A review of literature is a systematic explicit and reproducible method for identifying and interpreting the existing body of recorded work produced by the researchers, scholars and practitioners. An in-depth literature review facilitates in knowing the trend of the research already done in the specific area of interest and in streamlining the present plan of work. The investigator made a survey of review of literature related to different metal embroidery of Rajasthan by reviewing pertinent research in this area.

Embroidery is the embellishment of existing fabric with accessory, threads and sometimes with other materials such decorative element as fish skin, teeth, bone, feathers, horns shell, beetle wings, tassels, beads, coins, buttons, metal and mirror have all at some time or place been used in this way. Most embroidery however is straightforward stitchery. The designs are finely drawn or worked by counting threads and are applied with a needle but occasionally with the hook. The thread used is silk, cotton, linen, wool, gold or silver etc. A separate technique exists for metal or other precious threads, for non pliable materials. These are laid on the fabric and couched down by stitching with another thread, so that none of the decorative material is hidden underneath the cloth (Paine, 1990).

Naik (1997) reported that ever since down of civilisation, man has felt the urge to decorate the textiles by way of weaving, dyeing, printing and embroidery, creating designs on the loom was followed by embroidery. Embroidery is one of the oldest art. Even the Bible is full of references to rich embroideries, the curtains of Jabernacle and the robes of the Jewish prints were said to be embroidered silks. The pomegranate mentioned in the bible was used as embroidered motif. The fruit with seed were symbols of life and immortality. It was from the Egyptians, Babylonians, and Persian that the Jews learnt this art. She further discussed that Greek, Egyptian and Roman embroideries often show fine strips of pure gold and other metal wound around the foundation thread of linen.
According to Kothari (1998) Rajasthan is among the richest states in the country as far as the field crafts is concerned. May be it was a result of the war-like lifestyle of the people of Rajasthan which sharpened the creative senses, artistic skills and inspired them to create the most opulent and richest of treasures. Stone, clay, leather wood, ivory, lac, glass, brass, silver, gold and textiles were given brilliant forms.

According to Bhatnagar (2004) there is a fundamental unity not only in craftsmanship of stitch, but also in the choice of designs and the colours utilised. Each region naturally has its own modes influenced by its particular environmental conditions, customs and history. But all through there is a similarity in the use of the basic stitches like the satin, stem, chain, darning, running and herringbone, which have been used in multitude ways with varying inspiration to give each embroidered object a characteristic beauty.

No extant tangible evidence of embroidered pieces are available in the Indian sub-continent prior to the late fifteenth century, archaeological findings in the ancient cities of the Indus valley have unearthed bronze needles, indicating the existence of sewing skills as early as 2000 B.C. Furthermore, literary references, paintings and the plastic arts suggests that advanced and sophisticated techniques existed for embellishing woven cloth, leading to the conclusion that embroideries have been practised in Indian subcontinent for several millennia (Ellena 2007) & (Sethi 2010).

2.1 Documentation
Bhatnagar (2005) stated that for any work on design documentation, it is necessary to identify authentic resources and materials. In India there are number of museums, art galleries, design centers, andicraft development centers and design research centers which have beautiful specimen of designs, crafts, objects photographs etc. These all are dream houses, where the senses can be educated by noticing the creations of old times, when biological survival depended on the correlation of hand, the heart and the eye that we celebrate the creations of various museums and design houses.

Manek (2012) reported the main aim of any documentation work was to ensure long term access to the information resourced beyond any geographical borders. In her study an attempt was made by the investigator to document the rich textiles of
selected individuals of Gujarat with focus on preservation and conservation of these artefacts. She revealed that documentation has a digital database where each artefact was accessioned with thorough documentation, including a coloured photograph and descriptive information about the textiles. Today, with the collection of database, virtually unlimited research is possible.

2.2 Raw materials, tools and techniques used in Metal Embroidery

Chattopadhyay (1975) reported that “the women seem to show almost a passion for embroidery and decorate practically everything they use and cover everything they can with embroidered fabrics”.

Mehta (1994) reported that a peculiarity of all Indian needlework is that the embroidery needle is pulled away from and not drawn towards the worker, as common in the west. She further stated that the manufacture of the gold and silver wire or thread used in the embroidery is a minor industry in its own. A bar of silver about 45cms in length and roughly 2cms in thickness is completely wrapped around with pure gold leaf and then heated in furnace sufficiently to fuse the gold. The thicker the gold leaf applied, the richer the red colour of the final product. Then the gold covered silver bars turned into wire by pulling it through steel draw plates. The wire is made thinner and thinner by drawing it through finer and still finer holes in the draw plate until it may measures miles in length and to be thin as human hair. The wire thus prepared is now flattened by gently hammering it on an annulli and finally around a silk thread. Hence it appears thicker than it really is and yet remains strong and flexible, characteristics very essential in thread to be used either in weaving or embroidery.

Lynton (1995) reported that there are three types of metallic thread embroideries. Two of which uses gold wrapped threads called zari. One style (mukka) requires thick zari to be coiled on the surface and couched with silk. Another style called kamdani, has metallic thread embroidered directly on the fabric. The third type of metallic embroidery is easy to distinguish because it uses flattened gold or silver wire (badla) that is pulled through the fabric, creating small raised metallic dots.
Gupta (1996) reported that the manufacturing of zari is conveniently divided into several stages. The first stage is potai or pavthan, which involves bar making and wire drawing. The bars are called pasa. In the next process, tarkashi, the wires are drawn through several plates, whereas in the final stage, diamond or ruby dies are used. The third and last stage of wire drawing is badla, the flattening process. The flattened wire or badla is the main variety of the drawn wire. Nowadays the embroiders have given the prevalent threads a number of names such as sachcha kam refers to work with real gold zari, jhootha kam refers to copper plated wire, while nakli kam refers to lurex wire or plastic is called rangin kam.

