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Reconstructing the Identity of Chinese Shu Embroidery in Contemporary Product Design: A Psycholinguistic Approach to Cultural Semiotics and Consumer Perception

Yang Han, Ruttiporn Leepanuwong, Thirawut Bunyasakseri *

Faculty of Architecture, Arts and Design, Naresuan University, Phitsanulok 65000, Thailand

ABSTRACT

This study explores the evolving identity of Chinese Shu embroidery in contemporary product design through the **Sapir–Whorf Hypothesis**, also known as **linguistic relativity**. Shu embroidery, a traditional Chinese art form renowned for its rich symbolic meanings and cultural expressions, is increasingly incorporated into modern consumer products. However, these adaptations often lead to shifts in the interpretation and perceived identity of Shu embroidery, particularly among international audiences. By applying the **linguistic relativity framework**, this research investigates how different consumer groups interpret the cultural meanings embedded in Shu embroidery, expressed through symbolic motifs, patterns, and design narratives. The study combines **qualitative visual analysis**, **semi-structured interviews**, and **consumer perception surveys** to examine how language, cultural framing, and symbolism influence consumer understanding and emotional connection to these designs. The findings reveal that consumers from varying linguistic and cultural backgrounds perceive the same symbolic cues differently. Native Chinese speakers often decode motifs through culturally inherited semantic structures, while global consumers interpret them through more generalized or aesthetic lenses. This divergence highlights the need for a more culturally sensitive design strategy to accurately reconstruct Shu embroidery's identity for a global market. This study proposes a **semiotic-informed**, **culturally adaptive framework** for heritage product design that respects linguistic diversity, preserves cultural integrity, and enhances cross-cultural communication, offering valuable

*CORRESPONDING AUTHOR:

Thirawut Bunyasakseri, Faculty of Architecture, Arts and Design,Naresuan University, Phitsanulok 65000, Thailand; Email: tbunyasakseri@yahoo.com

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insights for designers and heritage product developers.

Keywords: Shu Embroidery; Linguistic Relativity; Sapir–Whorf Hypothesis; Cultural Semiotics; Product Design; Consumer Perception; Heritage Identity

1. Introduction

1.1. Background of the Study

Traditional expressions are increasingly interwoven with modern consumer product aesthetics. In the contemporary global design landscape, cultural crafts, once confined to localized heritage contexts, now appear across fashion, interior design, digital branding, and commercial packaging [1]. Among the traditional embroidery practices, Shu embroidery (蜀绣) is special because it is fine, old and popular in Sichuan Province, known for having intricate patterns, rich meaning and cultural value. Starting over 3000 years ago, Shu embroidery acts as a means of storytelling through symbols, values and markers of social identity [2].

Recently, China has seen the revival of intangible cultural heritage both grow in laws and gain importance in the business world. After embroidery was given National Intangible Cultural Heritage status by the government in 2006, initiatives to use heritage practices in development were further supported. Also, urban middle-class and Gen Z consumers are increasingly interested in seeing classic crafts means combined with fresh, modern shapes. Both embroidered garments and luxurious packaging now feature Shu embroidery more often [3]. Integration, though, does bring challenges. As embroidery from Shu finds its way into modern products, the real significance and appearance of its designs can be distorted or blended in with other details [4].

Because of this change, key issues relating to identity, cultural sharing and the transformation of meanings have become visible. Language, thought and perception form a central triad at the heart of psycholinguistic topics [5]. Exploring the ways consumers react to culturally charged symbols put into product design gives us insights into how the mind connects old and new aspects of identity.

1.2. Statement of the Problem

Once Shu embroidery moves into modern product design, the way it communicates changes. In the past, dragons, lotus flowers and cranes all meant certain things in Chinese culture, but those meanings have been changed or dropped in the context of globalization. The basic meaning of a scripture, as described by its histories and language, may not correspond exactly in every culture or language. The dragon is often understood by Western audiences as a storybook shape similar to gods, not as it was meant to be portrayed in China. Because of this gap, real Shu embroidery may be difficult to uphold in global markets.

At the same moment, in China, some young people are attracted to Shu embroidery mainly because they like its looks, unaware of its special significance. New ways of speaking from modernity and modifications in cultural practices are now threatening the spirit and character of Shu embroidery. How spoken and visual language mediates the perception of these embroidered signs remains unresolved and affects consumer understanding, emotional resonance, and cultural identification.

1.3. Research Objectives

This study aims to investigate the reconstruction of the cultural identity of Shu embroidery within contemporary product design through the psycholinguistic lens of the Sapir–Whorf Hypothesis. The specific objectives are:

1. To analyses how the symbolic elements of Shu embroidery are linguistically encoded and culturally situated.
2. To examine how different linguistic and cultural audiences perceive and interpret these elements in modern product design.
3. To explore the role of language in shaping cognitive and emotional responses to traditional symbols in new design contexts.
4. To propose strategies for preserving cultural identity through culturally sensitive and linguistically aware design practices.

1.4. Research Questions

Based on the above objectives, the following questions guide this inquiry:

§ How do symbolic motifs in Shu embroidery function as linguistic signifiers within Chinese cultural and linguistic frameworks?

§ In what ways do consumers from different linguistic backgrounds interpret these symbols in product design?

§ How does the Sapir–Whorf Hypothesis explain the perceptual and interpretive differences observed?

§ What implications do these differences have for cultural preservation and identity reconstruction in heritage-based design?

