CHAPTER- 2

REVIEW OF LITERATURE

A literature review is a description of the literature relevant to a particular field or topic. It gives an overview of what has been said, who the key writers are, what are the prevailing theories and hypothesis, what questions are being asked, and what methods and methodologies are appropriate and useful. As such, it is not in itself primary research, but rather it reports on other findings.

“A Literature review uses as its database reports of primary or original scholarship, and does not report new primary scholarship itself. The primary reports used in the literature may be verbal, but in the vast majority of cases reports are written documents. The types of scholarship may be empirical, theoretical, critical/analytic, or methodological in nature. Second a literature review seeks to describe, summarize, evaluate, clarify and/or integrate the content of primary reports” (Cooper, 1988).

The present study has been undertaken to Study the “Design Development and Acceptance of Khadi as Infant wear”

The Review of Literature for the study has been collected under three sections:

2.1: SECTION-I Deals with extensive review of KHADI

2.2: SECTION-II Design and Clothing

2.3: SECTION-III Infant and Clothing


2.1 SECTION-I- Deals with extensive review on KHADI.

Starting with understanding the Meaning and Definition of Khadi, History of Khadi, The Technique involved in the production of Khadi, Hand spinning on the traditional Indian Charkha, Fine varieties of Khadi, Khadi Post Independence, Major Schemes of KVIC, Contribution of Khadi to the economic and the moral regeneration, Suitability of Khadi for Clothing, Quality Assurance Norms For Khadi, Khadi and Its role in Indian Cinema, Khadi and Self Sufficiency, Khadi: The only answer to healthy Environment, Benefits of Khadi, Khadi: As Gandhiji believed. Various research Studies already conducted in the field of Khadi like Gandhian views On Khadi, History of Khadi and Financial Performance of Khadi Corporations, Studies related to Design development in Khadi, Studies related to Khadi and Customer Preferences have been reviewed.

2.1.1 Meaning and Definition of Khadi.

"Khadi can and should have only one meaning, viz, hand- woven cloth made from hand-spun thread. Silk-thread, just fiber and wool woven in this manner may be called, if we like, silk, jute and woolen Khadi, respectively. But it would be ridiculous for anyone dressed in Khadi silk to claim that he was encouraging Khadi." (Gandhi M., Navjivan, 1924)
a) “Khadi” a dialect of Hindi, which means the Indian Handspun and Hand woven cloth which is made on a machine used by hand to weave cloth for people living in the villages.-A “Handloom” (Joshi, 2002).

b) An Indian homespun cotton cloth (Concise Oxford English Dictionary)

c) A cotton cloth of plain weave, produced in India (Collins Dictionary)

d) Khadi or Khaddar is a term for handspun and hand-woven cloth from India, Bangladesh and Pakistan primarily made out of cotton. The raw materials may sometimes also include silk, or wool, which are all spun into yarn on a spinning wheel called a charkha. It is a versatile fabric, cool in summer and warm in winter. In order to improve the look, Khadi/khaddar is sometimes starched to give it a stiffer feel. It is widely accepted in fashion circles. (Wikipedia Encyclopedia)

2.1.2 History of Khadi.

Khadi was conceived in 1920’s as a symbol of Swadeshi movement and self-reliance of the villages. The Gandhian ideas of simplicity, Swadeshi spirit and decentralization are embodied in Khadi. It was a practical attempt to relieve the poverty and uplift the standards of Indian village people. In 1919, when there was a movement to boycott foreign goods, Gandhiji appealed to his countrymen to adopt Khadi. At the same time of Nagpur session (1920) the Indian National Congress decided to encourage Khadi (Sekhri, 1992).

Innumerable songs were composed during the years of freedom struggle on ahow Gandhi will or did derive out the British with the help of his Charkha. Khadi became a symbol of freedom struggle. “Livery of Freedom” as Nehru described Khadi and as it was referred by Mahatma Gandhi. Gandhi ji declared in one of his speeches, “My Swadeshi chiefly centers around the hand spun Khaddar (Tarlo,1997).In fact, Khadi was introduced in 1920 as a political weapon for the boycott of foreign goods in general and cloth in particular and thus stimulate in every Indian a desire for independence as well as attitude of self-discipline. Khadi was a vital part of non-cooperation movement. However, Gandhiji was always alive and conscious about the economic aspects of Khadi. He, therefore, emphasized the economic value of Khadi, as a means of finding work for spinners and weavers, as a measure of relief from evil of widespread unemployment. Slowly a separate Board called the All India Khadi Board was
established in December, 1923, but this continued to be an integral part of the congress organization and worked under its direction and supervision.

The All India Spinner’s Association, also known as Akhil Bhartiya Charkha Sangh, was formed in 1925. Though this body was closely associated with the Indian National Congress, it was completely autonomous in its working. Till 1935 the Association concentrated its activities on propagation, production and sale of Khadi. The main objective of this association was that Khadi could have “a permanent effect only when carried out as a part and parcel of the wider program of non-violent village uplift or village reconstruction” (Nanda, 1935).

After the advent of independence the support of the National Government was sought for the promotion of Khadi and it was readily forthcoming. The all India Khadi and Village Industrial Board was formed which was succeeded later by the Khadi and Village Industry Commission. The work received a big fillip and production of Khadi which was valued at one and a half crore rupees at the time of the establishment of the Board in 1953 increased to ₹ 22.23 crores and spread widely throughout the country. Spinning centers were established in one lakh villages and weaving centers in one thousand villages.

The small institution gained new vigor. Organized efforts were made to impart training, introduce improved implements, conduct research, etc. in Ambar spinning and other outsiders were secured. The government also extended aid in the form of rebate (Swaroop, 2002-03).

The Khadi and Village Industries Commission (KVIC) is a statutory body created by an Act of Parliament (No. 61 of 1956 and as amended by Act No. 12 of 1987). The main functions of KVIC, include planning, promotion, organization and implementation of program for the development of Khadi and other village industries in the rural areas in coordination with other agencies engaged in rural development wherever necessary. Established in April 1957, it took over the former All India Khadi and Village Industries Board (polyvastra).

During the times when India was being ruled by Britishers and when Indians had started to revolt to gain freedom, Mohandas Karamchand Gandhi, A great freedom
fighter of India, believed that Swadeshi is the first step towards independence. In 1909 he wrote in HIND SWARAJ, that freedom cannot be attained without “Charkha” (spinning wheel). In 1915 Gandhi ji established KOCHAR AASHRAM, which had hand looms on which the mill made yarn was woven. He realized that it was not appropriate to use mill made yarns thus the search for “Charkha” the spinning wheel stared which had got lost with coming in of Power looms. The search was very tough but an activist Ganga Ben, Gandhi ji’s associate was able to search one family who would do hand spinning in Bijapur and that was the beginning of happiness towards achievement of Swaraj. Fabric could once again be woven using hand spun yarn. Gandhi ji named this fabric as “KHADI”. “Khadi” a dialect of Hindi which means the, Indian handspun and hand-woven cloth made on a machine “HAND LOOM” (Swaroop, 2002-03).

In 1919 Gandhi ji called for “Khadi fast” all over the country and related KHADI directly with freedom. It was then that all were sure that abolishing the foreign fabric and producing KHADI was the only way to get freedom.

Hand spinning started, but there were a few spinning wheels in KATHIAWAD. For systematic usage and Production of Khadi, a Khadi production center was started at “AMRELI”.

The form of KHADI available earlier was much different from what is available today. At that time 4 count yarn was used to weave 24”wide fabric. This form of Khadi was called “BEJA” in Kathiawad. After achieving a little success in production of KHADI, it was decided to open first KHADI BHANDAR in India for marketing the produced KHADI, and the shop was finalized at a rent of ₹15 per month in Mumbai and the KHADI priced at 4 Anna a yard started to sell from the shop.

The width of the fabric was very less and the count 4 made the fabric very thick, thus the fabric was suitable for a very few garments and accessories like Kutras and pajama’s (straight pants) and caps. However the need of “Dhoti” and “Sari”, the main Dress of Indians could not be fulfilled.

Gandhi ji was very worried since the sale of KHADI was very less. He said, “I am mad after Khadi and until death I’ll be Khadi mad. I want that all shall become
Khadi mads like me. If this madness spreads amongst millions then understand that we will get freedom lying in our garden” (Joshi, 2002).

On Gandhi ji’s suggestions the available KHADI was converted into clothing and in a few days 108 type of cloth articles were prepared and displayed in Khadi Shop. To meet the demand of stitched clothing which was increasing, a stitching section was opened in Khadi Bandhar. Initially only the fabric which could not be sold on the counter was converted into clothes, but later the concept changed. The fabric was produced not only to be sold in yardage but also to be converted into clothes. This led to increase in sales and giving the world readymade clothing in KHADI.

The problems encountered while producing readymade clothing in KHADI were the short width of the fabric, and fabric thickness due to lesser count.

Considering the problems, a Dhoti was made by joining two widths of fabric. But problems increased as the dhoti became too heavy and clumsy. Finally a solution was found and the size was reduced to 4 yards and 44”.

When Shri Lakshmi Aasar came to Sabarmati ashram from Calicut he carried with him a Dhoti woven of 10 to 12 count, thus the sale of KHADI dhoti being produced in Tripura and South started in Mumbai. Saris of the similar count were manufactured then. Initially the women were a little reluctant to wear so thick and heavy saris but the purchases increased considerably with time.

Charkha was being reborn in different parts of the country; hand spinning which was forgotten was being revived to a very large extent. Thus leading to varied developments in Khadi and becoming a reason for huge demand. Translation of the writings of (Jerwani).

2.1.3 The Technique of Khadi.

From the picking of cotton to the hand-weaving and finishing of cloth, there were a long series of operations of more or less delicacy and calling for varying degrees of dexterity and experience. The character, shape and handling of tools, as well as the class and pattern of goods differed widely in different parts of the country. The differences depended on and revealed a variety of tastes,
aptitudes, habits, customs and social and economic conditions generally in the various tracts.

When in 1920, Khadi found place as one of the major planks in the Congress program for the attainment of Swaraj. The processes of Khadi were carried on in different parts in fixed and rigid forms sanctioned by tradition. There is evidently a great deal of common sense and mechanical insight embodied in the tools and the operations in traditional use. Simple as they are, they were well adjusted to the conditions in which they originated and developed. Of the marvelous ingenuity, skill and delicacy of touch and manipulation attained in earlier times, there is eloquent testimony in the glowing descriptions by numerous historians and travelers, of the incredible fineness, exquisite designs and unsurpassed beauty, richness and perfection of the fabrics produced and exported in large quantities in those days. It appears however that about a century ago, the development of the art was arrested for which history has an explanation. In the years that followed the art rapidly decayed. In the normal course, under the protecting care of a sympathetic national government, the advance of scientific knowledge would have infused fresh vigour into the handicrafts of the country and endowed them with considerable power of resistance against the competition of machine goods; but the peculiar political circumstances of the country forced Khadi and other hand-made goods into a position of serious disadvantage. Khadi was rescued from the condition of utter neglect to which it had been reduced, as the movement for the political emancipation of the country developed and gathered momentum. Under the fostering care that has been bestowed on Khadi during the past few years, it has been reviving slowly. Although the craft of spinning yam and weaving cloth by hand had fallen into desuetude in several parts of the country and although the internal exchange of Khadi had shrunk to very small proportions, while its external trade had long been dead, the Congress when it took up the propagation of Khadi, was not faced with the task of resurrecting an entirely forgotten art. Except in Chicacole in Vizagapatam Taluka, the higher branches of the knowledge were not being practiced and the fairy fabrics styled as Shabnam and Ab-i-rawan whose names recall the elusive charm of the 'morning dew' and the 'running water', were available only as relics of a distant part. In its cruder forms, the craft had survived over large area in the country; but it is
interesting to note that the manufacture of Khadi was not being carried on at the same level in all the places where it was in vogue. One place excelled another in this or that point or process. To study and pool into a fund, the best in the widely scattered techniques and to disseminate it for general use was the first duty of the organization which the Congress brought into being for the purpose of the advancement of Khadi. It is even today an important function of the All-India Spinners' Association to act as a clearing house for such knowledge (Nanda, 1935).

As the Congress movement advanced, a demand for Khadi sprung up on all sides. It was mostly the demand of those who had long been accustomed to the use of high class machine made goods, mainly of foreign make. The emphasis in the beginning had to be on quantity, on more cloth, let it be any sort of cloth. What in fact went by the name of Khadi at the time was a coarse grey piece of cloth produced without heed to wearing qualities, appearance, design or finish. Whatever quantities of the stuff were thrown on the market were avidly consumed. But Khadi could not be allowed to stay there. Under the stimulus of an insistent demand for a better class of goods and as a result of the assiduous attention devoted to the technique of Khadi by the All-India Spinners' Association and its branches, yarn has become finer, has assumed increasing uniformity and picked up more and more strength; and cloth has improved in all directions in design, bleaching, coloring, printing, etc. Khadi has been struggling forward during these years. It has found its way, on merit or quality to the wardrobes of the most cultured members of society and occupies a place of pride in the most elegant drawing rooms of the country. Khadi has also carved fresh fields for itself and won the hearts of many who would have given no place to it there, in its earlier crudeness and coarse simplicity (Reports of the All-India Spinners'Association, 1925-33).

The following is a very brief summary of the improvements that have taken place in the production of Khadi since its adoption by the Congress.

a) Cotton- The cultivation of tree cotton had been encouraged in some parts where ordinary cotton could not be grown, with a view to remove the burden of transport charges on the production of Khadi in those parts. The selection of an appropriate quality of cotton for spinning particular counts of yarn has been studied to a large extent.
b) **Ginning**- The Ginning Wheel turns out about 2 lbs. Per hour. An improved type is in use in Bardoli at present which gives multiple times higher out-turn.

d) **Carding**- The Carding Bow has been transformed into a much more efficient instrument than it used to be. The smaller size makes it handier and the finer gut composed of 4 strands in place of 14 before, ensures more effective cleaning of cotton and a thorough separation of the fibers. The result is that the same cotton yields a higher count of yarn of better quality. Since successful carding depends on the quality of the gut more than on anything else, a special study of the process of gut-making has been made and considerable improvement effected. A carding machine has been devised which gives much better results in point of production per hour as well as the quality of the material. It has been in the Mysore State where it is giving satisfactory service.

d) **Spinning**- Spinning is an ancient textile art in which plant, animal or synthetic fibers are twisted together to form yarn. For thousands of years, fiber was spun by hand using simple tools, the spindle and distaff. Only in the High Middle Ages did the spinning wheel increase the output of individual spinners, and mass-production only arose in the 18th century with the beginnings of the Industrial Revolution. Hand-spinning remains a popular handicraft.

The next method of spinning yarn is with the spindle, a straight stick eight to twelve inches long on which the yarn is wound after twisting. At first the stick had a cleft or split in the top in which the thread was fixed. Later, a hook of bone was added to the upper end. The bunch of wool or plant fibers is held in the left hand. With the right hand the fibers are drawn out several inches and the end fastened securely in the slit or hook on the top of the spindle. A whirling motion is given to the spindle on the thigh or any convenient part of the body. The twisted yarn is then wound on to the upper part of the spindle. Another bunch of fibers is drawn out, the spindle is given another twirl, and the yarn is wound on the spindle, and so on.

The distaff was used for holding the bunch of wool, flax, or other fibers. It was a short stick, on one end of which was loosely wound the raw material. The other end
of the distaff was held in the hand, under the arm or thrust in the girdle of the spinner. When held thus, one hand was left free for drawing out the fibers.

The Spinning Wheel combines in one sweep of the hand all the five operations in a textile mill, viz., Drawing, Slubbing, Intermediate, Roving and the final attenuation on a ring or a mule spindle. On the improved wheel, the Yeroda Charkha devised by Mahatma Gandhi during his incarceration in Yeroda (Yervada) prison, the spindle efficiency is considerably increased. The spindle gets a speed of over ten thousand revolutions per minute and yields about 450 yards of yarn of 20 counts per hour. This represents an advance of about 50 percent on the old wheel, largely in use in most parts of the country. This progress was achieved in successive stages by continuous experimentation by many workers (SV Puntambekar, 1926).

The wheel designed by Mr. Rjagopalan of Bangalore, marks a radical change in the method of spinning with the introduction of continuous feeding of silver and a production of about 800 yards per hour. A prize of a lakh of rupees was announced in May 1929 for the invention of a spinning wheel which can be handled conveniently by village folk, spin 2000 yards per hour and not cost more than ₹ 150/- Several attempts have been made disclosing gratifying improvements in various directions. But none has so far satisfied all the tests. The model offered for competition by Messrs. Kirlosker Brothers is an admirable device compressing all the processes from carding to spinning; but it is handicapped by bulk and complexity. The multiple spindle wheel has yet to prove its utility as an instrument suitable for use in the cottages of rural India. Side by side, the quality of yarn has improved steadily in twist, strength and uniformity, thus furnishing a sound basis for the weaving of durable cloth. The average count has been gradually rising (Nanda, 1935).

d i) Hand spinning on the traditional Indian Charkha-

Charkha, literally means “wheel”. It is India’s generic term for any spinning wheel or hand-crafted spinning machine. Hand spinning on the traditional Indian
Charkha has unfortunately become the most neglected and forgotten strength of Khadi. The faster semi-mechanized Amber charkha has been in favour over the last 50 years. Hand spinning up to 115’s count is developed on traditional Indian charkha and 115-150’s on Ambar charkha so that they can compete with mill yarns which average at 120’s count. The major difference between the Traditional Indian Charkhs and Ambar charkha is in the TWIST. The hand spun yarns of the traditional spinning wheel have a much lower twist than the mechanized Ambar spinning wheel which is a manual counterpart to the mill spinning mechanism. Thus the fabric developed through the weaving of hand spun yarn is more soft, supple and absorbent (Shepard, 1983).

e) Weaving

Weaving is a method of fabric production in which two distinct sets of yarns or threads are interlaced at right angles to form a fabric or cloth. The longitudinal threads are called the warp and the lateral threads are the weft or filling. The method in which these threads are interwoven affects the characteristics of the cloth.

Cloth is usually woven on a loom, a device that holds the warp threads in place while filling threads are woven through them. The way the warp and filling threads interlace with each other is called the weave. The majority of woven products are created with one of three basic weaves: plain weave, satin weave, or twill.

Efforts were being made in various centers to improve the preliminary processes by the introduction of more efficient devices. The strength, closeness and finish of the texture has improved very considerably. Qualities have been standardized. In the art of designing, remarkable progress has been registered. An amazing variety of pattern in the body and border of cloth has been introduced meeting all requirements and satisfying all tastes. The technique of dyeing and printing and hand painting has everywhere moved with long strides. Indigenous colors are also being tried.

Local artistic talent responded magnificently to the impetus of the movement. Many fascinating patterns were rescued from the oblivion of the past. New designs and original patterns of great beauty were evolved. The arts of lace work and embroidery have also been enlisted to promote the variety and attractiveness of Khadi (Nanda, 1935).
f) **Summary of the Production process of Khadi**- Production of Khadi includes cotton growing, picking, ginning, cleaning, carding, slivering, spinning, sizing, dyeing, preparing the warp and woof, weaving and winding. These, with the exception of dyeing, are essential processes every one of which can be effectively handled in the villages. Khadi is the finest example of hand spinning and hand weaving where the finest of the counts are woven. Today the fabrics are utterly complex. Textile industry is at its pinnacle today, but the world still appreciates the simplicity. The world of fashion is going through a transition and importance of natural fabrics like KHADI has increased manifold.


g) **The pictorial representation of the production process of Khadi is illustrated below:**

![Figure 2.2 Production process of Khadi-Combing](image1)

![Figure 2.3 Production process of Khadi-Ginning](image2)

![Figure 2.4 Production process of Khadi-Cleaning](image3)

![Figure 2.5 Production process of Khadi-Paralleling](image4)
2.1.4 Fine varieties of Khadi.

a) Muslin:

Muslin is a cloth of very fine count known from historical era. Popular as Dhaka muslin for which the people of undivided Bengal were known by this textile till such time the technology was killed due to onslaught from British. According to historical facts, this fine cloth was produced in Bengal, part of Orissa and Andhra Pradesh, mostly in the coastal belt or near river bank. The term "Muslin" in accordance to one theory has been derived from Muslipatnam now in Adhra Pradesh where a type of Muslin was produced but according to another theory, the term was derived from the City of 'Masal' in Iraq from where this cloth was exported to Europe.

Technology of Muslin was revived after independence mostly because of the interest taken by Pandit Jawaharlal Nehru and initiative taken by Late Shri Dwarakanath Lele and Late Shri Kalicharan Sharma. With their initiative, this
exclusive cloth was revived in West Bengal with the help of few Khadi institutions. In fact, for the finest cloth, one can name 2 places, one in Nabadweep in District Nadia and the 2nd being Chok Islampur in district Murshidabad. Today, West Bengal can boast of the cloth count around 400 to 500 which is not being produced anywhere in the world not even in modern textile mills. Notable institutions producing high count muslin are:-

1. Nabadweep Kutir Shilpa Pratishtan, Nabadweep.
2. Chandrakant Lalit Mohan Resham Shilpa Samiti, Murshidabad.
4. Muslin Katai Mandal, Murshidabad.

Besides above, there are also a number of institutions in West Bengal who produce muslin of lesser count.

When Muslin could be revived in west Bengal, technology started spreading elsewhere notably in Bihar, Orissa, Assam and few of the Southern States Though, they could not achieve the count, that could be achieved by west Bengal, but they did produce fine cloth finer than what is available in the market. To name a few institutions, it may be mentioned about:

1) Dharbanga Zilla Khadi Gramodyog Sangh
2) Madhubani Zilla Khadi Gramodyog Sangh and few Others in Bihar
3) Gopabandhu Daridra Narayan Seva Sangh, Kadu, Dist. Puri.
4) Chitrapala Khadi Gramodyog Sangh and few places in Orissa.
6) Kerala Gandhi Smarak Nidhi, Kerala.

