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Consumer Acceptance of Hand Embroidered Tunics Inspired from *Sashiko* Embroidery Designs

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ABSTRACT

The present study was conducted to assess consumer acceptance of prepared tunics inspired from traditional *Sashiko* embroidery designs. *Sashiko*, a Japanese decorative embroidery technique, was adapted into contemporary apparel to enhance aesthetic and functional value. A total of 16 tunic designs were developed digitally and eight best designs were selected based on preferences of respondents. These designs were constructed into tunics using suitable fabric and embroidery techniques. Consumer acceptance was evaluated among 60 respondents using a structured questionnaire. Parameters such as design, silhouette, overall appearance and suitability of price were considered. It was found that Tunic D followed by Tunic F obtained first and second ranks on the basis of design, whereas Tunic F and Tunic D obtained first and second rank on the basis of silhoutte. Tunic I received the highest level of appreciation, with 70.00 per cent of the respondents rating it as *Very good*. Tunic B achieved the highest weighted mean score (5.57) and was ranked first, indicating the greatest overall preference among the respondents. Majority of respondents perceived the prices of most tunics to be Adequate. The quoted price for tunics was ranging from Rs. 1,900 to Rs. 3,600. The study concludes that adaptation of traditional embroidery techniques into modern garments has strong market potential and consumer acceptance.

Keywords: Apparel design, Consumer acceptance, *Sashiko* embroidery, Traditional textiles, Tunic design

INTRODUCTION

The human association with clothing is rooted in both survival and symbolism. As early humans migrated from warm equatorial regions to colder environments, the need for protection from harsh climates, injury, and rough terrain led to the earliest forms of dress. Archaeological evidence such as scraping tools, bone needles, and studies on the evolution of body lice indicate that clothing originated between 100,000 and 170,000 years ago. Over time, attire became more than functional protection and evolved into a medium of identity - signifying status, belief systems, aesthetic sensibilities, and cultural belonging. Thus, the development of clothing marks a significant shift in human creativity, technological progress, and social expression (Toups *et al.,* 2010).

Textile practices developed uniquely across civilizations, each cultivating distinct aesthetic vocabularies. Indian traditions fostered rich handloom weaving and embroidery forms such as kantha and chikankari; China advanced silk weaving and brocade, symbolizing imperial refinement. Egypt's mastery of linen weaving was intertwined with ritual and funerary customs, while Andean cultures produced vibrant woven textiles with symbolic motifs. These varied traditions highlight how textile art has historically functioned in narration, ritual, trade, and cultural identity, continuing to shape contemporary fashion (Mineo *et al.,* 2023).

Embroidery is the form of art and craft which gives decorative detail on fabric using only needle, thread or yarn. It can also be embellished with beads and pearls. The end product gains dimension and texture from the

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embroidery. The word embroidery derives its origin from the French word "broderie" which signifies embellishment and refers broadly to decorating textiles (Smith, 2023).

Sashiko is a traditional embroidery technique from northern Japan. It is pronounced "sash(i)ko" (the 'i' is nearly silent) and refers to "little pierce" or "little stab" (Briscoe, 2016). The name relates to the method of passing a needle through cloth. This craftsmanship began as a practical, straightforward running stitch that was used to quilt several layers of rough fabric together for warmth, patch worn clothing, and strengthen or mend clothes (Hayes and Seaton, 2020).

Across cultures and eras, tunics have served as adaptable garments with broad functional and stylistic relevance. From ancient Rome to medieval India, tunics offered comfort, simplicity, and versatility. In contemporary fashion, their minimal seams and uncomplicated silhouettes offer an ideal canvas for surface ornamentation such as embroidery. When adorned with *sashiko*, tunics not only acquire visual depth but also align with sustainable design values by extending garment life, reusing materials, and preserving cultural craftsmanship (Kamimoto, 2024).

Borah (2017) designed and embroidered seven ready to attach yokes for kurtis using kantha embroidery stitches. The yokes were finished with bias binding so that they were ready to be attached on kurtis. Using an interview schedule, the opinions of college going girls were recorded by showing seven kurtis. According to the data collected, Design Number 2 was ranked first for the embroidered design and for the color combination of the embroidery design, while Design Number 4 was voted first for the yoke's style. On the other hand, Design Number 2 and 3 came in first, Design Number 4 came in second, Design Number 1 was ranked third, Design Number 5 and 7 came in fourth and Design Number 6 came in fifth when the total final rank was determined.

