

Research on Liangshan Yi Embroidery Innovative Product Consumer Demand and Design Optimization

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ABSTRACT

On the premise of maintaining the authenticity of the local culture of Liangshan Yi embroidery, this study summarized the influencing factors of innovative design through expert interviews and group discussions, designed questionnaires for several dimensions that affect consumers' purchase intentions, and conducted consumer questionnaire surveys to understand consumers' preferences for each design element, grasp the real needs of market consumers for Liangshan Yi embroidery innovative products, and put forward targeted optimization suggestions to guide subsequent product design.

Keywords: Liangshan Yi Embroidery, Consumer Preferences, Data Analysis, Optimization Suggestions

INTRODUCTION

Liangshan Yi Autonomous Prefecture is the largest Yi nationality settlement in China, where Yi culture has been well inherited and developed. As an important form for Yi women to express their aesthetic, cultural and social status, clothing embroidery not only occupies an important position in daily life, but also plays an indispensable role in traditional festivals, religious ceremonies and other occasions. With the acceleration of the modernization process, traditional clothing embroidery has become a pillar industry in some areas, through the development and sales of clothing embroidery products, can promote the development of local economy in ethnic minority areas, increase employment opportunities. However, the embroidery art of traditional clothing in Liangshan is facing the risk of inheritance and cultural loss, and it is a necessary prerequisite for the innovative design of Yi embroidery to find out the real needs and preferences of consumers through expert discussions and market research. According to the research results, the targeted optimization design suggestions can make Yi embroidery products have higher market competitiveness, and can also avoid the loss of cultural heritage, so that the ancient skills can be replaced.

Research Objectives

This research aims to conduct an in-depth study on the main influencing factors in the innovative design of Liangshan Yi embroidery products, finds out the real needs of consumers in the Liangshan Yi embroidery market,

and proposes design optimization strategies to provide support for the innovation and inheritance of traditional art.

LITERATURE REVIEW

1. The Development Status of Liangshan Yi Embroidery

The costumes and embroidery of the Yi nationality in Liangshan are the cultural crystallization created by the local people in the development of social history. On October 31, 2023, the "List of Protection Units for Representative Projects of National Intangible Cultural Heritage" was announced, and the Liangshan Yi Autonomous Prefecture Intangible Cultural Heritage Protection Center, the protection unit of the Yi Embroidery (Liangshan Yi Embroidery) project, passed the evaluation. With the continuous development and progress, the ancient and charming Yi costume culture has been revitalized. "Intangible Cultural Heritage Poverty Alleviation Workshops" have been established in various places, and a number of outstanding inheritors and development leaders of clothing skills have emerged. More than 100 Yi costume and Yi embroidery training courses have been held throughout the state, benefiting tens of thousands of students, and the "China Yi Embroidery Clothing Exhibition Hall" covering an area of more than 2,000 square meters has been established. In recent years, with the deep care and unremitting efforts of governments and organizations at all levels, the Liangshan Yi clothing industry has achieved remarkable development results. The industrialization of Liangshan Yi embroidery is an important trend, which not only helps to spread and carry forward the Yi culture, but also brings economic benefits and enhances the nation's willingness to inherit its own culture. However, although the market for Yi handmade embroidery is large, it still needs scientific planning and resource integration to achieve its greater market value. The inheritance and development of Yi embroidery requires the coordination of the forces of all parties, the comprehensive construction of a comprehensive coordination mechanism, and the promotion of innovation and development, industrial planning, tourism development, education and training, cultural activities and cultural publicity to help the inheritance and development of Yi embroidery. (Wang, 2023)

