Research On Traditional Sari Draping Method And Its Aesthetic Evaluation

Siddiquee Saiful Reza¹, Chengxia Liu²

¹(MSc. In Fashion Design & Engineering, Fashion School, Zhejiang Sci-Tech University, Hangzhou, China) ²(Professor, Fashion School, Zhejiang Sci-Tech University, Hangzhou, China)

Abstract:

The Sari is one of the world's oldest and most probably the only surviving unstitched garment from the past. It has become a rich, glamorous all-time-wear for women and also the 'canvas' for weavers and printers to create creative weaves, prints, and jeweled or gold-silver embellishments. Cotton and silk sari has an enrich history by their appeal & textile composition characteristics. From the past to till now, there are over 100 draping styles of Sari. And it varies from fabric to fabric and design to design. People of the Indian sub-continent does not know much about draping variations of saris though they love to wear it. On the other hand, the rest of the world does not know much about sari and its draping aesthetics.

In this study, we've draped & described 20 styles of cotton & silk sari and put them in online questionnaires for surveying along with sari parts and draping elements to get the aesthetic perceptions of Bangladeshi & Chinese consumers. Also, an eye-tracking experiment has been done with 12 cotton saris in China. This experiment mainly focuses on the total fixation time and fixation position of the sari-style elements. We also analyzed eye-tracking index data to find out the actual scenario on Chinese consumer perception evaluations on Sari.

Through analyzing both surveys of Bangladesh & China and also analyzing gaze hot map, fixation time, pupil size by an eye-tracking experiment, it is concluded that consumers like cotton sari for their comfortability and silk sari for looking great. Pallu or Achol is the most important part of Sari. Pleats and Achol or Pallu placement are the most important elements to drape a sari. Classical sari draping is the most popular style found where traditional sari draping has a constant demand in Bangladesh rather than fusion/western draping styles where classical and fusion/western styles are most appealing in China.

Key Word: Sari, Draping, Cotton Sari, Silk Sari, Classical Sari, Pallu/ Achol, Pleats, Traditional, Fusion, Western, Eye Tracking.

Date of Submission: 22-05-2023

Date of Acceptance: 02-06-2023

I. Introduction

The most outstanding Indian Sufi, bhakti poet Kabir said, "The wondrous weaver wove the cloth, with the thread of karma as a warp, memory, and attachment as weft." The tradition of weaving in India was celebrated by Kabir, who belongs to the weavers' community ^[1].

"Sari" is the traditional clothing for women in Bangladesh, India, Sri Lanka, and Nepal. It is the national dress for women in Bangladesh. Sari is a long piece of unstitch cloth, usually worn by drape around the body to make a perfect look. There are many ways to drape a sari. But ordinary people know 3 to 5 ways of draping styles. This long unstitch drape varying from 4.5 to 9 meters (15 to 30 feet) in length and 600-1200 millimeters (24 to 47 inches) in breadth ^[2]. It emphasizes the curves of a woman, and the mid-riff is usually exposed by its art of wearing, which is called draping. The traditional Sari is usually worn with a blouse (in Bengali) (Choli in Hindi) that covers the upper part of the wearer, and underneath it is the petticoat (Chhaya in Bangla), which helps & used to tuck in the pleats of the Sari to hold it in place ^{[3].} Sometimes the 'pallu' covers one or both the upper arms and back. On the other hand, it can be pleated and pinned to the bodice on either of the shoulders ^[4]. Thus, these three parts remain interconnected to drape a traditional sari style. But Sari itself has three parts called border, body, and Achol (Pallu in Hindi). Saris are woven and one plain end, the end that is concealed inside the wrap called the body of the Sari. Two long decorative 'borders' running the length of the Sari. One to a three-foot section at the other end, which continues and elaborates the lengthwise decoration, is called 'pallu' ^[5]. Fabrications and embellishments of these three parts define a sari.

The Sari permits us to go back at least a thousand years in terms of design. It is conceived on the loom as a three-dimensional garment with variables in pattern, weave, and structure between its inner, outer end-pieces and its two borders, which provide drape, strength, and weight, while the body or field enhances its drape. All

these elements help to maintain the form of the Sari when it is worn. The 'nivi' style has the Sari draped in two layers from right to left over a drawstring petitocat and a short, tight-fitting bodice ^[6]. There 80 plus recorded ways to drape a sari ^[7]. The Sari Series ^[8], a non-profit project created in 2017, is a digital anthology that has documented India's regional sari drapes, providing over 80 short films how-to-drape the various styles ^[9]. The most popular draping style is for the Sari to be wrapped around the waist, with the drape's loose endo be worn over the shoulder, baring the midriff ^[10] Despite more than a hundred variations of the sari draping styles, it is a versatile garment, one size fits all, and has a sustainable life cycle, too ^[11].

There is a wide range of variations in fabrications like cotton, silk, tissue, georgette, chiffon, crepe saris. Draping falls & the purpose of wearing saris are different due to fabrications. Wearing functions can be categorized into the daywear (home/socializing/shopping), the occasional wear (festivals, religious ceremonies, award ceremonies, formal dinners, weddings, house warming, baby showers, birthday parties, kitty parties, anniversaries, corporate luncheons/dinners, funerals, etc.) and the workwear (household chores/ farm work/manual labor /performing arts /prostitutes/ institutional work in offices/schools/colleges/airlines/hotels/police/nursing/ in the court of law / Board rooms/ on international delegations, etc.).

Cotton & silk itself has pride with golden history in Bengal as well as Indian subcontinent region. As these two fabrics are different, and compositions are also different, so cotton & silk sari has a different purpose of wearing. Also, the folds and falls of these saris are different.

But the demand for pure cotton and pure silk sari is still rising. Research by Dr. S. Lakshmi Manokari & Dr. N. Gayathri in June 2017 shows that the customers purchase silk sarees for the quality and design rather than the cost. It can also be interpreted that the customers have not cost bounded but are quality conscious ^[12]. Kanjeevaram (Tamil Nadu), Banaras (Uttar Pradesh), Ashavali Brocade (Gujarat), Paithani (Maharashtra) are the famous traditional silk sarees of India. G. Savithri & P. Sujathamma discussed the glorius history of traditional silk saris & highlighted four traditional silk saris in Indian subcontinent region ^[13].

