CHAPTER - V

1

SUMMARY AND CONCLUSION

An heirloom cloth, although at times old, tattered or faded, is never a rag. A textile passed down through generations embodies memory and meaning. In many countries, a simple piece of cloth imparts status, even power to the wearer or possessor. It may contribute a sense of belongingness and give physical and spiritual protection.

Textiles delight the weaver, seller, owner, wearer, user and viewer. Fabric often plays a vital role in life transitions such as birth, coming of age, marriage, death and after life. Since ancient times, textiles have been an important item of trade and a potent status marker. A practiced eye can often tell where a piece of cloth came from, its placement in history and how it was made. Our country possesses an immense asset of rich textiles passed down to generations and these richly evocative heirloom textiles carry with them a wealth of information.

Textiles are among the world's most fragile artifacts and are difficult to preserve even under the best of conditions. However, in case an ancient textile over the years survives the ravages of insects, microorganisms, climate and general human wear and tear is merely a chance.

Since years ample documentation work has been carried on museum textile heritage but minimal information is available on personal textile collections. The inquisitiveness encouraged the investigator to document, digitize, preserve and conserve the rare textile patrimony as an artisticand educational evidence being a part of the individuals' collection today but, may not be tomorrow.

Thus, the dire need of the hour was envisaged with the following objectives of the research undertaken.

5.1 Specific Objectives

- 5.1.1 To source and document the rare textile artifacts from collections of individuals
- 5.1.2 To identify and analyze the damages that lead to deterioration of the textile artifacts
- 5.1.3 To study the preservation and conservation practices adopted by museums and individuals
- 5.1.4 To develop a database to disseminate information beyond its geographical borders
- 5.1.5 To initiate workshops on preventive conservation of textile artifacts at household level

5.2 Methodology

The research was formulated with the key endeavour to document the rare aged textiles and to conserve them as national heritage of the country.

Exploratory cum Experimental research design with multi methodological approach was used for the study. The survey method employing observation, interview and case study was elected for the work.

The study was conducted in three phases:

Phase-I dealt with an in depth documentation of rare textile artifacts of nine selected individuals of Gujarat through purposive sampling method. The 95 rare textile artifacts were selected through deliberate sampling method based on the criteria of it being historic in nature, more than 70 years old with limited or no public accessibility. The documentation of the selected textile artifacts was through descriptive method supported with photography to attain detailed information regarding the date of acquisition, origin, possession, dimensions, material used, technique, type and degree of damage and present storage system.

In **Phase-II** detailed analysis of the documented textiles in terms of classification, origin, fibre content, category, type and degree of damage was carried out through primary and secondary sources.

Visual assessment and observation methods were used to assess the physical, chemical, biological and multiple damages in the textiles. Magnifying and pick glass were used to report the type and extent of damage that had occurred in each textile artifact. Further, digitized images were also magnified to maximum resolution to confirm the analysis. Qualitative analysis was used to judge the condition of the textiles i.e. Excellent, Good, Fair and Poor based on the type and extent of damage occurrence in a textile artefact. Treatment priority code such as high, medium and low was assigned to each artifact based on the present condition so that the artifact if necessary can get required remedial treatment. The analyzed data was further fed into the fabricated template of digital database.

Phase-III dealt with experimental process for conservation of a rare silk artifact willingly spared by one of the respondent which was in poor condition. Workshops

on preventive care of textile artifacts were conducted to sensitize women at household level.

Naturally aged silk was used for the samples and nylon net as a support fabric. Polyvinyl Acetate (PVA) and Polymethyl Methacrylate (PMMC) were used as adhesives in two concentrations i.e.10% and 20%. The support fabric (nylon net) of required size was lightly brushed with the adhesive of prepared concentration. On drying the prepared support fabrics of different concentrations were attached to the naturally aged silk textile by two different methods which were cold and hot seal method. The intent of this technique was to create a film from the adhesive on which the fabric was embedded.

The consolidated samples were evaluated by subjecting them to various tests like transparency, stiffness, and tensile strength for evaluation of the most preserving and secure method of adhesive lining for the aged silk textiles.