2. The Dilemma Faced by the Development of Liangshan Yi Embroidery

Under the impact of globalization, informatization and economic market, the scope of inheritance of Yi costumes has gradually narrowed, and the degree of protection and inheritance varies according to regional differences. At present, the challenges facing the inheritance and development of the Yi embroidery industry are as follows: (1) The style, material, quality and price of Yi embroidery products are not uniform, resulting in a low market share. There are not many local brands, the brand scale is not large, the brand awareness is low, the brand awareness of the designer is weak, and when the Liangshan Yi clothing industry is directly facing the public market, its consumption is mainly limited to the ethnic group, and the industrial scale is small and the market influence is limited. Although in recent years, the focus has been on local cultural characteristics and the tourism industry has been vigorously developed, but the publicity hotspots are usually concentrated on special agricultural products and natural scenery resources. Although there are people in relevant industries who are working hard to promote the promotion of intangible cultural heritage skills, the overall breadth and depth of external publicity are not high. (2) The style and pattern selection of Liangshan clothing Yi embroidery products are relatively limited, although the appearance is distinctive, but the weak production organizations such as family workshops occupy the leading role in the market, resulting in random materials and rough production, which is difficult to meet the aesthetic needs of consumers. Most of the Yi people are good at making simple clothing, and some even only master one or two links or one or two techniques of embroidery, and cannot independently design and produce the entire Yi embroidery products. More importantly, Yi embroidery talent fabric fault, due to the development of the economy more and more young people go out to work and study, in the past, Yi girls will be Yi embroidery living environment was broken, the age of senior embroiderers are high, young embroiderers are less and less, forming a serious technical fault. (Li, 2022)

As far as the current development status is concerned, the research on clothing embroidery in Liangshan area is relatively small, the start is late, and the development is relatively backward; Relatively speaking, the experience of the industrialization development of Yi embroidery in Chuxiong area is relatively rich, and there are many places worth learning. Liangshan pays more attention to the living inheritance of original ecological skills, while Chuxiong is better at deconstructing and reorganizing traditional elements to adapt to modern aesthetics. In the long run, compared with the excessive commercialization of Chuxiong, Liangshan needs to break through the constraints of transportation and resources, enhance the added value of the brand, and avoid low-price competition. (Qiao, 2022)

3. Research on the Innovative Design of Yi Embroidery

In the innovative design of traditional culture and skills, designers focus on pattern, color, material, function, and product category innovation. Yi costume patterns can be refined and modernized while preserving cultural essence, making them more fashionable. Combining machine and hand embroidery enhances clothing quality. Pattern innovation follows two paths: structural transformation using modern design language and cultural reinterpretation based on national legends. (Wang, 2022)

Liangshan Yi embroidery colors, inspired by nature, can be adjusted to align with modern aesthetics by reducing contrast or integrating fashion color schemes. (Meng, 2020) New materials and technologies, such as eco-friendly fabrics, digital positioning printing, and thermal transfer, improve embroidery texture, color richness, and design efficiency. (Qiao, 2022)

Expanding pattern application to daily necessities like bags and home textiles enhances the ethnic lifestyle and commercial value. Traditional Yi patterns have been successfully integrated into products such as handbags, street lamps, and cultural IPs, boosting their practicality and market appeal. (Wang, 2023)

Perceived value, defined as the trade-off between perceived gain and loss, influences customer satisfaction and loyalty. Since intangible cultural heritage relies on tangible products for market circulation, perceived value helps evaluate and quantify customer perceptions of handcrafted cultural products. (Yuan & Yuan, 2021)

RESEARCH METHODOLOGY

This study takes a mixed approach to the study. Qualitative research uses expert group discussions, and quantitative research uses questionnaires.

1. Data Collection: In order to construct a scientific and reasonable evaluation system for the innovative design of Liangshan Yi embroidery, the research team invited 8 relevant experts (2 inheritors of Yi embroidery, 2 brand managers, and 4 design experts) to form an expert group. Through interviews and discussions, combined with the theory of perceived value, the influencing factors of consumers' purchase intention were summarized into four dimensions: appearance value, cultural value, functional value and economic value, and the questionnaire was formulated accordingly. The questionnaire adopts a combination of online + offline methods, and is surveyed in Liangshan tourist attractions, cultural and creative markets, shopping malls and other places, and the target groups include local residents, tourists and ethnic culture lovers. The questionnaire is divided into three parts: Basic information (6 items): age, gender, education, occupation, income, place of residence; Purchase behavior (13 questions): travel experience, purchase habits, experience and expectations; Perceived value (12 questions): Focusing on the four modules of function, culture, form, and economic value, respondents scored the importance of 12 indicators. This study will provide data support for the innovative design of Liangshan Yi embroidery and help the construction of a scientific evaluation system.