Cotton saris give a pure relaxing comfort to the Indian subcontinent women. Pure muslin cotton has a rich history, and it was so famous worldwide for its fineness. With Alexander, the Greeksrote of the fine flowered muslins and robes embroidered in gold they had seen in India ^[14]. The Ganga delta, most of which is in Bangladesh, is the indigenous home of Dacca muslin sari, which is the finest of all the Bengal Muslins ^[15]. Another cotton sari is the Jamdani sari from West Bengal. Jamdani is a handloom woven fabric made of cotton, which was historically referred to as muslin. The Jamdani weaving tradition is of Bengali origin. It is one of the most time, and labor-intensive forms of handloom weaving and is considered one of the delicate varieties of muslin and the most artistic textile of Bangladeshi weavers ^[16].

History & Origin of the Sari:

In Sanskrit, the word "sari" means "strip of cloth." But for the women in Indian subcontinent who have been wrapping themselves in silk, cotton, or linen for years, these swaths of fabric are more than just simple garments. Saris are symbols of national pride, also ambassadors for traditional (and cutting-edge) design and craftsmanship. Delhi textile historian Rta Kapur Chishti, author of Saris of India: Tradition and Beyond, said, "The sari has filled the imagination of the subcontinent both as symbol and reality, with its appeal and its ability to hide and reveal the personality of the person wearing it" ^[17]. The first mention of saris (can be spelled sarees) is in the Rig Veda, it is a Hindu book of hymns dating to 3,000 B.C.; draped garments show up on Indian sculptures from the first through sixth centuries, too what Chishti calls the "magical unstitched garment" ideal for India's hot weather and the modest-dress customs of both Hindu and Muslim communities. Saris also remain traditional for women in other South Asian countries, including Pakistan, Bangladesh, and Nepal^[18]. The sari journey began with cotton, which was first cultivated in the Indian subcontinent around the 5th millennium B.C. The garment evolved from a popular word 'sattika' which means women's attire, finds its mention in early Jain and Buddhist scripts. Sattika was a three-piece ensemble comprising the Antriya - the lower garment, the Uttariya - a veil worn over the shoulder or the head, and the Stanapatta, which is a chest band. This ensemble can be traced to Sanskrit literature and Buddhist Pali literature during the 6th century B.C. The three-piece set was known as Poshak, the Hindi term for a costume or clothing. Antriva took after the dhoti or the fishtail style of tying a sari. It further evolved into a Bhairnivasani skirt, which went onto be known as ghagra or lehenga and later on the petticoat. Uttariya evolved into dupatta or orna (in bangla), and Stanapatta evolved into the choli or Blouse. Women in Indian subcontinent, traditionally wore various types of regional handloom saris made of silk, cotton, ikkat, block-print, embroidery, and tie-dye textiles. Most sought-after brocade silk sarees are Banarasi, Kanchipuram, Gadwal, Paithani, Mysore, Uppada, Bagalpuri, Balchuri, Maheshwari, Chanderi, Mekhela, Ghicha, Narayan pet and Eri, etc.

After years, with the advent of foreigners, the rich Indian women started asking the craftsmen to use expensive stones and gold threads to make exclusive saris for the strata, which was making them

stand out clearly. Many of the articles and poetry written by court authors depicted how gleaming and refined the upper-class garments were ^[19]. But the Sari did remain unbiased as a garment and was adapted by each strata, in their way. That was the elegance of the garment that remains. Synthetic dyes made their official entry into India with the arrival of industrialization and the British. Local traders began importing chemical dyes from other countries and previously unknown dyeing and printing techniques, which brought Indian saris a new level of unparalleled variety.

However, the Sari's next stage of production was approaching rapidly. The presence of the Greeks and Persians had a major impact on the clothing of all groups of Indians. The Greeks had also learned how to clinch their long flowing robes at the waist with a belt or cummerbund-like fabric. The Persians also had their fabric length gathered and tied together at the shoulder, and their waist belted. These new ways of wearing the same garment piqued the interest of Indian women, especially those from the upper classes, who adopted the gathered and waisted look, adapting it to fit their lighter, more decorative fabrics.

The Sari and Blouse evolved very slowly through the ages. Its final shape, as seen today. Compared to sculptures or frescoes from earlier centuries, the paintings of this era indicate that the saree in its modern form emerged in the post-Moghul period. It could have been a natural mixture of the three-piece unstitched garment of the earlier times and the stitched clothing that the Moghuls brought into India. The Pallu/Achol or daman, as the upper end of the Sari was known, may have been invented and used to cover the head or as a veil from then on, as this was expected by Muslim society in an empire dominated by Muslim dynasties. The modern form of draping a sari with a distinct pallu and border, with or without an all-over pattern, with one end pulled across the front and dropping over the shoulder to either hang at the back or go over the head to the other shoulder, was first seen in post-Moghul paintings. Thus, the Sari, the dress most synonymous with the Indian subcontinent today, is a romantic mingling of influences from Greece, Persia, and a number of other central Asian regions.

And now, it continues to be an economical and easy-to-wear garment in the modern world, suitable for work, leisure, or luxury. Over a while, several cities in India have become renowned Sari manufacturing centers. Every center is known for producing traditional saris with names originating from the cities in which they originated, the weaving or printing techniques used, and the motifs, colors, or patterns used in their creation. In all of these famous towns, the Sari has been manufactured on handlooms, power looms, and massive mills with the most advanced machinery throughout India's textile production history ^[19].

The evolution of Indian textiles was expressed in saris designs, which began to include figures, motifs, and flowers. With increasing foreign influence, the Sari became the first Indian international garment. What started as India's first seamless garment became the symbol of Indian femininity ^[20].