Two workshops of four hours each were organized attended by 36 participants representing different areas of Gujarat. One at the Department of Clothing and Textiles, Faculty of Family and Community Sciences, The Maharaja Sayaijirao University of Baroda, Vadodara and the other with Jaycees Women Club, Baroda Metropolitan Chapter, Vadodara on March 1st and 9th, 2012 respectively.

Lecture cum demonstration method was used to enable participants understand the basic concepts of collection care, good housekeeping and plan long term future of their collection in an informed way, within the resources available to them.

A questionnaire schedule was administered to all the participants on the completion to know their feedback regarding the workshop.

5.3 Results and Discussions

The present section highlights the results and interpretations of the study under the following heads:

5.3.1 Pilot Study

The investigator attended a workshop on "Conservation of Thanka Painting" organized by Baroda Museum and Picture Gallery, Vadodara from Feb.28 to March 4, 2005 to gain an insight and develop a wider perspective on textile preservation and conservation.

The workshop commenced with the preparation of a condition report of the painting to plan its conservation treatment strategy. On assessment, the present condition of the painting was declared as "poor" with the subsequent items of concern such as dirt and dust, areas of losses with large number of holes and faded and flaked off paint layers at several places.

The sequential treatment planned for the conservation of the artifact included separation of the hand stitched brocade borders and the central painting of the Thanka followed by wet cleaning in filtered water mixed with few drops of glycerin and drying with due precaution of placing the artifact flat while cleaning for minimal handling.

The damages areas were sandwiched between fine nylon net fabric with manual darning stitches to minimize the movement of fibres and cotton fabric support was attached to the painting with a paste of white refined flour and sodium chloride (used as a preservative) with nap pasting method at specific points to avoid mechanical stress of needle and thread.

Finally, the entire painting was assembled in the same manner as the original piece by hand stitching the borders to the central painting and was displayed in the showcase for public viewing.

5.3.2 Preservation and conservation practices adopted by museums and individuals

5.3.2.1 Preservation and conservation practices adopted by museums

Professionals in all the museums were aware of preservation, conservation practices and the detrimental effect of environment threats, pests and inappropriate display, storage and handling on the artifacts.

All the respondents had written guidelines (museum handbook) for the staff to follow preventive care but, the practices adopted were to the best of their knowledge within the available resources and constraints.

Results pertaining to practices monitored for control of natural and artificial light revealed that all the museums had closed buildings structures with no windows to prevent from direct day light. None of them had instruments to measure the intensity of light yet, all adhered to proper light arrangements (within tolerable limits) for public viewing whereas one of the museums switched on the lights only when visitors entered the display area.

Relative humidity measuring instruments were found in the display areas of all museums to measure the macro climate of the museum building though none monitored the micro climate. Only one out of six museums had air-conditioned installed whereas, three had ceiling fans and two had installed exhaust fans.

Naphthalene balls to ward off insects and microorganisms were used by two museums whereas three museums were observed placing small fabric bags with equal mixture of neem and tobacco leaves in their showcases. Crushed extracts of commonly available plants such as fenugreek, custard apple and bitter gourd seeds with mango leaves were used by one.

Of the total museums visited, regular i.e. daily cleaning of the display, storage area and showcases was observed by only four. One of the museums had also limited the entry of the visitors in order to preserve their heritage for a longer duration. Inspection of each and every artifact was done on a regular basis i.e. every three months to check the condition of the textiles. All conservators opined that vacuuming was carried out as a treatment for surface cleaning being the safest method for aged textiles. Wet cleaning was carried out only in situations when textiles had got so badly soiled that if not wet cleaned its preservation would be difficult.

On observation, results pertaining to the display methods practiced by all the museum curators revealed that small fragile artifacts were laid flat in the show cases whereas, sturdy artifacts were hanged on padded hangers. Sarees were rolled and displayed along the walls depending upon the condition while in one of the museums, large sized artifacts were mounted between pixel glass frames for better preservation.