2. Data Analysis: Focusing on the consumer purchase behavior habits and the perceived value and dimensions of Liangshan Yi embroidery products in the questionnaire, quantitative research tools are used to analyze the consumer preference and the importance of each design index, and on this basis, targeted design strategies are proposed.

RESEARCH RESULTS

In the questionnaire survey, a total of 410 questionnaires were distributed and 399 valid questionnaires were recovered. The 399 questionnaires were analyzed by SPSS software, and the Cronbach coefficient of the questionnaires was 0.744, indicating that the results of the questionnaires were basically authentic and reliable. The KMO value of the validity analysis was 0.78, which indicated that the validity of the questionnaire was well structured, and the questions were reasonably designed to truly reflect the relationship between the variables. The main results of this study are as follows:

Part 1: Demographic Characteristics

A total of 399 valid questionnaires were collected in this survey, covering consumers of different ages, genders, incomes, occupations and places of residence.

Table 1 Basic information of survey respondents

Variable	Category	Number	Proportion (%)
Gender	Male	206	51.63%
	Female	193	48.37%
Age	Under 18 years of age	31	7.77%

	18-25 years old	69	17.29%
	26-35 years old	157	39.35%
	36-45 years old	96	24.06%
	46 years of age and older	46	11.53%
Occupation	Student	100	25.06%
	Corporate Employees	197	49.37%
	Self-employed	78	19.55%
	Civil servants/personnel of public institutions	24	6.02%
Average monthly income	Less than 5,000 yuan	225	56.39%
	5000-10000 yuan	121	30.33%
	10,000-15,000 yuan	37	9.27%
	More than 15,000 yuan	16	4.01%
Place of residence	Liangshan Prefecture	78	19.55%
	Other cities in Sichuan Province	156	39.1%
	Cities outside Sichuan Province	165	41.35%
Degree	High school and below	69	17.29%
	college	110	27.57%
	undergraduate	150	37.59%
	Master's degree or above	70	17.54%

Source: Author

7.77% of the respondents were under 18 years old, 17.29% were 18-25 years old, 39.35% were 26-35 years old, 24.06% were 36-45 years old, and 11.53% were 46 years old and above. The data shows that the proportion of consumers aged 26-45 has reached more than sixty percent, indicating that young and middle-aged people have a high degree of attention to Yi embroidery products, and future product design should focus on meeting the aesthetic and practical needs of this group. The results of the cross-analysis showed that this group preferred natural material craftsmanship, traditional color matching styles, and improved patterns.

The distribution of the education level of the respondents was 17.29% high school or below, 27.57% junior college, 37.59% bachelor's degree, and 17.54% master's degree or above. More than 80% of the respondents have a college degree or above, which shows that consumers with middle and high education are more inclined to pay attention to products with strong cultural attributes, and can strengthen cultural stories in product promotion in the future, such as the historical inheritance and cultural meaning of Yi embroidery.

The respondents had a wide range of occupations, of which 49.37% were white-collar workers/professionals, 25.06% were students, and 25.57% were others. The group with an income of less than 10,000 yuan accounted for the highest proportion, reaching 86.72%, indicating that the target consumers of Yi embroidery innovative products are mostly concentrated in the middle-income group, and the future pricing strategy needs to focus on the mass market, such as light luxury home accessories, tourist souvenirs, etc. The high-end market can also be appropriately taken into account, such as customized handicrafts. Among the respondents, residents in Liangshan area accounted for 19.55%, 39.1% in Sichuan Province, and 41.35% outside Sichuan Province, which indicates that the purchase intention is higher in Sichuan Province, and the market outside the province still has a lot of room for growth due to the lack of understanding of Yi culture.

Although the proportion of male and female respondents was roughly the same, 51.6% and 48.3% respectively, it was found through cross-analysis that the two paid different attention to Yi embroidery products, with men paying more attention to the practical value of Yi embroidery products, while women were most concerned about whether the products had local cultural characteristics.