1.5. Significance of the Study

The significance of this research lies in its interdisciplinary exploration of cultural heritage, design innovation, and language perception. As global markets demand cultural authenticity while simultaneously reshaping it, there is an urgent need to evaluate how traditional identities are critically reconstructed in design narratives. While celebrated as a treasured symbol of Chinese cultural artistry, Shu embroidery is increasingly commodities within design industries that often priorities form over meaning. This commodification, if unchecked, may result in superficial branding that erases cultural nuance.

By introducing the psycholinguistic dimension—specifically, linguistic relativity—this study provides a framework for understanding why and how consumers interpret cultural products differently based on their linguistic and cultural backgrounds. This promotes more effective cross-cultural communication and contributes to the broader field of design anthropology and cognitive semiotics, where material culture is analyzed as an artefact and a site of meaning negotiation.

Moreover, the findings have practical implications for designers, cultural institutions, and heritage product developers. This Research proposes tools and principles for culturally sensitive and semantically conscious design practices. These insights could influence embroidery-based products and global design ventures rooted in local cultural heritage in a marketplace where cultural misappropriation and miscommunication are increasingly scrutinized.

1.6. Theoretical Framework: Sapir–Whorf Hypothesis in Context

The guiding theoretical lens for this study is the Sapir—Whorf Hypothesis, also known as linguistic relativity. Formulated in the early 20th century by Edward Sapir and his student Benjamin Lee Whorf, the hypothesis posits that language shapes thought and, by extension, the perception of reality[6]. In other words, the linguistic categories available to a speaker influence how they understand and interpret the world.

This theory presents two versions:

§ Strong version (linguistic determinism): Language *determines* thought.

§ Weak version (linguistic relativity): Language *influences* thought.

This study aligns with the weaker, widely accepted version, proposing that linguistic and cultural differences shape how individuals cognitively engage with symbolic material, such as visual motifs in Shu embroidery.

Applied to this research, linguistic relativity becomes a tool for understanding how Chinese-speaking consumers, shaped by a cultural-linguistic environment where Shu embroidery is deeply rooted, interpret its symbols differently from non-Chinese speakers, who may lack access to those culturally embedded signifiers. For example, a lotus flower may invoke ideas of purity and Buddhist philosophy in Chinese cognition, while appearing merely as an exotic floral pattern to others[7].

The hypothesis also frames how designers communicate meaning: the choice of motifs, textual descriptions, and design narratives must be adapted or contextualized across linguistic boundaries. Thus, the Sapir–Whorf Hypothesis explains why interpretive gaps occur and envisions how linguistically mindful design can bridge them.

1.7. Scope and Limitations

This research focuses on the semantic and perceptual transformation of Shu embroidery as it is applied in contemporary product design, particularly fashion, lifestyle goods, and visual merchandising. While the findings may inform broader discussions around intangible cultural heritage, the study does not attempt to catalogue or historicize every motif or technique within Shu embroidery. Instead, it selects representative symbols and product examples to analyses their communicative efficacy across linguistic groups.

Both Chinese consumers, especially from Sichuan and the cities of Chengdu and Shanghai and overseas consumers

from the United States and Europe are included in the geographical coverage. Perception studies organize participants according to their language, age and the extent of their cultural experiences.

Limitations:

§ Participants in surveys and interviews may not include all kinds of consumer attitudes or ways of thinking.

§ Generalizing through language: Although Sapir–Whorf gives us useful perspective, some perceptual differences are also influenced by education, media and how much someone is exposed to.

Because there is so much variety in Shu embroidery, some findings may only work for some designs.

Even so, these limits are by design, so that the study can closely investigate the effects of linguistic relativity on heritage symbol perception.

2. Literature Review

2.1. Shu Embroidery: Symbolism, History and Cultural Semiotics

"Chuan Xiu" (also known as Shu embroidery) is known as one of the four major types of Chinese embroidery and displays the special characteristics of the region[8]. From the ancient days of the Shu kingdom more than 3000 years ago, this form of embroidery first emerged in the Western Sichuan Plain and has centered around Chengdu ever since[9]. Silk threads, colorful design, smooth pattern and naturalistic motifs such as dragons, phoenixes, cranes and lotus flowers are unique qualities that silk is known for[10].

This type of embroidery tends to include a lot meanings in its images. A dragon usually included in imperial dress represents divine authority and the heavens in Chinese culture, especially when it appears together with the phoenix symbolizing order and harmony[11]. At the same time, the lotus flower represents the purity, detachment from worldly things and rebirth important to Confucian and Buddhist cultures. All these symbols have strict meaning within the culture's larger system of communication. Visual syntax and the stories that are handed down over time contain the meaning[12].

Modern scholars argue that Shu embroidery functions as a textile-based semiotic language, where each motif acts as a signifier connected to deep cultural signified. Embroidery in imperial and ceremonial contexts was not merely decorative—it was a coded language of social status, ethics, and metaphysics, intelligible to those within the cultural-linguistic community[11]. Barthes' theory of semiotics, where objects become "mythological" in their cultural significance, is particularly apt here[12].

Yet, in recent decades, Shu embroidery's adaptation into modern consumer products has raised concerns over semiotic drift—the process through which cultural signs lose their original meanings when transferred to unfamiliar contexts. As traditional motifs are reinterpreted through minimalist or Westernized aesthetics, their original symbolism is often lost or transformed[13]. This phenomenon motivates the present study: to examine how symbolic compression affects perception and cultural meaning-making across linguistic audiences.