With the initiative from various institutions and with the S&T technology started from KVIC, the technology of Muslin could be developed further and as on today, it is possible to spin muslin yarn with the help of 5 spindle and 7 spindle NMC Charkhas and thus ensured respective 4 wages to the spinners. However, in case of fine count, there is need for moist climate. Weaving could be done only during 2-3 months in a year, limited to few places. Thus, in spite of demand, supply could not be met. There is a need to give additional input by getting the weaving in common work shed, fitted with humidifier to ensure proper humidity so that weaving can be continued round the year (Gosh, 2004).
b) Panduru fine Khadi:

Panduru fine Khadi is one of the unique textile produced in Srikakulam district of Andhra Pradesh where they produce cloth from 40 counts to 120 counts from a type of locally available short staple cotton. In spite of the fact that this cloth is not as fine as muslin of a Bengal, but credit must be given to these artisans who produce fine cloth from the cotton of a short staple. There are 3 varieties of cotton which are found in the slopes of Vijay Nagara and e Sirkakulam district which gives yarn 600 to 1200 counts. Pundura cotton grows in Srikakulam district and adjoining areas, which gives 40 to 80 counts and the 3rd red cotton grown in East Godhavari district which keeps yarn of 40 to 65 counts. It may be mentioned that combing, ginning, paralleling, carding, slivering and spinning is still being done in a traditional method which drudgery. In fact, only technological development that has taken place being the spinners switched over from drop spindle to traditional charkhas. Credit must be given to a Khadi institution, viz: Andhra Fine Khadi Karmika Sangham in Pondura of Srikakulam District found around 1956. However, later, the revival of Pondura Fine Khadi also started spreading in other institutions and it is reported that 3 to 4 institutions around Pondura area have started producing Andra Fine Khadi. Traditional Andhra Pradesh Fine Khadi is also found in Ganjam district of Orissa which is not far away from Sirkakulam district. A Khadi Society name "Ganjam Zilla Khadi Gramodyog Sangh, Kukudakandi" in Ganjam district is known for producing Andhra Fine Khadi, the cloth being known in Orissa as Salin (Gosh, 2004).

2.1.5 Khadi Post Independence.

Khadi represented a powerful symbolic challenge to British imperialism, but Indians never realised it even after Independence. During the freedom struggle many had worn Khadi more for its political effectiveness than for love of the cloth, just as many had spun their own yarn more out of self-sacrifice and national duty than out of belief in the economic and moral benefits of hand-spinning. However, due to its significant role in nationalist politics and in India’s self-definition, Khadi could neither be abandoned nor forgotten.

In politics it has retained its place as national dress in spite of the fact that today the white Khadi worn by politicians is associated more with hypocrisy and corruption.
than sincerity or purity. The image of the Khadi-clad politician has long been a favourite with cartoonists for whom it functions as a visual shorthand for greediness and dishonesty in the recognisable facade of honour and modesty. This raises a question to be asked. Why Indian politicians continue to wear Khadi given the ambiguity of its negative associations? They do so, because even if Indians no longer hold Gandhian ideals, they have retained the desire for an alternative modernity and it is this desire that Khadi continues to represent, even as people's lives are increasingly informed by capitalism. Interestingly when artists, academicians and social activists choose to wear Khadi, their distance from the white-clad politician is generally marked by their choice of colored and flecked weaves or by the particular combinations of the garments that they wear. Their Khadi wearing is not associated with insincerity but rather with the lived reality of an alternative lifestyle, aesthetics and politics for example, among self-professed radicals in university politics. Mr Narendra Modi, the honourable Prime minister of India has given Khadi its long awaited brand ambassador. He may be a reluctant fashion icon, (Zakaria, 2014) he may even scorn the very idea of it, but Mr Modi is just the perfect ambassador of the very Indian Khadi.

The unclear status of Khadi in politics is echoed by its vague economic position. In 1956 the Khadi and Village Industries Commission (KVIC) (Plan, 2002-07) hereafter KVIC was established with a view to promoting and developing Khadi production and other village industries in rural areas. Despite high levels of Government assistance in the form of grants, rebates and subsidies, the Khadi industry has always struggled to sustain itself and had problems selling the goods it produces. The liberalisation and globalisation of the Indian economy in the 1990’s has further contributed to Khadi’s marginalisation. The years 1997-2002 saw a steady decline in Khadi production as well as the accretion of large quantities of unsold stock. How to attract people into working in a labour intensive industry associated more with decency and crafts skills than profit or exciting new technologies remains a difficult challenge. In particular, hand spinning is perceived as a low-key activity which offers atrociously low returns and is pursued principally by poor women from marginal groups in rural areas. Is it worth mentioning that almost all Indian towns and cities have so called Khadi Gramudyog Bhawans, including large and chic ones in Delhi, that sell khaddar, along with other products of village industries. How to revive the Khadi industry despite the fact that retaining its particular moral and nationalist character remains a challenge that
is currently being pursued in several directions. On the one hand the National Institute of Fashion Technology (NIFT) and National Institute of Design (NID) have been indicted with the role of updating Khadi and introducing new and trendy designs to be taken up by the Khadi sector. This strategy of making Khadi more desirable by contemporary standards is to be matched by more aggressive marketing strategies, including the promotion of Khadi abroad in such countries as the United States, United Kingdom, Germany and South Africa. Techniques of global capitalism such as e-commerce and the registration of Khadi as a brand name and geographical indication have also been recommended. Meanwhile fashion designers and private companies have for the last two decades flirted with the potential of Khadi as fashion. One astute Kolkata based clothing company has, for example, produced a successful range of brightly colored Khadi garments under the brand name Khadder. Another Chandigarh based brand called Khadi Plus is satisfying the customers with its ever different and still Indian range of clothing. Whilst labels such as bio-Khadi and organic hand-spun cotton indicate Khadi’s entry into the elite global arena of eco-friendly capitalism (Society for Rural, 1995), the development of something called polyester Khadi by the KVIC reminds us that popular consumers in India are often more concerned with practicality than purity.

A development more in tune with Gandhi’s original aim to provide mass employment for the rural poor came with the decision of the Railway Minister’s in the Congress government to replace all linen used on Indian trains with Khadi and to consider introducing of Khadi uniforms for railway staff. These proposals, though welcomed in some quarters, have been received with pessimism in others, with people complaining of Khadi’s lack of durability, its high maintenance costs and its-stone age associations. The history of Khadi’s revival in the 20th and 21st centuries reveal the ongoing tension between capitalist development and a Gandhian-style modernity based on alternative economic and moral principles. Nevertheless Khadi may not become the popular every day wear that Gandhi hoped it would be, it is likely that it will retain its important symbolic role in providing an alternative vision of modernity and evoking the texture and uniqueness of India’s Freedom Struggle. (Verma, Dec 2012). However the KVIC continues to pursue an expansionist policy and is optimistic that it may be able to provide increased employment in rural areas, thereby curtailing the tide of unemployment and migration to cities.
In order to do so KVIC has launched various schemes to fulfil its three fold objectives

- The social objective of providing employment.
- The economic objective of producing saleable articles.
- The wider objective of creating self-reliance amongst people building up of a strong rural community spirit.

2.1.6 Major Schemes of KVIC.

a) Khadi (Cotton/Wool/Silk/Muslin and Polyvastra)

'Khadi' means any cloth woven on handlooms in India from cotton, silk or woolen yarn handspun in India or from a mixture of any two or all of such yarns. It is a distinct product with its Unique Selling Proposition (USP) due to India's long history and tradition. It is also associated with Mahatma Gandhiji, who used 'Khadi' as a symbol of freedom and self-reliance during the freedom struggle. Khadi enjoys the privilege of being exclusively prescribed for use in making of National Flag of India, which is honored by the Bureau of Indian Standards (BIS) as specification No.1. Cotton Khadi, Muslin Khadi, Silk Khadi, Woolen Khadi and Polyvastra are being implemented through the institutions, which are directly aided by KVIC and State Khadi & Village Industries Boards.

In order to add features like durability, crease retention etc., in its hand-spun and hand-woven cloth range, production of Polyvastra was initiated. Polyvastra carries almost all the characteristics of Khadi, the only difference being that Polyvastra contains man-made fiber, which is blended with the natural fibers used in Khadi. Both, Khadi and polyvastra have been considered as a low cost and effective tool for providing reasonable earnings to the rural artisans, particularly the women folk.

b) Interest Subsidy Eligibility Certificate (ISEC) Scheme under Bank Finance

Nearly for two decades, Khadi program was financed only from the budgetary support of Government of India. Due to the rapid expansion of Khadi program, the Govt. of India, launched a scheme viz. Interest Subsidy Eligibility Certificate (ISEC) scheme, vide Government of India Notification dated 17.05.1977, to fill-up the gap in the actual fund requirement and its availability from budgetary
sources. The ISEC scheme was applicable to all the Registered Institutions under KVIC/State KVIBs and it covers all KVI activities.

Under the scheme, credit at concessional rate of interest of 4% per annum for capital expenditure as well as working capital is borne by the KVI institutions. The difference between the actual lending rate and 4% is paid as 'Interest Subsidy' by the Central Government through the KVIC to the lending bank. At present, the scheme is applicable for Khadi and polyvastra program.

c) **Market Development Assistance (MDA) Scheme**

KVIC has introduced a flexible, growth stimulating and artisan centric scheme in the name of MDA for Khadi and polyvastra, in place of the rebate w.e.f. 1st April, 2010. The scheme provides 25% of the assistance as enhancement in wages to spinners and weavers, while remaining 75% is utilized for production and marketing related activities in order to increase the productivity of the Khadi sector, directing the production process as per the tastes, requirements and demand of the market and also to improve the earnings of the Khadi artisans.

The scheme of MDA on production, aims at uniform distribution of sales throughout the year, unlike the previous rebate scheme, where most of the sales took place during the special rebate season of 108 days in a year. MDA also offers good scope to the Khadi institutions, for better value addition under Khadi. It helps the Khadi institutions to keep the inventory levels low and offer greater scope for mobilization of working capital.

d) **Khadi Karigar Jana Shree Beema Yojana (JBY)**

The artisans Insurance Scheme (Janashree Beema Yojana) has been launched for the benefit of Khadi artisans, under which the premium is shared between KVIC, Khadi institutions, artisans and Government of India. Under the scheme the following monetary benefits are extended:

**Natural death**: ₹ 30,000/-

**Death or total Permanent total disability**: ₹ 75,000/-

**Partial permanent disability**: ₹ 37,500/-
An add-on educational benefit under Serva Shiksha Yojana for the children of Khadi artisans studying in 9th standard to 12 standard including I.T.I. are also provided, with a scholarship of ₹300/- per quarter.

e) Work shed Scheme for Khadi Artisans

The Government of India approved the Work shed scheme for Khadi artisan during the 11 Plan period. The objectives of the scheme are:

• To provide better ambiance by providing a better workplace to artisans, to enable them to carry out their spinning and weaving work efficiently.
• To provide more strong and working space for housing slivers, raw material, implements & accessories, dobby, jacquard yarn, cloth etc.
• To help in improving the efficiency and productivity of the spinners, through electrical connection and lighting to the work shed.

f) Enhancing Productivity and Competitiveness of Khadi Industry and Artisans.

Sustainability of Traditional Khadi is largely dependent on provision of facilities, so that the artisans' productivity is enhanced and competitiveness of the activity is maintained. The scheme is for support to around 200 Khadi institutions, in order to make Khadi Industry more productive as well as competitive and also strengthening potential for creation of qualitative employment. Main objectives of the scheme are as under:

• Make Khadi Industry more competitive with more market driven, profitable production and sustained employment for Khadi artisans and related service providers by replacement of obsolete, old machinery and equipment and repairs to/renovation of existing / operations machinery and equipment.
• Extend an evenly balanced and need based support in all areas of Khadi activities viz. production, distribution, promotion and capacity building.
• Provide appropriate incentives to shift to market driven approach.

Target beneficiaries of the scheme are spinners, weavers, pre-weaving artisans, washer-men, Dyers & Printers, workers of Khadi institutions, manufacturers of tools and equipment and common service providers engaged in Khadi industry.
g) Strengthening of Infrastructure of Existing Weak Khadi Institutions and assistance for Marketing Infrastructure

- To nurse the sick Khadi Institutions, which are otherwise having the potential to attend normalcy and support creation of marketing infrastructure in other identified outlets, a scheme viz. Strengthening of Infrastructure of Existing Weak Khadi institutions, has been formulated to make support to Khadi activity. The expected outcome of the scheme is higher level of production, sales and employment along with the increased level of earnings.

The main objectives of the scheme are as under:

- Assist the identified weak Khadi institutions, so as to enable them to regain their status and revive their potential for employment generation.
- Make an effort to overcome the existing near stagnation stage of the sector, by strengthening the Khadi institutional base.
- Bring in a transformation in the Khadi sector and re-affirm its significance as a sustainable employment provider for the rural artisans.
- Open up the avenues of enhanced employment to rural artisans, majority of whom belongs to BPL category and to help the rural artisans by providing them employment opportunities through Khadi production program.
- Improve the marketing of Khadi products through development of marketing infrastructure, including renovation of selected sales outlets of Khadi institutions, on a limited basis.

h) Khadi Reform and Development Program (KRDP)

The Khadi Reform and Development Program initiated by the Asian Development Bank (ADB) with the support of Government of India is an effort in the direction. The 11th Five Year Plan has noted that Khadi production has huge employment prospects, particularly for Women and minorities. Revitalizing Khadi Industry is expected to boost employment opportunities in rural India.

The Khadi Reform Package envisages reform support in the following areas:

- Artisans earnings and empowerment
- Skill Development through Quality training Facilities
- Khadi Mark development
- Raw material procurement and production
- Marketing Organization
• Market linked Pricing and introduction of Benefit Chart
• Production Incentives
• Reform at Khadi Institutions level

The main objectives of the program are:
• Sustainability of Khadi
• Repositioning of Khadi and linking to market needs
• Selective subsidy
• Artisans Welfare
• Greater involvement of artisans in program implementation for all associated with Khadi
• Better remuneration and quality of life
• Thrust on five traditional Village Industries through Cluster approach

i) Scheme of Fund for Regeneration of Traditional Industries (SFURTI) Cluster Development

Figure 2.10 Khadi and Village Industry Clusters in India (KVIC, 2010)
Considering the need to make the traditional industries more productive, competitive and to facilitate for their sustainable development, the Government of India launched the scheme viz. "Scheme of Fund for Regeneration of Traditional Industries" (SFURTI) in October, 2005 for developing 75 KVI clusters, within a span of 5 years for which KVIC was made as Nodal Agency. It was basically a development program, designed to protect and preserve the arts and crafts of rural traditional artisans, in a cluster based manner. The scheme was expected to make the products of traditional industries market worthy, besides facilitating them to generate sustainable employment to the rural artisans. (SFURTI, 2005)

**The objectives of the scheme are:**

• To develop clusters of traditional industries in the country over a period of five years.

• To make traditional industries more competitive, market driven productive and profitable.

• To strengthen the local governance system of industry clusters, with active participation of the local stakeholders, so that they are enabled to development initiatives.

• To build up innovated and traditional skills, improved technologies, advanced processes, market intelligence and new models of public-private partnerships, so as to gradually replicate similar models of cluster-based regenerated traditional industries.

The first SFURTI program was inaugurated at Bassi, Rajasthan by Smt. Pratibha Devisingh Patil, the former Hon'ble President of India, when she was the Governor of Rajasthan. The cluster covered all the categories of Khadi products and Polyvastra and also the prominent/popular Village Industries under KVI sector. As against the target of 75 clusters for the 11th Five year plan of SFURTI, 76 clusters of which 29 in Khadi and 47 in Village Industries have been established.

SFURTI will continue in 12 Five Year Plan in revamped form by merging of more than 5 existing schemes namely:

i) Enhancing productivity and competitiveness of Khadi Industry and Artisans.

ii) Strengthening infrastructure of Existing weak Khadi Institutions and Assistance for Marketing Infrastructure.

iii) Product Development Design Intervention and Packaging (PRODIP)
iv) Work shed Scheme for Khadi Artisans
v) Rural Industries Service Centre (RISC) and other small interventions run by KVIC during the 12\textsuperscript{th} Five Year Plan having similar objectives. Government of India is extending support to 800 clusters during the 12\textsuperscript{th} Five Year Plan.

j) Prime Minister's Employment Generation Program (PMEGP)

PMEGP scheme announced by Hon’ble prime Minister of India on 15\textsuperscript{th} August, 2008 in his address from Red Fort. This is credit linked scheme of Government of India by merging erstwhile REGP and PMRY scheme. KVIC is the Nodal Agency at National Level.

**Salient features of PMEGP scheme**

The scheme is implemented in rural areas through KVIC and State/U.T. Khadi & V.I. Boards and in urban and rural areas through District Industries Centers in ratio of 30:30:40.

**Objectives**

- To generate employment opportunities in rural as well as urban areas of the country through setting up of new self-employment ventures / projects / micro enterprises.
- To increase the wage earning capacity of unemployed youth and contribute to increase in the growth rate of rural and urban employment.

**Eligibility**

- Individuals above 18 years of age.
- VIII Std. pass required for project costing above ₹10.00 lakhs in manufacturing and above ₹5.00 lakhs for Service sector.
- Self Help Groups.
- Institutions Registered under Societies Registration Act-1860.
- Production based Co-operative Societies Charitable trusts
- No income ceiling for setting up of projects.
- Assistance under the Scheme is available only to new units to be established.
- Existing units or units already availed any Govt. Subsidy either under State/Central Govt. Schemes are not eligible.

**Industry**

- Any industry including Coir Based projects excluding those mentioned in the negative list.
- Per capita investment should not exceed ₹1.00 lakh in plain areas and ₹1.50 lakhs in Hilly areas.
• Maximum project cost for ₹25.00 lakhs in case of manufacturing and ₹10.00 lakhs for Service sector.

**Area of operation**

• Rural area as declared under KVIC Act, 2006—Scheme to be implemented by KVIC, KVIB and DIC.
• Urban area- Only DIC

**Financial pattern**

• Up to ₹25.00 lakhs for manufacturing and up to ₹10.00 lakhs under service sector.
• Own contribution 5% to 10% of project cost.
• Margin Money (Subsidy) 15% to 25% for urban area and 25% to 35% for rural areas. (KVIC, 2010)

**2.1.7 KHADI: largest contributor to the economic and the moral regeneration.**

Mahatma Gandhi believed, “I feel convinced that the revival of hand-spinning and hand weaving will make the largest contribution to the economic and the moral regeneration of India. The millions must have a simple industry to supplement agriculture. Spinning was the cottage industry years ago, and if the millions are to be saved from starvation, they must be enabled to reintroduce spinning in their homes and every village must repossess its own weaver” (Gandhi M. K., 1987).

**2.1.8 Khadi: Most suitable for Clothing.**

Cool in summers and Warm in winters, Khadi is hand woven and hand spun fabric which takes time to be made. One of the most beautiful hand spun and hand woven Indian fabric, Khadi has the added value of allowing more air penetration. The hand woven fabric forms air pockets in the fabric due to the thick and thin places created during hand spinning and is therefore, cooler, softer, more absorbent and breathes better than highly uniform and compact machine made fabrics. The added breathability means the fabric will stay cooler in summer and warmer in winter. Hand woven fabric also has a textural beauty and visible character. Khadi cotton is a very strong fabric even when it is wet, so it holds up very well to repeat laundering. It has a handcrafted self-texture making each Khadi cloth unique and expensive. Certain fine Khadi such as mulmul has a translucent quality. Khadi silk is priced for its richness and sheen. Different Indian states produce different varieties of Khadi. In cooler Northern states woolen Khadi is produced whereas in Madhya Pradesh special weaves such as Tussar Silk are made. Khadi today is dyed in a variety of colors and decorated by block prints, it is tied and dyed, block printed to give it beautiful surface (Babji, 2009).
2.1.9 Quality Assurance Norms for Khadi

Manufacture of Khadi fabrics is considered to be heritage based production activity. Being based on human skill, it provides livelihood to a large section of the population. Although heritage based technologies have longer life compared to science-based technologies, they are faced with challenges on and off. The globalization process through World Trade Organization is one such challenge the Khadi sector is presently facing. Due to this the production and sale of Khadi is dwindling, posing a serious threat to its employment generation capacity. Due to stiff competition from mass-production fabrics being available from India and foreign countries, the attraction of Khadi is decreasing day by day. If no timely action is taken, there is danger that the Khadi production may reduce to negligible level. One of the ways to protect the Khadi production is to provide Quality Assurance inputs so that quality Khadi is produced to meet the requirements of the customers.

Fiber Characteristics: - The quality of the Khadi fabric depends on the quality of the fiber used. The fibers used for a particular yarn should meet the quality requirements for the yarn. The fiber properties that affect the quality are length, fineness, bundle strength, trash content and maturity. The best procurement time of cotton fiber is from October to February. The Characteristics of different varieties of cotton are listed.