Renu *et al*. (2017) reported that modern kasuti embroidery motifs developed by computer-aided design (CAD) were applied to fabrics through economical, time-saving surface embellishment techniques including fabric painting. The idea behind the topic was to develop a fresh design variety while preserving the distinctiveness and ethnic charm of the traditional craft of kasuti embroidery.

The study on consumer acceptance of digitally printed stoles inspired from Kalamkari motifs clearly demonstrates the increasing scope of blending traditional textile art with modern technological applications. It shows that digital printing provides high precision, design flexibility and eco-friendly benefits, making it suitable for reproducing intricate Kalamkari motifs on contemporary accessories. The results indicate that respondents showed greater preference for designs with well-balanced colour combinations and overall motif placement, highlighting the role of visual appeal in influencing acceptance. Moreover, most participants evaluated the stoles positively in terms of design quality, printing finish and overall appearance, while also perceiving the pricing as appropriate, indicating promising market viability. The study further suggests that such integration of traditional motifs with modern techniques not only aids in cultural preservation but also creates new opportunities for innovative product development and commercialization in the textile sector (Deepika and Saini, 2021).

Putri *et al*. (2023) explored the design integration of *Sashiko* in zero waste fashion collections. In this study, Indonesian Batik offcuts were paired with *Sashiko* embroidery to create tunics and jackets. Student designers selected motifs that reinforced structural seams, while ensuring that each stitch served a functional and aesthetic purpose. The fusion of Batik's organic flow with *Sashiko*'s geometry created garments that were not only sustainable but also culturally hybrid. Evaluations revealed that the designs were well-received for their conscious craft and innovation.

Another unique application was presented by Khorimah *et al*. (2024), who drew inspiration from the Korean Jinju Lantern Festival to develop *Sashiko* motifs for citywear. Using the radial symmetry of lanterns, the team digitized motifs and embroidered them on neutral-toned cotton tunics. These circular motifs were placed strategically on tunic fronts and sleeves to symbolize light, celebration, and continuity. The designs were evaluated by a panel of 45 urban women, with 82% expressing emotional and cultural resonance with the garments.

Thokchom (2025) conducted a detailed study entitled *"Development of Kurtis Inspired from Architectural Designs of Manipur Monuments"* to blend cultural heritage with modern fashion. The research began by documenting forty architectural motifs from eight significant historical monuments in Manipur, such as Kangla Fort, Shri Govindajee Temple, and Pakhangba Temple. Ten of these motifs were selected based on their adaptability, aesthetic value, and weaving feasibility. These were digitally adapted using CorelDRAW X7 to develop twenty kurti designs in various color schemes.

Subsequently, seven kurti designs were constructed using the extra-weft handloom weaving technique by local artisans in Manipur. The final garments were evaluated by 90 college going respondents based on design, color combination, workmanship, and price suitability. Results indicated a strong preference for pastel colors, geometric motifs, and balanced silhouettes. This study not only showcased the integration of traditional architecture in apparel design but also highlighted the potential of heritage-inspired garments to support the local handloom industry while promoting cultural sustainability.

The present study was undertaken to evaluate the acceptance level of consumers towards tunics inspired from *Sashiko* embroidery.

METHODOLOGY

For this study, a total of 120 respondents were selected randomly from four different colleges of Ludhiana city. An interview schedule was developed and employed for obtaining relevant information regarding the preferences of the respondents for developed tunic designs. The eight selected tunic designs were converted into actual embroidered tunics using the traditional *Sashiko* hand-embroidery technique. Denim fabric was chosen to complement the nature of *Sashiko* stitches. Traditional *Sashiko* thread, known for its thickness and strength, was used to ensure that the designs appeared bold and distinct. The designs were transferred onto the fabric using tracing methods compatible with hand embroidery.

After embroidery the tunics were stitched using the standard body measurements (dress form of 36" size) to ensure proper fit (Fig. 1 to 5). The cost of each constructed tunic was calculated by considering the cost of raw materials, embroidery threads, fabric, labour charges for hand embroidery, stitching expenses, and additional miscellaneous items such as interfacing, lining materials and finishing accessories. After determining the total production cost, 30 per cent profit margin was added to calculate the selling price of each tunic.