2.2. Linguistic Relativity and Cultural Interpretation

The Sapir–Whorf Hypothesis, or linguistic relativity, offers a theoretical foundation for understanding how language shapes perception and cognition. Edward Sapir and Benjamin Lee Whorf proposed that the structure of a language influences its speakers' worldview, particularly in how they classify and interpret experience[14]. Although the strong form of this hypothesis—linguistic determinism—has primarily been set aside, the weaker form, which suggests that language biases our cognitive and perceptual tendencies, remains influential in cognitive science, anthropology, and psycholinguistics[15].

In the context of Shu embroidery, linguistic relativity helps explain why the same symbolic motif may be understood differently across cultural groups. For example, the character for "dragon" (龙) carries centuries of positive imperial connotations in Chinese, but may evoke foreign or even hostile imagery for speakers of Indo-European languages where dragons are often depicted as destructive beasts[16]. Whorf's classic studies of Hopi and English time metaphors demonstrated how grammar and lexicon structure habitual thought[17]. This idea has been extended by cognitive linguists such as Boroditsky, who found that spatial metaphors for time (e.g., front-back or up-down metaphors) vary by language, affecting how people reason about abstract domains[18].

Visual communication is also subject to linguistic me-

diation. When consumers see a lotus in a Shu embroidery design, whether they interpret it as a sacred Buddhist symbol or a floral motif depends on their cultural-linguistic schema. T, which is instructed through language and cultural education. This connects directly to Lucy's claim that grammatical categories and semantic fields shape cognitive bias in symbol recognition [19].

Thus, linguistic relativity operates not only at the level of words but extends into culturally encoded visual signs. In Shu embroidery, where symbols and colors are highly codified, a viewer's interpretation hinges on how their linguistic background structures their cultural decoding framework. This makes the Sapir–Whorf Hypothesis relevant and essential for understanding why design meanings diverge across linguistic boundaries.

2.3. Cultural Semiotics in Design Communication

While linguistic relativity addresses cognition and language, cultural semiotics provides a systematized approach to studying how symbols function in design. Semiotics, theorized initially by Saussure and Peirce, breaks communication into the signifier (form) and the signified (concept). In cultural products, these signs carry mythic meanings, a concept extended by Barthes, who explained how cultural signs accumulate ideological significance [20].

Design semiotics thus becomes essential in analysing heritage products like Shu embroidery. Krippendorff argues that the meaning of artefacts is never inherent, but always assigned by users, depending on their cultural and linguistic contexts [21]. A phoenix may signify rebirth and harmony in Chinese art, but an international consumer may not associate it with anything more than an exotic bird without a semiotic orientation. This semantic gap, or "semiotic interference," becomes a critical challenge in global heritage branding [22].

Margolin has proposed that designers must operate as semiotic strategists, encoding messages that can be meaningfully decoded across multiple cultural frameworks [23]. In practice, this requires a double fluency in traditional symbolism and cross-cultural visual literacy. Shu embroidery artisans, for example, may know the historical meanings of their patterns but fail to adapt or annotate them for a multilingual, multicultural audience, risking miscommunication or superficial appreciation. As a result, there is more support for a semiotic-linguistic interface which correlates the effects of language differences across cultures to visual symbol systems. In doing this, we learn how signs expressed symbolically may get misinterpreted, lose their significance or be interpreted differently as texts are translated.

2.4. Consumer Perception and Psycholinguistic Framing

Understanding consumer behavior toward cultural products involves insights from psycholinguistics, especially in how language primes perception, emotion, and recall. Research in this field shows that linguistic cues activate schema-based interpretations, influencing how individuals emotionally and cognitively respond to visual stimuli [24]. When consumers encounter a product that includes cultural symbols, their interpretation is influenced not by visual familiarity but by how those symbols are named, described, or framed.

For example, aesthetic preference is partly guided by fluency, meaning that the ease with which a symbol is cognitively processed contributes to its appeal [25]. Thanks to linguistic familiarity, if consumers understand the meaning of a crane motif in Shu embroidery, they are more likely to appreciate its significance and develop an emotional connection. Conversely, unfamiliar or untranslatable signs can lead to cognitive dissonance or cultural disengagement.

Moreover, labelling and storytelling play a role in shaping consumer perceptions. Text descriptions in product packaging, online marketing, or exhibition signage often mediate the consumer's experience of cultural products. If the language used reinforces the cultural context (e.g., "This pattern represents marital harmony in Sichuan traditions"), it provides a psycholinguistic scaffold for the consumer to interpret the design with more cultural depth.

This connects with the theory of anchoring, where initial frames of reference (linguistic or visual) strongly influence subsequent judgments. Shu embroidery, which is introduced using culturally resonant stories and symbolic explanations, is more likely to be perceived as meaningful and authentic than decontextualized designs [26].

2.5. Globalization, Identity, and Heritage Commodification

The commodification of cultural heritage in the global

marketplace has raised new ethical and interpretive challenges. Scholars such as Appadurai and Kopytoff argue that traditional objects acquire new "social lives" as they move between local, national, and global circuits [27]. In this journey, meanings attached to objects like Shu embroidery are often reconstructed or fragmented, depending on the market, audience, and design context.

Global branding tends to flatten complexity in favor of accessibility. Motifs are stylized, narratives are simplified, and traditional meanings are often lost in translation [28]. This leads to what some scholars call "cultural reductionism"—the stripping away of semiotic richness for aesthetic or economic gain. The danger here is a loss of symbolic authenticity, which not only weakens cultural identity but also risks alienating domestic audiences who see their heritage misrepresented.