Table 2.1

Cotton fiber characteristics

<table>
<thead>
<tr>
<th>Cotton Variety</th>
<th>2.5% Span Length (mm)</th>
<th>Uniformity Ratio (%)</th>
<th>Micronaire Value (µ/inch)</th>
<th>Bundle Strength (3 mm Gauge) (g/tex)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bengal Deshi</td>
<td>15.9 - 19.3 (17.1)</td>
<td>50 – 57 (54)</td>
<td>6.8 – 8.5 (7.9)</td>
<td>11.6 – 15.2 (13.4)</td>
</tr>
<tr>
<td>Comilla</td>
<td>17.8</td>
<td>54</td>
<td>7.6</td>
<td>14.2</td>
</tr>
<tr>
<td>Jayadhar</td>
<td>21.5 – 23.4 (22.5)</td>
<td>48 – 53 (50)</td>
<td>4.6 – 5.2 (5.0)</td>
<td>15.0 – 18.1 (16.5)</td>
</tr>
<tr>
<td>Digvijay</td>
<td>21.6 – 24.7 (23.5)</td>
<td>50 – 52 (51)</td>
<td>3.3 – 5.7 (4.2)</td>
<td>18.3 – 21.6 (20.6)</td>
</tr>
<tr>
<td>B.Narma</td>
<td>22.4 – 24.5 (23.7)</td>
<td>48 – 51 (49)</td>
<td>4.0 – 5.2 (5.0)</td>
<td>20.4 – 21.0 (20.8)</td>
</tr>
<tr>
<td>J.34</td>
<td>23.2 – 26.1 (24.3)</td>
<td>46 – 50 (48)</td>
<td>3.9 – 5.2 (5.0)</td>
<td>17.8 – 21.6 (20.0)</td>
</tr>
<tr>
<td>V.797</td>
<td>24.2 – 25.4 (24.7)</td>
<td>48 – 51 (50)</td>
<td>4.5 – 5.2 (5.0)</td>
<td>16.9 – 18.8 (17.7)</td>
</tr>
<tr>
<td>F.414</td>
<td>23.8 – 25.6 (24.9)</td>
<td>48 – 49 (48)</td>
<td>4.2 – 5.2 (5.0)</td>
<td>17.3 – 19.6 (18.7)</td>
</tr>
<tr>
<td>G Cot 13</td>
<td>23.2 – 26.6 (25.1)</td>
<td>49 – 52 (51)</td>
<td>4.5 – 5.2 (5.0)</td>
<td>17.2 – 20.0 (18.4)</td>
</tr>
<tr>
<td>NHH44</td>
<td>22.3 – 28.6 (26.1)</td>
<td>45 – 51 (48)</td>
<td>3.2 – 4.1 (3.6)</td>
<td>16.6 – 24.9 (21.4)</td>
</tr>
<tr>
<td>Hybrid 4</td>
<td>23.3 – 28.9 (26.9)</td>
<td>45 – 49 (48)</td>
<td>3.2 – 3.9 (3.5)</td>
<td>17.7 – 23.7 (21.2)</td>
</tr>
<tr>
<td>LRA. 5166</td>
<td>24.2 – 30.6 (27.0)</td>
<td>45 – 53 (48)</td>
<td>3.5</td>
<td>19.0 – 25.3 (22.1)</td>
</tr>
<tr>
<td>MCU 7</td>
<td>27.0</td>
<td>48</td>
<td>4.1</td>
<td>19.5</td>
</tr>
<tr>
<td>MECH 1</td>
<td>24.5 – 31.4 (27.8)</td>
<td>45 – 52 (48)</td>
<td>2.9 – 4.2 (3.5)</td>
<td>18.8 – 26.6 (22.3)</td>
</tr>
<tr>
<td>MCH 11</td>
<td>25.8 – 30.8 (28.6)</td>
<td>46 – 50 (49)</td>
<td>3.3 – 3.8 (3.6)</td>
<td>20.0 – 26.9 (23.8)</td>
</tr>
<tr>
<td>Sankar 6</td>
<td>26.0 – 31.1 (28.8)</td>
<td>44 – 53 (50)</td>
<td>3.2 – 4.6 (4.1)</td>
<td>19.0 – 25.7 (23.2)</td>
</tr>
<tr>
<td>JK Hy. 1</td>
<td>24.4 – 33.2 (29.3)</td>
<td>44 – 51 (48)</td>
<td>2.8 – 4.2 (3.5)</td>
<td>20.0 – 26.8 (24.2)</td>
</tr>
<tr>
<td>MCU 5</td>
<td>25.8 – 34.9 (31.4)</td>
<td>42 – 50 (46)</td>
<td>2.8 – 4.0 (3.3)</td>
<td>21.2 – 28.3 (24.9)</td>
</tr>
<tr>
<td>DCH32</td>
<td>29.3 – 36.6 (34.1)</td>
<td>43 – 48 (46)</td>
<td>2.8 – 3.3 (3.0)</td>
<td>23.3 – 29.4 (26.8)</td>
</tr>
<tr>
<td>Suvin</td>
<td>30.0 – 37.4 (36.2)</td>
<td>45 – 48 (46)</td>
<td>2.8 – 3.0 (2.9)</td>
<td>30.8 – 32.6 (31.5)</td>
</tr>
</tbody>
</table>
Poly Khadi: - Poly Khadi is manufactured by blending polyester fiber with cotton fiber in the ration of 67% polyester and 33% cotton. The characteristics of polyester fiber for blending with cotton are shown in Table

Table 2.2
*Properties of polyester for different end uses*

<table>
<thead>
<tr>
<th>End – uses</th>
<th>Yarn count group (Nm)</th>
<th>Fiber length (mm)</th>
<th>Fiber fineness (denier)</th>
<th>Fiber tenacity (g/den)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Shirting &amp; sarees</td>
<td>70 – 100</td>
<td>38 – 44</td>
<td>1.2</td>
<td>4.5 – 6.0</td>
</tr>
<tr>
<td>2. Suiting</td>
<td>2/50 – 2/70</td>
<td>38 – 44</td>
<td>1.5</td>
<td>4.5 – 5.5</td>
</tr>
</tbody>
</table>

A. YARN NORMS

It is necessary that appropriate cotton fiber should be selected for spinning a yarn of particular count.

B. Yarn Groups: The yarns produced in Khadi sector may be divided into four groups as shown in table:

Table 2.3
*Groups of yarn produced in Khadi sector*

<table>
<thead>
<tr>
<th>Yarn Groups</th>
<th>Count (Nm)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Coarse</td>
<td>Up to 28</td>
</tr>
<tr>
<td>Medium</td>
<td>30 – 55</td>
</tr>
<tr>
<td>Fine</td>
<td>60 – 100</td>
</tr>
<tr>
<td>Muslin (Super fine)</td>
<td>Above 100</td>
</tr>
</tbody>
</table>

C. Yarn Count Intervals: The yarns to be produced in Khadi sector may be limited to following counts shown against count group. The count interval varies according to the count group. It is expected that all the varieties of Khadi cloth can be produced using yarns of the following counts.

Table 2.4
*Yarn Count groups to be produced in Khadi Sector*

<table>
<thead>
<tr>
<th>Yarn Count Group (Nm)</th>
<th>Interval</th>
<th>Individual Yarn Counts</th>
</tr>
</thead>
<tbody>
<tr>
<td>Coarse</td>
<td>2</td>
<td>2, 4, 6, 8, 10, 12, 14, 16, 18, 20, 22, 24, 26, 28</td>
</tr>
<tr>
<td>Medium</td>
<td>4</td>
<td>30, 34, 38, 42, 46, 50, 54, 58</td>
</tr>
<tr>
<td>Fine</td>
<td>5</td>
<td>60, 65, 70, 75, 80, 85, 90, 95, 100</td>
</tr>
<tr>
<td>Muslin (Superfine)</td>
<td>25</td>
<td>100, 125, 150, 175, 200, 225…</td>
</tr>
</tbody>
</table>

34
Imperfections

The imperfections mean thick and thin places and also the nep present along the length of the yarn. The imperfections in Khadi yarn are generally much higher than what is observed in ring yarn and presence of them to some extent gives the Khadi fabric the unique look and texture.

Appearance Grade Khadi yarn has got a unique appearance as compared to mill yarn. This is mainly due to presence of unevenness and imperfections in the yarn. (RChattpadhyay, 2003)

2.1.10 Khadi and Its role in Indian Cinema:

(Palgrave, 2013) In his book wrote Resonating powerfully with the Gandhian principles of austerity and ethics, the gravitas and affect that is garnered by Khadi elevates it beyond mere fabric in South Asian culture. Scholars such as Dipesh Chakrabarty have argued that in post-independence India, the meanings which congeal around Khadi ambivalent at best, and decades of patronage by “corrupt” politicians has somewhat tarnished the reputation of the iconic fabric in public culture. Kapse’s analysis, however, demonstrates that the meaning harnessed by Khadi-and its cinematic cousin, the handloom sari-are considerably more complex, and Hindi cinema provides an excellent archive for unravelling the many valences of this particularly charged “sacred” cloth. As an inanimate but productive signifier, Khadi provides Bombay cinema with a melodramatic shorthand like no other. From the moral heft that the fabric implied in the 1940s and 1950s of its debasement in the political climate of 1970s, to its resurgence as trendy global commodity in the post liberalization dispensation, Kapse’s essay shows that Khadi emerges as the emblematic site on which popular cinema’s most enduring ideological battles are waged. While vestiges of Gandhian discourses endure, Khadi voraciously continues to absorb other values, articulating as it were, the story of cinema itself.

2.1.11 Khadi and Self Sufficiency:

Gandhi ji thought that unemployment is a women’s issue, and therefore nonliterally as well as virtually he introduced the charkha (spinning wheel) as an instrument of the freedom movement. The propagation of Khadi was to protect the
employment of the poorest women. Spinning was an important home industry during the nineteenth century. It was source of livelihood for women of all castes, communities and even for the women of low income levels. Many widows supplemented their family income by spinning cotton yarn. Muslim women, who were not allowed to step out of their homes to earn livelihood, spent their time, spinning cotton thread. Thus spinning wheel brought economic independence, especially for women (Gandhi M., Village Swaraj, 1962).

Towards the end of the nineteenth century, hand spinning dwindled rapidly because it could not withstand the competition of cheap foreign as well as Indian machine made yarn. It had almost vanished by time Gandhiji settled down in India in 1915.

The weaving of Khadi is preceded by the spinning of the thread on the charkha after which it goes to the bobbin winder, warper, sizer and finally the weaver. While spinning is organized by the Khadi Board. Weaving is done by the weaver at his home in an individual capacity. Spinning is mostly done by the girls and women in the villages. For Gandhiji Khadi was not a cloth but a thought, a philosophy that aimed at a self-reliant economy, a link of concern between the haves and the have not’s. Around this time Gandhi used Khadi as the first tool towards Non-cooperation movement.

In 1915 Gandhiji introduced a few handlooms in the Ashram and learnt the art of weaving. However, the yarn used was produced from Mills. Gandhiji was eager to start hand spinning in Ashram and was in search of spinning, who teach him and the inmates of Ashram of spin. But he would neither get a spinning wheel nor a spinner. The art of had spinning was almost lost. His visit to Champaran in 1916 made him more aware of the pathetic condition in the extent of poverty of the people. Women in Bhitiwara were unable to change their clothes due to lack of availability of another pair. (Nath, 2012)

At this critical juncture, when Gandhiji met Smt. Gangaben Mujmuder, an enterprising middle age widow from Vijapur near Baroda in October 1917 to whom he entrusted the important task of finding a spinning wheel. Smt. Gangaben could find carders and after finding them, she trained some youngsters to make slivers form the carded cotton. She hired a house at Vijapur and started staying with her daughter
Saraswati, sisters Hiralaxmi and Keshawlabhai and together they started a spinning centre. She faced greater difficulty in getting spun yarn women because handloom weaves at the time only wove finer yarn for mills. She met a Muslim weaver, who helped her to train weavers to weave hand spun yarn. Thus started a production centre of Khadi Vijapur Khadi gained a name for itself.

In 1919 about one hundred and fifty women spinners worked at the centre. Soon she started a weaving unit at the centre and thus her Khadi enterprise included Carding, Slivering, Spinning and Weaving. It was the first production centre for Khadi manufacture. Gandiji exhorted people and women in particular to follow her example and to start centers of Khadi production in villages.

Soon Gangaben expanded her activities and her enterprise thrived and prospered under her able leadership. She showed immense organizing capacity and innovative skills. In 1921 she had 2000 spinning wheels at the centre. Thus she restored the lost craft to hand spinning and weaving. Khadi become a new word in the vocabulary of India. Thus, plain and uneducated Gangaben Mujumdar become a pioneer in a new era. Through her, the Khadi industry was born. Gandhiji had decided to bring the work of Gangaben to public notice and he published “Pateri issue of Sani Vartaman that in my humble opinion the work of Mrs Gangaben is of the highest importance and nation (Tarlo, Clothing Matters: Dress and Identity in India, 1996) ought to know about it.

With Gandhiji’s inspiration and Gangaben's hard work, the Khadi activity began. Gandhii’s inspiration awakened many women for this Khadi activity across different parts of the country. Among these women were mainly Maniben Nanavati, Mithooben, Maniben Patel, Harshaben and Ushaben Mehta.

Maniben and three of her friends, Jayaben Desai, Shirin Havewala and Sunaben Rao started Khadi Mandir in 1934 at Vile Parle as an effort by women towards the liberation of the Nation. She had put a aboard-Khadi Mandir is run by women. Women were confident and well equipped to work bringing Khadi selling it and maintaining accounts. All these women, were those who had not gone beyond 7th standard. Most of Khadi Bhavans are running from women's only (Singh B. , 1962).
Before 1947, the expansion of Khadi was associated with mainly the goal of political and economic independence. After independence and in the absence of Gandhiji there was almost a rapid change in the attitude of the leaders.

Khadi over the decades has moved from a freedom fighter's identity fabric to a fashion garment. At one time it was secured as fabric for the farmer and rural wearer. Today there is such an increasing demand for Khadi is that despite the million (women) workers all over the country involved in spinning it they are unable to meet the demands of the market. (Tarlo, 1996)

In 1989 the first high fashion Khadi show was presented in Mumbai by the Khadi and Village Industries Commission (Industries, 2003) where nearly 85 dazzling garments were created by Devika Bhojwani. There was an exciting array of eastern and western attire. Devika had launched the swadesi label in 1985 which distributed through nearly 5000 Khadi Gramodyog Bhandars and Emporia. In 1990 designer Ritu Kumar of Delhi 8 presented her first Khadi collection at the crafts Museum. Her Tree of Life Show, an audio visual tableau spanning the history of textiles in India.

Ritu Kumar comments about the women pioneers, actually they were the first generation growing up after Independence and so the need to underline their identity was immense. There was also the need to emerge with something totally different and in opposition from the dress code foreign rulers had imposed. Another person who has been working regularly with Khadi is Kamal Wadkar, the well-known promoter traditional crafts. Komal has been associated with the Gujarat Handicrafts Board and the Mumbai Khadi Sangh. Her exhibitions in Mumbai for KVIC (Khadi Village Industries Commission) have netted nearly ₹12.5 million. Kamal has presented nearly 4500 garments in 150 styles in different colors weaves and embellishment with prices ranging from ₹460 – 750. Today the younger generation may draw inspiration from the way film and MTV stars are dressing, but there was a time when fashion too was dictated by our political leaders more than the dresses it was what they signified and the fiery personalities behind them that caught the imagination of the masses and influenced them to unwaveringly follow the footsteps of their leaders, even in adapting the way they dressed, recalls Ritu Kumar.
Many women contributed in Gandhiji’s Khadi activities. Even today women are mostly involved in the production of Khadi in one of the five year plan reports. There are interesting figures 2.75146 villagers including 19,645 Harjans and Muslim scattered in at least 13,451 villagers received as spinners, weaver’s etc. ₹34, 85,609. The spinners were largely women. 22 Now approximately ₹16 lakhs women are involved in different Khadi related associations. If they spin the cotton for eight hours a day they get ₹60 to ₹80 today with the help of new techniques (Trivedi, 2003).

The rediscovery of the charkha has brought in a new economic thinking for Indians. It has given new life to the individual and made him more resourceful and self-dependent. Today Khadi is synonymous with Indian freedom struggle and the empowerment of India’s women. It is the contribution of women like Maniben Nanavati and other proponents that has made Khadi the pride of India.

2.1.12 Khadi: The Only Answer To Healthy Environment

Man's progress and the road to development have led to the deterioration of nature. In his quest for fulfilling his needs, he has exploited nature to its maximum. This is development that is ecologically not justifiable. In the words of James Mc hall, the human being has become the most dangerous organism that the planet has ever hosted. The irony is that though every responsible person seems to be worried and anxious about environmental degradation, a meaningful solution is nowhere in sight. If environment is to be saved from degradation we have to limit the use of machinery. That is where Gandhi’s promotion of Khadi and Village Industries has become more relevant today than during the freedom struggle. In the words of “Gandhi” The earth has enough resources for our need, but not for our greed." What greater message is there to save this earth from the environmental disaster? Mahatma Gandhi challenged the well-entrenched concepts of what passes by the term development, a task which must have been even more difficult in his time when development had not been impeded by the most damaging aspects of the environment, as we know them now. (Verma, Dec 2012)

2.1.13 Benefits of Khadi:

More recently, Nandini Joshi, who has a doctorate in Economics from Harvard, wrote a book in Gujarati (which has also been translated in Hindi) titled Our Distress
and Alternatives. It argues that Khadi and the spinning wheel are still practical and economically viable if only we give them a fair chance. An additional argument she advances is that Khadi can help us to recover several hundred thousand hectares as urgently needed fertile land to grow food. The mills require long and medium staple cotton which need more fertile land, irrigation and chemicals. On the other hand short-staple cotton needed for the charkha can be obtained on less fertile land some of which is not under cultivation at present and there is no need for agro-chemicals. A country remains poor in wealth, both materially and intellectually, if it does not develop its handicrafts and its industries and lives a lazy parasitic life by importing all the manufactured articles from outside. There was a time when we manufactured almost all we wanted. The process is now reversed, and we are dependent upon the outside world for most manufactured goods. The past year brought forth a remarkable awakening of the Swadeshi spirit (Vaid, 2006). It has therefore become necessary to define Swadeshi goods. But in giving a definition care had to be taken not to make the definition so narrow as to make manufacture all but impossible or so wide as to become farcical and Swadeshi only in name. We do not want to follow the frog-in-the-well policy, nor in seeming to be international, lose our roots. We cannot be international, if we lose our individuality, and nationality.

2.1.14 Gandhiji’s belief in Khadi:

I feel convinced that the revival of hand-spinning and hand weaving will make the largest contribution to the economic and the moral regeneration of India. The millions must have a simple industry to supplement agriculture. Spinning was the cottage industry years ago, and if the millions are to be saved from starvation, they must be enabled to reintroduce spinning in their homes and every village must repossess its own weaver.

Along with the historical review a few studies have also been quoted which have been carried out on various aspects of Khadi.

2.1.15 Studies related to Gandhian views on Khadi, History of Khadi and Financial Performance of Khadi Corporations.

(Sekhri, 1992) Conducted a “Study of cotton and woolen Khadi in Punjab and did a survey. The study was carried out to gather the information regarding range of operations involved in the production of Khadi cotton and wool and also to study the
acceptance of Khadi among three selected income groups residing in Chandigarh. The result achieved was that people accept Khadi, however the study highlighted that design intervention in Khadi will be welcome by all.

“Clothing the Political Man: A Reading of the Use of Khadi/White in Indian Public Life” was written by (Chakrabarty, 1999) the author examines the symbolism of the Indian politician's common dress: white coarse Khadi championed by Gandhi. Does its continued survival during the post-independence era signify merely hypocrisy, empty ritual? What does it implicitly communicate about the public and private intents of political figures? What values does the Khadi conceal in its texture? Do they serve any purpose? Chakrabarty’s analysis concludes by admitting that though Khadi no longer conveys any message as to the prevalence of Gandhian convictions, yet it constitutes a deep-seated resistance by Indian democracy and politics to the wholesale loss of their identity in the rising surge of global capitalism.

Technological dualism and the response of traditional household enterprises of India in the post-reform (1991) era: a case study of Khadi industry by (Gopinath, 2008) explored the broad structure of the unorganised sector in India and then looked at the technological dualism as a frame-work to understand the status of household based industries and within that the Khadi industry with the social, economic and wider objective of supporting rural development in its widest sense and to improve the quality of life. The study looked at how Gandhiji evolved three ideologies (Trusteeship, NaiTaleem, Decentralised small-scale industrial production) to promote Gram Swaraj. The study revealed that that the traditional sectors are being pushed to a corner and that the slightly technologically advanced industries like power looms and mills sector (from within the country and outside) had even taken over the ‘Market Share’ of the hitherto traditional goods like Khadi resulting in the slow deceleration of those industries. However, this was found true only in the case of handloom industries and many of the other crafts which have gained significantly under the rule of free-market as pointed out by various other research studies on handmade crafts in India. Therefore it was stressed that one has to interpret the impact of technological dualism quite cautiously when it comes to handicrafts. It was found that wherever the traditional products are in direct competition with other technologies like, clothe produced by Khadi is competing directly with clothe produced by a technologically advanced mill sector then it may have a negative impact. But if the markets for handicrafts are not
directly competing with the technologically advanced products but catering only to *niche* markets they may not face a great deal of problems.

(Pooncha, 2008) “Interpreting Gandhi Differently: Portraying the Lives and Work of Two Gandhian Women” India today is facing value crisis. Drift started during the British era and since then it has been witnessing continuous erosion of values. At that time the man who came to India’s rescue was Mahatma Gandhi, man of principles and values who never compromised with his values. He along with his powerful values of truth and non-violence helped India regain its strength. Almost after 64 years of freedom there is a heartfelt need to go back to these values for effective management and survival. This article is an endeavor for reviving these time-tested values and to draw insights for management of organization. The values like truth, non-violence, renunciation, humility, equanimity, etc., at the organization’s roots may provide it a firm footing in this turbulent scenario.