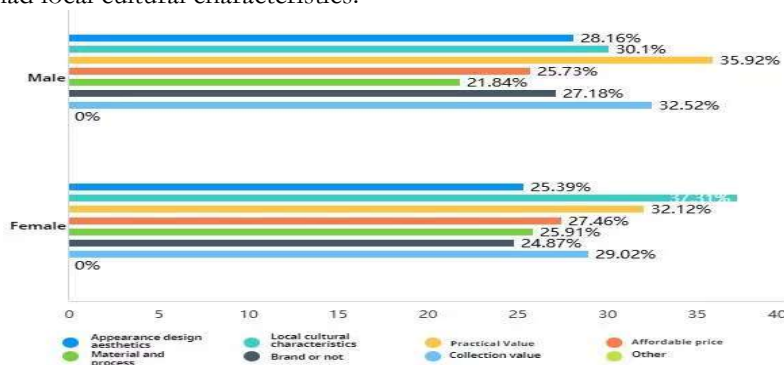


Figure 1 Distribution of the attention factors of different genders to the innovative products of Liangshan Yi embroidery

Source: Author

Through the above data, it can be seen that the main target group of Liangshan Yi embroidery is 26-45 years old, middle-income, and it is recommended to develop products for the different concerns of male and female consumers to occupy the market share as much as possible, such as developing products with both practical and cultural characteristics, such as fashion accessories, home soft decoration, etc. For highly educated consumers, it is recommended to strengthen the dissemination of the cultural value of the product, such as attaching product culture instructions or launching a limited cultural series. It is suggested to focus on developing the tourism market in nearby cities and prefectures, and gradually promote it to other provinces

Part 2: Consumer Experience, Consumer Needs and Preferences

Statistics on consumer purchase experience show that 97.74% have purchased handicrafts /ethnic cultural products in tourism, of which 27.32% said that they often buy souvenirs, 45.86% say they buy occasionally, but only 26.82% rarely buy or never buy. 60.9% of the respondents have been to Liangshan, of which 77.95% choose people who are willing to learn about Yi embroidery culture (including very willing and somewhat willing), and the cross-analysis finds that consumers are interested in Yi embroidery products, while those who have been to Liangshan are more interested in local culture. Consumers with cultural tourism experience had higher purchase intention of Yi embroidery products ($P < 0.05$), indicating that the cultural tourism market was the key channel for promoting Yi embroidery products.

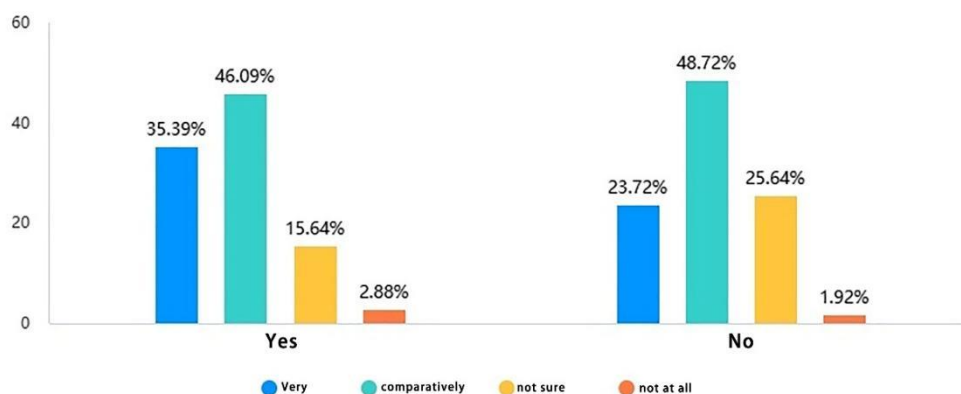


Figure 2 The impact of the experience of whether they have been to Liangshan on consumers' purchase intention is different

Source: Author

Consumers' purchase motivation, purchase expectation and purchase preference are multiple-choice questions. Multiple-choice analysis requires the SPSS to define each multiple-choice question as a set of multiple response variables, which involves packaging all the option variables collected for each multiple-choice question into a single variable and then analyzing these variable sets. The number of response cases refers to the number of times an option is selected, and the response percentage refers to the ratio of the number of times an option is selected to total number of times a multiple-choice question is selected, and the sum of the response percentages is equal to 100%. Percentage of multiple-choice questions = number of times option has been selected ÷ the number of valid answers; The percentage of cases is the proportion of the number of people who selected this option out of total number of people who filled in case. Therefore, for multiple-choice cases, the percentage may add up to more than 100%.