Yet, globalization also presents opportunities. When done mindfully, cultural product design can become a site of identity negotiation and artistic dialogue. Designers who employ linguistic relativity and cultural semiotics can construct more adaptive, inclusive, and respectful interpretations of traditional art forms. This makes cultural products like Shu embroidery more than commodities—they become vehicles of transcultural communication.

2.6. Synthesis and Theoretical Implications

Existing studies on cultural symbolism in design often focus on the aesthetic and historical meanings of motifs, but few have explored how these symbols are perceived across different linguistic and cultural groups, particularly in the context of Shu embroidery in modern product design. While research on traditional cultural symbols tends to focus on visual semiotics, there is a significant gap in integrating linguistic relativity, or the Sapir–Whorf Hypothesis, into the analysis of how symbols are understood by consumers from diverse linguistic backgrounds. This study fills that gap by applying linguistic relativity to the interpretation of Shu embroidery motifs, offering a new lens through which to explore how language influences the cognitive and emotional responses of consumers from different cultural contexts. While previous research has explored semiotic analyses of cultural symbols in isolation, the combination of semiotic theory, psycholinguistic frameworks, and consumer perception surveys in this study provides a comprehensive, multidisciplinary approach. This new approach can be used to better comprehend the reuse and misuse of traditional symbols, including those embodied in Shu embroidery, in the international markets. The study also puts forward a semiotic-informed and culturally adaptive approach to heritage product design, which is sensitive to linguistic diversity and effective in cross-cultural communication, providing some feasible answers to the question of how to maintain cultural integrity and, at the same time, attract international customers. The paper also shows the importance of more culturally sensitive approach to the design of products nowadays, where traditional symbols should keep their original meaning even when adjusted to the global market.

3. Methodology and Theoretical Framework

The chapter describes research design, data collection, and data analysis that were used in the research to explore the changing identity of the Chinese Shu embroidery in the modern product design by applying a theoretical framework of the Sapir Whorf Hypothesis. The first goal is to determine how linguistic relativity affects the meaning of Shu embroidery motifs to consumers of various linguistic and cultural upbringing. The methodology combines qualitative and semiotic analysis with psycholinguistic survey and interviews in order to be able to grasp the multidimensionality of cultural perceptions.

3.1. Research Design

The study is an exploratory qualitative study, drawing on the toolbox of design anthropology, semiotics, psycholinguistics. Such a design would be best to learn how the cognitive and emotional reaction happens to symbolic motifs of Shu embroidery and how linguistic and cultural particularities influence the consumer perception. The design is exploratory which enables it to be intensive in its approach to the study of subjective experiences and perceptions of consumers, and to get expert opinions of the designers and artisans.

3.2. SapirWhorf Hypothesis as a Theoretical Framework

The theoretical perspective which will guide this research is the Sapir Whorf Hypothesis or linguistic relativity.

According to this theory, thought is determined by language and it further determines how the people think and interpret the world they live in. In the study, linguistic relativity provides us with an explanation of the variances in the interpretation of the symbolic motifs among consumers of various linguistic backgrounds. As an example, the symbol of the dragon in the Shu embroidery might carry some deep cultural connotations to the native Chinese speakers but when sold to consumers who are not Chinese, the symbol of the dragon might not get the same cultural connotation and thus might be perceived differently.

Such a framework can not only describe the effect of linguistic differences on the cognitive processing but can also give clues on how visual and linguistic information in design can be modified to maintain its cultural appropriateness and understanding.

3.3. Data Collection Methods

The research uses three major data collection tools including semiotic analysis, interviews and surveys. All of the methods are essential to visualize and linguistic capture the essence of how Shu embroidery is received by various consumer groups.

3.3.1. Semiotic Artefact Analysis

They perform a semiotic study of Shu embroidery-integrated products to discuss the symbolic and aesthetic features of motifs applied in contemporary consumer items. Such products include fashion brands, souvenirs and luxury products that bear Shu embroidery.

Purpose: To translate the visual codes and describe the meaning with cultural semiotics.

Process: The motifs (e.g., dragons, phoenixes, lotuses) are to be processed in regards to their denotative (literal) and connotative (culturally embedded) meanings, and their mythological (ideological or identity-based) meaning.

Products Selection: The items are selected based on museum collections, fashion houses (e.g., Sheguang Hu, Hanfu revivalist brands) as well as online shops.

3.3.2. Semi Structured Interviews

In-depth interviews take a semi-structured format and are administered to the key informants who are Chinese heritage designers, embroidery practitioners, non-Chinese consumers (e.g., tourists, fashion buyers), and cultural experts. The interviews will be conducted to determine the symbolic meanings attached to Shu embroidery motifs by these various groups of people.

Purpose: To obtain information on the subjective perception and emotional attitude to Shu embroidery, as well as the significance of verbal component in forming that perception.

Process: Open-ended questions will be asked of the participants concerning their perceptions of the motifs, their emotional feelings towards the symbols and what they know culturally that shapes their perception.

Sample Size: 10 participants are interviewed (5 designers/artisans and 5 non-Chinese consumers (of various linguistic backgrounds).

3.3.3. Consumer Perception Surveys

A consumer perception survey is conducted to assess how different linguistic and cultural groups interpret Shu embroidery motifs when integrated into modern products. The survey includes a mix of quantitative and qualitative questions, designed to capture both general impressions and more detailed interpretations of the symbolic elements in the designs. Objective: To measure the differences in motif interpretation across different linguistic groups, and to assess how language influences consumers' emotional responses and engagement with the product.