Most professional metal thread work is done by men who, by and large, sew in the workshops using a frame as this keeps the fabric taut and leaves the artisans with both hands free. Women use metal thread for folk embroidery extensively in Balkans, the Islamic world, in India and South East Asia and mainly embroider without using a frame (Gillow & Sentance, 1999).

Reddy et al (2009) reported that historically, zari is fine glittering silver or gold thread wire used as an embroidery material to enhance their grandeur and elegance. Subsequently zari took different forms wherein silver and golden wire is wrapped around silk yarn or polyester followed by electroplating with gold solution in case of pure zari or electroplated with gold like looking chemical in case of artificial zari. There are three types of zari and their variants prevailing in the market- real, imitation and plastic. Real zari is made from flat silver wire electroplated with gold. Zari made from those precious metals is used for ceremonial sarees, richly embroidered apparel, furnishing etc. Imitation zari on the other hand, is made from copper wire while the plastic zari is made from chemically coloured metallic yarns. Zari is produced in more than 20 colours. They further stated that the weight of pure zari is more as compared to that of imitation zari. The imitation zari will easily break when stretched between fingers.

Gupta (2010) quoted that the practising of embroidery art form may be individually or collectively. Embroidery is a skill shared by both men and women and is always carried out in a family atmosphere congenial to this kind of work, be in the intimacy of the home, in the busy workshops or inside the wall of the convent.
According to Basant and Goel (2013) the composition of varieties of zari are as follow:

Pure gold zari: The inside core of pure gold zari is made up of degummed twisted mulberry silk, over which is wound silver lametta (then foils) and is electroplated in pure solution. The pure gold zari is measured in marc (250gms).

Half fine gold zari: The inside core is twisted degummed mulberry silk. On it is wound this copper foil and this is electroplated with pure gold. The half fine gold zari measures in marc (233gms).

Imitation gold zari: The inside core is twisted rayon over which the artificial gold colour powder is superimposed to get the lustre and brilliance. This does not last long and it gets black in short time with use. It is quite cheap and mostly used on rayon fabrics. It almost resembles zari.

Plastic Zari: Of late, there is another cheap zari which has invaded the market known as plastic zari. The small thin plastic strips are superimposed in gold colour or in different assorted colours and made into zari. These are marketed under different trade names such as Rexor, Lurex etc.

Neem zari: These yarns are used extensively in many branches of textile industry from wide weaving to narrow ribbons, embroidery, braids, knitting, twisting, laces, and inner gimp decoration.

They further quoted that pure gold zari is the costliest of all and half fine gold is less costly in comparison. Imitation and plastic zari is cheapest among all. It is very difficult to distinguish between a pure gold zari and half fine zari. When a pure zari is burnt, the residue will give pure silver and gold, whereas half fine gives copper and very low percentage of gold. The last gives nothing but only ashes.

2.2.1 Zardozi

In 19th Century, two distinct types of gold embroidery predominated, Zardozi work, heavy gold laid upon a ground of velvet or satin and kalabattu work, light delicate embroidery in gold and silver thread, wire and spangles upon fine silk, cotton or
muslin. The latter was normally used upon dress pieces, but sometimes, in case of chop at game cloth, on small articles for personnel use (Irwin & Hall, 1973).

Brijbhusan (1996) & Gupta (1996) stated that Delhi, Bhopal, Lucknow, Agra, Banaras, Hyderabad, Surat, Bombay, Aurangabad, Jaipur and Murshidabad are all important centres of gold and silver embroidery. They emerged as active centre of this craft.

Naik, (1996) has discussed that there are two broad techniques of Zardozi work. These are karchobi and kamdani. Karchobi style have been developed under the Portuguese influence, was suitable for furnishing and accessories. The broad category of these items included tent hangings, cover, spreads, trappings, umbrella, parasols etc. The fabric was generally velvet or heavy satin with lining support underneath. The Kamdani technique on the other hand was more magnificently practiced on finer fabrics such as muslin, silk etc. which were more suitable for costumes and related accessories such as caps, veils, scarves, caps, bonnets, shoes, belts, purses, fans, jewellery etc. Apart from these several decorative items different religious manifestations also had Zardozi work. The embroidery is done with double strand beginning with a knot. This knot also gives a beautiful glittering effect, when small dots of overlapping satin stitches are made on it.

Gupta (1996) reported that Zardozi as a technique is understood to be a distinctive style of stitching as it differs from other traditions of embroidery like Kantha, Phulkari, Kasuti etc. where the movement of threaded needle is guided by variety of stitches. In other embroideries silk, cotton or woollen thread are used, which are binding medium, whereas as body of the design is completed by laying varieties of metallic threads in several shapes and forms along with beads, stones, beetle wings, etc. The whole process is more indicative of appliqué, then embroidery. Thus it may be called metal appliqué. She further corroborated by the fact that zardoz always get payments for amount of wire stitched on the cloth by weight. They never use the word kadai, the hindi word for embroidery, instead refer to it as salme sitare ka kaam ka takna which means laying salma, sitara on the body of the fabric.
Brijbhusan (1996) revealed that in gold and silver embroidery, satin, chain, stem and running stitches are used but the most important stitch is the couching or laid stitch.

Harvey (1997) revealed that Zardozi workshop was organised in the period of the Uzbek rulers in Bokhara, whereas areas of the city were given over to the guild workers who embellished the textiles of the emir's household. The embroiderers were men, as there was a superstition that when women worked thread of metal embroidery blackened. They worked with frame on which metal thread was couched on to background fabric of fine wool, cotton, silk or velvet in elaborate designs. When the embroidery completely covered the fabric the work was known as Zaminduzi or if single motifs were scattered across it was known as gulduzi.