Through frequency analysis, the researchers counted the motivation of the respondents when purchasing Yi embroidery products, and obtained the statistical results, as shown in the table below. Among them, tourism commemoration ranks first with a significant advantage, with a percentage of cases reaching 40%, and gifts to relatives and friends rank second, while the cultural connotation option ranks last with a response percentage of 8.97%, the data shows that people's motivation to buy Yi embroidery products is mainly to commemorate the collection and send relatives and friends, but the current product cultural connotation is low, and does not have a satisfactory cultural value.

Table 2 Statistical frequency analysis of purchase motivation of Liangshan Yi embroidery innovative products

Options	Number of cases responded	Percentage of responses	Percentage of cases
Gifts for friends and family	142	17.44	35.59
Interested in creativity	116	14.12	28.82
Tourist commemoration	162	19.90	40.6
Collection	130	15.97	32.58

Use in life	111	13.63	27.82
Love the look of the product	81	9.95	20.3
Cultural connotation	73	8.97	18.3

Source: Author

The same method can find the reasons why people refuse to buy Yi embroidery products, among which the top three are poor quality, high price and no sense of design. The proportion of low Chinese taste and lack of cultural connotation reached 25.86%, which corresponds to the lowest proportion of options with low Chinese connotation for purchase motivation in the previous question.

Table 3 Statistics on frequency of problems existing in market of Liangshan Yi embroidery products

Options	Number of cases responded	Percentage of responses	Percentage of cases
The price is on the high side	126	31.58%	15.51
Poor quality	150	37.59%	18.47
There is no sense of design	135	33.83%	16.62
Too commercial	90	22.56%	11.08
Single category	101	25.31%	12.44
Cultural taste is not high	121	30.33%	14.90
Lack of cultural connotation	89	22.31%	10.96

Source: Author

According to the survey of people's preference for buying Yi embroidery products, it was cross-analyzed with age, and the results shown in the table below were obtained. The columns in the table represent the age level of the consumer, the rows represent people's propensity to buy the type of creative product of Liangshan Yi embroidery, and the table contains the count statistics for each cross-item. The data in the table shows that regardless of the age group, the consumer's preference performance is highly consistent, focusing on practical products and home decoration, such products are characterized by both functionality and aesthetics, indicating the pragmatic consumption mentality of modern consumers. The reason for the lack of choice of clothing accessories is estimated to be related to the distinctive characteristics of the national style and the difficulty of overall matching, which proves the pragmatic consumption concept of consumers from another perspective.

Table 4 Preference of different age groups for Yi embroidery product categories

Age	Clothing accessories (scarves, handbags, shoes, headwear, etc.)	Home decoration (pillows, wall hangings, ornaments, placemats, tablecloths, etc.)	Souvenirs (keychains, pendants, postcards, magnets, etc.)	Practical products (storage bags, stationery, mobile phone cases, mouse pads, notebooks, etc.)
Under 18 years of age	17(54.84%)	20(64.52%)	6(19.35%)	20(64.52%)
18 - 25	25(36.23%)	44(63.77%)	27(39.13%)	42(60.87%)
26 - 35	56(35.67%)	101(64.33%)	54(34.39%)	101(64.33%)
36 - 45	33(34.38%)	62(64.58%)	26(27.08%)	55(57.29%)
46 years of age or older	13(28.26%)	36(78.26%)	16(34.78%)	26(56.52%)

Source: Author

In the survey of preferences for patterns, colors, materials and processes, most people (more than 50%) tend to introduce modern improvements on the basis of the original Yi cultural characteristics, so that the products have both traditional and modern aesthetic value. In terms of the pricing of Yi embroidery tourism products, 33.08% of the respondents think that the pricing below 50 yuan is reasonable, 53.38% of the respondents think that the pricing of 50-200 yuan is reasonable, and only 13.53% of the people can accept the pricing of more than 200 yuan, and only 5% of them can accept the price of more than 500 yuan. Cross-analysis of pricing survey data with factors such as revenue, product category preference, and purchase channel did not reveal significant changes and differences. This shows that in the pricing of Yi embroidery creative products, it should be positioned in the mass market of medium consumption in order to win the largest share of the consumer market.