Process: Participants are shown images of Shu embroidery designs and asked to describe what each image represents, what feelings it evokes, and how familiar they are with the cultural meanings of the symbols.

Sample Groups:

Group A: Native Mandarin speakers (25 participants)

Group B: Non-Mandarin speakers (25 participants), including English, French, and Spanish speakers

Expert Interviews: 10 bilingual experts (designers, artisans, curators)

3.4. Sampling and Participants

The study uses **purposive sampling**, targeting participants who have exposure to **Shu embroidery** or other **cultural products**. The sample is divided into three main groups based on their linguistic and cultural backgrounds:

1. Group A – Native Mandarin Speakers: 25 participants (age 18–50) from China (mainly Sichuan, Chengdu, Shanghai), including students, designers, and professionals.

2. Group B – Non-Mandarin Speakers: 25 participants (age 20–45) from the U.S., Europe, and other international locations, including tourists, buyers, and non-professionals with exposure to Chinese design.

3. Expert Group: 10 experts, including designers, artisans, curators, and academics in the fields of cultural heritage and design.

3.5. Data Analysis Techniques

The data collected through the three methods will be analyzed using both **semiotic coding** and **thematic analysis**:

3.6. Semiotic Coding

Drawing on the theories of **Barthes** and **Hall**, the visual motifs will be coded for their **denotative**, **connotative**, and **mythological** meanings. This will highlight how motifs are perceived across different linguistic and cultural groups.

Denotation: The literal visual form of the motif (e.g., a dragon).

Connotation: The cultural and emotional meaning attributed to the motif (e.g., power, authority).

Mythologization: The broader cultural and ideological narrative surrounding the motif (e.g., the dragon's association with imperial authority).

3.6.1. Thematic and Semantic Analysis

The qualitative data from interviews and surveys will be coded thematically to identify recurring perceptions and values associated with the Shu embroidery motifs.

Semantic mapping will be used to categorize terms used by participants to describe the motifs, highlighting any linguistic or cultural differences in interpretation.

Frequency Analysis: It will reveal the most popular answers and will give an idea about the similarities and differences in the motifs interpretation in linguistic groups.

Comparative Analysis: The dissimilarities between the interpretations made by the Group A and Group B participants will be analyzed with the emphasis on the role that language and cultural backgrounds play in their interpretations.

3.7. Ethical Consideration

Data collection will be done with ethical clearance. Participants will be made to understand the objective of the research and their consent sought prior to their participation. Important ethical issues to note are:

Informed Consent: All the participants will be aware of all the details of the study and will participate in it willingly.

Anonymity and Confidentiality The identities of the participants will be treated as confidential information, and anonymization will be performed on the data on its analysis.

Withdrawal Rights: The Participants have the right to withdraw themselves to the study at any point without any penalty.

Data Protection: All the gathered information will be kept safely and will be used exclusively in academic intents.

3.8. Limits and Delimitations

Although the research gives an in-depth insight on the effects of linguistic and cultural backgrounds on the perception of Shu embroidery, it has a number of limitations:

Language Range: The experiment is mainly concentrated on Mandarin and English speakers. Future research can be expanded to cultural backgrounds and additional languages (e.g., Arabic, Hindi).

Coverage of Motifs: The project is dedicated to several prototypical motifs (e.g., dragons, phoenixes, lotuses). Additional research might look at other motifs of Shu embroidery.

Sample Size: The sample size used is large enough to conduct a qualitative analysis; however, it might not be fully representative of all the consumer groups around the globe. Additional quantitative research can be necessitated to extrapolate the results.

Despite these limitations, the research aims to provide a deep, contextually rich analysis of how Shu embroidery is interpreted across cultural and linguistic boundaries, offering valuable insights for designers and cultural institutions.

4. Findings and Discussion

This section presents and interprets the data collected from semiotic product analysis, consumer surveys, and ex-

pert interviews. The aim is to identify patterns of perception, symbolic reinterpretation, and identity reconstruction related to Shu embroidery motifs in contemporary product design.

The content is organized thematically, highlighting contrasts and overlaps between Chinese and non-Chinese audiences. All findings are discussed through the lens of the Sapir–Whorf Hypothesis, illustrating how linguistic structures influence the interpretation of visual cultural symbols. (see **Figure 1**)

Figure 1. Word Cloud: Phoenix Motif Descriptions (Non-Chinese Participants).

4.1. Semiotic Analysis of Shu Embroidery Products

The analysis began with five selected products (see **Appendix A Figures A1–A5**)[29–33], each featuring distinct motifs such as dragons, phoenixes, cranes, peonies, and lotuses. These products were coded using a cultural semiotics approach, mapping:

§ Denotative meaning: what is visually depicted

§ Connotative meaning: culturally embedded interpretations

§ Mythologisation: ideological or identity-based associations

Example 1: Phoenix on a Silk Scarf

§ Chinese perception: The phoenix (凤) represents feminine virtue, grace, and marital harmony.

§ Western perception: Participants described it as "fiery," "reborn," or "mythical," associating it with individual transformation and independence.

The semiotic drift observed here exemplifies Barthes' theory of cultural re-mythologization: the same image is read through different cultural filters, resulting in conflicting symbolic layers[34].

Example 2: Crane Motif on Wall Art

§ Mandarin-speaking participants associated cranes (鹤) with longevity, wisdom, and filial piety—symbols drawn from Daoist and Confucian teachings.