Crill (1999) quoted that some metal embroidery styles are bought to have been introduced into India by Portuguese, but it was in during the nineteenth century that the widest range of metal embroidery materials were used on all sorts of garments, furnishing and accessories. Although they tend to be grouped together under the generic term of Zardozi, simply gold embroidery, there are many varieties of material and techniques used to give wide range of effects.

Zardozi style of embroidery first spread during sultanate period and then in Mughal rule in Rajasthani courts and has survived well over time. Gold embroidered pieces became popular with the mughal Kings as gift items. The gifting of such items to the non muslim nobles, rulers etc. extended this craft to the non muslim courts, particularly in Rajasthan.

Kumar (1999) stated that during the sultanate rule in India, there was the evidence of large scale production of Zardozi in the form of a state production craft. It is thought that the kharkhanas of the sultanate and mughal period which produces woven garments also produced luxury Zardozi embroideries, often jewel encrusted Zarkas, a Persian word which refers zari or gold embroidery and since thirteenth century, the craftsmen who worked with this medium, setting pearls, precious stones with the use of fine gold and silver thread was called zarkisa or zardoz. In Futuhat-i-Firozshahi, the biography of Ferozshah Tugluq, is the first text in which the word Zardozi appears. During the reign of Firoz that restriction was imposed on craft, this caused
gradual reduction in court patronage leading in decline of Zardozi. The craft received fresh impetus during Mughal period. It increased in Akbar period but decreased in Auranzeb period.

Bhatnagar (2004) reported that other than muslim religion that patronized Zardozi embroidery were Hindus and Jains. The crafts therefore reflected the tastes and preferences for fashion and requirements of the elite pockets of various religion sects the design were based on the typical taste of the groups of patrons, there were variations in form and styles. These designs have been influenced from time to time by the main cultural streams and have a variety of floral motifs. The designs are border designs, central designs, buti and buta.

The embroidery tradition of India is one of the most richly use and masterly in the world. The reference of rich and exquisite metal embroidery, Zardozi, comes in champiya Jataka. Small stars are worked in silk and gold with silver on dull yellow texture over the cushion and backrests. From the Vedic times to 13th century, references point to embroidery done on cushions with gold, silver and precious stones on a variety of fabrics including wool and leather (Dhingra, 2005).

Zardozi as ornamentation was done on dress and fashion accessories, badges, banners, insignia, hangings and other furnishings. These ranges of items could be for use in religious, court and domestic contexts. In the range of items in the religious category, the writing of inscriptions is recorded in the sultanate period, when a tiraz inscription in the name of Caliph is stated to have been made in zarkas (Crill, 2006).

2.2.2 Gota work

Singh (1979) quoted that Gota was also in use during the reign of M.S. Mansingh II. It was used to embellished pagari and turbans.

Grewal (1990) depicted that court embroidery of Rajasthan included gold and silver embroidery and thread work. Gold and silver work further categorized in gota and salma work. The gota form an intrinsic part of dress of Rajasthani women.
Kumar (1999) describes that the voluminous jama at City Palace Museum which was worn by Maharaja Pratap Singh (1778-1803) for his wedding was a gift from Takooji, the Maratha King. It is made of fine muslin coloured with rust vegetables dye and hand woven. The skirt is edged with a band of Gota which finished Gotamoti. She also reveal that 12 piece collection to make up jama, one of the earliest fabric of Jaipur City Palace Museum dated early 18th century, was made in royal karkhana. The trellis pattern around the butis is embroidered with flat gold badla. The butis are made up of cut pieces of Gota outlined and highlighted with gold dori. The base of each flower has a bottle wing switched on it and the petals emerald green and russet silk threads resulting in pietra- dura effect.

Bhandari (2004) reported that depending on the width, Gota can be found under different names, such as chaumasiya and athmasiya. Essentially, Gota is a strip of gold or silver ribbon of varying width, woven in satin weave. Badla, a metal yarn made of beaten gold or silver, forms the weft and silk or cotton is used in the warp. She further discussed that the popular designs elements like flowers, leaves, stylized mangoes, checkerboard pattern, parrot, peacock, heart shaped and elephant motifs are usually worked on odhana and ghagras.

Traditionally Gota ribbons were woven with a warp of flattened gold and silver wire and a weft of silk or cotton thread and used as functional and decorative trims for a variety of garments and textiles used by the royalty, members of the court, idols and priests, as well as for altar cloths at shrines and prayer offerings. With the subsequent substitution of pure gold and silver with gilt or lurex and the mass production of Gota on electrically powered swivel looms at Surat and Ajmer, Gota came to be used by all communities and castes of Rajasthan considered to be shagun, a symbol of good omen and good will, Gota may be used as kinari, edging, or cut and manipulated into motifs that are sewn onto garments and turbans worn during weddings and festivals such as Id, Diwali, Dussehra, Sharad Purnima, Holi, Teej and Gangaur (Ranjan & Ranjan, 2007).

Shrikant (2009) revealed that the main centre of Gota work was the city of Jaipur, which was believed to be the birthplace of the craft. The origin of the craft is obscure. The story goes like this: Mughal emperor Humayun brought some Persian
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craftsmen with him on his return to India between 1539 and 1554. These craft
influenced most of the courtly arts of that time. The Rajputs patronised this craft and
invited artisans all over the country to settle down in Jaipur and hence *Gota* work
flourished. But another school of thought believes that Gota might also have
originated as low-cost version of *Danka* work. The colours used in *Gota* craft have it
own significance and connotation. Gold is associated with sun and goddess lakshmi
and silver denotes moon and its light.