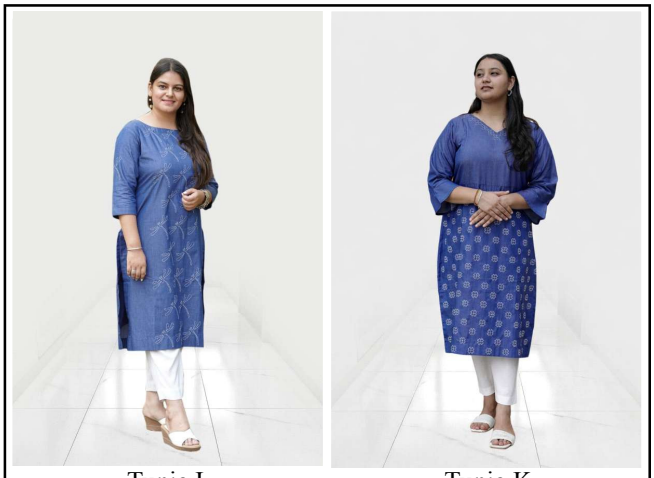
The final phase involved assessing consumer acceptance of the constructed tunics. A sub sample of 60 respondents were selected from the already selected sample for evaluation of the finished tunics. Their responses were recorded using a structured evaluation sheet, and the results were analysed to determine the overall market acceptance and popularity of the

Tunic B Tunic D

Fig. 1 : Prepared Tunic B & D

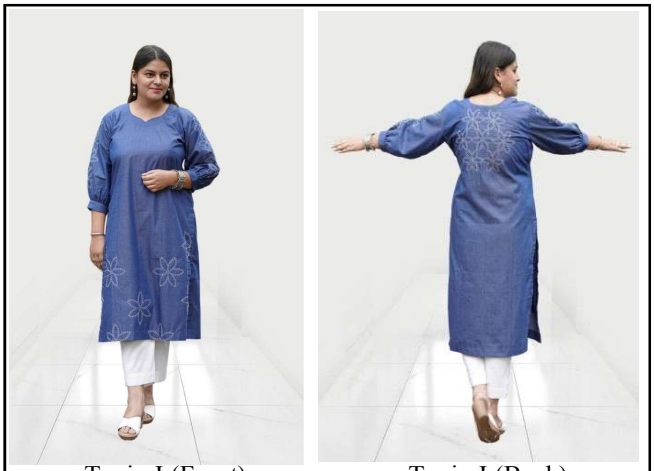
Tunic F Tunic G

Fig. 2 : Prepared Tunic F & G



Tunic I Tunic K

Fig. 3 : Prepared Tunic I & K



Tunic J (Front) Tunic J (Back)

Fig. 4 : Prepared Tunic J

Tunic N (Front) Tunic N (Back)

Fig. 5 : Prepared Tunic N

developed line of tunics.

RESULTS AND DISCUSSION

The developed Tunics were evaluated on the basis of design, silhouettes, overall appearance, general opinion and appropriateness of price.

Assessment of developed tunics on the basis of design:

The findings reveal that Tunic D achieved the highest weighted mean score (5.93) and was ranked first, indicating maximum preference among the respondents. This was followed by Tunic F (WMS of 5.17) and Tunic I (WMS of 5.07), which secured the second and third ranks respectively. Tunic B (WMS of 4.73) and Tunic G (WMS of 4.50) occupied the fourth and fifth positions, reflecting a moderate level of acceptance. Comparatively lower preference was observed for Tunic J (WMS of 4.27), while Tunic N (WMS of 3.52) and Tunic K (WMS of 2.82) were ranked seventh and eighth respectively, indicating lesser preference among the respondents (Table 1). These findings indicate that balanced design placement and clarity of structure strongly influence consumer preference, as also reported by Kaur (2014).

Assessment of developed tunics on the basis of silhouette:

Data in the Table 1 revealed that results indicate that Tunic F obtained the highest weighted mean score (5.83) and was ranked first, signifying the greatest preference among the respondents in terms of silhouette. This was followed by Tunic D (WMS of 5.47) and Tunic I (WMS of 5.30), which secured the second and third ranks respectively. Tunic B (WMS of 5.27) and Tunic J (WMS of 4.08) occupied the fourth and fifth positions, reflecting a moderate level of acceptance. Comparatively lower preference was observed for Tunic G (WMS of 3.83), while Tunic N (WMS of 3.33) and Tunic K (WMS of 2.88) were ranked seventh and eighth respectively, indicating lesser preference among the respondents. These results suggest that respondents preferred

Table 1 : Assessment of developed tunics on the basis of different parameters (n = 60)

Tunic Code	Design		Silhouette		Overall appearance	
	Weighted Mean Score (WMS)	Rank	Weighted Mean Score (WMS)	Rank	Weighted Mean Score (WMS)	Rank
B	4.73	IV	5.27	IV	5.57	I
D	5.93	I	5.47	II	5.50	II
F	5.17	II	5.83	I	5.27	III
G	4.50	V	3.83	VI	3.87	VI
I	5.07	III	5.30	III	5.20	IV
J	4.27	VI	4.08	V	4.55	V
K	2.82	VIII	2.88	VIII	2.75	VIII
N	3.52	VII	3.33	VII	3.30	VII

silhouettes that combine structural simplicity with subtle detailing, a trend also observed in previous studies on ethnic and fusion wear (Bhardwaj, 2020).