§ English-speaking participants often interpreted the crane as merely a decorative or aesthetic bird, lacking symbolic resonance.

This illustrates the Sapir–Whorf hypothesis in action: language acts as a cognitive lens, filtering meaning through culturally acquired semantic categories[35].

4.2. Interview Results: Designer and Expert Insights

Interviews with ten stakeholders (designers, artisans, curators) revealed essential themes:

4.2.1. Perception of Cultural Dilution

Most Chinese designers expressed concern over the superficial usage of heritage motifs in international markets. One designer noted:

> "The dragon has been simplified so much in fashion that it's just a shape now, not a symbol of our ancestors' authority."[36].

This reflects a broader anxiety about symbolic erosion, especially when products are stripped of context for visual appeal.

4.2.2. Intent vs. Reception Gap

Several designers said they intentionally embed cultural messages but acknowledge that consumers often miss the deeper meanings. This disconnect arises partly from language gaps:

> "When we say this lotus represents spiritual purity, that's meaningful in Chinese. But if we translate that directly, it sounds vague or New Age-y to Western customers."[37].

Here, the role of linguistic framing becomes clear. Without culturally grounded explanatory text or symbolic cues, the encoded meaning cannot be decoded by consumers unfamiliar with the language system[38].

4.3. Survey Results: Consumer Interpretations by Language Group

4.3.1. Method Recap

Fifty participants completed perception surveys with

visual prompts of five Shu embroidery designs. They were asked to describe what each image represented and what feelings it evoked.

Participants were grouped by:

§ Group A: Mandarin speakers (n = 25)

§ Group B: Non-Mandarin speakers (n = 25)

4.3.2. Key Findings

Table 1 reinforces the concept of cognitive schema shaped by linguistic culture[3]. Group A often drew on idioms, proverbs, or classical literature. Group B lacked this cultural-linguistic reservoir, resulting in generalized or commercialized readings.

Table 1. Differences in cognitive schemas shaped by linguistic culture.

Motif	Group A (Mandarin)	Group B (Non-Mandarin)
Dragon	Power, emperor, protection	Aggressive, fantasy, dangerous
Phoenix	Yin, marriage, peace	Fire, feminism, myth
Lotus	Purity, spiritual growth, Buddhism	Flower, calm, decorative
Crane	Longevity, virtue, celestial connection	Bird, grace, nothing specific
Peony	Wealth, nobility, imperial feminine beauty	Romance, perfume, spring

4.4. Cross-Cultural Semiotic Divergence

The motif comparison table (see **Appendix B Table A1**) shows clear cases of symbolic slippage, where the intended cultural message diverges based on the audience's linguistic framing.

4.4.1. Key Patterns Identified:

1. Semantic Overlap: Some motifs (e.g., butterfly = transformation) showed partial alignment across groups.
2. Semantic Compression: Rich, multi-layered meanings (e.g., dragon) were reduced to singular traits (e.g., "monster").
3. Semantic Substitution: Symbols were reinterpreted through *external* cultural lenses (e.g., phoenix = feminism).

These shifts illustrate Whorf's assertion that language conveys and constrains thought[4].

4.5. Language as a Cultural Design Filter

Product labels, marketing copy, and exhibition texts were also analyzed. Bilingual or translated descriptions often failed to carry semantic equivalency.

§ Group B perceived literal translations from Mandarin as "unclear" or "odd".

§ When metaphors were localized (e.g., "phoenix rising from ashes" instead of "Yin balance"), consumers connected more easily.

This aligns with psycholinguistic research on conceptual metaphor framing, suggesting that symbols must be culturally translated, not just linguistically translated, to maintain meaning[5].

4.6. Design Implications and Strategic Insights

To reconcile cultural identity with commercial reach, the study recommends the following:

1. Multilayered storytelling: Embed digital tags, videos, or narratives that explain motifs through local and global lenses.
2. Adaptive symbolism: Use hybrid metaphors that resonate across cultures while preserving integrity (e.g., pairing dragons with textual descriptors like "protector of the family lineage").
3. Design-linguistic fluency: Brands must collaborate with cultural translators who understand visual semiotics and psycholinguistic framing.

Such strategies preserve Shu embroidery's symbolic identity while engaging broader audiences with an authentic understanding, not just aesthetic attraction.

4.7. Theoretical Integration

This research demonstrates the practical relevance of the Sapir–Whorf Hypothesis in product design. The findings show that:

§ Symbol interpretation is filtered through language

§ Idioms, metaphors, and historical usage shape cognitive schemas.

§ Cross-cultural misreading is often linguistic, not just visual.

Hence, language serves as a design tool, not merely a medium of explanation, but a constructor of perception.

Therefore, designers and heritage professionals must treat language as part of the materiality of meaning, especially when designing for transnational audiences.

Shu embroidery's traditional motifs are not universally interpreted, and that linguistic background significantly shapes how cultural meaning is received. Using the Sapir–Whorf Hypothesis as a theoretical lens, the chapter demonstrated how language acts as both a bridge and a barrier in communicating cultural identity through design.

The next chapter will summarize conclusions and offer a framework for integrating culturally sensitive, linguistically informed strategies into future product design involving intangible heritage.

5. Conclusions and Recommendations

This research explored the reconstruction of cultural identity in Shu embroidery within contemporary product design, using a psycholinguistic framework rooted in the Sapir–Whorf Hypothesis. The central aim was to understand how linguistic and cultural differences influence consumer perception of symbolic motifs traditionally embedded in Shu embroidery, and how these interpretations affect cultural preservation and global design practice.