Swarup (2012) quoted in her book that *Gota* can be plain or can be pressed with a
hot wooden block to produce crimples, giving a sense of movement to the surface.
The pressing are of various designs. Different names are given according to the
width of *Gota*. A two-inch broad *Gota* is called *lachka* and when it is pressed with
hot wooden block, it is known to be pattha, thin *Gota* is called dhanak or dhanush,
meaning a rainbow: hoof shaped is *chutki*, pointed *Gota* is called *champa*; and one
with diagonal lines is *uttudar, bankhuri* is thin *Gota*, is used to embellish borders of
*chunnis. Kinari* or *kiran* or edging, is the fringed or tasselled border used to add a
beautiful finish.

Luniya and Bhalla (2012) reported in their study that there has been change in the
motifs of *Gota* work from past to present. In the past geometrical designs were
found, along with peacock, paisley & floral design, where as in the present the
designs have been changed from small to large motifs. *Buttas, butties* and *jaal* are
formed as *Gota* is cut and folded into various shapes. The motifs are categorized
such as *buttas* and *butties* floral including *gamla, pan ka phool, jaliwala phool* and
*star phool*, birds and animals including various styles of peacock, sparrow, elephant
and other including *Kairi, human figures and palanquin*. The *jal* work included *thali
ka jal, bangri ka jal, kalash ka jal, saras ka jal* and *patti ka jal*.

Bhalla and Luniya (2012) reported that all community women like Jains, Baniyas,
and Rajputs are involved in the *Gota* work in Nayala district of Jaipur but religion
wise predominately muslims are involved, the ratio being Muslim 75% & Hindus
25%. An interesting caste dimension of the craft is that the Rajput women do *Gota*
work & Muslim women do *Aari tari & Kashidakari*. 
2.2.3 Danke-ka-kaam

Vyas (1987) found that *Danka* work practitioners (Bohra community) were economically strong people who believe in Shia religion situated in the Mewar state. During the rule of Rana Sajjan Singh, a strike held by the businessmen of Udaipur, which was not supported by the Bohra community. Thus, the emperor had given all the promotional facilities to the Bohra community in the state. The Bohra community were engaged in doing *Danka* and *zari* work on sarees and costumes for elite class and rulers of Udaipur.

Mehta (1994) quoted that *Danke-ka-kaam* is a speciality of Udaipur. According to the information gathered from historical literatures, it was found that the history of *Danka* dates back to Rajput rule in India that is nearly 400-450 years old, the Bohra community practised this craft under Rajput rule and took reign of the industry after independences. The *Danka* profession was taken over by this community and is still under their control.

Mathur (1994) quoted that the emperors of Mewar used to decorate their garments with gold and silver embroidery to enhance the richness of their wearing apparel used on auspicious occasions, festivals and ceremonies. The designs for embroidery were mainly floral with leaves, petals and flowers. The embroidery done on the garments of Maharanas of Mewar that sometimes it was hard to trace the surface of the ground fabric. It was directly done on the garment or on a separate piece of cloth which was attached later on a garment. The work done directly on the garment gave very graceful effect. The separate piece made the garment heavier and thicker. The range of articles other than wearing apparel were very wide and in spite of the high cost, it was also used for decorative footwear, cushions, belts, caps, canopies, hooks, etc. leather, velvet, silk and cotton were used for embroidery.

She also revealed that, *Danka* was also made with superior silver sheets, which was first warmed and then gold foil that was applied to its surface and pressed. Of late, well finished polished thin silver sheets of 98% purity are electroplated with gold in strips. The cost of *Danka* product is calculated according to its weight. The manufacture of the gold and silver wire or thread used in the embroidery is a minor industry. A bar of silver about 45 cms in length and roughly 2 cms in thickness is
completely wrapped around with pure gold leaf and then heated in furnace sufficiently to fuse the gold. Gold and silver embroidery is invariably done with the cloth stretched on wooden frame.

According to Makhijani (2006) reported that if academician Vandana Bhandari had not been married into Udaipur based family, Danke-ka-kaam, the 400 year old embroidery craft once patronized by the Rajasthani city’s royalty which has decline through age would never had been revived. She has made efforts to revive the craft by organising the workshops to train the youngsters with the help of only two practitioners Kutubudin and Saif-u-din, who are only present to practice this craft.

Babel and Kaur (2010) found that the traditional Danka work was mainly done on Rajput women’s costume. The Danka work is limited to traditional dresses like rajputi poshak and sarees. It is done on bright coloured fabric by the use of gold and silver metal leaf plated with gold.

2.2.4 Mukka-ka-kaam

Women from meghwal leather community from Barmer and Jaiselmer region of Rajasthan make cholies, purses and scarves, either on red ground with a profusion of flowers and birds, supplemented with mirror or beaded pompoms, or couched metal thread against a black ground (Hatanka, 1996).

Bhandari (2004) quoted that at the time of marriage of Sindhi- Musalman, a kanchli of red bandhej with orange and white dots is preferred. This kanchli is embroidered with black and ornamented with gold and silver mukka and pukka work, inset with mirrors. These items are given as gift in dowry to the bride. Motifs that were basically preferred are zigzag patterns of stars and triangles The local name of motifs and design are derived from everyday objects like funi, patasha, chaukri, courtyard and daboo.

The Meghwal migrated from Pakistan to Kachchh and Rajasthan; a significant number have settled in the villages of the Bajju region of Bikaner district. Embroidery forms a key component of their visual culture as it is executed on products that are worn or given during marriage and on dowry objects. Consequently, the embroidery
make use of mirrors and is characterized by its refined craftsmanship dense coverage, rich colours, and elaborated motifs and finished edges. Meghwal embroidery may be broadly classified as pako, or solid and permanent, and kacho, or temporary. The pako tradition utilizes geometrical forms, densely covered embroidery of chain stitch variations and herringbone stitch, and blocks printed outlines for the embroidery. Kacho embroidery is distinguished by its use of counted thread work techniques such as suf, kharek, kambhiri and mukka. Mukka, a technique borrowed from Muslim embroidery, refers to the use of gold and silver thread which is couched on the fabric (Ranjan & Ranjan, 2007).