Assessment of developed tunics on the basis of overall appearance:

The findings reveal that Tunic B achieved the highest weighted mean score (5.57) and was ranked first, indicating the greatest overall preference among the respondents. This was followed by Tunic D (WMS of 5.50) and Tunic F (WMS of 5.27), which secured the second and third ranks respectively. Tunic I (WMS of 5.20) occupied the fourth position, while Tunic J (WMS of 4.55) was ranked fifth, reflecting a moderate level of acceptance. Comparatively lower preference was observed for Tunic G (WMS of 3.87), whereas Tunic N (WMS of 3.30) and Tunic K (WMS of 2.75) were placed at the seventh and eighth ranks respectively, indicating lesser preference in terms of overall appearance (Table 1). These findings reaffirm that overall garment acceptance depends on harmony among multiple design elements rather than isolated features (Kaur, 2014).

General opinion of the respondents regarding the developed tunics:

The data presented in Table 2. depicts the general opinion of the respondents regarding the prepared tunic designs. A total of sixty respondents expressed their views by categorizing each tunic as *Very good*, *Good*, or *Fair*. The results show that Tunic I received the highest level of appreciation, with 70.00 per cent of the respondents rating it as *Very good*, followed by Tunic N (55.00%) and Tunic B (53.33%), indicating a strong positive response. Tunic F also received favorable opinions, with more than half of the respondents (51.67%) rating it as *Very good*. In contrast, Tunic G and Tunic K recorded comparatively lower proportions of *Very good* ratings and higher percentages in the *Good* and *Fair* categories, suggesting moderate acceptance among the respondents. Similar trends have been reported in apparel evaluation studies where designs with limited versatility receive moderate consumer ratings despite good craftsmanship (Bhardwaj, 2020).

Cost calculation for prepared tunics:

The selling price of the eight constructed tunics B, D, F, G, I, J, K and N was determined by combining the raw material cost, embroidery cost and stitching cost for each design, followed by the addition of a 30 per cent profit margin. Among all designs, Tunic D recorded the highest cost price of Rs. 2775 due to its higher embroidery cost, leading to a final quoted price of Rs. 3600. Tunic B, with a greater raw material and stitching requirements resulted in a quoted price of Rs. 3000. Designs F and G were comparatively more economical, with quoted prices of Rs. 2200 and Rs. 1900, respectively. Tunics I, J, K and N exhibited moderate cost structures, with their selling prices ranging between Rs. 2300 and Rs. 2700 (Table 3). These variations reflect differences in embroidery complexity, fabric consumption and labour effort, ultimately shaping the individual market value of each tunic.

Opinion regarding the suitability of price of developed tunics:

Table 4 presents the opinion of respondents regarding the suitability of the quoted price of the prepared tunics. A total of sixty respondents evaluated each tunic and expressed their views by categorizing the price as *High*, *Adequate*, or *Low*. The findings reveal that a majority of respondents perceived the prices of most tunics to be *Adequate*, particularly Tunic I (63.33%), Tunic N

Table 2 : General opinion of the respondents regarding the developed tunics (n = 60)

Tunic Code	Very good		Good		Fair	
	f	%	f	%	f	%
B	32	53.33	18	30.00	10	16.67
D	28	46.67	22	36.67	10	16.67
F	31	51.67	20	33.33	9	15.00
G	16	26.67	31	51.67	13	21.67
I	42	70.00	11	18.33	7	11.67
J	28	46.67	22	36.67	10	16.67
K	24	40.00	16	26.67	20	33.33
N	33	55.00	20	33.33	7	11.67

f = frequency

Table 3 : Selling price of tunics

Tunic Code	Raw material Cost				Calculated cost and Quoted Price		
	Fabric (Rs.) (Rs. 300/m)	Lining (Rs.) (Rs. 62/m)	Embroidery (Rs.)	Stitching (Rs.)	Cost Price (Rs.)	Profit Margin (30%) (Rs.)	Quoted Price (Rs.)
B	900	185	500	700	2285	685.5	3000
D	600	125	1500	550	2775	832.5	3600
F	600	125	400	550	1675	502.5	2200
G	600	125	200	550	1475	442.5	1900
I	600	125	500	550	1775	532.5	2300
J	600	125	600	550	1875	562.5	2400
K	600	125	800	550	2075	622.5	2700
N	600	125	700	515	1940	582	2500