Background of the Research:

In February 2018, renowned fashion designer Sabyasachi Mukherjee at Harvard University, USA, stated that Indian women who do not know how to drape a sari should be ashamed of themselves ^[21]. He knew that many modern generations do not know how to drape a sari. Border&Fall performed a survey to help understand current social and cultural views of the Sari. Over 50 men and women from India, ranging in age from 16 to 45, from various social backgrounds across metropolitan cities, took part in the survey (Bangalore, Mumbai, New Delhi). There were participants asked that how many ways are there to drape a sari? 98% of them said less than 15 draping styles ^[22]. But there are over 100 draping styles ^[23]. And 52% of people know draping ways of Sari. In another question, 84% of men & 94% of women mentioned they would miss Sari if it becomes disappear ^[22]. People are less concerned about it though they love to wear it or become diverted by western culture as whole fusion styles become popular day by day. But these segments of women need help from others who know to tie or drape it. Women who can drape this versatile Sari, they wear traditional styles on some occasions like Pahela Baishakh, Pahela Falgun, Puja, traditional wedding, etc. But it is essential to know the basic draping ways to all Indian subcontinent women. Anyone can learn sari draping by watching a short film on the Sari draping method. Sari series has documented around 89 styles of draping method ^[24]. The French cultural anthropologist who is also a sari researcher Chantal Boulanger categorized sari drapes in 14 families [6] in which Madisar drape is characteristic of Tamil Nadu's Iyengar/Iyer Brahmin women. Madisar is traditionally worn with a 9-yard sari ^{[25].}

The visual aesthetics of draping a sari depends on its fabrications, color, and proportion composition of its elements. Every draping style has its characteristics. Over the years, the Sari has been draped in several ways and drape types adapted to particular professions. The most common approach is to make a series of front folds or pleats and drape the end over the shoulder. Aside from drapes, the weave of the Sari comes in a wide variety of designs. The Sari draping style varies with geographical region and also with the activity of the female. That Sari's drape is adapted by regions and times of day and year is clearly evident by observing Indian women ^[26]. Seema Goswami writes, 'In the days before India was divided in the name of religion, wearing a sari or shalwar kameez wasn't a function of which God you worshipped. What you wore pretty much depended on where you lived. In Punjab, women wore the shalwar kameez irrespective of whether they were Hindu or Muslim. And in Uttar Pradesh, Bengal and Bihar, they wore the Sari, whatever their religious persuasion. The body shape also

defines the sari look of its wearer. The petticoat and lower pleats offer fullness at the ankle and improve the wearer's mobility. The number of pleats depends on the wearer's waist size, the pallu's desired length, and eventually the Sari's length.

The Sari permits us to go back at least a thousand years in terms of design. It is conceived on the loom as a three-dimensional garment with variables in pattern, weave, and structure between its inner, outer end-pieces and its two borders, which provide drape, strength, and weight the body or field enhances its drape. All these elements help to maintain the form of the Sari when it is worn. Here we can identify the fact that there are still some gaps studying the sari elements and perceptions of consumers regarding those elements. And this is important to design a sari or its draping styles.

Fashion is constantly changing, and designers are expected to reinvent the wheel every season. Both consumers and retailers need to know the sari history & origins, its aesthetics & draping ways. Different people perceive the same thing at the same time in different ways, and perception is the process of selecting, organizing, and interpreting information inputs to produce meaning. The fashion industry is driven by trends in color, textiles, silhouettes, and styling. Identifying and forecasting these sari trends is a skill that anyone working within the fashion industry has to acquire.

In these circumstances, research is needed to learn more depth about The Sari and its investigation on consumer perceptions regarding its elements or portions that require making a delightful drape and also to know the cotton and silk Sari characteristics. This study is a must need for consumers, designers, and retailers or producers.

Purpose of the Research:

This research aims to

- Describe the sari history & its origin from the root.
- Demonstrate the consumer perception regarding cotton and silk sari draping (differences & similarities of falls and folds).
- Investigate the Sari elements and analysis the importance of each element.
- Find a relation between consumer perceptions of using a sari.
- Learn people's perception regarding sari
- Define cotton and silk sari draping characteristics & functions from visual evaluation by consumers.
- Know the opportunity to diversify Sari as a versatile clothing.

Research Hypothesis:

The literature analysis recommends that there are two key dimensions of Sari, namely internal & external values. Figure 1 shows sari value details. Sari concept, Uniquess of draping and ways of draping are standing for "Internal values". And silk & cotton sari draping aesthetics, and understanding of that aesthetics are standing for "External Values".

Here consumer acceptance of those values is proposed as a hypothesis.



Consumer perceptions Figure 1: Internal & External Values of Consumer Perceptions.

II. Material And Methods

This prospective comparative study uses the access literature research method, questionnaire method, semantic eye-tracking method, and experimental method. The usage is as follows: access to survey literature and research methods to understand Sari's culture and current situation. The background of the sari draping method; The relationship between Sari's draping method and aesthetics is investigated by using the questionnaire method based on perceptic engineering, in which the sensual difference method is used to select the perceptic vocabulary to design the questionnaire.

Figure 2 shows the complete research framework. 20 styles of cotton sari & 20 styles of silk sari draped on a dress form. Use Photoshop to process research samples, through questionnaires to aesthetic evaluation, using google & SPSS to process and analyze the resulting data, understand the structural design elements of people's concern, get the most popular sari style, and use the analysis results. The images were used in eye-moving experiments and two questionnaires, and the results of the three surveys were analyzed to obtain the sari draping perceptions for Bangladesh & China consumer perspectives.

As Sari is the national clothing for Bangladesh, it will be easier to get consumer perception. This study runs a questionary-based survey in Bangladesh. It was a google based survey.



Figure 2: Research Framework.

To achieve, perception evaluation of Chinese consumers, this study runs a questioner-based survey for screening out representative sari styles for grayscale processing. Using a grayscale graph, conduct a questionnaire survey on people's understanding of Sari and the aesthetic evaluation of the sari draping method. Use the selected sari map for eye movement instrument experiments to obtain the corresponding heat map. Comparing and analyzing the data obtained from the two sets of surveys, we understand people's concern about the Sari & its aesthetics' structural design elements. Image shooting (controlling variables when shooting) is carried out on works obtained from design practice, and image pixels, colors, etc., are treated uniformly using Photoshop. The pictures are used for eye movement experiments. Hot maps are obtained, corresponding conclusions are obtained from the data analysis of the results obtained.

By comparing the results of eye movement experiments and questionnaires, the conclusions are drawn. Summarize the experience and shortcomings, and put forward the outlook.