2.2.5 Aari Tari

Grewal (1990) highlighted in her study that, mochi bharat is the chain stitch generally associated with the cobblers (Mochi) of kutch area of Bhuj. Later it travelled to neighbouring areas of Rajasthan. Originally it was used to sew together and decorate leather goods. Women folk of Rajasthan used this embroidery to decorate ghaghras and kachlies.

Shrikant (1998) revealed Aari Tari is done on silks as well on leathers. Specially in Rajasthan and some parts of Kutch beautiful purses and mojdis (Indian shoes) are embroidered in Aari Bharat.

Ari work is believed to have enriched the costumes of the Mughal court and largely prevalent during the reign of Akbar where royal ateliers were brimming with craftsmen producing rich trappings in gold. Ari work and Zardozi flourished with royal patronage but suffered a decline in Aurangzeb’s time, but today it has seen resurgence (Jaitley & Sarabhai, 2008).

Ari work is done mostly in the Bikaner, Jodhpur and Udaipur, especially among the mochi community (Rajpurohit, 2008).

Pandya & Dholakia (2013) revealed in their study that Kanabi, Bhanushali, Satwara, Lohana and Mochi were practicing intricate embroideries in Kutch region. Findings revealed that majority of the artisans were not aware about the time and place of the origin of their embroideries but they had an approximate idea about origin and age
of their embroideries. All the embroideries have undergone changes due to various factors such as religious, cultural, social, economic and commercial. Results related to motifs used by the selected communities revealed that the major source of inspiration was nature and objects used in routine life of the artisans for all the embroideries such as flora–fauna, human figures, animals and birds.

2.3 Socio-economic profile of artisans
Chopra (1998) revealed that the majority of the embroiderer would not like their children to continue to work for Zardozi and Aari embroidery as they would like to educate them. Moreover it leads to eye-sight, backache and headache problem above all wages are too less. She further stated that the various problems faced by unit owners are shortage of raw materials, skilled artisans, marketing and finance. Embroidery work is not paying much as compared to the time devoted by them. They also revealed that pension, bonus and medical facilities are also not available. Suggestions given by the owners are that government should provide financial aid and should set exhibitions to increase the sale and demand of Zardozi and Aari embroidery. Pension, bonus and medical facilities should also be provided by the government.

Mehta & Sherry (2009) reported in their study that the average age of the adult workers in zardozi industry is less than 30 years, though a substantial number of them have spent more than six years in this work. Accordingly, it has been ascertained that after certain age or more than 15 years of work experience, a majority of workers become incapable of carrying out the zardozi embroidery due to poor eyesight. Since children enter this craft at an early age, therefore the adverse effect of this craft on their eyesight is a cause of serious concern.

Mondal (2009) stated that the whole industry of zari embroidery is being regulated and controlled by mahajans (traders). As marketing of this craft is exclusively controlled by the mahajans, their profit is very high. While the profit of ustagar (entrepreneurs) is quite lucrative as they regulate the entire production system. But the earning of kaarigars (artisans) is much low as there is no fixed wage for them. The demand for this craft is highly seasonal so the artisans entirely depend on ustagars as well as mahajans for the sake of their artistic work.
Jaffer (2014) stated that due to increasing costs and the involvement of a chain of middlemen, a zardozi earns less today than even a daily wage labourer despite straining their eyes continuously for 10 hours or more everyday in poor light. Everyone reaps the benefit from this exquisite art except the artisan, who barely able to earn Rs 5000 per month. If living and earning conditions worsen further, the art is sure to die away, leaving the business in the hands of those who know nothing about zardozi. She further quoted that the artisans do not want their children to learn the art of Zardozi and wants the government to provide loans and subsidy to artisans so that they are able to earn a living and the art survives.

2.4 Designing

Muchikar (1986) elaborated that sometimes the prints/ motifs remain unchanged but their final products or stitched form changes according to the need of fashion. These design patterns are manipulated to suit the present day need i.e. change of colour, combination of changes, and the self creativity of design in fashion magazines. People who are fashion conscious, constantly remain in search of something new and unique in their areas to maintain their identity and handmade items of traditional textiles are the best examples which satisfy this instinct (Mehta, 1970).

Carr and Pomeroy (1992) revealed that design is a visual thinking that comprehends ideas in parallel rather than one another, shapes, colours and textures as an integrated whole rather than separately. The effective designer can be recognised by the wide range of elements considered as skill and judgement used to select the elements of new style, shapes, colours and textures.

Marshall et al (2004) stated that the motifs are classified according to design style as geometric, realistic, stylized and abstract. Geometric motifs include plaids, checks, stripes and circles. Realistic motifs include florals that belong in the nursery and animals that abound in the forest. Stylized motifs are variations of natural forms. Abstracts motifs are non-objective and have no counterpart in nature or manmade.

The traditional motif is defined as one which passes from generations and is inspired by the flora and fauna of nature. Its characteristics are flowing and rhythmic lines and intricate, decorative shapes. The traditional design of India can be further
Review of Literature

classified into paisley, ogee, grapevine, centreline, butis, jaal and border. Any design that is not traditional is generally termed as modern design. These designs are contemporary in their approach and do not follow the traditional patterns and detailing. Instead, they are influenced by impressionism and can be said to have a cleaner and minimalist approach (Betala 2005).

