karnataka with religious background. Motifs such as lotus, conchshell, swastik, rama’s cradle, gopuram, elephant, parrot, tulsi, etc. The application of aforesaid folk arts were more prevalent during melas, festivals, harvesting, ritual functions, etc.

2.7 Motifs

Bröwer (1982) in his study "Handicrafts and craftsmen of Karnataka", noticed that, in all types of handicrafts such as, leather goods, pottery, ceramics, woodwork, jewellery, metal work, ivory, stone sculpture, etc., Hindu mythological figures and motifs were applied i.e., elephant, shivling, goddess Lakshmi, Hanuman, lotus, nandi, swastik, etc.
Findings reported by Varughese (1986) on 'Towards Revival of Dharwad kasuti' indicates that, peacock, parrots, sparrows and swans were used for embroidery. Among the plants, the majority of the respondents preferred tulsi plant due to religious importance given to that plant, cashewnut and mango were the favourites. Among flowers, lotus was seen in all the embroidery as it was associated with the Goddess Lakshmi. Gopuram were seen cent per cent due to the temple influence. Creepers like – Batagadli balli, Gadambi patti, Draks" balli, Tengina Huvin patti, others – chariots, palanquin, gopuram, deepasthamp, swastik, etc., were used.

Grewal (1986) conducted study on 'Phulkari, folk embroidery from Punjab' showed that the more commonly used floral motifs are cotton bolls, wheat ears, sesame seeds, marigold, jasmine and small buds. Other popular motifs are mango slices, rolling pin, peacocks, parrots, snakes, umbrellas, kites, aeroplanes, cyprus trees and various jewellery articles.

Varughese (1987) carried out a study on "Revival of Chikkankari embroidery" and found that, majority of the motifs represents familiar objects connected with the environment and daily life. Foliage and floral designs were seen plenty. Buds and climbers were almost 90 per cent, stylised mango 60 per cent. Grains like rice and millets were seen in a variety of combination. Variety of small birds, peacock, geese, elephant and fishes were part of the embroidery motifs.
Motifs used for chamba rumal embroidery of Himachal Pradesh has been reported by Grewal (1987). The study reveals that, the embroidery included running boars, goats, leaping tigers, cantering, galloping horses, running deer, fleeting rams, calves, cows and snakes have been used for their symbolic significance. Elephants, ducks, swans, peacocks and parrot are also used in the embroidery often, the central figure of Krishna as Lord Vishnu, sitting on a lotus flower, is depicted. Floral motifs - lotus, floral sprays, trellised creepers and plantain, musical instruments - Ransingha (flute) drums, karncl, khartala (cymbals) tanpuia, veena and sitar and geometrical motifs such as triangles, squares, diamonds, rectangles and segmented flowers were used.

Mittal and Paul (1989) took up a study of 'Success story of Zari craftsmanship' noticed that, generally, four types of designs were used based on traditional mango motifs, swastic signs, animal motifs, human figures, geometrical designs based on lines, triangles, circles, etc., besides conventional designs. The source of inspiration for the above design were nature, foreign influences, traditional motifs and creative imaginations.

Findings reported by Grewal (1990) on 'Variegated embroideries of Rajasthan I' indicated that, lotus flower is extensively used as a central medallion with floral buttas and butties comprising the centre and guldastas - floral sprays in the corners, highly stylised parrots were used. Garuda, cantering horses and elephants are used. An elephant carrying
a palanquin with two human beings gazing out from it is a popular central motif in wall hangings.

2.8 Embroidery articles

Kasuti embroidery (Varughese, 1986) was found mostly on the borders and pallus of sari and buttot over the body of the sari besides on sleeves and necklines on garments. Wall hangings were beautifully embroidered and framed like a photograph. Sample pieces contained all motifs. The embroidery on sari had the highest percentage, the village women preferred at least one or two rows of embroidery on the pallu. The other articles embroidered were — blouse, bonnet with cape, lehanga, curtains, table cloth, dress material and wall hangings.

Grewal (1986) carried out a study on ‘Phulkari, folk embroidery from Punjab’ showed that, an infinite variety of fabrics is being used for the embroidery like thin voiles, cambrics, silks, sheer georgettes, chiffons and chiton, etc., for making phulkari dress materials while thick poplin, khaddar and casement for embroidering other household articles like bed-covers and curtains, cushion covers and table cloths.

Findings reported by Grewal (1987) indicates that, though rumal (handkerchief used as cover) is the most popular article made, a large variety of other household articles were also made include cholies, wallhangings, gaumukhi (praying gauntlet), pakhi (fan), joji (a cap), chandoa (canopy),
gaddi (cushion covers) and choupad (dice set). Table linen fine screens and room dividers are also made these days in this work.

According to the observation of Grewal (1990), Mochi Bharat folk embroidery of Rajasthan was used to decorate ghaghras and cholies, cushion covers, wall hangings, caps, bags and jackets and is practised all over Barmer district, where as Heer Bharat is done on a large variety of articles of personal use, which includes blouses, ghaghras, neck lines, yokes, odhanies, cushion covers, chaklas, wall hangings, covers for oxen, camels and saddles, Purses called buchani and sasher known as bukhani filled with Heer Bharat embroidery. Meo is a peasant community, where meo women embroider their gaghras and odhanies with darn stitch.