On analysis of the data about their preference for preservation over conservation revealed that cent per cent preferred preventive conservation (preservation) over conservation. Curative conservation was practiced in house by only one museum

while others expressed lack of equipment facilities thereby seeking help from professional conservation centres.

Therefore, the information attained from the museum personnel on the adopted preservation and conservation practices revealed that preventive conservation can be practiced with the limited available resources by all, be it a museum or personal textile collector.

5.3.2.2 Preservation and conservation practices adopted by individuals

The investigator personally visited nine individuals and conducted exhaustive documentation of their rare textile collection. Majority of the respondents revealed that they were aware of the two terms, preservation and conservation as they had read about it in the newspapers and heard from their friends and relatives but, were lacking clarity of meaning of two terms. The responses regarding the threats revealed that dust was considered as the greatest threat for them followed by insects, microorganisms, light, temperature and relative humidity. Surprisingly only one respondent knew that the fluctuating climatic conditions was the major risk factor for deterioration of the textiles artifacts.

The keepsakes were stored in metal trunks by two individuals and seven used wooden wardrobes that were placed in the basements of their houses unaware of the information that the impact of environmental conditions would be maximum in such areas due to minimum air circulation and light. Only three had placed their wardrobes in well-ventilated space.

The investigator observed during the process of documentation that seven of the nine respondents wrapped their valuables in white bleached mulmul fabric unaware of the detrimental effect caused by the emitted acid on the stored

textiles. The remaining two stored them in non-recommended plastic saree covers which were equally harmful as there would be no air circulation leading to moisture formation.

Similarly, it was found that eight of the total respondents stored the garments on plain hangers without considering its condition to take up the stress and strain whereas one folded and placed it flat on the shelf. Eight of them folded their textiles with minimum four to maximum six folds and piled them one on top of other. In fact none of respondents stored their zari artifacts separately. The damaged artifacts were not given any specific treatment for preservation instead stored along with the textiles in the good condition.

As learnt from their grandmothers, all respondents were conscious but only five were able to change the folds of their artifacts while four expressed their inconvenience in following the practice since they had relocated and time was a constraint factor for them.

All of them were well aware regarding the principle of airing the textiles but, maximum (six) did not practice with a pretext of busy schedule while three exposed their artifacts under the sun post monsoons to preserve them in a better state for longevity.

Common household insecticides and repellants to obviate the attack of insects and microorganisms like naphthalene balls, cloves, neem leaves, tobacco leaves, *kala jeera*, etc. were kept in and around the storage space by all the respondents. Cloves were directly placed by two respondents without wrapping them in cloth which led to permanent brown stains on their textiles.

The data on good housekeeping practices revealed that cent per cent respondents kept the storage area clean and tidy as dust was the major threat to their collections. Vacuuming for cleaning was practiced by none. Majority (seven) of them did not practice regular inspection of their textile collection whereas, two followed only once a year during the time of airing. It should be done every six months in order to stabilize the present condition ensuring longer life to the textiles as supported by reviewed literature.

It was further observed by the investigator that none of the documented artifacts had been mended or repaired, surprisingly no attempt was ever made to even darn or repair any of the minor damages found in the textiles.

The respondents when oriented regarding the damages which had occurred on their textiles during documentation reflected keen interest to learn the preventive conservation practices at household level that would aid to save their inheritance for years to come.

5.3.3 Analysis of the documented textiles in terms of classification, origin and fibre content

The results in terms of classification of the documented textile artifacts revealed that of the total 95 textiles, maximum being 47 were classified under woven category followed by 40 embroidered, five resist dyed and three printed textiles.

Data related to origin of the textile artifacts elucidated that 40 artifacts were from the state of Gujarat, 28 opulent textiles had their origin to the state of Uttar Pradesh, and eleven and nine belonged to Rajasthan and Kashmir respectively.

Whereas other three were from Maharashtra, two from West Bengal, one each from Andhra Pradesh and Madhya Pradesh.

Results pertaining to the fibre composition of the total 95 artifacts stated that 77 were silk based, 10 had cotton, seven had wool base whereas one being union fabric was composed of silk and cotton.