Jyoti and Grover (2009) quoted that the design activity of every man is not a casual and simple process. On the highest level, designing is the conscious and knowledgeable manipulation of the elements to produce an expressive statement. It is a purposeful creation in which emotion, knowledge imagination and intellect are operative. The word ‘designing’ refers to the total composition of lines, forms, colours, shapes and textures in a decorative manner. These elements of design appear in the textiles that we use for personal or household purpose. Designing is done for equipments, jewellery, textiles and apparels etc. Designing textiles has been an ancient art of India. The traditional Indian motifs, which have provided inspiration to decorate Indian fabrics of different types, were lotus, shrubs, tree of life, mango, peacock, birds, elephant and dancing figures.

2.4.1 Developing new design through Computer Aided Designing

Computer Aided Textile Designing is the hope and anticipation of today’s era. Computers have helped to carry on the work easily and in a short duration, maximum number of assignments can be fulfilled leading towards profit of the company.

Three factors that determine the size of a design are the size of the motifs and space, the end use of the fabric, and the equipment that will be used to print the fabric. CAD systems allow the designer to add and remove components from a design, alter the scale of the design, put the motif into a variety of repeat types, and explore various colorations of the design (Yates, 1996).

CAD plays a vital role in facilitating the creations of new designs and the production processes in fast changing global trade. While it takes 3 to 6 days to finish a design manually on a graph sheet of size 288 sq. inch, it takes just one day to get the finished design from the computer. But master weavers are still encouraging manual designing as they apprehend computers may lead to multiple supply of designs
which is difficult in case of manual designing. Thus a free CATD programme was arranged for designers where demonstrations were given on CATD. This was a big revolution in Dharmavaram design industry (Ghosh, 1999).

Arun (2000) reported that the applications of Computer Aided designing is being used in fields of weaving, fashion, embroidery, apparels, printing and knitting. In weaving, CAD technology can be applied to electronic pattern cards that control the movement of healed frames or ends in dobbey and jacquard. In case of embroidery, embroidery heads and stitches can be controlled effectively according to design. In the field of apparels, printing and knitting through CAD application, designs could be created, edited, modified and saved in respective archives to retrieve as and when in demand.

The use of CED (Computer embroidery design) graphic system for designing, embroidery patterns and production of embroidery tapes and jacquard cards for electronic data is possible. It is also used for the automatic stitch generation for any shape, stitch types, automatic underlay, auto shuffle jump stitch, to save motif, editing of shape, basic lettering etc(Arun, 2001).

Bains and Bhatti (2001) developed software for Phulkari design under Microsoft Disk Operating System (MS-DOS). The basic statements used in MS-DOS were arithmetic operators, read, for-to, go-to, go subroutine, if-then-else, input, locate, loops, print, read, return and end statements. The software developed provided immediate visualization of the results of any design on the monitor and any detailed alterations could be done in minutes. The simulation involved also provided an additional advantage of checking out the suitability of designs on computer screens for commercial production.

Taneja (2004) developed interactive database on Compact Disc for Swastika design. Hundred designs were created using Coreldraw10. These designs were presented in the database in the set of twenty designs per frame. By double click on the particular design, the design will be enlarged and for further application user can manipulate these designs by saving the design on the hard disk by clicking on the button provided for the same. The information related to existing and newly created Swastika designs
were arranged in the form of database by using software Flash. Database was made interactive by giving various effects in presentation of pictures and sound effect was also given. Documentary was also added to make it more understandable which showed that technology enhances quality of work.

Gabba (2005) in her study reported that art from the past is always used by the artists as a foundation for their creativity. The craftsman of today have become aware that hundred of motifs that are coming alive are easily adaptable from one craft to another as tradition has shown that it is the form and texture that are pre-eminently important and therefore same motifs and ornamentations may be used effectively on any material surface. Development in any field is essential and continuing process so is the field of traditional textiles, due to flourishing demand our commercial market has also started utilising traditional design pattern and special techniques used in making textile prints in desired form after necessary manipulation through CAD.

Namrata & Naik (2006) in her research work reported that nowadays, CAD in every field is hastening the work efficiency and assisting to introduce variety in colours, designs and textiles of fabrics. It is possible to produce a single design with several colour combinations either changing the background or colour of the pattern to attract the buyers and know the trend of colour combination. Colourway is nothing but showing a pattern or a background in different colour combinations. Thus, in her study, the researcher made an effort to produce the prototype diwan sets in different colourways. Here the background colour was changed from creamish (gray sheeting material) to lighter hues of blue, red and yellow, keeping the colour and pattern of khana fabric same. The surface embellishments and special features used to contemporize diwan sets were also kept constant. The graphics of diwan sets were scaled using CorelDraw version 11 and the khana material was scanned on HP scanner, copied, pasted on the graphics of diwan sets. The designs were highly appreciated by the experts

Sharma, Sharma & Subhedar (2007) reported in their article “Putting ICTs In the Hands of the Women of Kanpur and the Chikan Embroidery Workers Lucknow” that the project was established in Community Multimedia Centres (CMCs) in Lucknow–Kanpur area to impart training in IT, handicrafts and other traditional
vocations in addition to providing information on health, education, and women’s empowerment. The project included computers with Internet access, high-speed printers, and scanners to enhance both the vocational and basic ICT skills of the disadvantaged and marginalized Kanpur–Lucknow women. Participants were assigned to Self-Help Groups (SHGs), and the SHGs were trained using the Microsoft Unlimited Potential curriculum in addition to ICT-based vocational and skills-based modules. Furthermore, basic skills such as tailoring, embroidery, and handicrafts were reinforced with the help of ICT modules to support the women’s creation of chikan embroidery designs.