So, this study mainly has four contents. One is, to sum up, the sari draping method & naming the Sari; second, the design of questionnaires and distribution and recycling for Bangladeshi consumer perspective; the third is the design of questionnaires and distribution and recycling for Chinese consumer perspective; fourth is to

carry out eye movement instrument experiments to collect objective data for the Chinese consumer.

Research Demography:

This study demography includes the people from Bangladesh & China. Bangladesh is the native nation for the clothing "Sari" and has a strong relationship since Bangladesh's independence in 1971. Apart from this, In the RMG sector, China holds the first position, where Bangladesh holds the second position. Also, both this country has strong political relations. Bangladesh and China have both experienced cultural transmission in fashion throughout the centuries, with each country showcasing unique styles and trends that reflect their cultural heritage.

Bangladesh Questionnaires Design:

A Google-based online survey was conducted amongst the people of Bangladesh from 10th August 2020 to 15th August 2020. Total 34 questions asked in 5 sets or levels of question formats. 54 people participated in the survey. Each level or set of questions formats was designed to determine the core sari findings from its elements to its draping and diversifications.

- The first level is about the teste's basic information like age, gender, education, occupations, ethnic clothing, sari functions, diversifications and draping ways, cotton and silk sari characteristic discussions, and consumer perceptions of these two categories of saris.
- The second section is designed to find out consumer perceptions analysis on Sari, Blouse & Petticoat. In this section of the questioner, we put two pictures that were clearly defined these three parts, and it was a five-point survey question, in which participants were told to mark the level of their agreement about the importance of each part. These points are, 1= Strongly disagree, 2= Disagree, 3= Average, 4= Agree, 5= Strongly agree.
- In section three, we put 8 pictures that were collected from the internet to ask about consumer perceptions on Sari draping- "Importance of its different parts to design a draping." These parts are Achol/Pallu, body, broader, pleat, waistband/belt, head cover, back fall, side fall, shoulder drape, and neck drape. We also asked about the traditional sari and fusion style of Sari. These are five-point agreement questions. Again, we put 2 pictures from the internet, which were marked in 5 portions called A, B, C, D & E to find out consumer attraction points. So that we can find, consumers are mostly attracted by which portion of the Sari.
- In section four, we put 20 silk sari front & back draping pictures that were previously draped to gain consumer perceptions.
- Similarly, in section five, we put 20 cotton sari front & back pictures that were also similarly draped like silk saris to gain consumer perceptions.

China Questionnaires Design:

Chinese people are not using Sari as like Indian subcontinent women, and to obtain a richer and more comprehensive sari map, we choose 12 cotton saris from 20 cotton sari draping and add some more pictures from online collection through browsing a large number of sari pictures, to observe the characteristics of sari structures & shapes. Sari pictures' source includes different brands in India and Bangladesh, from which 115 clear, frontal sari pictures are selected. Summarizing the sari draping method and structural characteristics, for a second screening, filter out 15 saris as an alternative picture for questionnaire design, decompose the style elements of the selected Sari and divide the interest area, design, and distribute the questionnaire, and recycle the questionnaire for data analysis. For a better understanding of the Sari drape in China, we divided 12 saris into 3 segments. One is a large area drape that belongs to more conservative styles than the other two segments. Segment two is parallel cloak drape which is more expressive and western types. And thirdly cross hanging drape. A total of 105 people participated in the survey. And it lasted for 4 days.

The China questionnaire design is divided into five parts:

- Introducing the relevant information
- Basic information survey
- Sari style preference survey
- The degree of contribution of Sari local modeling to aesthetics was investigated
- Sari style evaluation survey

Part 2 basic information survey includes whether or not to buy national clothing, to understand the extent of Sari, age, professional, gender understanding, a total of 5 questions; Part 3 sari style preference survey asked the subjects to choose their favorite style from three sets of Sari and put three choices sorted, a total of 4 questions; Part 4 of the contribution of local sari modeling to aesthetics is based on 7 sari pictures, a total of 7 questions; Part 5, the selection of 7 representative sari style evaluation, a total of 7 questions, a total of 23 questions in the questionnaire.

III. Result & Analysis

Comparative Survey Analysis on Basic Fundamentals:

- Above 50% of the total participants belongs to the age group 19-25 of which 82.2% of the total participants are female, and 17.8% of them are male. And they are from wide range of occupations, including students, chartered accountant, creative writer & filmmaker, entrepreneur, business person, doctor, fashion designer, design developer, designer, employee, freelancer & also jobless participants.
- On the other hand, in China the survey attendees' age is mainly between 18 and 24 years old, of which 70.48 percent are women, 29.52 percent are men. Most of them are clothing students and other departmental students and workers.
- Sari's knowledge amongst the participants, whether figure 3 shows the depth of knowledge of sari draping in Bangladesh.

Figure 3: Bangladeshi Survey- Knowledge on Sari Draping Analysis



- 68.5% of people know the Sari, and 29.6% know a little about Sari. 64.8% people know how to wear or drape a sari 18.5% people know a little where 9.3% people know a little and need help the rest of the 7.4% do not know at all. So, 18.5% + 9.3% = 27.8% people know a little about sari draping and they need help.
- Figure 4 shows, buying nature of ethnic clothing & understanding of Sari analysis in China.
- 4 (a) & 4 (b) is shows 60% of the participants had not purchased national clothing in China, and 40 percent had purchased national clothing, where 57.14 percent of the participants who had purchased

Figure 4: China Survey- Whether You Buy Ethnic Clothing & Understanding of Sari Analysis.



national clothing did not know much about the Sari. But they knew some information about the Sari.

This study shows a promising fundamental analysis where most of the participants in Bangladesh & China are female. As Sari is a female clothing, perception analysis of these segment of consumers will add extra benefit to this study. Also, these pie charts show importance of learning Sari draping as 27.8% Bangladeshi knows a little whereas almost 96% Chinese does not know Sari draping methods. In these circumstances this study will play a vital role as a study element. And it influence & emphasizes in further research works.

Consumer Perception Analysis on Importance of Sari Parts & Elements:

Pallu/ Achol- The first part is the pallu, which is Sari's end piece. It's usually the Sari's fanciest part and is draped over the shoulder and sometimes over the head, which is called a headcover (Ghomta)._Body of Sari-The second part is the body of the Sari (middle part). The middle part is where the pleats are folded into the petticoat, which is the most important part of draping. Border- The last part is the inner end/edge of the Sari. This part is the first part of the Sari that should be tucked into the petticoat.