(Verma, Dec 2012) in the study, Relevance of Gandhian economics in the modern society with special reference to his theory of Khadi, has tried to trace the history of Khadi through the eyes of mahatma Gandhi. Khadi or khaddar refers to varieties of coarse cotton cloth, which have been hand woven using hand spun yarn. Peasants and artisans in pre-industrial India always wore Khadi that had been made from locally grown Organic cotton, harvested by local laborers, spun into yarn by their womenfolk and woven into cloth by men from various specialist weaving castes. The precise technology involved in the production of Khadi would vary from region to region, as would the techniques used for its decoration (dyeing, embroidery, printing etc.) Khadi shot into prominence in the early twentieth century when the Indian political and spiritual leader Mahatma Gandhi called for the public burning of British mill-made cloth, and urged patriotic Indians to wear only homespun Khadi. The fabric is hand-spun and hand-woven from cotton, silk or wool. First, farmers pick cotton and remove the seeds. This is rolled into slivers in a process known as Ginning. These slivers are spun into yarn on a spinning wheel called the charkha, made famous by Mahatma Gandhi during the freedom struggle. The threads are then manufactured and hand woven into cloth. Indian national flag is also made up of Khadi. Unlike cotton, the material is starched and hence, does not crumple as easily. Khadi has the unique quality of being cool in summers and warm in winters.
A study on Socio economic conditions of women workers in Khadi and village industries in Kerala by (M, 2013) has highlighted various employment generating potentials of Khadi and village industries. The stress has been given on the advantages of working conditions in Khadi and village industries over manual workers in agricultural and construction sectors. Alongside the advantages, the problems of the Khadi and village industries have also been enumerated. The author found that overall working conditions of the women in Khadi and Village Industries are pitiable in Palakkad district. Though the workers suffer from various problems related to their work and management of house, it is found that most of the workers are proud about their economic contributions to their families and this helps in improving their status not only within the family but in the society as well. The author has recommended better marketing techniques, fixing minimum wages, increase in innovations by bringing in private player investment in the industry, training more people, change in the general appearance of the existing sales outlets and wages in this sector.

Khadi and village industries in Dindigul district a study of financial performance was carried out by (Nair, 2014) with an aim to understand the, trends in production and sales of Khadi and village industries, the pattern of mobilization and utilization of resources in these activities, profitability and management of working capital. The study covered four Non-Government Institutions. All the four institutions under study encountered fluctuations in production, value addition (as represented by Net Value Added by Manufacture - NVAM) and sales due to competition from organized sector and high cost of marketing. Fund flow analysis revealed that there was Predominance of short-term funds in the inflow or resources, due to meagre profitability, Dependence of the Institutions on KVIC for financial assistance, Predominance of the use of funds for short-term purposes and Financing of fixed assets with short-term funds. The author thus recommended a marketing consortium which may improve sales, profitability and the share of long-term funds in the inflow of resources. The main policy recommendations made were that the Pattern of assistance of KVIC should give priority to those proposals which aim at diversification of the existing activities, Formation of the proposed common marketing consortia should receive financial assistance from KVIC, Inventory and production planning should be improved through management strategies, New activities like electronics and fiber plastics may be popularized by KVIC. Financial discipline among Sarvodaya
Institutions should be enforced by KVIC, sales promotion measures' like exhibition and publicity should be organized by KVIC.

(Radhakrishnan, 2014) Carried out the research on Khadi and village industries in Tiruchirappalli district a study of financial management. The aim of the study was to examine financial performance of the four registered institutions implementing KVI programs in undivided Tiruchirappalli district for a period of ten-year from 1983-84 to 1992-93. The study employed analytical tools like capital output ratio, fund flow and operating cycle covering the disciplines of economics and management. Author found that Real value of Production and sales i.e. in Constant Prices remained stagnant. In most of the institutions net value added by manufacture, employment and earnings were also stagnant. Most of the short-term funds flowed from working capital loans given by KVIC. Stocks and debtors accounted lion's share of these funds. In the case of long-term funds capital expenditure loan given by KVIC was the major share followed by depreciation reserve. The institutions unable to generate fund from within because of the modest profitability of KVIs. Because of the paucity of retained earning institutions were forced to use other specifically earmarked reserves and at times even short-term funds for financing fixed assets in the event of hike in capital cost. Major funds used for financing of stocks and sundry debtors eventually lead to long storage cycle and to some extent expansion of collection cycle. Capital output ratio highlighted the low intensity of the activity. The study suggested that the institutions had to develop sound inventory and production planning. Speedy collection of dues besides above would make operations more efficient and profitable and thereby generate fund for their use.

2.1.16 Studies related to Design development in Khadi:

“Nightwear designing in Khadi apparel” was done by (Garg S. , 2006). The study was carried out to make Khadi nightwear to provide more comfort using breathable fabric. It was found that designing of nightwear with Tie and Dye technique in combination with hand and machine embroidery is a successful technique and can provide a new look to the Khadi apparels. The designs so developed showed great acceptability by the sample group.

(Singh J. , 2006-07). Worked on renaissance of Khadi bags. The basic purpose of the study was to assess the present product range of Khadi available in the market and develop new designs for Khadi bags keeping in mind the needs of potential
consumer. The prototypes using different surface techniques were developed to assess the acceptability of designs and to find out the marketability and profitability of the bags. It was found that the students and teachers preferred the appearance of the developed bags. They also preferred the structural designs/Embroidery in bright colors. Block printed bags were rated high as compared to other combination of techniques.

Design of Khadi garments with Macramé technique were developed by (Singh A., 2006-07). The study aimed at surveying the use of macramé technique in garment production, to develop the range of skirts and tops with the technique and to check the acceptability and marketability of the developed skirts and tops. At the end of the study it was found that the technique was earlier used only on household articles and accessories. The developed designs along with the calculated price of tops and skirts were accepted by the consumer. In case of pricing near about 80% of the respondents were ready to pay higher than the calculated price.

Wrinkle-recovery treatment to Khadi & handloom fabrics in the form of functional finish for Value addition to the products of handloom cotton and hand spun and hand woven Khadi was done to have a real financial upliftment for the artisans by way of higher consumer preference. An attempt was made to study the chemical treatment for the hand woven fabrics as a low cost input, yet effective and tenable for those already high skilled artisans in villages. Fabrics used for the study were, Khadi cotton, Khadi polyvastra, Handloom cotton and Handloom Polyester/Cotton blend. Chemicals used were (1) 2% nonionic soap, (2) DMDHEU, (3) Catalyst-MgCl2. The finished Khadi & handloom fabrics after DMDHEU treatment showed round fibers having crease recovery angles of 152 degrees imparting wrinkle-free characteristics and smoothness, infer (Balakrishnaiah., April 2007).

Cloudy effect on Khadi fabric using tri functional reactive dyes was developed by (Suneet, 2007) along with an effort to compare tri functional dyes with tie and dye and testing it for colorfastness towards sunlight, washing, rubbing, ironing and dry-cleaning. It was found that the cloudy and Tie and Dye effect had excellent fastness properties towards washing, dry cleaning, ironing, rubbing and sunlight. All the properties of both the samples were same (very good and Excellent) except in case of wash fastness the result was good. Tie and Dye samples were highly accepted according
to appearance whereas the cloudy effect samples were highly accepted according to design effect by respondents.

(Sugandhi, 2007) Conducted a study on Anti crease Finishes on comfort properties of Khadi Fabric. Various experiments were done. The Grey fabric was listed for fabric count, thread count, fabric porosity, and fabric cover. After the treatment the constructional properties were checked, the influence of resin treatment on comfort properties like air permeability and water vapor permeability were checked. It was found that there was a decrease in air permeability in case of Resin treated Khadi, which may be due to application of resins. A very slight difference in thermal insulation value was observed when treated with resins with respect to controlled fabric. Water absorbency slightly decreased when fabric was treated with resin. The resin treated samples exhibited small reduction in the value of water vapor permeability.

(Singh R., 2007) Worked on the study “Creating fantasies on Khadi belts.” The investigation was planned to design Khadi belts. Different shapes, surface enrichment techniques and embellishment material of earlier times were combined with an ethnic as well as trendy look. Consumer preference for designer belts was found to be excellent to very good. More than 90% respondents accepted the actual price suggested by the consumers preferred to purchase it.

“Creating designer skirts in Khadi Fabric” was an initiative taken up by (Lata, 2007) to check the consumer’s attitude and preference for Khadi shirts. Stiffness and durability of cotton Khadi fabric was found out to design the skirts. Moreover the acceptability of developed designs was also assessed. It was found that designing techniques used in this work helped in improving the aesthetic appeal of Khadi skirt and combination of structural and applied design techniques successfully imparted novel look to the designed skirts.

(Garg A., 2007) Did the designing of Khadi suits by combining Embroidery with other embellishment Techniques. The main objective of the study was to provide novelty and variety in designs and promote Khadi giving it a more gracious and Luxurious look to the salwar suit using sequins, mirror, patchwork, printing etc. and evaluate the acceptability of developed designs. The study concluded that the designs developed were appreciated, suitability of embroidery with embellishment was rated good to excellent. The maximum respondents were ready to add these suits to their
wardrobes and willing to pay the price as according to them the developed range would fulfill the fashion need of the consumer.

Various other similar studies of design development in Khadi have also been done. (Bajpai, 2007) Carried out a study on Effect of different de-sizing methods on the comfort and physical properties of Khadi. Value addition on Khadi Jackets was done by (Mittal, 2007). Adaptation of Mughal carpet motifs for designing Khadi suits was done by (Kumari, 2007). (Rawat, 2006-07) Worked on designing of Khadi Trousers and Capri’s. In case of all the above studies the acceptance of the developed product was very good.

2.1.16 Studies related to Khadi and Customer Preferences:

A case study on attitude of rural and urban customers of Khadi products was done by (Dr.Padmasani, 2012) According to the authors, knowing the customers’ attitude is important for the marketing managers as it produces consistency in behavior and relates to the preferences of the product or service. Moreover, the market opportunities can be clearly perceived through a comparison of the rural and urban consumers’ attitude and satisfaction. In this context, the attitude assessment would help the Khadi institutions’ management in revamping and renovating their Khadi outlets and thereby making the Khadi and Village Industries’ (KVI) products more competitive and remunerable. Hence, the present study aimed to examine the attitude and satisfaction towards Khadi products and to compare the rural consumers with their urban counterparts. The statistical tools such as ANOVA, paired t-test, correlation analysis were used apart from Fishbein’s Multi-Attribute Attitude measurement model. This study finds that rural and urban customers not significantly differ in attitude and satisfactions towards Khadi product. Moreover, the attitude towards Khadi products has significant positive relationship with the customers’ satisfaction. Hence, the policy makers in Khadi and Village Industries (KVI) may adopt single strategy for the whole market without differentiating the rural and urban area in augmenting the sales of Khadi products.

(Dr.D Mahesh, 2012) Conducted “A Case Study on Customer Attitude and Preference towards the Brand of Khadi and Village Industrial Products in Coimbatore District” The Researcher studied the opinion of the customers’ reaction towards the pricing and awareness about the usage of the products in terms of productivity, quality, Profit and better customer orientation. It also aimed at helping the District Supply and
Marketing society a marketing retail outlet in improving the sales and various other promotional activities.

(Kumar, 2013) Is of the view that Khadi wasn’t just about a bolt of coarse, rough-spun cloth. It was a movement. Launched in the late 1940s by the Mahatma, the Khadi statement was more economical than sartorial, all about giving Western goods the cold shoulder and wearing only Indian-made cloth. Today Khadi imparts a very elegant and a sober look. Indian fashion Designers use Khadi for the international market. Today, as it gets set for the runway again, the question is not so much whether it has arrived but whether it lends itself to variety and innovation. Here lies the rub or, more aptly, the nub. Khadi has not and does not really look to be crossing the invisible barrier that can catapult it into the big league. For all its versatility, detractors point to its coarse feel and propensity to wrinkle. But linen is very wrinkly too and not for a moment has its appeal declined among the sartorially evolved. In fact, Rohit Bal says that Khadi is India’s answer to linen.

The another study by (Manoj, 2014), The contending hegemony Gandhi’s Khadi and growth of consumer culture, 1915-1945, provides an insight into a single man’s obsessive pursuance of his conviction that brought not just ‘truth and non-violence’ into the common man's parlance but also gave, in the evocative phrase of Nehru, a 'livery of freedom’. Gandhi drew similes from his life experiences to argue for Khadi. A colleague not content with merely breaking the link between the dress of the Indian and western elite, Gandhi chose as his image for India the clothing and lifestyle most Antithetical to the British and to their ideas of progress. He encouraged all Indians to identify with poor millions, not just by wearing the product of their labor but by also sharing their labor. All men and women were to spin their own thread and so participate in the production of their own garments. In short, Gandhi invited Indians, whatever their background, religion or caste, to be like villagers, thereby providing an alternative model of modernization to the prevalent western model.

(MH.Ahsaan, 2009). Reported that the Khadi has always been a fabric with attitude. If in the past its claim to fame was its status as a symbol of resistance against British rule, it has now become a fashion statement. Its journey from its eventful birth as the fabric favored by revolutionaries, to designer boutiques and elite consciousness
has been an exciting one. At one time coarse and dull, Khadi’s latest avatar is brightly colored and gossamer fine. While designers sing hosannas to the versatility of the fabric, wearers swear by its practicality and comfort. It is not only the perfect answer to India’s hot and humid summers but also provides adequate protection against winter chill. Leading designers like Rohit Bal, Jatin Kochchar, Malini Ramani, and Bhavna Thareja and upmarket clothes brands like Fabindia and Anokhi have given to the traditional handspun fabric a modern and contemporary look. With its stylish cuts and innovative colors, Khadi has come to define the trendy ethnic look.

(MH.Ahsaan, 2009) Vijay Lakshmi Dogra says about Khadi-"It can replace linen in the international markets. It is so versatile, you can get amazing colors and textures and weaves if you combine Khadi with cotton, muslin or silk. Even plain Khadi by itself is a great material to work with, both for the winter and summer collections." According to Dogra, the popularity of Khadi has increased in recent times, "The ever-increasing penchant for Khadi has some reasons. There are two kinds of buyers. The first kind of people buy Khadi for a reason. A look at the past reveals the way Khadi was promoted by Gandhiji. This was to promote village economy, to stop the exodus from villages to cities. Khadi was promoted extensively to make them economically more self-sufficient. One reason why some people wear Khadi is the feeling that by designing clothes in Khadi and by wearing Khadi they are supporting the 80 per cent of the population that lives in villages," says Dogra. The second kind of people, according to her, wear it because of the inherent nature of Khadi since "It is one of the best and comfortable fabrics for both winter and summer: cool in summer and warm in winter. Moreover the availability of variants of Khadi like muslin Khadi, matka Khadi and hand-woven Khadi provides the freedom of experimentation to the designers and makes it a really suitable buy for all kinds of occasions. Matka Khadi is one of my favorite fabrics and one can see its widespread use in my collection, “she says. She says that the marketability of Khadi will only increase” once people start wearing Khadi because then they become addicted to it. From masses to the elite, Khadi is making a place for itself in wardrobes. The cost that ranges from ₹ 30 a meter to ₹1000 a meter makes it really accessible and one of the most comfortable, convenient stylish t as well as fabrics, "Dogra says.
2.2 DESIGN AND CLOTHING

2.2.1 Art and Design

a) Art- It is a man-made expression of something beautiful, but beauty seems to be different for the different people.

Britannica online defines art as- “the use of skills and imagination in the creation of aesthetic objects, environment or experience that can be shared with others.

Man’s own beginnings and the origin of his institutions have always exercised his mind and his speculations. He kept on experimenting with his surrounding materials with many objectives in his mind like need, fun, knowledge, creativity etc. These activities gave him fruitful results in one or another way and he went on to beautify his surroundings to satisfy the burning hunger for introducing grace and elegance into ordinary object of everyday life through color and good form. He was not connected to just live comfortably; he also wished to live graciously. Thus beauty wedded to utility and art was born.

In the realm of the art, design is more relevant to the “applied art”. Design is often viewed as a more rigorous form of art, or art with a clearly defined purpose. Design implies the conception of idea and their transmission to the others for use.

b) Design: Its definitions.

According to (Meyer, 1937) the ultimate source of all design is the response to obtain and the emotions of the designer to the needs and wishes of either himself or the person for whom he is designing.

(Soundraj, 1974) Defines design as any arrangement of line, form, color, space value and texture.

(Faulkner, 1964) Opine design as the selection and organization of form space, color and texture to create beauty and individuality.

Patterned fabrics are colorful, refreshing and stimulating. The textile design of patterned fabrics may be natural and geometric (Rush, 1954).
In clothing, the best structural design follows the natural body line. Decorative design gives emphasis to certain area. (Pollard, 1961).

(Meyer, 1937) Has classified design into the three types:

a. Conventional – In Conventional design, most parts are geometric design which is based upon an actual form.

b. Naturalistic design - is a realistic representation of nature with little or no change.

c. Stylized design - fully three quarters of design are stylized.

There are two kinds of design - structural and decorative. Structural design is the design made by the size, form, color, and texture of an object, whether it be the object itself. Decorative design is the surface enrichment of a structural design (Goldstein and Goldstein, 1963).

Natural designs are those designs which are seen in nature without any change. Flowers, leaves, climbers, birds and animals all act as inspirations. Geometric designs are circle, triangle, rectangle etc. Stripes and checks are also coming under this head and in stylized design modification or alteration are given on naturalistic design (Thomas, 1994).

“A design must have a character, (something called style) individuality. Simplicity is an attribute of the decorative quality.” Design implies a conscious effort to create something that is both functional and aesthetically pleasing.

Every person develops his or her own taste from early years and this individuality is indelibly stamped in the environment from the very beginning. It is true all are not born with the gift of good taste but anyone can learn to develop and acquire the skills to appreciate good art and designing by applying the principles of beauty deliberately. Learning to appreciate the fundamental elements of art and design would help a person to create, acquire or arrange objects of art and beauty aesthetically.

The elements and the principles of design are the buildings blocks used to create a work of art.
c) **Elements of Art**: An understanding of what constitutes a good design is essentials if any decoration has to be successful. Design is made up of certain constituents such as a line, form & shape, color and texture. These are the fundamental elements and form the infrastructure for creating the design. The entire class of art should be studied together because they function interdependently. An understanding of role of each of these elements helps to predict the design or style to be created.

1. **Line**: Line is the basic element of design and art. It is capable of expressing movement, direction and growth. It gives outline to the garment.
2. **Shape and Form**: Shape refers to outside dimension of an object while form refers to 3-D objects, showing mass and volume.
3. **Color**: Color is an important art element. It is very helpful in creating illusion of warmth and coolness. Basic qualities of color are hue, value and intensity.
4. **Texture**: Texture is sensory impression understood by sight as well as touch. The element describes the surface appearance and feel.
5. **Pattern**: Pattern refers to any sort of extrinsic surface enrichment. It may be structural and applied.

d) **Principles of Design**: Design principles are rules or laws that are used in art form to judge good design. The principles of design include balance, proportion, rhythm, harmony and emphasis.

1. **Balance**: Balance may be defined as the restful effect that is obtained by grouping shapes and colors around a center in such a way that there is an equal attraction on each side of that center. Balance is of three types: formal, symmetrical and radial.
2. **Harmony**: Harmony may be defined as the art principle which produces an impression of utility through the selection and arrangement of constituent objects and ideas. A garment is said to be in harmony if it has all the other four principles of design in it.
3. **Rhythm**: In art, rhythm means an easy connected path along which the eye moves in any arrangement of line, form or colors.
4. **Emphasis**: Emphasis is the art principle by which the eye is carried first to most important thing in any arrangement and from that point to every other detail in the order of its importance.
5. **Proportion**: The proportion refers to the relationship of one part to another or to the whole or between one object and another. The principle of proportion is called
law of relationship. It implies that the relationship between parts of the same thing or between different things of the same group should be satisfying. (Narang, 2009)

2.2.2 Essentials of a good Decorative Design.

Decorative design is the surface enrichment of a structural design.

a. The decoration should be used in moderation.
b. The decoration should be placed at structural points.
c. There should be enough background space to give an effect of simplicity and dignity to the design.
d. Surface pattern should cover the surface quality.
e. The background shapes should be as carefully studied and as beautiful as the pattern placed against them. (Pandit, 1967)

2.2.3 Surface Enrichment Techniques.

Surface enrichment techniques have been very basic activities of human society, handicrafts, especially are an integral part of our life. In fact, these are found to be very cohesive in human relationship. Handicrafts, defined simply, are the objects made by the skill of the hand that carry the creator’s imagination along with centuries of tradition in which these have been created, and are the result of years of almost conscious experiments and unconscious evolution. Thus, craft is an activity which we have inherited and acquired with time and which deserves close, thorough and concentrate attention.

One of the oldest handicrafts, used as a tool by man, to express his interests, sentiments and emotions is embroidery. Embroidery is the embellishment of any material with designs or patterns done with the help of needles and threads. For this very reason the Roman’s called it ‘Needle Painting.’ Embroidery can beautify and decorate even the simplest object with grandeur. It fills the blankness with substance and emptiness with meaning. It is the outcome of yearning in human beings for beauty. Hence, the art of embroidery helps in introducing grace and elegance to the ordinary objects of daily use through multifarious colors and splendid formations.
Embroidery is not confined to any single country rather it is a world-wide phenomenon and this is due to its fascination among all. Every country has its requirement for homes, costumes and ceremonies.

In our country, the art of decorating the base fabric is an ancient art and has been existing as an inheritance from one generation to the next generation. Although it has reached great heights many a times, but there have also been signs of its decay. Even then its importance has never been minimized to any extent. Surface development techniques in India are dominated by embroideries and they are not the products of individual craftsmen, enveloped in a shell of inward looking egocentricity, searching for method of self-expression. It is an art of people indicating that skills are not in the hands of individuals, but have seeped, spread and taken root through time, through generations and through communities.