Part 3: Importance Evaluation of Different Dimensional Factors

The cross-analysis of different categories of Yi embroidery creative products and the design elements that people value shows that although the factors valued by consumers are relatively balanced, the gap is not very

obvious. However, practical value ranked first in four different categories, accounting for 37.5%, 33.08%, 32.56% and 34.43% respectively, followed by design aesthetics and cultural characteristics. Although there are different rankings in different categories, they can all be ranked in the top three, which shows that the factors that people value when buying Yi embroidery creative products are relatively stable, focusing on three factors of practicality, aesthetics and culture.

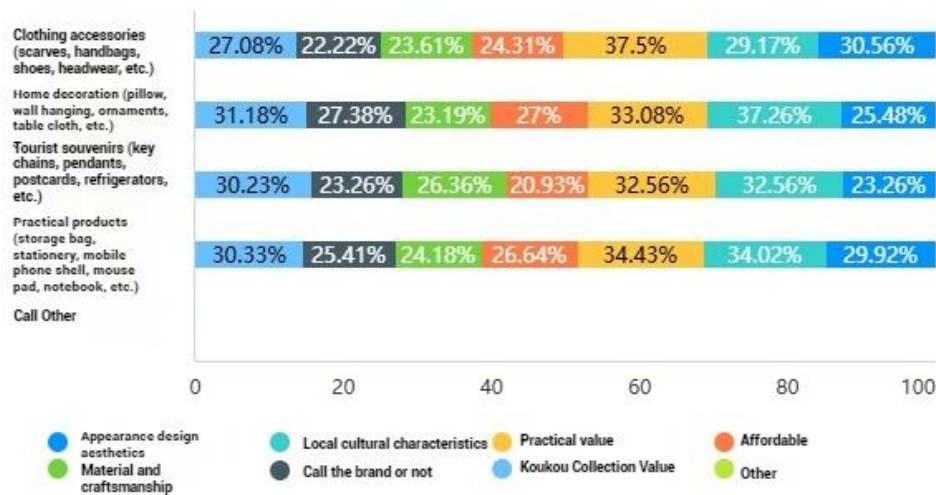


Figure 3 Factors that people pay attention to when buying different Yi embroidery products

Source: Author

In order to explore more deeply importance of different design elements, targeted optimization is carried out in the subsequent design. Questionnaire questions were set up to ask respondents to rate the importance of subdivided design indicators in four dimensions: appearance, function, culture, and economy. Through expert interviews and group discussions, the researchers screened out 12 design indicators, and the scale was based on a 5-point scale, with 5 points being very important, 4 points being more important, 3 points being a little important, 2 points being less important, and 1 point being not important at all. Specific indicators and average scores are shown in the figure.