The questionnaire was in a five-point scale format. Here we got 54 responses for the importance of Achol or Pallu Part.

Figure 5 shows perception analysis of achol/pallu, boarder, pleat & shoulder drape. A maximum of 57.4% of the total participants strongly agreed on the fact that Achol or pallu is the most important part, where 31.5% agreed about it, and 11.1% stayed in a neutral position. On the other hand, no one disagreed or strongly disagreed about the decision that Achol or Pallu is Important to drape a Sari.



Figure 5: Bangladeshi Survey- Perception Analysis of Achol/Pallu, Boarder, Pleat & Shoulder Drape.

33.3% of the total participants strongly agreed about the decision that border is important. And 46.3% agreed with the decision where 18.5% of participants remain neutral, and 1.9% of participants strongly disagreed about the decision. Also, 44.4% of participants strongly agreed about the fact that pleat is most important part to drape a sari and 16.7% of participants remain neutral or average position. On the other hand, 1.9% disagreed with the decision. Maximum 37% of participants strongly agreed that shoulder drape has an integral part of draping a sari and 33.3% also agreed that were 22.2% participants remained in a neutral position and least 5.6% disagreed & 1.9% strongly disagreed on the decision.

For more better understanding this paper have puted two Sari picture. Figure 6 & 7 shows Sari's front & back picture and itis segmented into different parts to make a straightforward visual aesthetics.

50% of the total participants marked the "C" portion (Achol or Pallu Part) draping that they were most attracted to. That means Achol or Pallu draping, and its position attracts people the most. After that, the "B" portion (Front bottom lower part) draping attracts 48.1% of participants. So, After Achol or Pallu, Pleat is the most important part that attracts people the most. 33.3% of participants like the "A" portion (Front upper top part)

draping, which is a combination of sari draping with Blouse. 14.8% of participants marked "E" portion (Back lower bottom part) draping that attracts them most while 7.4% participants marked "D" portion (Back upper top part) draping, which is also a combination of Sari Achol and blouse draping.



Figure 6: Bangladeshi Survey- Sari Draping Portions/Elements.

Figure 7: Bangladeshi Survey- Perception Analysis Sari Draping Portions/Elements.



On the other hand, this study finds some core findings in China survey analysis. In some cases it goes similar with Bangladeshi survey.

Figure 8 & 9 shows, perception analysis of contribution degree of sari elements. The graph shows Sari elements in X axis and contribution points in Y axis. Here we see, pleat/ folded hem got the highest contribution



Figure 8: China Survey- Perception Analysis of Contribution Degree of Sari Elements.

score point which is 4.09. Where Shoulder drape got 3.57 score points and neck drape got least 3.38 score points. Also in figure 3.16, it shows China survey perception analysis of contribution degree of each Sari elements.



Figure 9: China Survey- Perception Analysis of Contribution Degree of Each Sari Elements.

In Bangladesh, we found that Achol or pallu is the most important part of sari and then boarder makes the consumer perception. And the same time achol placement & pleats has got huge engagements rather than other parts after draping a sari. People like traditional sari rather than western or fusion-style saris.

And in China, When the participants rated the contribution degree of each styling element in the Sari, the hem folding fold or pleat of the Sari rated the contribution to the beauty of the Sari the most, indicating that

in the style design of the Sari, the appropriate application of pleats can get more like; It is believed that the sari style with pleated elements is complex, reference to the high evaluation of folded pleat elements, we can accept the folding pleat elements in the Sari give people a complex, exquisite subjective feeling and get a favorite, the use of accessories design sari gives a modern feel, the use of neck hanging design gives a unique feeling.

Comparative Analysis on Visual Aesthetics of Sari Draping (Bangladesh & China Perspective):

We find positive approaches regarding cotton and silk sari likings. Figure 10 & 11 shows perception analysis of silk sari draping aesthetics in Bangladesh consumer perspective. Maximum of 79.6% of participants like "ss4" (Silk sari draping 04- Classical Sari draping), which is the most popular sari draping in the Indian subcontinent region. On the other hand, 50% of participants link "ss13" (Silk sari draping 13- Open-end achol sari draping), which is also a popular style of Sari draping.

43.6% of participants like "ss20" (Silk sari draping 20- Reverse sari draping) Style. It Is the reverse style of classical sari Draping. 35.2% of participants like "ss1" (Silk sari draping 01- Traditional Bengali Sari draping) Style. Also, 33.3% of Participants like "ss2" (Silk sari draping 02- Traditional Bengali Sari) (Conservative) draping.





Figure 11. Perception Analysis of Silk Sari Draping Aesthetics- Top 5 Silk Sari.



Similarly, figure 12, 13 represents cotton sari visual aesthetic maximum of 63% of participants like "cs4" (Cotton sari draping 04- Classical Sari draping) which is the most popular Sari draping in the Indian subcontinent region.

On the other hand, 55.6% of participants like "cs13" (Cotton sari draping 13- Open-end achol sari



Figure 12: Bangladesh Survey- Perception Analysis of Cotton Sari Draping Aesthetics.

Figure 13: Perception Analysis of Cotton Sari Draping Aesthetics- Top 5 Cotton Sari

draping), which is also a popular style of Sari draping. 37% of participants liked the "cs20" (Cotton sari draping 20- Reverse sari) & "cs19" (Cotton sari draping 19- Side cowl sari) draping style. It Is the reverse style of classical



sari Draping. After that, 35.2% of participants like "cs2" (Cotton sari draping 02- Traditional Bengali Sari) (Conservative) draping & "cs14" (Cotton sari draping 14- Open-end achol (Tucked) sari) draping styles. On the other hand, all other draping styles remain under 30%. Where 25.9% of participants like "cs3" (Cotton sari draping 03- Regular Bengali Sari) draping style, and 18.5% participants like "cs1" (Cotton sari draping 01- Traditional Bengali Sari) Bengali Sari) draping style.

China survey shows a promising result in Sari style preference. Figure 14 shows the consumer perception analysis of conservative, parallel & cross drape sari. cs19a has got the highest perception of 40%. And cs13a has achieved second highest perception of 26.67%. cs2a has got least 13.33% perception in conservative segment sari drape.