Another interesting and important factor is that almost all the different types of surface enrichment techniques existing in different parts of the world are to be found in India, and yet each one is distinctive in character. Among them, some are very fine and intricate, while others are bold and at the same time simple. The important ones are listed below:

![Figure 2.11 Surface Enrichment Techniques](image-url)
Surface enrichment techniques play a very important role in making the infant clothing beautiful and different. Surface enrichment techniques have been very basic activities of human society, handicrafts, especially are an integral part of our life. In fact, these are found to be very cohesive in human relationship. Handicrafts, defined simply, are the objects made by the skill of the hand that carry the creator’s imagination along with centuries of tradition in which these have been created, and are the result of years of almost conscious experiments and unconscious evolution. Thus, craft is an activity which we have inherited and acquired with time and which deserves close, thorough and concentrate attention.

Art of decorating the base fabric is an ancient art and has been existing as an inheritance from one generation to the next generation. Surface development techniques in India are dominated by embroideries and they are not the products of individual craftsmen, enveloped in a shell of inward looking egocentricity, searching for method of self-expression. In the present study various surface enrichment techniques have been experimented upon to develop an infant wear clothing range. Requirements of a good decorative design have been kept in mind. Keeping in view the abundance in which the techniques are used, ease of making and Economic viability, the following techniques have been discussed in detail.

a) Patchwork

b) Appliqué work

c) Quilting

d) Machine sewing techniques

e) Combination of hand painting and machine embroideries

a) PATCHWORK

The term “PATCHWORK” is used to describe the joining of shaped pieces of patterns or colored fabrics to form a cloth mosaic. It is a technique that offers limitless scope for experimenting with pattern, color & texture.

i) History of patch work: - The history of world can be read in textiles. The rise of civilization and the fall of empires are woven into warp and weft along the great adventures of conquest, religion and trade (Bryan, 1999).
Study of traditional textiles of the world reveals at times an amazing diversity of techniques and style. In ancient times due to the scarcity of raw material and also to save money, old garments are sewn together to make blankets for protection against the cold and patches of different fabric were used to mend these blankets, quilts and other garments. This art of mending was later on termed as patch work or applique.

Patchwork can be as complicated and intricate arrangement of several shapes or as simple as one wishes to make it. One can make beautiful and trendy items using patchwork technique at home.

Patch work started in ancient times, how long ago, it is hard to determine. No one knows its origin, but it must have developed soon after weaving, where every scrap of cloth was precious and even the tiniest pieces could be joined to create a new fabric. Shaping and rearranging these scraps to make patterns was the next logical step in the "Evolution" (Alise, 1968).

The technique of patch work originates from the development of needle and thread. This technique had been widely used in Mongolia, Egypt and India. The art of patch work can be seen from their clothing, blankets, and carpets and so on. There are lots of stories of different versions regarding the history of patch work. One of the examples of patch work done in the sixth and ninth century was discovered by Sir Aural Stein's expeditions, while making an archaeological survey for the Indian government in the remote region, which lies beyond the river Ganges in 1920's. A walled-up chapel was found in the caves of thousand Buddha's, situated on the old trade route linking the silk growing provinces of China with central Asia and the west. There was a large collection of textiles in the chapel and among them several pieces of mosaic patchwork including a large votive hanging made from many colored rectangles of silk. Other important examples of that time was a patch worked and appliqued funeral tent made for the Egyptian queen -Isi - em - kebs in the late 9th century B.C (Alise, 1968).

Patch work is believed to have been introduced into Europe by the crusaders. In time it spread to all the countries around the Mediterranean and across the continent. Pictures in medieval manuscripts show banners and tunics decorated in a way which indicates knowledge of patchwork and applique. From then onwards to the present day applique has been considered the best technique for putting across visual ideas in needle work.
The earliest surviving English example only date back about 250 years, as many earlier pieces must have worn out through constant daily use.

During the 12th century, Mongolians used the patchwork technique to make winter clothing for the extreme weather. The Mongolian soldiers were able to go to war using these thick clothing to protect them from the extreme cold. The art of patch work was also developed in the west. The western community started patchwork on war apparels but later applied to hats, clothing, bed sheets, curtains and other household articles. At that time fur and jute were the main materials used in patchwork. Cotton was only used in the 15th century. The patchwork technique too was revolutionized and better techniques and embroidery were introduced. It was also used on velvet grounds with rich satin or gold leather patches cut into shapes and often couched with gold cords. Coats of lettering, birds, animals and flowers were stitched on the design becoming more and more complex by adding combination of quilting and embroidery techniques to them (Helen, 1999).

Patchwork technique also were used in an extremely sophisticated form at this time in India with the famous Kashmir shawls being woven into separate shapes and then sewn together like jigsaw puzzles. So, complicated were these patched shawls that took six men three years to complete one. In the 17th century a group of religious followers not accepted by the government of England migrated to a new world (U.S.A.) to open new land. The early settlers were poor and could not replace essential possessions. Everything was repaired again and this was certainly true of family quilts, which were patched up with scraps of fabric from old clothing. Moreover, women folk used leftover scraps of fabric to make household articles. After many repairs, the quilt top began to resemble a patchwork design more than solid fabric. At that time, they had with them imported expensive fabric which was not used. Together with wool and jute they cut the fabric into various shapes like squares, triangles and rhombus and then join the fabric pieces together. From here thousands of patch work patterns were created. These were the precursors of the beautiful and inventive patterns of the 18th and 19th century, now elevated to an art form and highly prized. Hence the art of patching fabric was named as patch work. One of the earliest surviving examples of patch work in England is at Leven’s hall in Cambia and is believed to date from 1708. The work comprises a set of bed-hanging and a quilt, all made from imported chintzes and featuring patch work, applique and quilting (Patersons S, 1935).
Patch work reached its height as an art form in the middle of 18\textsuperscript{th} century. But many years before that it was invented as a means of using up old pieces of materials to make something useful. In 18\textsuperscript{th} century it was elevated to a decorative needle art and became a fashionable occupation among the more leisured middle class. The patched appliqued and quilted masterpieces were worked at first without designs with a minimum of fancy fabrics. Later different type of patch work and appliqued designs were developed.

Interest in patch work and quilting as a hobby had almost died out by the beginning of 20\textsuperscript{th} century. The main reason behind it was firstly, material was cheap and plentiful, quilts could be made from whole length and there was not the necessity for patch work. More over the production of hi- quality quilted items enabled women in economically hard- pressed mining and industrial area to earn money. Patch work declined after World War II because the II world war brought extensive social and economic changes to all parts of the British Isles. Women had to work in the factories and on farms to support war effort and when it ended in 1945, changes in fashion and ever increasing move to the use of ready- made cloths and beddings meant that patch work and quilting were no longer important as source of income nor even as hobbies.

The earliest material known to have been used for patch work in England was the "painted calicoes" or chintz in 17\textsuperscript{th} century. During the 18\textsuperscript{th} and beginning of 19\textsuperscript{th} century cotton, linen and calico was used. By the mid of 19\textsuperscript{th} century material of all kind were used for patch work. Velvet was very popular for furnishings, such as cushion covers, and for crazy, work and ribbons were used for log cabin quilts.

\textbf{ii) Materials Necessary for Patch Work:} Always use material of good quality whether it is old or new. The fabric which do not stretch or fray should be used for patch work. The fabric must be firm in weave and texture. Good quality cotton, the fabric most commonly used in old patch work is still the best material. Moreover cotton can withstand heavy wear.

Man- made fabrics are not really suitable for patch work as their crease resistant qualities make them too springy to fold accurately over the comers, Silk has fine colors
but it is not much durable as compare to cotton. If silk is used, price will be high and
will not be available for all income groups. Velvet combines well with silk and satin
but it is difficult to handle. Some points to be kept in mind before selecting fabric:

- The fabric do not stretch or fray. It must be firm in weave and texture.
- It is advisable to wash small cutting if there is any doubt about the fastness of dyes.
- It is not advisable to mix fabrics of different type and weight because different type
of material needs different treatment.
- Care should also be taken in choosing colors and prints and solid colors should
blend.
- Fabrics with naturalistic floral patterns and those with geometrical one do not
combine well.

iii) Equipment: The equipment or tools needed for any patch work are -

- **Scissors:** - Two pairs of scissors are needed. One pair (very sharp) for cutting
material and another for paper-cutting, as paper – cutting, destroys the cutting
edges of scissors.
- **Pencil or chalk:** - Pencil or chalks are used for tracing templates on fabric. Light
colored pencil or chalks are good as they do not leave dark marks.
- **Threads:** - Traditionally linen thread was used for joining patches. Linen is still
the strongest and best thread to use for knotting or tying the finished patch work to
a backing and inter lining. For sewing the patches, matching thread must be used.
Cotton sewing thread is ideal for fine silk fabrics, but cotton is better for heavier
silk, satin and velvet.
- **Needles:** - Needles should be comparatively fine, according to the material. Patch
work seams need to be closely joined and this is done most effectively with a fine
needle- size nine or ten is generally suitable.
- **Pins:** - Pins for all processes of patch work need to be smooth and sharp,
especially when the material is cotton with a delicate finish or silks. Steel dress making
pins are suitable for most heavy kind of material such as casement and linen but they
should not be left in the pieces. Brass pins are suitable for all kind of fabric.

iv) Templates: Templates are patterns used to make the shapes for the papers and
patches. In early patch work the shapes were made without templates. Material were
folded and cut by the thread, but the introduction of more ambitious shapes than squares
and rectangles, led to need for a basic pattern. Metal or plastic templates can be made in several shapes and sizes, usually in pairs - a smaller solid template is used for cutting back paper and a larger window template is used for cutting the fabric. For making solid template at home - strong cardboard, a craft knife, ruler, compass and a protector is needed. Draw the shape clearly and accurately on to cardboard using the ruler and compass. Then cut it out neatly. These templates have a drawback that they easily fray at edges, resulting in inaccurate shapes of fabric and ill-fitting corners. Window templates are made up of clear plastic. It has a central panel, of exact size of the patch and a solid surrounding of 9 or 6 mm (the width of patch turning). It is extremely useful for patterned or striped fabric (Guerrier, 1993).

b) APPLIQUE WORK

Applique is one of the oldest forms of needle work. The technique of applique originated as a way of decorating and strengthening poor quality cloth with left over scraps of rich fabric. Not only did it have the advantage that it made economical use of fine fabrics, but it also proved to be a decorative patterning that was far less time consuming to produce.

‘Applique’ is a French term, signifying the sewing of one textile over another. This work was anciently known as ‘Opus Consortium’ or cut work which is derived from Latin ‘applicare’, which means to join or attach, and the French ‘appliquer’, which means to put on. It was most practiced from the thirteenth to the seventeenth centuries. The work was known in India and Persia, and probably invented there, the Italians, Germans and French used it largely for household decorations, and the English made for altar cloths and vestments (Wiltz, Updated 2014).

Applique furnishings decorated with plants, animals and men motifs have been found in the tenth century B. C. Egyptian tombs and from fifth century B.C. on words in tombs of central Asia and Siberia. Historically, the lineage of applique can be traced to finds at Papyri in Siberia dating from about 4th century B. C. In the Hermitage in Leningrad, there is a reconstruction of a wall hanging from an Altai and Scythian Chieftain’s burial chamber, the hanging being decorated with three bands of colored felts hemmed to a ground of beige felt in a design showing seated goddesses and horsemen.

Applique is very old form of ornamentation, though little is known of its history. Various references to it occur in historical writings, e.g. Reference is made in the Bible to Joseph coat of many colors” the work was probably either applique or patchwork.
According to the Needle Work Dictionary, “Applique was used by the Egyptians and ancient Greeks. In the middle ages the Crusaders brought back from the Middle East the idea of wearing a coat decorated with applique over their armor, both to keep the sun from the metal and to make it possible to identify the wearer. In the late 16th and 17th centuries it was the practice to embroider motifs that were then cut out and applied to other material. ‘A great deal of the raised or stump work of the 17th century was made in this way, and some of the panels with isolated motifs worked in rows, which are so much prized today, were actually meant to be cut out and applied’. Crusaders returned to France and Britain from the Holy wars with sumptuous silks, velvets and brocades which encouraged applique work. The reflective qualities of these different surfaces made these fabrics stimulating to look.

In England, applique became especially popular in sixteenth century. Since, it was difficult to embroider directly on to the sumptuous velvet fabric that was then in use, needle point devices worked on canvas were cut out and hemmed to a velvet ground. In Belgium, the applique principle was applied to lace making in 1661. In Europe, during the middle centuries the Italians produce some very beautiful applique. They knew how to use the rich materials of damask and velvet that were then being produced in such magnificence, and it became the fashion at that time to incorporate long oblong panels in the decoration of fine apartments. Materials of contrasting textures were chosen, such as silk and velvet, the high lights of the silk making a striking contrast to the rich dark tones of the velvet.

The art travelled from Europe to America with the early settlers among the early European settlers of North America were the Pennsylvanian Dutch who arrived in the seventeenth and eighteenth centuries. The inclement weather and lack of materials encouraged the recycling of old cloths and quilts, used in new designs. As a result there grew a tradition and the wide spread use of applique and patchwork quilts. European missionaries to Hawaii in the nineteenth century introduced skills of applique. The second half of the nineteenth century has seen the evolution of protest art in response to the historical, social, political and economic changes in the century in the form of paintings, drawings, sculptures and textiles.

i) **Material Necessary for Applique Work:** People all over world have worked applique using the local materials that were available to them. Thousands of years ago, Indians in Arizona stitched dried leaves to leather. Farther north, Canadian Indians living in the Artic decorated their Caribou skin garments with designs art from the soft skin of the underbelly. On the other side of the world, the Maoris of New Zealand stitched brightly colored feathers to bark. Traditional Japanese applique is heavily padded and includes gold and silver leaf as well as silk. In Tibet, men made rich
intricate temple hangings in silk and decorated their tents, clothes and saddle blankets with applique designs in felt (Miller, 1993).

Many mummy bundles of the pre Columbian Indians of Peru have appliqued copper masks and eyes. A popular method of ornamentation in both ancient Peru & Egypt was the sewing of metal spangles onto scarves and clothing. Applique of felt is one of the oldest forms of applique.

e) QUILTING

Quilting is an ancient and venerable craft and one that has been the subject of many changes of use over the centuries. It involves joining of three layers of fabric together with stitching using linear or circular pattern. We assume that quilting originally developed from a need for warm clothing and bedding, but it is just as likely that quilting for warmth came after the craft was established as a decorative form of needlework. Quilted fabrics have been used for protective armor, warm clothing, warm bedding and pure decoration.

By the early 1700s quilting featured widely in costume caps, petticoats, dresses and waistcoats as well as bed ornamentation. However, it seems likely that quilts and quilted clothing remained the fashionable prerogative of the well to do. In the 1760s there was a rapid expansion in the UK of textile production, so cotton goods became more readily available and affordable. Imported cloth such as Indian painted cottons were very popular but too expensive to waste, giving rise to appliqué work to make the most of the intricate hand painted designs. More cloth=more clothes=more offcuts=patchwork. From this period patchwork developed alongside quilting.

Quilts from the early 1800s have an elaborately and carefully pieced or applique top, with the quilting itself taking second place. Such quilts provide valuable evidence of types of fabrics and patterns, and of the printing and weaving techniques used at a time from which few clothes survive.

In North America quilting developed rapidly alongside patchwork as an essential thrift craft among the earliest settlers and by the early 1800s both were firmly part of the domestic and social round. Quilts were put to all manner of uses tents, bedcovers and mattresses, doors, windows and even flooring, protection for precious crops and so on.
After 1875 a new bedcovering the Marcella or Marseilles quilt posed a considerable threat to the widespread popularity as quilt look alikes and were mass produced following refinement of the new jacquard loom. In a perverse twist of fashion, it became more desirable to own a Marcella spread than to have a handmade quilt, and for a short time many real quilts were used with the plain reverse side showing.

The latter half of the nineteenth century saw the finest flowering of the both the patchwork and quilting traditions in the old and the new worlds. Patchwork had developed into a craft that was practical, economical and thrifty and it could be as simple or ornate as time and ability permitted quilting, while often linked with patchwork, continued to develop as a craft in its own right and many fine whole cloth quilts were produced from 1850 to 1900.

World War I represents a watershed in the popularity of quilting. More and more manufactured goods of improved quality were available. It became fashionable to cover beds with eiderdowns, not quilts. Also growing numbers of women, traditionally the makers of quilts, had begun to move into the workplace. There was less time to quilt and less need. Quilts were nonetheless still made and used, particularly in rural areas which were less vulnerable to the whims of fashion. Times of hardship and social change in 1930s took their toll in quilting, although both patchwork and appliqué enjoyed a short revival in the United States during the Depression years. In Britain by the early 1940s quilting was seen as a vanishing tradition worthy of recording and revival. The Rural Industries bureau improved standards by organizing commissioned work from some of the remaining quilters and by encouraging the teaching of traditional quilting skills.

In the post war years those who quilted were few in number and the craft was viewed as old fashioned and outdated. Quilting hovered on the brink of extinction until the early 1970s, when a phenomenal surge of interest in quilts as both domestic textiles and art forms originated just ahead of the American Bicentennial celebrations. The heralded a widespread international revival and relearning of the craft. Fortunately there remained a small number of dedicated quilters, most taught literally at their mother’s knees: their generous contribution of experience and sharing of their skills should not be underestimated.

Quilting today is alive and well in many locations worldwide and people are discovering its satisfying and therapeutic benefits. Throughout Europe, North America,
Japan and Australasia, there are flourishing quilt guilds, clubs, magazines and many exhibitions large and small, all providing a vital network of contacts, information and resources for quilters. Heritage programmers, aimed at adding to our fund of knowledge of quilts and their makers, are being undertaken with noteworthy result (Chainey, 1993).

d) MACHINE SEWING TECHNIQUES

Sewing, the art of attaching together objects with a needle and thread is not new to mankind. It dates back to prehistoric era. Archaeologists believe that almost 25000 years ago, during the last ice age, man used to sew together fur, hide, skin and bark for clothing using a needle and a thread. They have discovered needles with eyes made from animal bones, ivory and antler. There are also records of wood and natural needles from the agave plant being used as needles by Native Americans.

The oldest known iron sewing needles came from the Celtic Hill fort at Manching, Germany and dated back to third century BC. Chinese archaeologists have also found a complete set of sewing needles and thimbles in the tomb of a minor official from the Han Dynasty (202 BC -220 AD). This is the oldest known thimble in the records of history. Thimble is a device that helps push needles through tough and resistant surfaces like animal skins and bark. It was first made from bone, wood and bark, and later made from leather, glass and porcelain. The thimble also became an ornament when people started studding it with precious stones and metals (Bub, 2011).

Sewing thread was initially made from sinew catgut, veins and plant fiber as a single strand. Later they found that fibers from plant and animals could be spun together to make a stronger thread.

Our archives claim that the Egyptians spun together threads by using fibers from plants and wool and hair from domestic animals. They along with the Phoenicians developed methods of dyeing these threads with various colors using berries and other plant ingredients. Later, the Chinese and Japanese developed the process of spinning silk threads from the cocoons of silk worms.

For thousands of years sewing was done by hand. The invention of sewing machine brought a revolution into the sewing industry by making things easy for anyone to stitch and sew in minutes. Sewing machine needles came into this world as early as 1955. It was invented by a German inventor Karl Wiesenthal. Since, he didn’t
complete the machine he couldn’t get the credit for it. Later in 1790, British inventor Thomas Saint built and patented a complete workable sewing machine. However, Saint’s machine didn’t progress beyond its patent model stage and hence didn’t rise to fame. It took another 40 years for a practical sewing machine to show up when a French tailor Barthelme Thimonnier devised and patented the machine in 1930. This was the beginning of the sewing machine saga. In the years that followed many new additions and patents came by that created a new era in the stitching industry. Even though, the sewing machine took the industry by storm, hand. While sewing started off with clothing, it extended into other industries like sporting goods, shoe making, upholstery, book binding and sail making as well.

i. FASHION SEWING AS AN ART FORM

Fashion sewing can be compared, in some ways, to the classic art of sculpture. The sculptor involves himself in his medium-manipulating clay or carving stone into a form. Sewing demands the same involvement with a medium-touching, appraising, and working with fabric that will be molded and shaped into a three-dimensional design.

First, the sculptor carefully selects his basic material; it must be just right for his planned creation. No less consideration should be given to the selection of fabric. The surface to be created is largely dependent on the base fabric being used and the age of the person for whom the developments are being done. (Wood, 1999)

If ten seamstresses were given the same fabric and pattern, probably none of the finished garments would be exactly identical. With an eye to her own pluses and minuses each would be what looks best no her.

Development of sewing and its application in everyday life led to the invention of various sewing techniques both hand and machine sewing techniques. The most frequently used techniques are:

1. **Seams**

   Seams are the mainstay of sewing – they hold layers of fabric together. Different fabric and different garments require different seaming techniques, depending on whether the underside will show through, or if the seam needs to be extra strong. There is a wide range of seams and seam finishes catering to everyday needs.

2. **Tacking**

   This is the term used to describe holding one more layers of fabric together temporarily. There are two main ways of tacking – pin tacking and tacking stitches, which can be done by hand or machine.
3. **Darts**
   Darts are used to add shape to garments at bust, waist or shoulders. They will help fabric mold to body contours and improve the fit.

4. **Pleats and tucks**
   These are added for decorative detail and styling. They are formed by folding the fabric back and thus a considerable amount of extra fabric is needed. The amount will depend on the number and depth of tucks or pleats.

5. **Easy fit with gathers**
   Fabric is gathered to fit a longer length onto a shorter edge, for instance on waistbands, yokes, to fit sleeves, or on hem edges of sports clothes, as well as to provide fullness in curtains.

6. **Ruffles**
   Ruffles are formed from strips of gathered fabric and are used as decorative hem edges.

7. **Mitring**
   A miter, in sewing terms, is used to describe the neat treatment of angled corners on hem edges, patch pockets, or when adding trims.