Shu embroidery, as an element of intangible cultural heritage, is rich in visual semiotics drawn from classical Chinese philosophy, folklore, and dynastic symbolism. Even so, when such motifs are used in products worldwide, their original meanings can be changed, lost or misunderstood. Selected embroidered items, interviews with designers and consumers and perception surveys among various linguistic communities were used to analyses this phenomenon in this study.

Bringing together cultural semiotics and linguistic relativity, the authors revealed that language helps to inform consumers in how they interpret traditional Chinese symbols in modern designs.

5.1. Key Findings

Some important results from the study are presented below.

5.1.1. Symbolic Interpretation Is Linked to Language

How participants understood motifs of the dragon, phoenix and lotus was markedly different depending on where they came from. Many Mandarin speakers explained meanings using ancient sayings, proverbs and stories, while those who did not speak Mandarin mainly used simple or beautiful associations.

5.1.2. Semiotic Drift and Cultural Compression

As Shu embroidery motifs are applied to fashion, souvenirs, and luxury items, their original meanings are often decontextualized or flattened. The study documented multiple instances of symbolic slippage, where the depth of cultural meaning was reduced to a superficial or decorative layer, particularly when products lacked accompanying cultural explanations.

5.1.3. Designer Intent vs. Consumer Reception

Designers frequently embedded culturally specific symbolism into their products, but expressed frustration that international consumers failed to perceive these deeper layers. This gap between intent and reception often stemmed from inadequate or overly literal translations and the absence of culturally resonant storytelling.

5.1.4. Role of Language in Cultural Communication

Survey and interview data confirmed that language shapes how people interpret symbols and emotionally connect to them. Consumers with access to linguistic and cultural context reported higher appreciation and perceived authenticity.

5.1.5. Visual Motifs Require Linguistic Framing

Symbolic visuals in design are not self-evident; they require linguistic scaffolding, through product descriptions,

labels, or marketing narratives, to convey cultural meaning across audiences. Without this support, the richness of Shu embroidery's heritage risks becoming invisible.

5.2. Theoretical Contributions

This research contributes to interdisciplinary discourse in the following ways:

§ Cultural Semiotics + Linguistic Relativity: The study demonstrates that psycholinguistic insights can effectively enrich cultural semiotics, particularly when examining global interpretations of heritage design.

§ Applied Sapir–Whorf Hypothesis: It operationalises linguistic relativity not just as a theory of grammar or cognition, but as a practical tool for cross-cultural design analysis.

§ Symbol Perception in Material Culture: The findings advance knowledge about visual semiotics intersecting with language-based cognitive frameworks, offering a nuanced model for analysing material culture in design anthropology.

5.3. Practical Recommendations

Based on the research findings, the following recommendations are offered to designers, cultural institutions, and policymakers:

1.Integrate Multilingual and Culturally Tailored Storytelling

§ Provide bilingual or multilingual symbol explanations, not just literal translations.

§ Use localized metaphors that resonate with different cultural schemas (e.g., translating phoenix and dragon as symbols of unity and balance rather than relying on direct translations).

2. Design with Semiotic Awareness

§ Designers should map out intended meanings and test them with multiple linguistic groups.

§ Include semiotic briefs or symbolism guides when collaborating internationally.

3. Use Digital Tools for Cultural Mediation

§ Develop QR-linked content (videos, AR visuals) that contextualize embroidery motifs for global audiences.

§ Museums, brands, and craftspeople should co-create educational content with linguists and cultural translators.

4. Promote Culturally Informed Branding

§ Heritage-based brands should avoid tokenism or trend-based aestheticisation.

§ Instead, emphasize authentic cultural narratives and community voices in the design and marketing process.

5.4. Foster Interdisciplinary Collaboration

§ Cultural preservation should involve designers, linguists, anthropologists, and digital media experts.

§ Funding initiatives and academic programs can support cross-sector collaborations to keep heritage meaningful in modern forms.

5.5. Limitations of the Study

While the study offers meaningful insights, it acknowledges certain limitations:

§ Though diverse, the sample size of survey and interview participants may not fully represent global consumer demographics.

§ The scope was restricted to a few emblematic motifs; broader coverage of Shu embroidery styles could yield deeper patterns.

§ Language comparisons were primarily between Mandarin and English speakers; future research could explore other linguistic audiences.

These limitations indicate further inquiry opportunities, especially in comparative and quantitative studies.

5.6. Directions for Future Research

This study opens the door to several future research possibilities:

§ Cross-linguistic semantic field studies to measure emotional responses to cultural symbols in different languages.

§ Longitudinal design tracking will follow how Shu embroidery's perception changes over time as global exposure increases.

§ Comparative studies across other forms of Chinese embroidery (e.g., Suzhou, Hunan) to assess regional differences in semiotic transmission.

§ AI-based image recognition + natural language processing to automate the analysis of design-language relationships in digital heritage archives.

5.7. Final Reflection

In an era of increasing cultural blending and rapid globalization, traditional crafts like Shu embroidery are at once vulnerable and full of opportunity. This study reaffirms that symbols do not speak for themselves—they require linguistic guidance and cultural framing to preserve their meaning across contexts.

By recognizing the role of language in shaping perception, designers and cultural advocates can ensure that heritage does not vanish in translation but flourishes through thoughtful reinterpretation. Shu embroidery, treated not only as textile art but as cultural language, becomes a living narrative that deserves to be read, understood, and honored in every stitch.