Interestingly cs19a is a popular variant of classical sari drape that got the highest Chinese consumer perception in parallel drape sari segment. cs5a has got highest rank of 49.52%. And cs1a hast got the least perception point 13.33%. On the other hand, cs5a is western (fusion) style sari drape has achieved highest Chinese consumer perception which clearly represents cultural difference between Bangladesh and China. In cross drape sari section, cs4a has achieved highest consumer perception where cs6a has got the least perception point 14.29%. cs4a is classical style (Nivi) sari drape. It shows similar results with Bangladeshi survey. It also indicates that classical styles are always remain identical.



Figure 14: China Survey- Perception Analysis of Conservative, Parallel & Cross Drape Sari.

Figure 15 shows the perception analysis of sari preference ranking. Data show that the first group is a large area of draping styles, "cs 19a" accounted for the highest proportion of 40.00%. For the second set of parallel cloaks, nearly 50% of the samples were "cs 5a" best looking; The third group intersected, and most of the samples considered "cs 4a" to be the best-looking, with a ratio of 36.19 percent.

Figure 16 shows the perception analysis of sari preference selection result. The best-looking saris will be sorted from the three groups, with the 6th answer, the large-area cloak group, ranking first with an average comprehensive score of 2.02, the highest score, while the 7th answer, the parallel cloak, comes first with an average comprehensive score of 1.5, the lowest score. However, from the average score, the answer to question 8 is that the cross-hanging group score and parallel shawl group gap are small. A large area of the hanging group is far ahead.

The results show that the test's preferences are more inclined to large areas of Sari: the test subjects' comprehensive preferences from more to less ranked as large-area cloak >cross hanging> parallel shawl.



Figure 15: China Survey- Perception Analysis of Sari Preference Ranking.





Eye Tracking Experiment Analysis:

The eye-tracking experiment data analysis mainly focuses on the total fixation time and fixation position of the sari style to understand the characteristics of the sari or modeling elements that can get significant attention.

Focus on the hot spot map:

The eye-tracking experiment data analysis mainly focuses on the total fixation time and fixation position of the sari style to understand the characteristics of the sari or modeling elements that can get significant attention.





Figure 16 shows cs19a's eye-movement gaze charts, from which it can be seen that the subjects paid the longest average attention to the folds that were caused by the dispersion trend caused by folding (Side fall). Also, cs17a's eye-movement gaze charts, from which it can be seen that the subjects paid the longest average attention to the folding position of the hem (Pleats). cs5a's eye-movement gaze chart, from which it can be seen that the subjects' most prolonged average attention is the folding shape (Pleats) of the hem and the parallel shawl shape with the shoulder as the support point from the bottom up.

Eye-Tracking Index Data Extraction & Analysis:

Figure 17 shows eye-tracking index data analysis. Extracted, including the first gaze duration, the total gaze time, the pupil's average size, the number of gazes, four eye movement indicators raw data, see Appendix 3, collate the analysis data.





According to data analysis figures 3-24, cs19a, cs17a, and cs5a correspond to each indicator's highest values; cs19a has the longest total gaze time. The largest number of gazes, cs17a pupil average size, is the largest, cs5a first gaze lasts the longest, and cs10a is the lowest corresponding model for each indicator.

IV. Discussion

Survey Discussions on Bangladesh Perspective:

Survey results suggest that young generations from every angle of society and class have joined and provided their valuable objective observations towards Sari, which is very much acceptable. We found that a large number of the total participants were women, and everyone has quite a knowledge about Sari in Bangladesh rather than Chinese participants. Also, most people (around 57.4%) had tried any type of ethnic clothing, and most of the people buy or try ethnic clothing for attending occasions or programs, and some want to try something new in Bangladesh. But we found the opposite scenario in China. Most people know about our traditional costume Sari, and 64.8% know to drape a sari in Bangladesh, and 27.8 % of people know a little. Most of the people know the 1-3 style of draping a sari, whereas 13% do not know to drape a sari. So, here comes the opportunity to apply draping techniques on that 13% has the opportunity to apply it in China as well. In the case of cotton and silk saris, results suggest that maximum people said both saris are comfortable to them, whether 35.2% said cotton sari is comfortable for them were only 9.3% people said silk sari is comfortable. That's why we asked about the liking and disliking factor of cotton and silk saris. And we found the result. People like the cotton sari for its comfortability and dislike it for its looks, which sometimes seems too poor, and for Sari's hardness. But people like to wear cotton saris for regular wearing purposes and also for wearing on traditional functions like "Pohela Baishakh" or "Pohela Falgun" or something similar like these. On the other hand, people like to wear silk saris for their rich and great looks. And people do not like silk sari for its less comfortability or hardness.

One of the principal vital elements is a sari rather than a blouse or petticoat. Section 2 results Bangladesh survey also demonstrated that women could wear a sari without a blouse or petticoat. It has got some mixed responses which also demonstrate the true face of Sari. The Blouse is essential, and it has a wide range of varieties & petticoat can be replaced by other skirts or pants.

Section 3 survey results of Bangladesh suggested the importance of sari parts to make a drape. Pallu or Achol is the most important part of draping a sari. And pleat is also important to make a drape. Pallu and Pleat are the two significant parts to drape a sari. As we used sari front pictures in Chinese questionary and eye-tracking experiments, we found pleats and decorative borders and Achol/Pallu are most important to drape a sari.

You can make any designs using or emphasizing these three parts. So, the Sari border is essential but has some mixed overview that's maybe because it's a design part in Bangladesh & China. It could vary from design to design, fabric to fabric. Headcover has the same overview, but it could be an element that lies on regional and or religious boundaries. Muslim women do cover their heads at home or work. Because they are more conservatives than other religions, on the other hand, a Hindu or other religious woman can have a headcover. Still, most of them do not use a headcover. The shoulder drape is important than the other parts, but people are less concerned about Sari's back part. Maybe it is the reason that the Pallu part stays on the back part. The waist belt also remains an external part that is necessary due to design purposes. Traditional styles are always more demandable than fusion styles in Bangladesh. And fusion is more demandable than the traditional draping style in China.

ss4 & cs4 got the first position where ss4 has got 79.6% acceptance while cs4 has got 63% acceptance and both are the highest in their line. The most important fact is both styles are the same, and it is called the Nivi style, which is the most popular style in the whole Indian subcontinent region. ss13 & cs13 is the following style that has got the second position in visual perception, which again proves that Sari is indifferent. Whatever the fabric composition is, one can do any style that he/she wants to do. ss13 & cs13 are also Nivi style, which appeals to independent women by draping its open end pallu or achol. ss20 & cs20 is the reverse sari draping which is the reverse style of ss4 & cs4 (Nivi style) has got the third position of acceptance.