Naik & Vastrad (2008) reported in their study that hand embroidery has importance and sanctity of its own. The traditional Karnataka Kasuti is elaborate, requires skill and hence works out to be more costly. In today’s fast changing fashion, traditionally being the fame and interest of the elite in society, people are ready to spend. Hence, this elaborate embroidery is more suitable for the traditional and expensive silk saris, which surely enhance and restore the tradition. On the other hand, negi kasuti motifs would go unseen and may gradually become extinct, unless efforts are made to revive it. Hence, computerising negi motifs and incorporation through jacquard on the handloom hastened the production process and thus made traditionally available for women consumers of all income groups.

The conventional method of designing is tedious, time consuming and laborious. The entire process of designing is revolutionised where previously designer used to labour over graph paper. In order to keep pace with the diversity of modern generations, demand for more flexibility, dynamic and versatility techniques like Computer Aided Designing have been developed. The modern technique aim at simulation of conceived designing onto the monitor and this help in better visualisation of wide spectrum of design (Bogart, 2008).

Jyoti and Grover (2009) viewed that Computer Aided Designing is gradually taking momentum in the era of textile designing. The conventional method of designing was tedious, time consuming and laborious. The researcher has developed fifteen designs for screen printing of bedcover using Corel Draw and Photoshop software by analysing and rearranging the motifs which was highly appreciated by the
respondents. The software eventually saved time, money and labour resulting into low cost of production.

Naik and Byadgi (2010) found in their study that in the present scenario of fast lifestyle, designs with assistance of CAD has not only expanded horizon of designing but also can create any number of designs that could be saved in the library to apply as and when required. CAD systems are more advantageous with respect to the speed, pattern creation, editing, repeating, flexibility, variety, colourways and cost effective.

Kaur and Gandotra (2012) reported in their study that a total of thirty Phulkari motifs were identified on the basis of primary and secondary sources for stylish knitwear product. These motifs were stylised through CorelDraw. Thus, ten designs were developed with five different, colour combinations for the production of final articles. These designs were fed to computer system of knitting machine to get final pieces of knitwear’s with phulkari motifs. The result revealed that majority of respondents had preference for geometrical motifs (24.10) followed by floral motifs (23.26), stylised motifs (19.59), for chope (17.60) and for bird and animal motif (15.45). The result showed higher acceptability through Computer Aided Designing.

2.5 Product development

According to Koshy (1995) designing of fabrics and its commercial production depend on many factors, such as the climate, the region where they are to be used, cost factor etc. While the dress is aimed to be attractive it should be economical too. Depending on the above the designer selects the fabric, from cotton to silk to man-made synthetics. The vast range of ethnic designs reflects the sartorial taste of the multifaceted composite culture of the region.

Chatterjee et al (2007) in their article “Designing Handicrafts using Information Communication Technology” quoted that product innovation and improvements in design as well as manufacturing technologies in the formal sector of occurs on a routine basis. In the case of the informal sector, the concept of product innovation remains subdued. With an introduction of modern technologies of design and product innovation, the change is necessary in informal sector so that the economy can be uplifted. In particular, the textile sector in India presents an appropriate case
for introducing the tools of design and product development. It is felt that the textile handicraft sector will be benefited if such tools and products are available at an appropriate price. In order to overcome the cultural inertia of change, it is necessary to provide an appropriate environment of training and education. Since the economic size of this sector is large, any effort in the direction of technology improvement will yield significant dividends.

Babel and Sodha (2007) developed ten types of product using jute fabric and phulkari embroidery and evaluated it by the panel of judges. They came to the conclusion that minimum 20 percent of profit can be gained by development of value added article made by jute fabric and phulkari embroidery which are ecofriendly.

Byadgi (2009) reported in her study that conventional Gujarat embroidery motifs were modified and digitized and were incorporated in hand woven Dharwad saris using GC Kala – 2004 with interface Paint Shop Pro (PSP) software. Thirty each working women and housewives of Dharwad town were interviewed to assess the extent of acceptance for the swivel pattern saris. More than fifty per cent of the housewives mentioned that most of the digitized patterns of Gujarat embroidery resembled wholly with the respective hand embroidered motifs, however, they preferred digitized patterns. The respondents in general opined that the swivel pattern saris were excellent since the designs were very attractive, pleasant, eye catching, unique and first of its kind. The cost of production of saris was relatively lesser than hand embroidered, where the weaver could earn 25 percent of net profit per sari.

Babel and Kaur (2010) reported in her study that majority of the experts appreciated the efforts made by researcher in developing value added shawl with danka work. All the respondents highly appreciated workmanship of the shawls and according to their views developed danka work shawls would have enough buyers in the market as women preferred to wear these types of shawls on poshaks and saris. Further the judges opined that the motifs developed were very innovative and creative. Thus it was suggested from the present study that traditional design on danka work are useful as self employment project by using them on making different shawls for sale through boutiques or retailers and also a good boost for creativity.
Babel & Kumawat (2011) reported in their study that developed design layout used on less width khadi fabric made bed linens were highly appreciated by the respondents as shown by higher acceptability (70-90 percent). They were found exclusive and unique by the respondents. The cost of developed bed linens was found very reasonable and had good market potentials. She also referred that modern computerized machine embroidery can be useful as self employment project by using them in making different design of khadi bed linen.

2.6 Training
Vatsala (1997) reported that Hyderabad is famous for its banjara embroidery. The embroidery is the part of their life which needs no training. During off season they can utilise their skill for training in the urban market. Value addition through appliqué and patch work, embroidery and needle work can add a lot of the value of textiles and clothing which can be taken up as cottage industry which is suitable for women who are generally homebound for income generation.