5.3.4 Analysis in terms of damage category, type and condition of the textile artifacts

On analysis the data concerning the category and type of damage reflected that 68 of the 95 had various types of damages categorized under physical, chemical and biological.

Physical damages had occurred on 37 textiles. The threats leading to the above analysed damages have been discussed as follows:

Folds were observed in 19 artifacts respectively owing to inadequate storage space, incorrect storage method followed by too many folds of the artifacts.

Raveling or fraying of yarns with other damages was identified in two resulting unintentionally due to general wear and tear and poor handling of the artifact.

The reasons responsible for abraded damage among three samples were inappropriate use, excessive usage, abrasion of one artifact against the other during storage and unsuitable environmental conditions.

Tear or split was identified at the fold lines in two artifacts as the textiles were kept in the same condition for quite a long period without rotating as stated by the respondents. Multiple physical damage was noticed in seven artifacts specifically creases, cuts, tears on folds, breakage of yarns and abraded areas

attributed to various reasons; unstable climatic conditions, inadequate storage space, incorrect method of storage and faulty human interventions.

Chemical damages were found in six textile artifacts. Yellowing, an indication of unanticipated chemical degradation was spotted in two textiles attributing to their long term exposure to excessive heat and presence of atmospheric pollutants namely nitrogen oxide and sulphur dioxide inside the storage area. The possessor of both these artifacts confirmed that their storage area got intensely heated up during the summers enabling the investigator to derive at the correct interpretation.

The liberation of anxious gases such as nitrogen oxide and sulphur dioxide within the storage space had led to tarnishing majority of gold and silver zari textile artifacts. It was witnessed during the field survey that none of the respondents stored their zari artifacts separately neither followed preventive measures; hence the emissions from the surrounding sources had degraded the textiles.

On observation three silk artifacts were found in shattered condition due to the presence of metallic salts used during the late nineteenth and early twentieth centuries. However, as these fabrics aged, the metals in the fibres accelerated their decay resulting in brittleness leading to damage. Thus, it could be concluded that many a times the inherent vice of the material itself causes deterioration.

Biological damages frequently occur on organic materials as the content itself is supportive to insects and microorganisms attack. Of the total, seven cotton, silk and wool artifacts were attacked by silver fish and cloth moths that fed on the cellulose and protein substances of the material to form small irregular holes all over the textiles. As observed by the investigator storage in dark, undisturbed

areas such as basements with poor air circulation encouraged the presence of the same. Further, the unfavourable climate of such places and the respondents' irregular inspection encouraged their growth.

Multiple damages in terms of physical & chemical, physical & biological and physical, chemical & biological damages in combination were analyzed in 18 artifacts.

The interpretation of the data on condition of the documented textiles reflected that 32 textile artifacts were in Good, 27 in Excellent, 25 in Fair and 11 in Poor condition.

Hence, the treatment priority of the artifacts in Excellent to Good condition was found to be Low which indicated that majority of the textile artifacts needed only preventive conservation treatment to stabilize them in its present condition.

Some with minor damages such as holes, tears etc. being in Fair condition called for medium treatment that could be repaired to maintain its individuality and preclude further damage whereas 11 amongst the total sample selected were in Poor condition demanding curative conservation with high treatment priority to save them for posterity.

5.3.4 Development of Database

The main aim of any documentation work was to ensure long term access to the information resourced beyond any geographical borders. Hence in the present study, the investigator has developed a digital database where each artifact was accessioned with thorough documentation, including a coloured photograph, descriptive information and in depth analysis on the category, type and degree of damage with the treatment priority of each artifact, accessible to mass interested in the field of traditional textiles.

5.3.5 Application of conservation treatment on selected textile artifact

The artifact, a rare piece of early 20th century made in pure silk and zari from the state of Gujarat, India acquired from a personal collection was used for the case study. Condition assessment report on visual analysis of the selected artifact under study revealed that it was in Poor condition. There were holes and tears found all over the field of the saree but the pallav was in good condition. The piece exhibited many areas of losses and there was evidence of natural ageing due to the inherent vice of the material itself. Otherwise, it was possible to handle the object under study.