So finally, the Nivi style is the most attractive and appealing style of all. On the other hand, Traditional sari draping ss1, ss2 & cs1, cs2 remains in a stable position which describes that traditional dress has a constant impact on the consumer.

Survey Discussions on China Perspective:

After literature investigation, it is learned that winding clothing is not simply using the draping method. Still, it will be winding, folding, pendant, interspersing, bundling, and other draping methods. The Sari's characteristics prompted it to apply more winding methods to make clothing more in line with human needs, and because the Sari as a whole is diversified, which can have more changes in its draping styles.

Sari as a cloth design representative, different from the structure of Western-style clothing; in the area of interest and elemental decomposition, Western-style clothing analysis ideas do not apply to the Sari. But the Sari exists clothing modeling in which point, line, face, and body of the four elements. After observation, according to the apparent overall line direction of the sari draping way, it is divided into a large area of hanging, parallel cloak hanging, cross-hanging three kinds.

Sari's questionnaire survey results show that, in a large area of the hanging group, 40% of the respondents think cs19a is the best looking, nearly 50% of the respondents in the parallel cloak group think cs5a is the best looking, cross-hanging group, 36% of the subjects think cs4a is the best looking. The highest total score of the large area shawl style was 2.02 points, and the total score of cross-hanging style and parallel cloak style was 1.62 and 1.5, respectively.

Eye-Tracking Experiments Discussions:

Eye-tracking experiments show a positive response between 12 sari draping. This experiment actually focuses on hot gaze map and pupil size analysis by eye-tracking index data analysis. Export 3 kinds of draping style, a total of 12 sari styles of gaze hot map, compared with the analysis of each style found that compared to the tiled hanging shape, with complex modeling, in 7 sari hotspots, the longest time to watch all include folded fold elements mostly on pleats, can be seen due to folding, cross, overlapping accumulation, etc. caused by the Sari border or achol placements by draping which creates more attention. On the other hand, cs19a has the longest gaze time which is a variation of nivi or classical drape. cs17a pupil average size is the largest, cs5a first gaze lasts the longest, and cs 10 is the lowest.

V. Conclusion

Though centuries have passed since the Sari was invented as the Indian woman's inherited outfit, the allure of this exquisite and remarkable feminine dress, suitable for the youngest of girls or the oldest of women, has not faded. Also, the most modern women of the subcontinent have readily embraced technical innovation with each new decade. Its multifaceted history is now hazy and lost in the mists of time. Despite the garment's minimal space for improvement, it appears to have an eternal future due to the endless experimentation used to reinvent its beauty for each new generation of women.

This research approach has been used to enhance and investigate the core findings of Sari and its aesthetic evaluations in Bangladesh and China. And it could be a learning platform for those people who really want to know the Sari draping method. We developed and described a simple way of draping 20 styles of a single piece of Sari. We described these draping ways in just six steps. So, following six steps anyone can drape a Sari whether it is cotton, silk, or any other type of fabric composition in Sari.

We draped these 20 styles in cotton and silk sari to define Sari characteristics in cotton and silk forms as these two kinds of fabrics have rich histories in the Indian subcontinent as well as in China. This research is the first approach to find the cotton and silk fabric aesthetics in a form of a Sari. People of Bangladesh like cotton Sari for its comfortability and silk sari for looking great so they use cotton sari for regular wearing purposes and silk sari for a wedding or other parties.

This study approaches considered as a noble process to find out the importance of Sari parts and draping elements to make an appealing & successful Sari drape. This research went through a total of three experiments. Two surveys in Bangladesh & China and one eye-tracking experiment in China. All experiments showed

promising results regarding Sari draping and its elements. It is found that Sari achol or pallu is the most important part rather than border and body. Also, Achol or pallu placement attracted people. So, one is for the sari design perspective and another one is for the sari draping perspective. In both ways, sari achol or pallu is the most important part & draping element. Pleat is the most important element for draping a sari. Surveys and eye-tracking experiments both showed positive results about pleats. Also, pleating makes a major difference between traditional and classical saris. A successful pleat can be an appealing factor to the wearer. Pleat can be at two places; one is below the waist and another one is at achol or pallu. But the most prominent place is below the waist.

This research demonstrates 20 styles of cotton and silk sari draping and put them in questionnaires to survey in Bangladesh and 12 styles of cotton sari draping were put on China questionnaire and eye-tracking experiments. Classical Sari draping which is known as Nivi drape in Bangladesh and India got the highest-ranked Sari amongst all 20 drapes in Bangladesh perspective. And traditional Bengali sari has got constant reviews. On the other hand, Classical sari draping ranked as the third best-looking sari while side cowl sari draping has got the second position though it is actually a designed version of classical sari draping. But Western-style "Side pleat with one shoulder" sari draping is the most popular in China. So, it can be concluded that Classical styles are the most popular styles both in Bangladesh and China whether Chinese people prefer western styles more.

The demand for traditional Sari never ends. And all other styles that have appealed but cannot make a steady report. That means the fusion comes, but the demand can have ups and downs at the same time. And most importantly popularity of the draping style could vary from country to country, culture to culture. Sari is universal. Cotton and silk sari are best at the composition ends, but Sari's other fabrications are also famous. As it is the world's sustainable unstitch clothing, if one can drape a sari or understand the draping ways, he/she can make 100 styles using the same design sari. Sari is an art in clothing form.