Table 4 : Opinion regarding the suitability of price of developed tunics (n = 60)

Tunic code	Quoted price of tunics (Rs.)	High		Adequate		Low	
		f	%	f	%	f	%
B	3,000	22	36.67	26	43.33	12	20.00
D	3,600	19	31.67	25	41.67	16	26.67
F	2,200	16	26.67	32	53.33	12	20.00
G	1,900	12	20.00	32	53.33	16	26.67
I	2,300	13	21.67	38	63.33	9	15.00
J	2,400	17	28.33	31	51.67	12	20.00
K	2,700	21	35.00	32	53.33	7	11.67
N	2,500	15	25.00	33	55.00	12	20.00

f = frequency

(55.00%), Tunic F and Tunic G (53.33% each), indicating general acceptance of the quoted prices. A comparatively higher proportion of respondents rated the price of Tunic B (36.67%) and Tunic K (35.00%) as *High*, suggesting these designs were perceived as relatively costlier. Conversely, Tunic D and Tunic G recorded higher percentages in the *Low* category (26.67% each), reflecting lower price satisfaction among some respondents. Overall, the distribution of responses indicates that the prices of the prepared tunics were largely considered reasonable, with variations in perception reflecting differences in expectations of respondents and perceived value of individual designs.

Assessment of the profit margins of the prepared tunics:

The data presented in the Table 5 depict a comparative analysis of the cost price and average selling price of the developed tunic designs, along with their corresponding Z-values and percentage profit. The results indicate that the average selling price of all eight tunic designs was significantly higher than their respective cost prices, as evidenced by Z-values exceeding the critical value of 1.96 and marked significant at the 5 per cent level. Among the designs, tunic G and tunic I recorded comparatively higher Z-values, reflecting stronger consumer willingness to pay above the production cost, whereas tunic D showed a relatively lower yet still

Table 5 : Assessment of the profit margins of the prepared tunics (n = 60)

Tunic Code	Cost price (Rs.)	Quoted price (Rs.)	Average selling price (Rs.)	Z-value	Percentage profit
B	2285	3000.00	2854.07	6.79*	24.91%
D	2775	3600.00	2878.69	1.38*	3.73%
F	1675	2200.00	2347.54	11.54*	40.13%
G	1475	1900.00	2357.36	18.32*	59.82%
I	1775	2300.00	2467.21	17.11*	39.01%
J	1875	2400.00	2557.38	9.22*	36.39%
K	2075	2700.00	2644.23	8.11*	27.43%
N	1940	2500.00	2518.03	12.61*	29.80%

*Significant at 5 per cent

significant value. Overall, the statistically significant Z-values and positive profit percentages across all designs clearly demonstrate that the quoted prices of the developed tunics were economically viable and acceptable to consumers, thereby supporting the commercial potential of the designed tunics. When these tunics would be manufactured commercially their cost of production will be reduced. These findings align with earlier research emphasizing that culturally inspired handcrafted garments can achieve economic sustainability when appropriately designed and priced (Garcha, 2016).

Conclusion:

The findings of the study clearly indicate that the adaptation of traditional *Sashiko* embroidery into contemporary tunic designs is highly acceptable to consumers, both aesthetically and economically. Tunics such as D, F, and B consistently ranked higher across parameters of design, silhouette, and overall appearance, demonstrating that a balanced integration of structural fit and surface ornamentation plays a crucial role in consumer preference. The high proportion of respondents rating several tunics as "Very good," particularly Tunic I, further reflects strong appreciation for the uniqueness and visual appeal imparted by *Sashiko* embroidery. In terms of pricing, the majority of respondents considered the quoted prices to be adequate, suggesting that the perceived value of the garments justified their cost. Additionally, the positive and statistically significant profit margins across all designs confirm their commercial feasibility and market potential. Overall, the study establishes that *Sashiko*-inspired tunics successfully combine traditional craftsmanship with modern design sensibilities, resulting in products that are well-received by consumers and suitable for commercialization.

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