5.3.5.1 Assessment of untreated and treated samples for tensile strength, stiffness and transparency properties

The selected support fabric was treated with two adhesives i.e. Polyvinyl Acetate (PVA) and Polymethyl Methacrylate (PMMC) consolidated to the silk fabric with cold process (CP) and hot sealing process (HP). The lined silk samples were then subjected to standard test methods such as Tensile Strength, Stiffness and Transparency to determine the most preserving and secure method of adhesive lining for the object under study.

Data on tensile strength measurements revealed that the treated samples showed best results at 10 per cent concentration of PVA with the cold process than with hot sealing method that showed reduction in strength.

Samples treated with PMMC were found to be stiffer than the ones treated with PVA irrespective of the concentrations and method of reinforcement which led the samples to lose its flexibility which was not the true representation of the object under investigation. Results of comparative objective evaluation between the two treatments established that both concentrations of PVA treated samples performed better than PMMC ones as the latter gave a hazy appearance to the samples. Similarly on comparisons between the processes of PVA treated samples, it was found that cold process gave the best results in terms of transparency, smoothness and visually satisfying appearance that mimic the original piece in both concentrations.

Thus, it confirmed that 10 per cent Polyvinyl Acetate (PVA) with cold adhesion process was the most suitable treatment for chemical consolidation of the aged silk textile under study as it preserved and retained the authentic properties of the silk artifact.

5.3.5.2 Treatment of the object

To achieve stabilization of the object, the treatment included reinforcement of the prepared support fabric to the original object with chemical and mechanical consolidation methods.

The nylon net support fabric was treated with the selected adhesive i.e. Polyvinyl Acetate at 10 per cent concentration and attached to the object under study with cold adhesion process.

The work surface was cleaned and required size of non-sticky plastic was laid tightly on all the sides with the cello tape to prevent sticking of the object to the surface. The support fabric i.e. nylon net of same size and colour was placed uniformly on it without stretching. Tested adhesive i.e. Polyvinyl Acetate of 10 per cent concentration was applied in three even coats on it (wet on dry) to form a uniform film. The back side of object under study was placed against the

face side of the of the dried support fabric which were adhered to each other by brushing the acetone solution completely on it and leaving to dry for 24 hours.

Later, the pallav of the saree was strengthened with loose support stitches of matching polyester thread at regular intervals to hold the support fabric. The method followed was single strand, no knots, minimum tension and passing the thread between and not through the yarns as cited in the relevant reviews of conservation studies. Finally, the reinforced artifact was ready to be laid for rolled storage.

5.3.6 Outcome of the Workshop

The demographic profile of the respondents indicated that of the sample comprising 36 respondents, maximum were graduates, homemakers and fell in the age groups of 31-40 years and 41 years & above. Awareness regarding the related terms revealed that friends and relatives served as the best source of information.

It was found that around 75 per cent of the respondents possessed traditional textiles whereas only 25 per cent, one quarter of the total showed their inability to own one due to other financial priorities in their early family life. Respondents (52 per cent) also conveyed that their basic interest and appreciation led to purchase traditional textiles for their personal collection while 48 per cent had inherited them from their mothers, grandmothers and in laws.

The reason for preservation of their heirlooms by 52 per cent was to carry forward their family tradition, 42 per cent were passionate towards their textile heritage while six per cent opined that both reasons were responsible for preservation of their valuables. Fine white cotton cloth or dupattas were used for wrapping of their two dimensional textile artifacts by 60 per cent of the respondents whereas, 36 per cent used plastic saree covers which were finally placed flat either in cupboards, trunks or suitcases.

Similarly for storage of three dimensional textiles, majority of the respondents preferred hangers for coats, suits, *sherwanis* and blouse covers were used for blouses and *cholis*.