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Appendix A

Visual Documentation of Selected Shu Embroidery Products

Figure A1. Hand-Painted Silk Scarf Featuring a Phoenix Motif.

This scarf highlights the phoenix (凤), a symbol of yin energy, marital harmony, and feminine grace in Chinese culture. It is used in fashion to convey elegance and symbolic richness. Source: Etsy[29].

Figure A2. Silk Evening Clutch with Peony and Lotus Embroidery.

This clutch, featuring the peony (牡丹) for nobility and the lotus (莲花) for spiritual purity, represents wealth and moral integrity in Chinese tradition. Source: Hermès Mythiques Phoenix on eBay[30].

Figure A3. Framed Wall Hanging Embroidered with Dragon and Crane Motifs.

The dragon (龙) symbolises imperial authority, while the crane (鹤) represents longevity and celestial connection. Commonly paired in ceremonial contexts. Source: Personal

collection photo (or specify retailer/brand)[31].

Figure A4. Souvenir Bookmark Set with Bamboo and Butterfly Symbols.

Butterflies (蝴蝶) reflect romantic folklore and transformation, while bamboo (竹) symbolizes scholarly virtue and resilience. Both are common in gift items. Source: Etsy[32].

Figure A5. Modern Hanfu Jacket with Lotus Embroidery.

Adapting traditional motifs into modern apparel, the lotus carries spiritual and aesthetic weight in Buddhist symbolism. Source: Newhanfu[33].

Appendix B

Table A1. Semiotic Analysis of Motifs Used in Selected Shu Embroidery Products.

Motif	Traditional Chinese Interpretation	Interpretation by Non-Chinese Speakers	Semiotic Notes
Dragon (龙)	Authority, power, prosperity; symbol of emperors and masculine yang energy	Aggressive or fantastical creature; associated with danger or fantasy (e.g., Western dragons)	Strong case of semiotic drift; symbolic weight lost without access to Chinese historical narratives
Phoenix (凤)	Feminine virtue, marital harmony, yin balance, appears in wedding robes and is paired with dragons	Fire, individual rebirth, and strength are linked to the Western myth of self-resurrection	Example of semantic substitution: Western metaphor replaces Confucian symbology
Lotus (莲花)	Purity, enlightenment, and detachment are linked to Buddhism and Confucian ideals	Calm, decorative, romantic; seen simply as a pretty flower	Reduced to aesthetic value; spiritual meaning lost without a religious-cultural framework
Crane (鹤)	Longevity, wisdom, and peace are often associated with immortality and elderly respect for the elderly	Graceful bird, exotic animal, or misunderstood symbol	Semantic compression observed; the motif is read only at a visual or surface level
Peony (牡丹)	Wealth, status, nobility, a symbol of imperial femininity and luxury	Beauty, springtime, sensuality; sometimes confused with Western floral codes	Partially aligned but culturally flattened, meaning reshaped by modern marketing metaphors
Butterfly (蝴蝶)	Joy, romantic love, and transformation, linked to folk legends like the Butterfly Lovers	Change, freedom, rebirth; influenced by universal and Western psychological themes	Shared symbolic domain, but underlying mythologies differ significantly
Bamboo (竹)	Resilience, integrity, scholar's moral character (often in calligraphy and literati symbolism)	Natural, eco-friendly, minimalist aesthetic	Lost philosophical context; perceived as environmentally themed rather than Confucian literary metaphor

Appendix C

Survey Questionnaire on the Perception of Shu Embroidery Motifs

Section 1: Participant Background

1. Age: ☐ 18–24 ☐ 25–34 ☐ 35–44 ☐ 45 and above
2. Gender: ☐ Male ☐ Female ☐ Non-binary / Prefer not to say
3. Country of Origin: _____
4. Native Language: _____
5. Are you familiar with Chinese traditional culture? ☐ Yes ☐ No ☐ Somewhat
6. Have you previously seen or owned products featuring Chinese embroidery? ☐ Yes ☐ No

Section 2: Visual Interpretation of Shu Embroidery Motifs Participants are shown five images (labelled A–E), each featuring a distinct Shu embroidery motif. These images correspond to Figures A1–A5 in Appendix A.

7. What do you think Image A (Dragon motif) represents? *[Open-ended]*
8. What feeling or association does Image A evoke for you?
   ☐ Power ☐ Danger ☐ Fantasy ☐ Royalty ☐ Other: _____
9. How familiar are you with the meaning of the dragon in Chinese culture?
   ☐ Very familiar ☐ Somewhat familiar ☐ Not familiar
10. Now look at Image B (Phoenix motif). What do you think it symbolises? *[Open-ended]*
11. Choose one or more words that match your perception of the phoenix motif:
    ☐ Rebirth ☐ Marriage ☐ Fire ☐ Harmony ☐ Mystery ☐ Other: _____
12. Repeat for each remaining image (C: Lotus, D: Crane, E: Peony or Butterfly).

Section 3: Cultural Framing and Symbol Recognition

13. Do you believe cultural background influences how people interpret design motifs?
    ☐ Yes ☐ No ☐ Not sure
14. Would a short description or story accompanying these motifs help you understand them better?
    ☐ Yes ☐ No
15. How likely are you to buy a product that includes traditional embroidery if you understand its meaning?
    ☐ Very likely ☐ Somewhat likely ☐ Not likely

Section 4: Reflection and Language Influence

16. In your opinion, does language shape how we perceive symbolic images? Why or why not? *[Open-ended]*
17. Do you think visual symbols can "speak for themselves," or do they need explanation? *[Open-ended]*

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