8. **Smocking**
   This is a method of gathering fabric together in small, even pleats which can then be decorated with embroidery stitches (Gardiner, 2003).

e) **COMBINATION OF HAND PAINTING AND MACHINE EMBROIDERIES**

   In the above mentioned group hand painting has been combined with embroidery because both the techniques complement each other. So much so, embroidery at times is also called needle painting.

a. **Embroidery-**

i) **Hand Embroidery-** Is the art or handicraft of decorating fabric or other materials with needle and thread or yarn. Embroidery may also incorporate other materials such as metal strips, pearls, beads, quills, and sequins. Embroidery is most often recommended for caps, hats, coats, blankets, dress shirts, denim, stockings, and golf shirts. Embroidery is available with a wide variety of thread or yarn color (Fisher, 1972).

   A characteristic of embroidery is that the basic techniques or stitches of the earliest work chain stitch, buttonhole or blanket stitch, running stitch, satin
stitch, cross stitch remain the fundamental techniques of hand embroidery today (Ewles, 1995).

ii) Machine embroidery- The early stages of the Industrial Revolution, mimics hand embroidery, especially in the use of chain stitches, but the "satin stitch" and hemming stitches of machine work rely on the use of multiple threads and resemble hand work in their appearance, not their construction.

Commercial machine embroidery in chain stitch on a voile curtain started in China, in earliest 21st century. Much contemporary embroidery is stitched with a computerized embroidery machine using patterns "digitized" with embroidery software. In machine embroidery, different types of "fills" add texture and design to the finished work. Machine embroidery is used to add logos and monograms to business shirts or jackets, gifts, and team apparel as well as to decorate household linens, draperies, and decorator fabrics that mimic the elaborate hand embroidery of the past (Harding, 2004).

iii) Industrial Embroidery Machines- There are a number of brands available in the market; however, the top 2 are Tajima and Baridan, followed by Toyota & SWF.

b. PAINTING:

Is the action or skill of using paint, either in a picture or as decoration (Concise Oxford English Dictionary).

It is the practice of applying paint, pigment, color or other medium to a base. The medium is commonly applied to the base with a brush but other implements, such as knives, sponges, and airbrushes, can be used. In art, the term painting describes both the act and the result of the action. However, painting is also used outside of art as a common trade among craftsmen and builders. Paintings may have for their Support such surface as walls, paper, canvas, wood, glass, lacquer, clay, leaf, copper or concrete, and may incorporate multiple other materials including sand, clay, paper, gold leaf as well as objects. Painting is a mode of creative expression, and the forms are numerous. Drawing, composition or abstraction and other aesthetics may serve to manifest the expressive and conceptual intention of the practitioner. Paintings can be naturalistic and representational, photographic, abstract, be loaded with narrative content, symbolism, emotion or be political in nature.
2.2.4 Fashion Design Process

The fashion design process is a phrase that may simultaneously refer to the creativity and aesthetic ‘soft innovation’ (Paul, 2010) of a designer to propose new styles, as well as the technical production process of apparel development. In the field of fashion (Kawamura, 2004) brings these new styles to the public. The scholarly research on fashion design process captures both the technical and creative aspects and solutions (Cross, 2000). Even though the author writes from an engineering perspective. Cross proposes three models of design process: descriptive models that view the design process as following a linear route, prescriptive models that aim to improve processes, and an integrative model that views design as to and fro iterations between problems and solutions (Nigel Cross, 1982). Each model positions the design process as a problem-solving exercise.

Within the context of fashion design, (Sinha, 2002) opines that “creativity is a kind of problem solving, and fashion design is a problem”. In her study of fashion design process across UK market levels,(Sinha,2000) adopts Cross’ descriptive model, conceptualizing the design process as following a linear route of research and analysis, synthesis, selection, manufacturing, and distribution. Sinha’s analysis of fashion design process identifies the necessary 'designerly thinking', including: communication of vision in a visual manner, using intuition to guide decision-making, and visual and spatial imaging during sample making. While privileging the designer’s creativity or artistic vision, Sinha’s analysis also demonstrates that the fashion designer straddles the material and symbolic elements of fashion production through a close engagement with the technical process of making the garment.

Other important and relevant studies regarding fashion design process have focused more on the symbolic or cultural elements of fashion design, rather than the technical. A significant example being (Manlow, 2009). Study of premium brand Tommy Hilfiger. At Tommy Hilfiger, the first phase is the concept phase, in which the design team decides on a common theme for the collection. Color, fabrics, shapes and silhouettes are considered at this stage, as aligned to the theme, with Tommy Hilfiger giving the final approval. The design team generates sketches and design boards of garments to present to Hilfiger. From here, merchandisers work with the design team to develop a line plan, and then the proto-samples are ordered. Finally, marketers work with the designers and merchandisers ready to pitch the new collection to editors. Author writes that, “designers are at the front lines of the creative process. Without their skilled and inspired work there would be little for others in the company to do.”
Manlow goes on to analyze the creative process in depth, observing the ways in which the Tommy Hilfiger culture, or branding, is imbued through the designers’ work, spilling over into the management culture, and even into the ways that the designers dress.

In contrast, the technical, material elements of designing, such as the selection of fabrics, the detailed specification of the garment, the choice of stitches, finishes, and trims, through to managing the sampling and fitting process, is explored in far greater detail in textbooks such as (Harold Carr, 1992), (Bryant, 2000) and (Glock, 2000). Crucially, the design process they describe is collaborative and iterative, although frequently conceptualized as following a linear route from idea (‘inspiration’) through to first sample (prototype), with many actors involved, from the design/product development team, through to technicians, managers, marketers and buyers (Keiser, 2008). This linear progression is illustrated in Figure below. It flows through a number of stages, beginning with market research, development of the design concept, through to the development of the sample garments for fitting. Sales data regarding what sold well in previous seasons necessarily feeds into the process. (Payne, 2013)

![Diagram of design process](image-url)

*Figure 2.11a The process of design and product development (Harold Carr, 1992).*
2.2.5 DESIGNING an Apparel Line.

The terms "line," "group," and "collection" are used to designate a combination of apparel items presented together to the buying public for a particular season. The term collection is used generally to refer to the apparel presented each fall and spring by the high fashion designers in Paris, Milan, New York, London, and other locations. However an apparel line consists of one large group or several small groups of apparel items, or "styles," developed with a theme, such as color, fabric, and design details. And a group might use three to five fabrics in varying combinations and include a dozen apparel items, all care- fully coordinated.

The creation of a group of apparel pieces into a collection or a line involves a series of steps like, Market Research, Design, Design development and Style selection. Each step is closely related to and influenced by all other steps in the process. The steps have been explained below one by one.

STEP 1) MARKET RESEARCH

Figure 2.12 Market Research for development of an Apparel line (Burns, 1997).

a) Understanding Consumer Market Trends

Market research can be defined as "the systematic and objective approach to the development and provision of information for the marketing management decision-making process" (Thomas C Kinnear, 1995) A Market research is divided into two general categories: (1) basic research that deals with extending knowledge about the marketing system, and (2) applied research that help managers make better decisions. Designers and merchandisers may conduct applied market research as a part of the planning process.
i) Consumer Research

Consumer research provides information about consumer characteristics and consumer behavior. Conducting consumer research related to fashion items can be a challenge. Results of market research indicate that consumers often do not actually purchase what they indicate they would purchase when queried in advance. Apparel purchase decisions are based on number of factors (such as psychological, social, and financial considerations) of which the consumers are often not consciously aware.

ii) Product Research

Product research provides information about preferred product design and characteristics. When new products are developed, or existing products are modified, it is advantageous to assess how well a new or revised product will fare in the marketplace.

iii) Market Analysis

Market analysis provides information about general market trends. Both long-range forecasting and short-range forecasting strategies are used for market analysis.

- **Long-range forecasting** includes researching economic trends related to consumer spending patterns and the business climate. For example, will interest rates be increasing on money needed by an apparel manufacturer to purchase fabric? Will corporate taxes for the apparel company be increasing? Will cost-of-living expenses rise because of inflation, resulting in fewer apparel purchases by consumers?

- **Short-range forecasting** is critical to an apparel company's or designer labels success. Planning meetings are held with designers, merchandisers, planners, and sales personnel to discuss the company's short range forecasts and strategic planning (Staci, 1996).

iv) Target Customer Profile

Each apparel line needs to have a clearly defined target customer. The profile, or description, of the target customer usually includes the gender, age range, lifestyle and geographic location, and price zone determined for the majority of customers. A kid’s wear company may produce several lines, each based on a specific target customer profile. One line may be designed for children of very conservative families, while other lines may range from less conservative to updated customers. Developing a well-defined target customer profile helps the designers focus the line to the specific audience, or market niche.
v) Fashion Trend Research

Fashion trend research tends to be a daily activity for the designer and the merchandiser. Trend research activities include reading or scanning appropriate trade publications. Fashion trend research also involves shopping the market. Although this sounds like fun, it actually involves considerable concentration and constant vigilance. Designers look for new trends that may influence the direction of an upcoming line.

vi) Color Research and Resources

When color trends are reviewed over a period of time, it becomes clear that certain "staple" colors appear frequently in the fashion cycle. Black, navy, white, and beige are considered staple colors and are seen almost continuously season after season. Designers include one or more staple colors in each line.

vii) Fabric and Trimmings Research and Resources

The designer research the fabric and trim market in addition to studying fashion and color trends. Fashion trend research is focused on general garment silhouettes, more specific lengths (such as jacket lengths, skirt lengths), widths (such as pant leg width, lapel and necktie, and design detail trends (such as shawl collars, circular ruffled collars, two-button suit jackets). The color trend research is focused on guiding the selection of the color story for a specific line. The designer also under-takes fabric research, beginning with such broad fabric trends as the trend toward the use of spandex blended with wool for career apparel, or the use of microfibers for men's suits and raincoats. This research might include such trends as the use of metallic fibers incorporated into fabrics, or chenille yarns used in suitings. Resources for this type of fabric research include the same trade publications that designers use for fashion trends, as well as textile trade publications such as International Textiles (Burns, 1997).

STEP2) DESIGN-The Market Niche

Every Designer Label or an Apparel Company usually specialize in a certain type of product, such as casual clothes, eveningwear, kids wear. The designer labels or company’s product type or product line is the basis for the development of the line. For example, Levi Strauss is known for its jeans, casual pants, and jackets. If you are familiar with this company, a certain type of product comes to mind when the name of the company is mentioned. A strong connection exists between the type of
product included in the line and the company's target customer. The blend of product type and target customer is referred to as the market niche. Developing and maintaining a line based on the market niche is important to the success of the apparel line.

![Diagram showing the planning process](image)

*Figure 2.13 Designing an Apparel Line (Burns, 1997).*

**a) Planning the Line**

Based on the number of lines a company produces each year, at a specified time in the year the design team begins to develop concrete ideas for the new season's line. Each apparel company and the designer maintains a calendar with target "due dates" for completion of the creation and production of each line. It involves the following steps.

**i) Cost, Colors, Fabrics, and Styling Considerations**

The cost of producing items in a line is an important factor for designers to consider throughout the design stage, many companies include cost personnel as a part of the team during the planning stage. Their role is to provide cost estimates on the new styles in the line as it develops. During planning meetings, colors and fabrics for the new season's line are discussed. A color story is developed based on the color research conducted before the planning meetings.

**b) Design Inspiration**

Throughout the planning of the line, the designer also focuses on the design inspiration for the line. This could include studying pictures of design ideas from fashion trend sources, collecting swatches of interesting fabric textures and trims, developing some innovative design details, conducting research about a historic period
or another culture, or searching the market place for a “lightning bolt” idea. Designers may visit historic costume and textile collections.

i) A Theme for the New Line

During the planning stage, a theme for the line is developed based on discussions with the designers and merchandisers who are coordinating the various lines for the company. Not every group or line will have a theme, but a theme can help “sell” a group or a line to retailers and consumers. In some cases, an advertising campaign may be developed around a chosen theme. The designer could choose various inspirations like color inspiration, Historic Inspiration, Ethnic Inspiration, Fabric, Texture, And Trim Inspiration.

c) The Design Sketch and Selection of Fabrics and Trims

i) Hand Sketches

At some point in the design stage, the designer will begin to transform some of these inspirations into garment idea sketches. A designer develops some garment sketches early in this stage and then have a difficult time with the remaining pieces. But by constantly seeking inspiration from a variety of sources, most designers have plenty of new ideas.

ii) Computer-Aided Design

Computer workstations that include computer-aided design (CAD) software programs have become common in many apparel design studios. The use of CAD or graphics software programs for design sketching is an option for designers. Some of these types of computer systems are called Apparel Design Systems (ADS). (Burns, 1997). Many designers make use of these software’s to explore and experiment with their lines.

iii) Technical Drawing

Some garment design sketches do not include the body silhouette. If only the garment design is drawn, without an indication of the body, the sketch is called a technical drawing, or tech drawing (Ireland, 1992). Many designers and apparel companies use Tech drawings in place of design sketches. The tech drawing may include a close up sketch of a detail such as pocket, cuff or a collar, as well as the back view. They are very useful and often necessary for pattern making and production needs.
iv) Selection of Fabrics and Trims

The fabrics and trims are usually selected before a design is approved for inclusion in a line. Each design idea sketch or tech drawing includes a small sample of the intended fabric, called a swatch that is attached to the sketch or drawing. It is essential that the fabric be chosen before a design is reviewed by the designer, and cost personnel for possible inclusion in the final line. Sometimes the actual fabric intended for the design is not yet available from the textile manufacturer. In these cases a similar fabric will be used temporarily for the design development stage. The design sketch also include any trim swatches that will be used (Jeannette A Jarnow, 1987).

d) Designers who create by Draping

Some designers create a design idea three dimensionally using actual fabric as a starting point instead of beginning with a sketch of a garment. For this design process, a mannequin or dress form in the sample size is used. Fabrics vary in their hand and ability to drape around the body. Working with the actual fabric can be a source of design inspiration, especially for fabrics with special draping qualities, such as permanently pleated fabric. Fabrics that are plaid or striped or that have a large print motif are suited to creating the initial design by the draping process. Couture designers, and some ready-to-wear designers creating lines in the designer price zone, frequently use draping to create the initial design.

e) Writing the Garment Specification Sheet

The designer often has some specific design details in mind that need to be conveyed to the pattern maker and sample sewer in order to create the sample or prototype garment at the next stage of the design process. These details, as well as other vital information, are conveyed on a garment specification sheet, also called a spec sheet. Examples of types of design details include the number of buttons, the size and type of buttons, any edge stitching or top stitching, the width of pleats or tucks, the spacing between pleats or tucks, the size of a patch pocket, the circumference of a skirt at the hem (Richard Martin, 1989)

STEP3) DESIGN DEVELOPMENT AND STYLE SELECTION

This step includes the development of the first pattern, from designers sketch, swatch, and garment specification sheet and how the prototype garment is cut and sewn from the first pattern. The prototype is then tried on a model or a dummy whose
body measurements match the specific size standard and then the cost factors are discussed.

![Flowchart Diagram]

*Figure 2.14 Design Development and Style Selection* (Burns, 1997).

**a) Design Development**

After the design team has approved the style for development, the designer's sketch, fabric swatch, and garment specification sheet are delivered to the fashion or design development department to begin the pattern making process.

**i) Making the First Pattern**

The pattern maker may work with paper patterns manually, or the pattern might be created using a computer aided design system.

- **Traditional Pattern Making.** From the designer's sketch, the assistant designer or pattern maker begins the pattern-making process, called flat pattern design. The pattern maker's role is critical to the accurate translation of the designer's idea. An existing pattern is used to begin the new design. This pattern could be a basic pattern (also called a block or a sloper). For example, a basic shirt block might be used as the basic pattern for a new shirt style. The pattern maker creates the new pattern or adaptation by adding pattern design details such as a collar, pocket, button band, and sleeve pleats to the basic pattern as indicated in the designer's sketch.

- **Pattern making using computers.** Many designers and apparel companies use pattern design systems (PDS) for some or all of the pattern making functions. The process however is same as flat pattern making.
• **Pattern Making from a Draped Design.** Some designers, especially in the couture, designer, and high price zones create the initial garment by draping the design on a mannequin. The fabric, either expensive fashion fabric or muslin, is "draped" onto the sample size mannequin. The design is developed by cutting into the fabric, molding the fabric to the desired shape, and then pinning the fabric in place. After finalizing all aspects of the design,

   The style lines and construction details of the drape are very carefully marked in preparation for removal from the mannequin. The fabric pieces are removed and laid flat over pattern paper. The shapes of the pattern pieces are traced onto paper, then the pattern is perfected and finalized with markings such as grain lines, notches, buttonholes, correct seam and hem allowances, and facings.

   **ii) Making the prototype or sample garment**

   The process of sewing the prototype could be done in the design house or could be got done either by the apparel company or the contractor.

   • **Sample Sewing.**

   The completed pattern is delivered to the sample sewing department, with a swatch of the intended fabric (the fabric to be used for the actual garment) and the garment specification sheet. If the intended fabric is available then it is used to make the prototype garment. Sometimes the intended fabric is not available, so a substitute or similar fabric, as similar as possible to the intended fabric, is used

   • **Approving the Prototype.** The fit of the products is a way to achieve product differentiation. Therefore, an assessment of how each style fits is very important to a designer/company. A fit model is used to assess the fit, styling, and overall look of the new prototype.

   **iii) Determining the Cost Estimate.** The cost to mass produce the style is an important consideration in the selection of styles for the final line. Thus, preliminary costing needs to occur prior to the decision to adopt or reject a style. An initial cost estimate (also called pre-costing) for the style is based on several important components. The cost of the materials is estimated based on the number of meters of fabrics required to make the prototype. The quantity of all materials used is included, such as interfacing, pocketing, and lining, and findings, such as elastic, zipper, buttons, and trims.

   **iv) Presenting and reviewing the line.** On the scheduled calendar date, the new line is presented for review. The merchandiser, designer, assistant designer,
production engineer, and any other team members assemble for the line review. The individual garment styles may be displayed on walls in the conference room, or, fit models may try on the garments to present the styles to the review team.

**v) Selecting the styles for the line.** At the conclusion of the line review, some of the styles are eliminated and some changes may be required in a few styles. The line is refined to develop a tight group of styles with the hope that all styles will sell well at market. Occasionally, one or more styles is included in a line that the review team speculates may not sell well to the retail buyers. This may be done for several reasons. With some lines, a "color balance" is needed when showing the line to retail buyers.

**vi) Determining the final cost.** The final cost for each style to be shown in the new line is determined before showing the line at market. Calculating the cost requires knowledge about production techniques and facilities. Production engineers use known costs as well as estimated costs for unknown factors to arrive at the final cost. There is always the possibility that a style will actually cost more than was calculated, or perhaps, less than calculated (Burns, 1997).