None of the total 36 had attended or heard about any such workshop on preservation and conservation of textiles and strongly stated that the workshop had benefitted them. Affirmative responses were received on the willingness to implement the methods demonstrated during the workshop on preservation of one's textile collection.

General comments regarding the workshop revealed that the workshop was very informative and interactive as they experienced hands on skills as well as the use of power point presentation and demonstration method led to better understanding of the content of the workshop reaching even to the layman.

The respondents also felt that such workshops should be frequently conducted as they contribute not only to the individual, society but to the nation at large. Such workshops had a lot of social relevance.

5.4 Conclusion

The conclusions derived from the study were as follows:

The information attained from the museum personnel on the adopted preservation and conservation practices revealed that preventive conservation can be practiced

over curative conservation with limited available resources by all, be it a museum or personal textile collector.

The data pertaining to preservation and conservation practices adopted by individuals enabled the investigator to conclude that the respondents were ignorant towards the technical care and storage of the traditional textiles hence, practiced methods learnt from their ancestors.

The analysis and discussions on category, type of damages and condition of the artifacts concluded that majority of the damages in textiles had ensued due to respondent' misconceptions, unawareness, lack of knowledge on the correct basic storage practices to preserve the particular textile heritage. So, this could be prevented by abiding to the right preventive conservation practices.

Database of traditional textiles aid in prompt access and preservation of collections of yester years for future generations with decrease in handling these surviving frail pieces as well as sustaining the cultural heritage knowledge of the country. Today, with the collections on a database, virtually unlimited research is possible.

The investigations of the most appropriate conservation treatment for the selected artifact revealed that the adhesive to be applied on the lining for ancient silk textiles was 10 per cent Polyvinyl Acetate with cold adhesion method, preserved as well as retained the authentic properties of the traditional silk textiles. The technique could be applied using simple tools, commonly available in conservation laboratory.

Workshops on preventive conservation provided excellent information on basic household practices that enabled the respondents to give longer life to their precious heirlooms thereby contributing to the society at large.

5.5 Recommendation

- Various traditional textile crafts of India are on the verge of extinction. Studies on digital documentation of rare textile craft pieces could be undertaken.
- Further study on curative conservation of degraded woolen and cotton textile artifacts could be researched.



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મહિલાઓને વિવિધ ટીપ્સ અપાઈ : વોર્ડરોબ એવી જગ્યાએ

સીધો જો ઈએ જ્યાં પ્રકાશ ના આવ

Preserving textile for posterity

TIMES NEWS NETWORK

Vadodara: 'Store in a cool, dry place' is a phrase one commonly reads on packets of medicines and food items. But it holds true even for precious textile items you have procured by paying through your nose or inherited from your parents.

The department of clothing and textile of MS University's Faculy of Family and Com-

wants to ensure that it is inherited by their future generations, there are some simple steps that can be taken to prevent any damage to them. These can be done at the home itself," said Manek who is dong her thesis on documentation of rare textile artefacts with a focus on their preservation and conservation under the guidance of professor Amita Pandva.



Workshop on 'Preserving Your Heirlooms' being held at MSU's depart-ment of clothing and textile

munity Sciences on Thursday held a workshop on preventive conservation of precious textile items. The event 'Preserving Your Heirlooms' had invited homemakers, NGOs and design consultants to give them tips on preservation of various textile items.

Research scholar Kirti Manek, who held the workshop, said that there were several steps that could be taken at the household level to prevent damage to textiles by microbes, insects and environment. She added that at times, incorrect storage methods led to damage to textiles.

'If one wants to preserve textiles handed over to them by their previous generations or

Manek said that simple steps like ensuring that the textiles are not exposed to direct sunlight and are stored in a cool environment with minimum temperature fluctuations and low humidity can go in a long way in preserving them. She added that the clothes should also have minimum number of folds as damages usually begin at folds. "Rolling items like sarees is a good idea," she added.

The workshop also informed participants how tobacco and neem leaves as well as aromatic items like cloves and 'guggal' can prevent damage from microbes and insects Using 'dhoop' or incense sticks also helped in a similar way

Plate 5.1: Press coverage on the workshop conducted