2.9 Economic, Marketing and Organisational Characteristics

Several rural women were trained for kasuti under TRYSEM-Training of Rural Youth for Self Employment. Scheme of Taluka development programmes (Varughese, 1986) by different private organisations - Vinaya Handicrafts, JSS college kasuti centre, and Mrytunjaya market kasuti centre of ten months course, Rs. 150 per month stipend was given to the trainees. Institutions treasured a matti cloth book of all embroidered motifs. This came in handy as a ready reference for business transactions. The customer places orders after scrutinising design cloth book, which helps the customer not
only to choose the motifs but the stitches and colour combinations. The payments has to be made according to the number and size of the motifs and area of the material to be embroidered. The institutions rates were higher than those of the women embroiderer of the village. Only for embroidering saree pallu, Rs. 200/- and with all motifs, covering the whole saree was Rs. 500/-. The increase might have been due to India’s trade fair export orders and fashion demands.

Mittal and Paul (1989) in their study, ‘Success story of Zari craftsmanship’ found that, marketing of the products was managed through miscellaneous types of marketing channels. Most of the manufacturers sell their products through direct sale (44%) through agents (67%) in local market and (43%) through government show rooms.

2.10 Computer based designs

Computer aided designing - views from the Industry was studied by Bhat (1985). He has expressed that, computer is very useful for printed design applications. Different motifs can be placed in any order in relation to each other they can be rotated over 360° and colour matching of each motif can be individually altered. It can be used for developing woven carpet designs or Jacquard designs with similar motifs. Fifteen different basic colours can be standardised on the screen and different permutations and combinations of these colours in the same design can be developed side by side and can be stored in memory. There is flexibility of changing colour in any
design on the computer instantaneously. The design selected can be stored in hard copies and obtained for future reference. By pressing buttons any colour in any depth can be produced on the screen.

Patwardhan (1986) in her study on 'Textile designs by colour graphics computer' expressed that, the colour graphics computer system consists of a colour graphics terminal with 13" or 19" screen for colour display, key board, graphic tablet and the programmes stored on the floppy diskettes. The number of colours which can be displayed simultaneously on the screen and the palette of colours from which the displayed colours can be chosen. Most of the systems offer 16 or 256 displayable colours from a palette of 4096 or 16 million colours. The colours selected from the palette by varying red, green, blue components or by changing hue, value and chroma values. Programmes are developed to draw small patterns on the graphics tablet using the electric pen. The same design appears on the screen. The user is given freedom to combine these elements by rotating, scaling, copying and transforming to achieve the proposed design, depending on the end use of the fabric. The total colour scheme and also the background colour can be changed and controlled through key board.

Sundercshan and Jayachandran (1987) carried out a study on computer aided woven design textiles and found out that, whenever input data like fabric design is fed to the computer, the actual fabric design is displayed on visual
display unit (VDU). Various colour scheme can be tried out and the best one can be selected and transformed on a permanent paper copy using a hard copy printer. Reproducing a copy of the design can be obtained either by a photograph or a colour hard copy. The image produced on hard copier is true in colour as well as resolution aspects. The cost of creating a new design is minimised and the designer could respond to new fashions quickly at par with the frequency of ever-changing fashions.

Making a textile design with the aid of computer involves three phases (Supenekar and Phadke, 1991). First is the input of the design, which for printed design embodies either the creation of motifs. If the design is a new one or copying part of some old design, if it is only to be a modification. It is possible to create software in which the basic stroke work can be done with the help of the computer itself. On the other hand, an existing design can be scanned in, obviating the need for copying. Next comes editing of the design. For the printed design, it is the modification of motifs and/or their combinations until one is satisfied with the display as it appears on the monitor screen. For the production purposes, the size and the colours as well as smaller details like the gaps between adjacent figures are important. The final phase of designing is the output phase. From commercial point of view, this is the most important one, as the output of this phase becomes the input of the production phase. Entrepreneurs need output, that will help
them to reduce time, cost and efforts required in production. One can have several options here, depending upon the budget and peripherals.

Holmes (1992) in his report on 'changing the design process' pointed out that CAD (Computer Aided Designing) can provide the link between design creation, design interpretation, colouration, sample proofing and production. CAD is a tool of design and product of communication. CAD can help to save the time, and thus helps to cut costs, allowing ample time and opportunity to produce designs punctually and provide extra time to modify and redevelop a design concept to meet the specific customer needs. CAD cannot replace the designer but it can make the task of designing a more rewarding and creative one by relieving the burdens and constraints that the traditional design and production processes have placed upon designers. CAD is the means by which multiple copies and colour ways can be printed from a design shown on the screen for proofing or for sales and marketing use.

According to the observations of Wall (1993), computer colour matching has been playing important role in textile designs. The main objective of computer colour matching (CCM) is the calculation of colourent concentration necessary for matching. Because of speed, and the availability of the multiple choices of the predicted recipes CCM can provide optimum and economic recipes and is therefore more attractive than the use of the traditional approach which is based on
trial and error method. CCM system can also be used to control the quality of the dyes and thereby create a self-perpetuating and improving standard set of colourants in the data base.

Lokhande (1996) conducted a study on 'Advances in computer Applications in Textile Industry and pointed out that once a design is input to a system, the possibilities for change and even improvement are virtually endless. Recent advances in CAD technology allow both design and their exact colouration to be transferred directly from computer screens into the production of prints without the need for costly mini-screen production of sampling on fabric. The use of such systems can give a greater level of control throughout the design production process, allowing every stage of that process to be checked and monitored, to give a greater accuracy in the translation of design art-work into production fabric.