After the final design development and style selection the Apparel line is ready to be marketed and mass produced. There are various methods of selling the Apparel line, however a very effective method to sell one’s own original line is through an Independent Brand. In today’s world of competition it is important to get the Brand registered, for which initially a Trade Mark is registered. Trade Mark and its Registration Procedure in India is explained below:

**2.2.6 Trade Mark and its Registration:**

Any mark that can be represented graphically and can distinguish the goods or services of one person or enterprise from those of others can be a Trademark. It may include a device, brand, heading, label, ticket, name, signature, word, letter, numeral, shape of goods, packaging or combination of colors or any combination thereof. It may be Fanciful or coined word for example, Lakme, DALDA, Reebok Kodak; Arbitrary that is Apple for Computer, IVORY for Soap, Blue Bell for ice cream, Delta for airlines; Suggestive GLACIER for ice, “No Spot” for car wash system; Descriptive e.g. PIZZAZZ for pizza; Generic e.g. Fridge for Refrigerator, SUPER GLUE for an adhesive. But descriptive and generic trademarks are generally not allowed for registration as they are used in general parlance and are dictionary words representing that product only, so cannot be monopolized. But arbitrary world like Cars for Pencils
are allowed as it is distinctive and in any way do not indicate the product. Suggestive words may also be objected like Cool Air Trademark for Air conditioner may be objected as Cool Air word is suggesting that it is something related to fan, air cooler, and Air conditioner, so is not distinctive. But if you are using such suggestive mark for long time and in market it has acquired secondary meaning or reputation, then it is possible that such mark may be allowed registration. Invented or coined words are best marks to be registered as they offer distinctiveness to the mark to be registered. For example Pepsi for Soft Drinks, ‘Volvo” for Luxury Buses, “Xerox” for photocopiers “Lakme” for cosmetics “Kodak” for cameras are coined words and so are very much distinctive from others.

a) Types of Trademarks:

Table 2.5

<table>
<thead>
<tr>
<th>Trademarks</th>
<th>To distinguish goods</th>
<th>BISLERI</th>
</tr>
</thead>
<tbody>
<tr>
<td>Service Marks</td>
<td>To distinguish Service</td>
<td>BSNL</td>
</tr>
<tr>
<td>Collective Marks</td>
<td>To distinguish goods or services by members of an association</td>
<td>CII, ASSOCHAM</td>
</tr>
<tr>
<td>Certification Marks</td>
<td>To distinguish goods or services certified by a certifying authority</td>
<td>ISO, AGMARK</td>
</tr>
<tr>
<td>Well-Known Marks</td>
<td>Very famous in the market and as a result benefit from stronger protection</td>
<td>BATA HONDA</td>
</tr>
</tbody>
</table>

b) Concept of Umbrella Brand:

A company may have single umbrella brand and under this umbrella brand it can have various Trademarks. Like TATA trademark is an umbrella brand and it has also TITAN, NANO, DOCOMO, INDICA, INDICOM, trademarks. Another example is of CIPLA which is an umbrella brand with Suplate, Serolipo, Nuzak, Stavir, Lamivir, Triomune, Duovir etc. as its specific brands.

d) How to select a Trade Mark:

- If it is a word it should be easy to speak, spell and remember, e.g. TITAN, NOKIA, HMT.
- The best Trademarks are invented words e.g. KODAK, EXXON, PRESARIO.
- Mark should not be Geographical name e.g. Ludhiana Tyre, Baddi Pharma.
- Avoid words that describe the quality of goods/services e.g.: Best, Perfect, Better, Faster.

e) **Trade Mark Registration Procedure India:**

The First step in Trade Mark Registration in India is to find a suitable mark that may be either a word mark, word mark with logo, or may be simply a logo. In some instances the applicant has already been using the trade mark for his Commercial Activity but could not file trade mark due to some reasons. In such cases the trade mark application can be filed claiming user date of trade mark as the date since applicant has adopted the trade mark for his commercial activity. In other instances, when the applicant has not even marketed or commercialized products/services under the trade mark, then the trade mark will be deemed as “proposed to be used” on the date of filing trade mark application. In cases where trade mark is of category “proposed to be used”, a comprehensive trade mark search is necessary. In comprehensive search the search parameter is similarity in spelling, phonetic similarity, structural similarity and similarity in logo in the relevant class. In cases where the trade mark is already in use for a sufficient longer period, then search need to be made comprehensive but trade mark can be filed taking into account the benefit of Honest Concurrent User. It should be kept in mind that we should also not file the new trade mark application for a trade mark similar or same as that of an existing well known and famous brand even for different goods and services. After this search compliance, we can proceed for filing the trade mark application. It can be filed online through digital signature or by filling TM 1 and submitted to respective trade mark registry either by hand or by post. In case of submitting TM 1 by hand/post, there is requirement of submission of Additional representation sheet. In TM 1 various parameters- like representation of trade mark, Class, details of goods and services for which trade mark is claimed, name of Applicant, Nationality of applicant, Trade Description i.e. Manufacturer, Traders, Service Provider and Address, user date and service address. The prescribed fee to be filed is ₹3500/- . If the applicant is filing the application through an Advocate or Attorney, then it should be endorsed with Power of Attorney in favor of Advocate. Once the application is filed and the examiner is satisfied with the formality requirement like Form1, Additional representation, Power of Attorney and Prescribed Fee then he will
proceed for substantive examination as to distinctiveness of the mark applied for registration. The examiner on examination may either recommend for advertisement of trade mark in trade mark journal or may provide his observation to the applicant by citing some relevant marks which may be same or similar to the applied mark. He may also object the applied mark on the basis of it being generic or descriptive or falls under prohibited category like against morality, depicting geographical location of origins of goods, marks coming under Names and Emblem Act etc. The applicant may provide his justification in writing, justifying his cases as fit for registration. The examiner after going through the justification may either recommend for advertisement of trade mark in trade mark journal or may ask for personal hearing at trade mark registry. At hearing he may pass order for advertisement or refuse to register the trade mark depending on justification and evidence provided by the applicant. Once advertised, the trade mark may be opposed by third party, otherwise it will be registered and registration certificate will be issued. In case of third party opposition, the Registrar may pass order on the basis of distinctiveness of mark, evidence produce by both the parties and circumstances of the case. In case registration is allowed Certificate will be issued. The registered trade mark will be renewed after interval of ten years. In case of non-renewal of mark, the trade mark will be abandoned.

2.3. INFANT AND CLOTHING

2.3.1 Definitions of Infant

This phase deals with the detailed study of infants, their physical pattern of Growth, history of clothing, clothing preferences, material requirements of infants clothing and designing of the garments.

“Trailing clouds of glory do they (children) come from God”

Wordsworth

Children give us real happiness in life. They add zest to our tired lives. They diminish our worries and light up our dismal worlds. They give us a prototype of human evolution-by studying children the mysteries of the species in general can be unlocked.
Children—how to care for them, how to rear them, how to convert them into adults have always been of concern to parents in particular and to society in general.

The child's first teachers are his parents. To impart only goodness to one's children is the motivating force in the mind of parents as they bring up their young ones. It's a superhuman task; still the parents do justice to this. It starts right from infancy, the anxiety to care, to nurture and to develop them for tomorrow's young men and women with healthy minds and bodies. (Thomas S, 2001). The term Infant has been defined as under:

a) **Infant**: A very young child; baby (Webster's New World Dictionary, 1989)

b) A very young child or a baby (Concise Oxford English Dictionary)

c) An infant is derived (from the Latin word infans, meaning "unable to speak" or "speechless"). It is the very young offspring of a human or animal. When applied to humans, the term is usually considered synonymous with baby or bairn (Scotland), but the latter is commonly applied to the young of any animal. When a human child learns to walk, the term toddler is used instead.

The term infant is typically applied to young children between the ages of 1 month and 12 months; however, definitions may vary between birth and 2 years of age. A newborn is an infant who is only hours, days, or up to a few weeks old. In medical contexts, newborn or neonate (from Latin, neonatus, newborn) refers to an infant in the first 28 days after birth; the term applies to premature infants, postmature infants, and full term infants. Before birth, the term fetus is used. (Infant)

### 2.3.2 Physical growth of an infant

The first year is characterized by rapid physical growth. A normal baby doubles its birth weight in six months and triples it in a year. During that time, there is great expansion of the head and chest, thus permitting development of the brain, heart, and
lungs, the organs most vital to survival. The bones, which are relatively soft at birth, begin to harden, and the fontanels, the soft parts of the newborn skull, begin to calcify, the small one at the top of the head at about 3 months, the larger one in front at varying ages up to 18 months. Brain weight also increases rapidly during infancy: by the end of the second year, the brain has already reached 75% of its adult weight. (infancy: Physical Growth, 2005)

2.3.3 Infant clothing and its History

The role of clothing in Child’s life assumes added importance due to its relation to his or her growth and development. Clothing has certain influences on the attitudes of the children and their success in life. It influences to a great extent the physiological and psychological growth of the child. Properly fitted garment makes the child active and cheerful whereas a poorly fitted garment makes him shy, sensitive and restrained. The clothing that a child wears affects his emotional development as well as his physical growth. (Pandit S, 1967)

Today the mothers want their children to look nice, but they really admit they have not given much, thought as to whether, the garments are comfortable. (Rea, 1950) Clothing is particularly of vital significance to an infant’s life. It not only influences activity, comfort and other attributes of his physical health but also profoundly modifies his emotional and social behavior. His needs are limited and mainly concerned with protection and comfort. The advancement of psychology emphasized the importance of Children’s clothing. Thus, more attention is being given to appropriate and suitable clothing of the child for meeting his social and emotional needs. Many mothers face problem in selecting clothes for their infants. It is important to consider certain factors like, comfort, ease in porosity, absorbency and allowance for the growth and activities while clothing a child.” A well fitted garment makes a person comfortable is being consistent with the present fashion and adjust naturally to the activities of the wearer” (D.Erwin, 1949,1957). The size should eliminate chances of irritation to the body, ensure proper circulation of blood in different parts of the body. As the infants clothing needs a lot of washing, the fabrics used should be strong enough to withstand wear and tear. Fabric texture should be soft and pliable to avoid stiffness and abrasion to the
body. The garments should be light in weight. Heavy fabrics hinder the physical movements of an Infant.

In the ancient times children were simply clothed. In warm weather they went unclad and in cold weather they were covered or draped with straight pieces of cloth. No attempt was made to fit fabric to the body by cut of the material. When clothing was necessary for warmth draping was used which hampered activity of the wearer. . (Pandit S, 1967)

In the age of chivalry children were elaborately dressed in fashions suited to knights and ladies. Also in some civilizations children were dressed like the adults to look like miniature adults to restrict movements. The work of John Locke and Jean Jacques Rousseau gave impetus to understand childhood and to differentiate their world and needs from those of the adults. Locke stressed the principles of “sound mind in a sound body” and pointed out that in order to have a sound body, clothing should be the first consideration. Rousseau expressed his views concerning the clothing best suited to the childhood as follows: “the limbs of growing child should be free to move easily; there should be nothing tight, nothing fitting closely to the body, no belt.” Through the efforts of Locke and Rousseau there arose a sympathy and understanding of childhood that had never before existed and the efforts to develop the children’s clothing which was less elaborate and with less restrictions were made (Rousseau, 1762).

a) The pictorial history of baby clothing has been traced through centuries and illustrated on the next page (Marshall, 2008).
Pictorial History of Clothing for Babies

Early 18th-century baby

Figure 2.15 Forehead Cloth with Shirt & Nappy

Figure 2.16 Cap & Blanket or Bed

Figure 2.17 Swadding bands

Figure 2.18 Decorative outer Swadding bands
Early 19th-Century baby

Figure 2.19 Binder, Nappy and Shirt

Figure 2.20 Cap, Pilch and Bootees

Figure 2.21 Front Barra Coat

Figure 2.22 Back Barra Coat

Figure 2.23 Petticoat with Bodice

Figure 2.24 Long Gown

Figure 2.26 Caps and Bonnet
Early 20th-Century baby

Figure 2.26 Nappy
Figure 2.27 Water Proof Pants
Figure 2.28 Vest
Figure 2.29 Petticoat
Figure 2.30 Dress
Figure 2.31 Knitted bonnet, coat and Bootees
Along with the Pictorial History of Clothing for Babies

b) The Pictorial list of Clothing for Babies & Toddlers has also been traced under various categories.

**Underwear and nightclothes:**

Bapkin, Disposable (Nappy), Gauze Square, Knap Kenette, Muslin Square, Nappy, Nappy Liner, Reusable, Tailclout, Pilch, Pilcher - Trainer, Training Pants, Bed Binder, Bellyband, Body Belt, Liberty Bodice, Roller, Stay Band, Stay Bodice, Swathe, Sweater, Chemise, First Shirt, Vest, Barracoot (Barricoat, Barrow, Barrow Coat, Pinning, Blanket, Robe Blanket, etc), Flannel, Petticoat, Nightgown, Baby Bag, Ear Cap, Scratch Mitten.

**Outer clothing:**

Angel top, Cardigan, Matinee Coat Or Jacket, Shrug, Baby gro, Baby Stretch, Buster Suit, Romper Suit, Rompers, Stretch Suit, Dress, Frock, Gown, Mantle (Pre-19th Century), Robe, Slip, Wrapping Gown, Tights, Swaddling/Swatthing Bands or Clothes, Long Stay.

**Accessories:**

Bib, Feeder, Bonnet, Cap, Forehead Cloth, Mitten, Sleeves, Bootee, Sock, Slippers, Nappy Pin, Pin Cushion, Safety Pin, Shoe, Sleeper (Marshall, 2008)
PICTORIAL LIST OF CLOTHING FOR BABIES & TODDLERS

Figure 2.32 bapkin /nappy British, 1957

Figure 2.33 pilch British, 1909

Figure 2.34 Body belt British, 1965

Figure 2.35 Vest British, 1940

Figure 2.36 Disposable nappy British, 2002

Figure 2.37 Trainer pants British, 1963
Figure 2.38 Stay bodice British, 1925-350

Figure 2.39 Knapkenette, 1890

Figure 2.40 Binder British, 1880-1900

Figure 2.41 Petticoat British

Figure 2.42 Night Dress British, 1840

Figure 2.43 Barracoat old style, British, 1922
Figure 2.44 Barracoat later style, British, 1920-35
Figure 2.45 Chemise British, 1840
Figure 2.46 Liberty bodice British, 1925
Figure 2.47 First shirt British, 1875-1900
Figure 2.48 Baby bunting British, 1980
Figure 2.49 Scratch mitten
Figure 2.50 Angel top British, 1975

Figure 2.51 Printed Dress

Figure 2.52 Smocked dress British, 1930

Figure 2.53 Baby stretch, 1959

Figure 2.54 Buster suit-Printed paper British, 1932

Figure 2.55 Gown British, 1760
Figure 2.56 Knitted wool shrug, 1930-39

Figure 2.57 Shrug

Figure 2.58 Cardigan British, 1930-35

Figure 2.59 Matinee crocheted coat British, 1939

Figure 2.60 Matinee knitted wool coat British, 1944

Figure 2.61 Romper suit 1925-35
Figure 2.62 Long stay
Figure 2.63 Tights French, 1960
Figure 2.64 Swaddling band/clothes Printed paper, London-1970
Figure 2.65 Slip British, 1810
Figure 2.66 Wrapping gown British, 1750
Figure 2.67 Mantle
ACCESSORIES

Figure 2.68 Bib with ribbon and lace
1922-30

Figure 2.69 Bib with dribble catcher
British, 1920-39

Figure 2.70 Pudding British, 1775-1800

Figure 2.71 Rein - Leather with metal
British, 1930

Figure 2.72 Sleeves

Figure 2.73 Scratch mitten Irish, 1886
Figure 2.74 Sock British, 1851 Irish, 1886

Figure 2.75 Bonnet British, 1830

Figure 2.76 Boot French, 1982

Figure 2.77 Night cap with a tie up British, 1840

Figure 2.78 Night Cap with a ribbon British, 1800-1850

Figure 2.79 Cap

Figure 2.80 Muckinder London, 1970
2.3.4 Importance of Color and Value in clothing

a) Color

Color involves physiological and psychological reaction affecting emotions, sometimes the reaction is so subtle that it becomes difficult to realize what has made us feel cheerful. Subdued or melancholy. (Pollard, 1961) Most of us are not aware and have not tried to understand and make better use of the powerful influence which color and our color preferences have on our daily lives. Colors shape our personality. Everyone has his own favorite color which involuntarily gets reflected in our choices and preferences of color. (Moorjani, 1993)

The color preferences can be noticed from early childhood, whether the preference is for the toys and other things. The child always point out his demand for the favorite color. If the parents leave the child for his own selection of color while purchasing his articles, we can clearly make out child’s preference for colors from the child's collection of articles. The child who prefers pink always prefers to buy articles which are pink in color. (Thomas A, 1993)

(Goldstein and Goldstein, 1963) showed three aspects of color invasion; first, that colors can affect the mood of an individual; second, that colors have the property of seeming to advance or to recede; and third, that colors have very definite effects upon each other.

The cool colors concerning the blue and green leave a quieting influence but the colder and darker ones become depressing. On the other hand, the warm colors those group around the red and orange hues have a cheerful, comforting effect, which may increase to stimulation and excitement when the colors become very bright and near to red (Pollard, 1961).

According to (Gerritsen, 1975), the psychological value of colors is more applicable to applied and utilitarian arts than to creative arts. The heart beat and respiration were measured while different colors were presented via projections. The results were, red-faster; green-steady, regular; blue-calm but irregular floating. It was
found that yellow environment caused the least arithmetic mistakes, in a blue room the most mistakes occurred. It was also true that a blue room was most suitable for thought problems.

(Lyle, 1976) Quoted that the ability to give color its proper weight in a given application comes into play once agreement is reached on the basic color or colors. Sensitivity is important in the selection of an appropriate hue.

b) Value

The value of color has an impact on the temperament of the child. The value involves lightness or darkness of a color. Wine and pink are red in hue, but wine is darker value of the red and pink is lighter value of red (Pollard, 1961). There are many degrees of light and dark ranging all the way from white to black, but for the sake of convenience in use of typical steps are selected (Thomas A, 2010).

2.3.5 The Infants’ World and Implications for Clothing

The sense of touch functions almost perfectly from birth. Sensitivity to pain develops after the few days, and there is reaction to cutaneous irritation usually by the end of first week. The baby withdraws the part of the body being irritated or is generally restless and cries. Furthermore, his skin is tenderer than that of an older child and is more easily chafed. Therefore we can assume that the baby will be more comfortable and will cry less if his clothes are soft and pliable.

The baby’s skin is also sensitive to temperature changes, as is shown by his crying or refusing to take milk or water when it is too cold or hot. There is no exact way of determining whether or not the baby is dressed to give the most comfortable temperature. Mothers often err by keeping the infant too warm because they fail to take into account the amount the baby is exercising.

It is difficult to determine what is best for the babies but certainly the infant who is adequately clothed and dry cries less and we can assume is more comfortable.

The problem that confronts regarding the clothing that hampers a child’s movements has been addressed by many writers. (Watson, 1925) Years ago pointed out that restricting the infant’s movements elicits rage. The infants’ dislike of having his
arms or legs stretched is often demonstrated when he is being dressed or undressed. In our culture we have assumed that it is best not to restrict the child's movements, however it is opposite in the other cultures. In some cases it has been long and heavy garments, in others tight wrapping and in still others the way in which the baby is carried for instance in a cradle board on the mothers’ back (Ryan, 1965).

2.3.6 Selection of Materials for Infants clothing

The fabric of a garment affects its appearance, comfort, and cost i.e. the appearance and performance of a fabric depends upon the fibers. Clothes are invented to provide the right kind of protection to the body. Attractiveness and appropriateness for the person for the occasion is the most substantial aspect. In the recent years, great importance has been attached to the comfort, convenience and durability of children's clothing. Attractive and functional clothing is being produced at all price levels. While selecting fabrics for children's wear and wash need significant consideration.

According to (Thomas A, 1994) Cotton fabrics wrinkled easily but absorbency is good, polyester is crease resistant but absorbency is very poor. So it is wise to select cotton/polyester blended materials for which these two qualities (absorbency and wrinkle recovery) are there.

(Hess, 1966) States that, the three qualities demanded of clothing fabrics are attractiveness, suitability and serviceability. A final decision on buying fabric should be made only after a thorough inspection of the cloth. The customer should look for loose threads, miss-weaves, over accumulated slubs, uneven selvages, and poor dyeing. For example, friction in wear will makes slubs weaker and often unsightly.

(IB Wintage, 1994) Wrote that Young children want apparel that is comfortable, soft and light weight and will confirm to body lines yet not constrain bodily movement. The garment should neither irritate the skin nor cling to the body. According to (N Hollen, 1988), blending of the fibers enables the technician to combine fibers so that the good qualities are emphasized and the poor qualities minimized. For tropical country like India, it is best to buy 67/33 cotton polyester blended material (ThomasA,1993).

According to(WintageIB,1994)in order to determine wearing quality, one must recognize the inherent characteristics of a fabric, such as the kind of raw material
(fibers) used the strength and evenness of the yarns, the construction of weave, and the permanency of the dye or the finish. When we buy materials we must see the suitability, versatility, convenience, durability, comfort, care, safety, appearance, price, becomingness etc.

(Pandit S, 1967) Pointed out the following points to remember while making children's clothes.

a. Use one general style with the opening always in the same place till the children get fairly established into the habit of dressing by themselves. They get confused if each day a new style of dress is given to them to wear, e.g. one day buttons in the front, next day buttons at the back and so on.

b. Same type of fasteners should be used until the child becomes familiar with it. Most children can manage buttons from the size of a 1 cm diameter to a 2 cm diameter more easily than any other fasteners. The button hole should be large enough to be easily found. A round flat button that is grooved is less slippery, and, therefore, easier for the children to grasp.

c. Garments must be simple and easily manageable.

d. It is better to make garments of one piece which are much easier to get into than two-piece ones.

e. The fasteners may be as few as possible.

f. Sashes look dainty on children but they are at the back of the dress and cannot be tied by the small hands. Separate belts are difficult for a child learning to dress by himself or by herself. Hence a belt may be fastened at the sides to keep it in the place.

g. Frills, laces and ribbons are confusing to a child when dressing as well as come in the way while at play. Keep simple decoration on clothing.

h. The garment may be designed with no buttons if possible. When elastic is used in any garment, see that it is not so tight as to cause red marks on the skin.

2.3.7 Clothing and Its’ Designing

Clothing play an important role in the life of every individual since it is symbolic. It is a symbol to identify the groups of people region wise, culture
wise and designates the rank, role, occupation, status and standard of living of community at large says (Naik, 1996). Clothing technology has a long history which could have been started with the discovery of the needle about 1800 B.C. views (Cooklin, 2004). Clothing has been recognized as a primary need of mankind throughout the world.

According to (Seema, 2010), clothing protects people from humidity, heat and cold and helps them feel physically comfortable. Clothing gives the wearer a sense of well-being. Clothing affects the way others see and also gives social comfort. Clothing is one of the basic needs of human beings after food and shelter contributing appeal to human personality is said by (Sarkar SR, 2010). To quote clothing provides an opportunity to display oneself to others in ways that can register one’s actual or desired identity opines (Niesson P, 2003). According to (Woodward, 2007) clothing is not defined by what it has been in the past, but what it can be in the future, as people imagine themselves wearing the clothing.

Designing is an Art and the art is a product of creative process. The desire to create garments that reflect the beauty of the world around us and provide the expression of artistic nature has been evident from the early human history says (Kothari, 2011). Dress designing is an important art and a well-designed garment has beauty and appropriateness, which makes it right for the wearer opines (Gupta S, 1989). A garment is attractive only if it fits well. To achieve a good fit, it is necessary to give attention to finer details such as individual proportions and contours says (Anna, 1996). The aim of dressmaking is to achieve a graceful, flattering and unbroken and harmonious line expresses (Aitken, 1992). A dress is generally assembled from several parts. The first stage in the manufacture of garments is the cutting of the materials into necessary pattern shapes. These are then joined together by means of seams to create 3D garments (Harold, 1988).

Traditionally manufacturing of apparels was deliberated to be labour intensive which required a high level operating skill in handling tiny pattern pieces and stretchy materials say (Kavitha S, 2011) (Cooklin, 2004). Describes designer as a person who
develops variations from the core designs. These core designs are garments which contain the main design and fabric features of the collection and they will be used as the themes for developing the full range of samples. Ideas sometimes originate from the drawing board. Starting with an idea for a silhouette or a neckline, the designer may experiment sketching alternative ways to complete the design. From the two dimensional designs the designer must be able to imagine how the garment will look three dimensionally, when made up in fabric says (Frings, 1982).