Future Research:

Affected by the epidemic, all aspects of the conditions are limited. By my knowledge and energy constraints, the study is still insufficient. The study focuses on the structure of Sari & its 20 draping styles investigations. While there exists a professional or classical style of draping a sari, there are more than 100 variations of it across the Indian subcontinent. There are many scopes to do a study with Sari. A lot more advanced technology can be used to make this study more versatile; follow-up can be sari fabrics, colors, patterns, and so on more discussion. We choose 100% cotton &100% Silk composition sari, which was the most precious fabric in the history of textiles but nowadays, there is a wide range of Sari varieties in compositions. Cotton & silk fabric cannot represent all types of fabric compositions. Sari variations also exist depending on the kind of fabric, as well as on methods of weaving. Sari, itself is a mystery. Research can be done from anywhere of its components. It has a strong history and is unique.

References

- [1] A. Singh, "A Profile Of Banaras Silk Sarees," University Of Agricultural Sciences, Dharwad, 2008.
- [2] Wikipedia, "Sari," [Online]. Available: Https://En.Wikipedia.Org/Wiki/Sari.
- [3] N. K. Kaikobad And F. Sultana, "Sari-The Most Draping Attire Of Indian Sub Continental Women: A Critical Study," Iosr Journal Of Humanities And Social Science (Iosr-Jhss), Vol. 19, No. 12, Pp. 18-24, 2014.
- [4] M. Indraganti And J. Lee, "Thermal Adaptation And Insulation Opportunities Provided By Different Drapes Of Indian Saris," Architectural Science Review, 2014.
- [5] R. G. Paneerselvam And D. Yuvaraj, "Use Of Indigenous Electronic Jacquard In Handloom For Weaving Fashionable Silk Sarees," Ugc Care Group I Journal, Vol. 10, No. 07, 2020.
- [6] C. Boulanger, Saris: An Illustrated Guide To The Indian Art, London: Shakti Press International, 1997.
- [7] A. R. Kashi, "How To Wear A Sari In India," 18 March 2018. [Online]. Available: Http://Www.Worldhum.Com/Features/How-To/Wear_A_Sari_20071025/.
- [8] R. Oberoi, "Sari Story: How Its 108 Wearing Styles Represent India, Its People And Their Many Mutinies," 31 March 2018. [Online]. Available: Https://Www.Firstpost.Com/Living/Sari-Story-How-Its-108-Wearing-Styles-Represent-India-Its-People-And-Their-Many-Mutinies-4412991.Html.
- T. Ap, "Styling The Sari: New Anthology Broadens Sartorial Reach Of Indian Garment," 12 October 2017. [Online]. Available: Https://Wwd.Com/Fashion-News/Textiles/Sari-India-Drapes-Border-Fall-Malika-Kashyap-The-Sari-Series-10949571/.
- [10] Nidhishekhawat, "The History Of Indian Sarees: A Legacy For Centuries," 20 March 2020. [Online]. Available: Https://Nidhishekhawat.Hatenablog.Com/Entry/2020/02/13/170702.
- [11] V. Ranavade, "Multicultural Identities Of The Indian Sari," Iffti, 2011.
- [12] D. S. L. Manokari And D. N. Gayathri, "Customers' Perception Of Visual Design Elements In Pure Handloom Silk Sarees," Asian Journal Of Research In Social Sciences And Humanities, Pp. 143-157, June 2017.
- [13] G. Savithri And P. Sujathamma, "Glory Of Indian Traditional Silk Sarees," International Journal Of Textile And, Pp. 61-68, 2013.
- [14] S. Mallick And S. Dhar, "Baluchari: Evaluation And The Present Status Of The Craft.," South Asian Anthropologist, Pp. 59-72, March 2018.
- [15] S. Das, "Case Study On The Textile Revivalist And Entrepreneur Designer. "Gaurang Shah's Approach In Contemporising Jamdani (Extra Weft Insertion Technique)".," Nift, Delhi, 2014..
- [16] Wikipedia, "Jamdani," [Online]. Available: Https://En.Wikipedia.Org/Wiki/Jamdani.
- [17] R. K. Chishti, Saris Of India: Tradition And Beyond, New Delhi: Roli Books, 2010.
- [18] C. Suri, "The Surprising History Of India's Vibrant Sari Tradition," 24 September 2020. [Online]. Available: Https://Www.Nationalgeographic.Com/Travel/Article/The-Story-Of-The-Sari-In-India.

- [19] V. Patil, "The Origin Of The Saree," July 2012. [Online]. Available: Https://Www.Esamskriti.Com/E/Culture/Indian-Culture/The-Origin-Of-The-Saree-1.Aspx.
- [20] Tnn, "The History Of Sari: The Nine Yard Wonder," 24 July 2019. [Online]. Available: https://Timesofindia.Indiatimes.Com/Life-Style/Fashion/Buzz/The-History-Of-Sari-The-Nine-Yard-Wonder/Articleshow/70277974.Cms.
- [21] J. L. Belliappa, "Gender, Community Identity And Norms Regarding Women's Sartorial Choices: Responding To Designer Sabyasachi's Remarks On The Sari From An Anglo-Indian Perspective.," International Journal Of Anglo-Indian Studies, Vol. 18, No. 1, Pp. 3-19, 2018.
- [22] Border&Fall, "Sari Survey 2016," 2016. [Online]. Available: Http://Www.Borderandfall.Com/Journal/Sari-Survey-2016/.
- [23] G. A. & Culture, "9 Facts You Might Not Know About The Sari," [Online]. Available: Https://Artsandculture.Google.Com/Story/9-Facts-You-Might-Not-Know-About-The-Sari/Ewii5lk9aiamja.
- [24] T. S. Series, "How-To Drape Films," 2021. [Online]. Available: Http://Thesariseries.Com/How-To-Drape-Films/.
- [25] R. Subramanian, "The Brahmin Way Of Wearing A Saree," 13 March 2014. [Online]. Available: Http://Tamilnadu.Com/Fashion-Style/Madisar-Pudavai.Html.
- [26] I. And M., "Thermal Comfort In Naturally Ventilated Apartments In Summer: Findings From A Field Study In Hyderabad, India," Applied Energy, Elsevier, Pp. 866-883, 2010.
- [27] G. A. &. Culture, "15 Variations On The Sari: India's Iconic Drape," [Online]. Available: Https://Artsandculture.Google.Com/Exhibit/15-Variations-On-The-Sari-India-S-Iconic-Drape/Ywiijhny4gltlq.