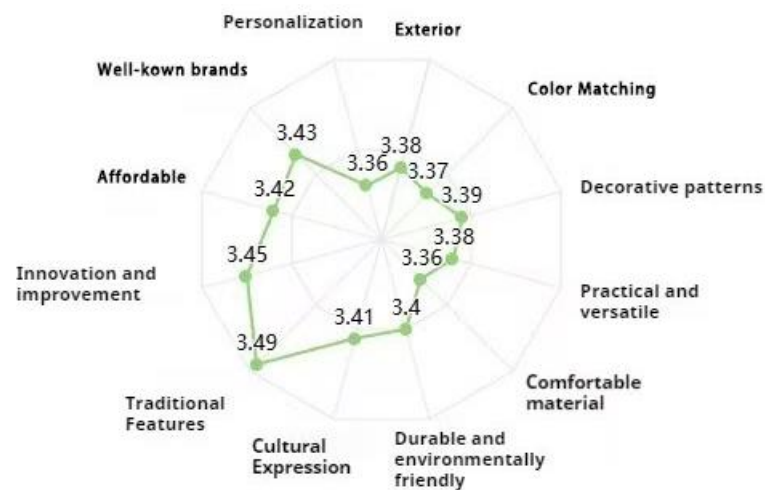


Figure 4 The average score of 12 design indicators

Source: Author

This study uses radar charts to show the importance scores of consumers on 12 key factors of Liangshan Yi embroidery innovative design, so as to analyze the design factors that consumers pay the most attention to in product selection and purchase decisions. From the data point of view, there are certain differences in the importance of each factor, indicating that consumers pay different attention to different dimensions, and the specific analysis is as follows:

Design factors that consumers are most concerned about (≥ 3.45)

Traditional characteristics (3.49) and cultural expression (3.4) scored the highest, indicating that consumers believe that Yi embroidery products should highlight the characteristics of national culture, maintain the

uniqueness of traditional crafts, and have distinct cultural inheritance value. Innovation and Improvement (3.45) The high importance score indicates that the market not only accepts traditional elements, but also expects Yi embroidery products to innovate to better meet modern aesthetic and practical needs.

Factors of interest (3.36-3.42)

Well-known brands (3.43) and affordable brands (3.42) indicate that consumers not only pay attention to the cultural value of products, but also pay attention to brand influence and cost performance. Color matching (3.37), decorative patterns (3.39), and practical versatility (3.38) scores are at the medium level, reflecting consumers' attention to visual aesthetics and product applicability.

Factors of relatively low importance (≤ 3.36)

The relatively low scores for Personalization (3.33) and Exterior Styling (3.38) indicate that consumers' demand for customization of Yi embroidery products has not yet been widely accepted, and they may be more inclined to buy ready-made products.

Durable and environmentally friendly (3.4) and comfortable material (3.36) The average score means that while consumers value product quality and environmental attributes, these factors are relatively low priority when choosing Yi embroidery products.

CONCLUSIONS AND DISCUSSION

Judging from the data results of the consumer questionnaire survey, the core strategy of Liangshan Yi embroidery innovation design should highlight the traditional cultural characteristics, combine innovation and improvement, enhance brand value, and optimize visual design and practicality to meet the needs of modern market. Personalization and eco-sustainable design have not become the primary focus of consumers, but they can still be cultivated as a future development direction. Specific design optimization suggestions are as follows:

1. Strengthen the characteristics of traditional culture and enhance the expression of cultural values

Combined with consumers' high attention to "traditional characteristics" and "cultural expression", the unique national symbols, traditional color matching and classic patterns of Yi embroidery are strengthened in the design to ensure that the products have a distinctive national cultural recognition in the market. Strengthen cultural storytelling in packaging, communication and brand storytelling, such as launching a collection with traditional meanings in line with modern design trends, such as the "Auspicious Pattern Home Series".

2. Enhance innovation and improvement, taking into account traditional and modern needs

Combined with the characteristics of "innovation and improvement" with a high score, explore the modern application of Yi embroidery technology, such as combining digital embroidery, new materials, etc., so that the product not only maintains the characteristics of traditional craftsmanship, but also conforms to the use habits of modern consumers. For young consumer groups, we have launched innovative designs that are more in line with contemporary aesthetics, such as optimizing the color scheme, combining the fashion trend of modern home furnishings, launching different styles of color themes, optimizing the product form, and enhancing the visual appeal of the product, so as to enhance the market appeal.

3. Improve the practicability of the product to meet the needs of multiple scenarios

Combining the characteristics of "practical versatility" and "comfortable material", we optimize the application scenario design of the product, such as launching products that can be converted into uses, such as innovative designs that can be used as table runners, hanging decorations, and scarves. Use materials that are more in line with the needs of modern life, such as stain-resistant and abrasion-resistant fabrics, to enhance product durability and improve consumer satisfaction.

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