Liebl and Roy (2000) stated that crafts producers who have lost their traditional markets often are not aware of potential new markets for their products, in urban India and abroad. The low level of education and rural orientation of the majority of craftspeople leave them vulnerable to exploitation by all those middlemen who are their only means of access to distant markets. When they do have the opportunity to interact directly with a buyer, the problems multiply. The essentially agrarian, rural world-view of the producer does not mesh easily with the exacting demands of the international market, and experiments in direct market access often end in total failure. Crafts producers suffer greatly from lack of working capital and access to credit and loan facilities. The producer who receives a large order will often not be able to find the funds necessary to purchase raw material in bulk, or to support the family while the work is in progress. And the irony is that the amounts that could make a real difference to the crafts producer are often extremely modest. Various credit schemes are available to craftspeople, primarily through government institutions, but it is difficult for the uneducated artisan to understand and access these programs, and it is often impossible for a poor craftsperson to manage the
necessary collateral or funds for required bribes. Designer Ritu Kumar in 1970s
revived the traditional form of the embroidery done with silver and gold wire to
create fine evening and bridal outfits. In time she expanded into traditional crafts,
such as other forms of embroidery, mirror work and hand blocked prints.

Tyabji (2005) reported that when they first started Dastakar: A Design Intervention
with Chikan Embroidery with the Self-Employed Women’s Association in Lucknow
in 1986, the average wage paid for the embroidery in the chowk was Rs 2.5 to Rs 5
per kurta and Rs 25 for sari. But after 5 years SEWA women earn between ten to
twenty times that much, depending on the quality of embroidery. It is exactly
twenty years since SEWA Lucknow first started, famously 'with twelve women, one
tin trunk and ten thousand rupees'. In the interim years, SEWA Lucknow has grown
to an ever increasing number of 7,500 w o m e n and their annual turnover is in
crores. It still continues to be both a major centre of chikan production and
marketing, as well as a catalyst for social development and women's empowerment.

Bhagat, Rai, and Manjari (2005) stated that the NGO has given design intervention
in the revival of a languishing craft: The embroidered art of the Chamba rumal.
Delhi Craft Council is re-examining their marketing strategy to identify new markets
and new methods of distribution for the rumals. They plan to organize exhibitions
outside the country as well as promote the artistic, social, and cultural worth of the
exclusive art of Chamba rumal embroidery.

Dedia and Hundekar (2008) revealed that the craft of embroidery, an allied part of
the textile wealth of the country has also been reinvigorated by the designers, who
had worked with traditional craftsmen. If not the revival of Kashmiri crewel
embroidery of tapestry by Rajeev Sethi, who has created a wide range of interesting
products with the craft traditions in the area; the lucknowi type of embroidery work
was popularised by Laila Tyabji through SEWA; the many strands of needle work
from Gujarat that was popularised by Prabha Shah for a cooperative called “Sohan”
and also through Gurjari; the kantha work from Bengal popularised by Meenakshi
Mukkherjee, the cut-work and patchwork from Orissa and the sumptuous Zardozi
work favoured by fashion designers such Ritu Kumar and Rohit Bal are some of the
well known success stories.
Domestic embroidery has achieved the status of readily marketable product providing employment, income and thus empowerment to women embroiders. The commercialisation of production called for modification in the design and product range to suit the market. Adapting to the changing trends, has generated income for the embroiders, thereby assisting in the economic advancement of the women of these communities, and by extension in granting item, increased confidence and self esteem (Sethi, 2010).

Deo et al (2010) elucidated that training plays key role in generating employment and opportunities for rural youth. After the training of six months on adoption of value weaving and value addition to the thirty trainees, it was assessed that 80 percent know how to do warping, lea wrapping, weaving, value addition techniques like, quilting, simple innovative embroidery techniques and appliqué work, so they could easily adopt it as business.

Deo (2010) reported that after giving a training for six month on handloom weaving to the thirty artisans, the result showed that that the 86.66% of the trainees were found in the medium level of adoption after the training, 3.33% were found in low level of adoption and 10% of the respondent had high level of adoption. It suggested that the training had positive impact on the respondent. Although all the respondent reported and showed interest to form Self Help Group to start their own weaving unit but they found difficulties in how to start business. These training can play a key role in generating employment opportunities for rural youth in local areas.

Mahale et al (2012) quoted that economic empowerment is pre-requisite for any kind of empowerment. Training programme for 30 days was conducted by ALL India Co-ordinated Research Project on Clothing and Textiles unit for the women group of adopted villages- Nigadi, Hebbli, Kawalgeri, Uppin, Betgiriri and Kanvobonnapur. The result revealed that overall highest percentage of knowledge gain was observed for storage of clothes and embroidery followed by garment construction. However among fourteen technologies drafting and cutting of material attained maximum t-value followed by embroidery, garment construction and footmat implying that the training had higher level of impact on the respondents.
Joshi (2012) stated in her study that 45 days training programme was scheduled for women in Dausa district on zari & zardouji embroidery. A total of 80 rural women and girls were trained. Impact of these training revealed that 90% of the participants found these training very useful. After completion of these trainings, 30-40% of the trainees were able to get employment and they all are earning between 800-2000/- per month. Rest of the trainees are utilising the skill learnt for their own use.

**Research Gap**

A great deal of researches has been conducted on Zardozi embroidery, which encompasses its threads, material used and process of Zardozi, zari industry and descriptive study on Gota work. Products been developed on Zardozi, Gota work and Danke-ka-kaam but not much literature is available on Mukke-ka-kaam and Aari Tari. Results related to contemporisation of motifs reveals that Computer Aided Designing has been used only in developing motifs for printing, weaving and colour variation on prototypes but not on motifs of metal embroidery of Rajasthan. Training to women for skill development has also been undertaken for Zardozi.

After identifying the research gaps it was felt an extensive research on metal embroidery of Rajasthan should be conducted which aims at exploration of tools and techniques of metal embroidery, finding the profile of artisans as well as documentation and contemporisation of motifs and then imparting training to women.