Fashion talks, it lives and it grows says (Hidalgo, 2007). To create fashion, nothing more than paper, pencil, ruler and a table are required, in addition to ideas, curiosity, ambition, concentration and endurance quotes (Entwerfen, 2010). The continual change, fashion involves the exercise of creative design skills which results in products that range from the basic to the rare and elaborate explains (Eaesy, 2009).

Fashion today is not restricted to grown-ups, but kids too are becoming fashion conscious these days especially when it comes to dressing (Apparel online, 2010). The need for designer clothing is increasing day by day and it starts right with the birth of a child. Infant clothing today needs experimentation as much as the others.

2.3.8 Clothing and the Current demand

From ancient times, people have used fabrics of various types for covering, warmth, personal prettification and even to display personal wealth. The main factors influencing the utilization of fibers for clothing are their ability to be spun, the desirability of their properties for apparel use and the cost or economy of production.

Today the highly fashion conscious generation gives preference to ready to wear dresses than 'Home made’. This is due to many factors such as ready availability, versatility, fine work-man ship and fabric of high quality. Readymade Garments are really practical for our fast moving life. Now days, it is difficult to identify the gender of children because parents are highly fashion conscious and they dress the children in unisex dresses.
The development in science and technology has changed the face of cloth market. Numerous varieties of natural and synthetic fabrics available confuse the average consumer in the selection of material especially for children. The popular mix and match outfits and the substitution of synthetic fiber which are more durable and lasting, reduce the family clothing expenditure, says (Mehta, 1990). Computers and its components have changed the face of Textile Industry, by providing better color fastness, shrinkage control, Crease resistance and wash and wear properties which are the most prominent characteristics in clothing (John, 2011).

Today an average consumer demands various properties for garments which they buy like appearance, comfort, durability, ease of wear, maintenance of shape and luster, suitability to the occasion and versatility for many occasions which lead to greatest satisfaction (Thomas A, 1994). Today customer demands the best of clothing for their newborn-An Infant.

After reviewing in general the aspects related to infant clothing and its design, various studies related to growth of Infants, clothing preferences for infants, anthropometric measurements, development of drafts, and design development for infants have also been reviewed as under.

2.3.9 Studies related to physical growth of a child:

(Ghai OP, 1968) Conducted a study on physical growth of Indian children from birth to five years of age in Delhi. The various measurements taken were weight, standing height, sitting height, head circumference and chest circumference. Findings revealed that the boys generally weighed more and were taller than girls at all ages with very few exceptions. Height, chest circumference very few exceptions. Height, chest circumference and head circumference were higher in boys till three years.

A longitudinal study on 1725 new born in Delhi was conducted to study the physical growth of children from birth to 5 years of age by (Raj Lila, 1970) and it was found that the birth weight was doubled at 4 months and about tripled by one and a half years and quadrupled by 3 years of age. The boys remained taller than the girls at all ages. It was also observed that the children from relatively higher socio-economic classes were heavier and taller than those from classes of lower socio-economic status from birth up to 5 years of age.
A study was performed on the physical growth of rural boys. The data were collected on 252 boys from the villages of Patiala and Sangrur districts. The age of subjects ranged from 6 to 17 years. It had been observed that with the increase in age, there was a tendency for increase in all the anthropometric measurements. Some of the anthropometric measurements, i.e. height, weight and chest circumference of rural boys was compared with already available data on urban children. There was not much difference between the measurements of two groups from 6 to 9 years. The mean height, weight, circumference of chest, upper arm, thigh, calf for 6 years old boys were found to be 109.92 cm, 17.23 kg, 54.33 cm, 14.70 cm, 28.00 cm and 21.06 cm respectively (Sidhu LS, 1973).

(Shikha, 2013) Studied the Knowledge of Mothers Regarding the Growth and Development of Infants. The infant is a dynamic, ever-changing being who undergoes an orderly and predictable sequence of neurodevelopment and physical growth. Parents need to understand growth and development in order to monitor child's progress, to identify delays or abnormalities in development. With an aim of this the investigator undertook a study to assess the knowledge of mothers regarding the growth & development of infants in child care areas of selected hospital of Ludhiana, Punjab. Hundred mothers of infants were selected from various child care areas in selected hospital of Ludhiana by Non-Probability purposive sampling technique. A structured questionnaire was administered to assess the knowledge. Data was analysed by descriptive and inferential statistics and presented through tables and figures. Study findings revealed that maximum number of mothers (53%) had average knowledge score regarding growth & development of infants. Mean percentage of knowledge score was highest in introduction (66%) and lowest in area of social development (31%). Variables i.e. Age, Education and income were found to be significantly related with knowledge of postnatal mothers none of the other variables were found significantly related with the knowledge of postnatal mothers. This study revealed that mothers of the infants needs to be given knowledge regarding Growth and development in order to prevent developmental delay and helping in early diagnosis and treatment.

2.3.11 Studies related to taking body measurements and drafting patterns:

(Patel, 1963) Recorded children’s body measurements for drafting patterns and garments, she measured 100 children from 4 to 17 years of age including boys and girls.
She took 34 measurements on each child and found that for standardizing sizes, grouping the children according to height and weight was better than according to age. She divided the entire sample into three groups for making the bodice blocks and reported that a certain amount of seam allowance must be kept while designing the garment.

A study on anthropometric measurements and dress design for the 3 Years old Children of Baroda city was conducted by (Singla, 1968). She took 47 measurements of 3 years old children and constructed basic bodice block. The range for the upper and lower limit and means of all the 47 measurements were calculated. In order to prescribe sizes for the pattern, it was necessary to find a larger percentage of children in any one of the groups, viz. small, medium or large. It was found that for all the measurements, more than 70 % of the respondents were in the medium group. On the basis of these, she standardized the basic blocks and these basic blocks could be adopted to various designs of garments.

(Marathe, 1968) Studied in Baroda the anthropometric measurements of 300 infants. One hundred in each of the group, i.e. 5-10 days old, 3 months and 6 months old. The data was analyzed in different ways to determine infant sizes for drafting patterns for their garments. In the first method, mean was calculated for the whole group but this did not serve the purpose as the group was too large. In the second only about 50-58 percent of the babies could be grouped in either of the groups, lower or upper. In the third method, the total range was divided into 3 groups. This helped the designer to make clothes for small, medium and large infants.

(Kaul KK, 1970) Conducted a study on anthropometric measurements of urban primary school children in Jabalpur. One thousand children of 5 to 11 years of age were measured. The main measurements recorded were weight, height, chest, head, arm, and thigh and calf circumference. Weight of 5 years and 11 years old boys was found to be 15.80 kg and 24.00 kg respectively. The mean weight of 5 years and 11 years old girls was found to be 16.30 kg and 23.80 kg respectively. Mean height of 5 years and 11 years old boys was found to be 106.90 cm and 129.90 cm. Mean height of 5 years and 11 years old girls was found to be 109.00 cm and 128.50 cm. Mean chest measurements of 5 years and 11 years old boys were found to be 52.40 cm and 60.70 cm. Mean head
circumference for 5 years and 11 years old boys was found to be 50.60 cm and 51.90 cm and for 5 years and 11 years old girls it was found to be 50.40 cm and 52.40 cm.

Development and construction of two selected patterns for pre-school children was done by (Puri M, 1971) Attention was focused on self-help features, attractiveness, suitability and comfort. Seventy-five percent of the mothers preferred poplin and two/two rubia with regard to color. Seventy-eight percent of mothers preferred red, blue, grey and white colors with special emphasis on design. Over 53 percent checked floral design and modern art.

Anthropometric measurements and development of Bodice block for Infants 18 months + 1 month was done by (Kaur P, 1987) keeping in view the hurdles faced by the housewives, tailors and readymade garment industries for the development of clothing for Infants. The major hurdle was standard sizes for Infants. According to the author for the scientific approach to standardized sizes of infants, the accurate body measurements of the infants are essential. Keeping this in view the Bodice block for infants was developed. It was found that most of the measurements were positively correlated with weight of the infants and most of the measurements were so found to be correlated with the height of the infant. It was also found that weight of the infant was highly correlated with the girth at chest level and girth at hip level of the infants. The measurements of girth at chest and hip levels are important for development of bodice block and its adaptation to various dresses. The bodice block developed during the course of this investigation could be adapted to various garments of the infants.

2.3.12 Studies related to clothing preferences:

(Burton, 1961) Studied texture preferences of a selected group of pre-school children and their mothers, Pre-school and their mothers were asked to give their preferences for garments of different textures. Terry towel was most preferred by both boys and girls. The mothers preferred bulky sweaters and cotton under-pants, whereas children showed their inclination towards knit sweaters and nylon under-pants. However, in most of the cases mothers agreed with their children, to sort out the differences.
(Raji, 1971) Studied mothers' preferences among readymade, homemade and tailor-made garments for preschoolers. The results showed that fifty-nine per cent of the homemakers preferred the combination of readymade and tailor-made garments. Readymade garments were preferred because of the fashion trends. Most of the homemakers were not satisfied with the quality of readymade garments available and wanted improvements in color and price range of the garments. The income of the family was correlated with the expenditure on clothing of pre-school children.

While studying the homemakers preferences for the readymade, homemade and tailor-made garments (Dhillon, 1973) reported that majority of respondents preferred both readymade and homemade garments for their children and the preference for tailor-made was very limited. Majority of the homemakers used the readymade garments for occasional wear and homemade for the casual wear. The reason for preferring homemade garments for casual was the low cost and use of left over materials at home.

The mother’s attitude towards cotton and other fabrics in children’s light weight clothing was studied at (Agriculture, 1974). The findings reported were based on 2161 interviews conducted on mothers. The major factors considered by mothers while purchasing clothes for their children were texture, ease of wash ability, and comfort. They rated attractive colors and comfortable clothes as the most important characteristics. Size, clothing for tall or thin child, limited styles, price of the clothing were the major problems faced by the mothers.

(Seghal, 1976) Studied the “Preference of educated and uneducated mothers for their children’s garments”. Sample of mothers, having 5 to 10 year old children. Women educated up to 8th class were taken, in uneducated group and women with graduate or post graduate degree were taken in educated group. The author reported that majority of the educated mother’s preferred rubia and terry cot for their daughter’s apparel. Majority of the respondents in both the educated and uneducated groups preferred cotton fabric because of low price and comfort. Most of the educated mothers preferred good quality clothes, whereas uneducated mothers preferred medium quality. Fifty-nine percent of homemakers preferred the combination of tailor-made and readymade garments. The reasons for the preference of readymade garments were suitability and fashion trends. Most of the homemakers were satisfied with the quality of readymade garments available. However, they wanted improvement in color of the material and reduction in price. Synthetics were liked by some because it is easy to care for them.
(Simran, 1982) Reported that the cost of the fabric, color combinations, design of fabric and garment texture were the most important factors kept in mind by majority of the mothers, while purchasing a fabric material for their children's clothing. They also expressed their desire for the comfort, self-help features, safety and growth features in the design of a garment. The desire for making their children independent was indicated by 100 percent of the respondents. It was found that majority of the respondents gave a higher consideration to the various growth features, among whom deep hem in dresses wide seams that could be let out later and adjustable shoulder straps were given special attention.”

(Grewal, 1985) Studied “Mother’s selection of child wear apparel” Factors affecting the selection of children’s readymade clothes and mother’s satisfaction with their clothes were studied and the data was collected by the Questionnaire method from Hundred mothers having 4-5 years old children .Results found were that fabric used, size and fit of garment and color and design were two decisive factors in the selection of readymade garments. Mothers preferred to buy garments made of terylene and cotton blends which they reasoned were easy to care for.

(Kaur SH, 1986) Conducted “A market survey of the readymade garments for 3-6 years old children as available in Chandigarh” The respondents were Interviewed by survey method to find out different types of readymade garments available, their materials, colors, prints etc. It was found that Cambric and rubia were more popular for kurtas, while poplin for pajamas. Plain fabric and white color were most popular for night suits. Sky blue, beige and cream colors were also liked. Machine embroidery was more popular than hand embroidery and floral motifs were more used. For finishing bottom hemlines of Kutras and pajamas machining was used, while for necklines bias band was used. Interlocking was preferred to machining for finishing raw edges. Fasteners and Buttons were being fixed with running stitch. Fancy buttons were more preferred than press buttons for Kutras.

Effect of dress and color on personality pattern of preschool children was studied by(Thomas A,2010). For studying expressive behavior, self-concept and color, design, value and style preference one hundred and fifty pre-school children were randomly selected. The sample included the age group between four and five years old. The subjects were drawn from three different income levels irrespective of religion. It
was found that Income has not much influence in the development of self-concept and reaction pattern of pre-school children. Preference of color and value and identification of dresses vary according to the income. As the income increases percentage spent on children's clothing also increases. The self-concept, Reaction pattern, intensity of reaction, color preference, design preference of well-dressed and ill-dressed children vary. Value preference and identification of dresses for various occasions of well-dressed and ill-dressed children vary. Gender is the decisive factor in the preference of color, design, value and Identification of dresses for various occasion. Self-concept and Reaction pattern of pre-school children, vary according to the gender of the children. The self-concept and the ideal self-concept of pre-school children are highly related. Preference of color and design by mother and child shows a high relation. Behavior profile, preference of color, design and value have no impact on the self-concept of pre-school children.

2.3.13 Studies related to Designing of Garments:

(Kaur,1984)“Designing and Construction of sun suits for 3 years old children and their suitability of the selected design to checks, polkas and plain cotton fabric”. The study was carried out to design sun suits and select most preferred out of them and to find out the suitability of plain material, polka dots and check for the designs. The study was adjudged by twenty graduate house wives that are mothers of 3 year old children. It was found that Medium size check and polka in red color and plain fabric of light blue color were used. Four plain, four check and two polka dot designs were selected at first ten positions after construction. Order of preference changed in sketched and constructed designs.

Designing of Female Infants’ Garments according to their mothers preferences was done by (Bajwa, 1989). The main focus in the study was to understand the preferences of the mothers for their infants. The designing and construction of the infant garments, “frocks” was done. Keeping in view the clothing preferences and body measurements of female infants. It was found that mothers preferred frocks for casual and Formal wear made in soft and smooth cotton fabric. Their preference for colors was red, yellow and blue. Climatic conditions, followed by type of fabrics, color combination, durability were amongst the main factors affecting the purchase of infant wear.
Every day, countless premature babies begin their lives weeks or even months too early. Because of being born at an early gestational age, the diminutive size of the neonate, coupled with medical problems, creates some unique clothing needs. Hospitals often have difficulty meeting these clothing needs due to budget constraints and general unavailability of the miniature sized and specially adapted clothing. This research used the functional design process as the conceptual framework to design and evaluate clothing for the premature infant in the intensive care setting. Six design criteria were identified from which specifications were developed and their interrelationships explored through an interaction matrix. Prototype garments were evaluated by caregivers in the neonatal intensive care setting in two hospitals. Results indicate that there is a definite need for clothing in a range of sizes with special adaptations for the premature infant in the intensive care setting.

“Designing and construction of night suits for 5-6 year old boys” was done by (Nikhanj, 2003) Night suits were designed by using combination of printed fabrics with plain matching fabric. Judges for evaluation included 30 respondents i.e. mothers of 5-6 years old boys and experts from the faculty of Department of clothing and textiles, Government Home science college, Chandigarh. It was found that 76.67% respondents preferred readymade night suits, 16.67% homemade and 6.67% tailored made. Feature desired by mothers in night suits of their sons were elasticized waistband, front pocket, front placket, pocket, collar, yoke and piping in that order.

(Kaur M, 2009) Worked on “Designing and construction of Layette for Infants (Birth to 6 Months). For the study Plain, dotted, striped, checks and nursery prints in blue as well as in pink color were selected, along with the standard size for construction. Designs were developed both for boys and girls. 65% of the respondent’s preferred homemade, followed by readymade (25%) and tailor-made (10%) respectively. Marketability of layette showed exceptionally good results and the consumer acceptability for layette was also very encouraging.

The development of garments for child patients of different ages in a hospital environment was studied by (Wong, 2001) the study identified the strengths and weaknesses of the existing child patients' garments. A new collection of functional child patients’ garments was designed, following of extensive investigations on both textile
sciences and clothing design through the Product Development Process (PDP). Eventually, a Perceptional Model is developed by focusing on evaluating the practical usage behavior and the satisfaction gained from user groups on the style design specifications. The Perceptional Model, was an extension of Fishbein's theory and a modification to Fishbein Behavioral Intention (FBI) Model, which explains human behavior under several assumptions and factors affecting behavior are organized in a systematic framework. The results show that the situation in the present study is more complex than Fishbein envisages, hence further research work was suggested.

An effort was made by (Vimla M, 2008) for Designing comfort garment for children. The designer concentrated on simplicity/comfort and new look in designing children’s garments. Attention was paid on requirements of children’s clothing, selection of material for children, Pattern types, selection according to seasons, clothing categories like casual / daywear / nightwear / party wear / uniforms / sportswear / high fashion wear. Value addition in children’s garments like embroidery / Patchwork / Attachments / Printing and painting. Finishes for children wear like Antistatic / Antibacterial static finish / Antimicrobial / crease resistant finish / soil release finish / anti shrink. Non apparel textiles like diapers / towels / socks / bed sheets and bedspreads were studied. Functional factors influencing styles and finishing for children wear were also stressed upon. From the research the designers concluded that the selection of suitable cloth to the children is imperative to their enjoyment of health. The cloth should not irritate the delicate skin of the children. When selecting children clothes, there are a few things needed to be aware of in order to keep your children safe and comfortable. So, the construction of the children garment should be simple and comfortable.

(Hegde G, 2011) “Green clothing for infants” developed and evaluated infant wear garments and accessories as per the size and proportions using organic cotton and ahimsa mulberry spun silk fabrics dyed with Garcinia indica (Kokum) bark extract. The subjective evaluation of the developed designs of garments and accessories showed good acceptance for the design, color, comfort, style, finish, price and eco friendliness characters by the mothers and textile specialists. New Brand “Nysergika Bannada Savayava Shishu Vasana,” and logo “KB” was developed to manufacture environment friendly clothing for infants.
(Mamtha G Hegde, 2011) Developed “Ahimsa mulberry spun silk outer wear for infants” They designed and developed infant garments made of Ahimsa mulberry spun silk fabric dyed with ecofriendly dyes and mordant, without compromising on the quality of silk and productivity of operation. The developed garments were tested for their acceptance by mothers and textile experts. The garments designed had unique characteristics and were desirable, as they were pure, natural, ecofriendly, had breathability, drape, antibacterial and ultraviolet protection factor which make infant comfortable and regulate the humidity level of the skin.

2.3.14 Study related to purchase behavior:

Parental influence on the purchase of luxury brands of infant apparel: an exploratory study in Hong Kong was conducted by (Gerad Prendergast, 2003) with a focus on the purchasing behavior of parents buying luxury brands of infant apparel. The concepts of buying roles, conspicuous consumption/social consumption motivation, and materialism were studied. A survey of 134 mothers who had purchased luxury brands of clothing for their infants was conducted and it was found that parents are motivated by the good quality and design associated with the luxury brands. The relationship between the amount of money spent by parents on luxury brands of infant apparel and social consumption motivation was not significant. However, interviewees who spent more on luxury clothing brands for their infants were determined to be more materialistic. It was thus recommended that marketers should emphasize the good quality and design of their luxury brands of infant apparel. In addition, marketers should promote the materialistic values of purchasing luxury brands of infant apparel, showing that buying luxury brands of infant apparel may be a route to happiness, rather than being a route for impressing others.

Research Gaps:
1. A number of studies have been conducted on documenting the history of Khadi and understanding closely every aspect from the point of view of Mahatma Gandhi. Financial performance of Khadi Institutions, Survey of Khadi and Village industries Institutions but hardly any formal effort has been made to document the use of Khadi in present day environment.
2. Very few evidences have been found on design development of Khadi, with a few studies limited to Banasthali Vidyapeeth. Whatever little evidence has been found,
is in the form of small projects got done by KVIC and Designer ranges developed by fashion designers for adults, however no formal effort has been made to design and develop the infant wear range in Khadi

3. There is a lack of researched evidence in the field of Customer’s acceptance of Khadi as infant wear. However little evidence is available to see the Attitude and Preference of customers towards the Brand of Khadi and Village Industries products in general.

4. Even fewer studies have been found on application of surface enrichment techniques on Khadi apparels, with no effort found on Infant wear.

5. A number of studies have been conducted on studying the physical growth of the children along with understanding the Knowledge of Mothers Regarding the Growth & Development of Infants. However hardly any effort has been found to trace the history of infant clothing.

6. A lot of studies have been conducted on taking body measurements and drafting patterns for children for various age groups but very few efforts have been made to develop patterns and their adaptations for Infants.

7. Efforts have been made to study mothers’ preferences among readymade, homemade and tailor-made garments for children, the preferences of different type of fabrics and selection of children apparel, but no effort has been made to study the preference of Infant wear in Khadi.

8. Very few studies have been found emphasizing on the need of design development for Infants and no study has been found on design development of garments for infants in Khadi.

9. A few studies have been found on designing clothing for children, with some efforts on development of Layette but no effort has been noticed in development of the need based study on design development of infant wear.

The studies of all possible related fields to Khadi, Design development and infant clothing have been reviewed to gather detailed knowledge, better understanding of concepts, the methodologies followed, and the process of design development.
As clothing has the ability to protect the skin and there is a need to design special clothing for infants of earlier years. The type of fabric selected for infant wear bears a direct relation to health of an infant. The consumers today are looking for safe and hygienic clothing for infants. Natural fibers are friendlier for our environment, health and future of this planet.

Through the present research on “Design Development and Acceptance of Khadi as Infant wear” an effort has been made to fill the gaps by first understanding the needs of the mothers and then developing a range of Khadi based Infant wear. KHADI is already an established brand in India. With its already existing long list of loyal customers it will be easy to establish an infant wear brand in Khadi.