

THE INFLUENCE MECHANISM OF GAN EMBROIDERY CULTURAL SYMBOLS ON CONSUMER PERCEPTION OF REDESIGNED POST-CONSUMER DENIM ACCESSORIES: A CONCEPTUAL MODEL FOR SUSTAINABLE CONSUMPTION

Qi HU¹, Akapong INKUER¹, Chanoknart MAYUSOH¹ and Pisit PUNTIEN¹

¹ Faculty of Fine and Applied Arts, Suan Sunandha Rajabhat University, Thailand;
s66584948006@ssru.ac.th (Q. H.); akapong.in@ssru.ac.th (A. I.);
chanoknart.ma@ssru.ac.th (C. M.); pisit.pu@ssru.ac.th (P. P.)

ABSTRACT

Fast fashion has accelerated clothing replacement and caused many denim garments with remaining use value to be discarded prematurely. Post-consumer denim retains redesign potential because of its durability, structural strength, distinctive indigo fading, and emotional associations. However, consumer acceptance is often constrained by hygiene stigma toward second-hand textiles, perceptions of low value, and concerns about social image. This conceptual and research-design paper examines how Gan embroidery cultural symbols may influence consumer perceptions and purchase intention toward redesigned post-consumer denim accessories. Drawing on circular fashion, second-hand consumption stigma, the theory of planned behavior, and cultural identity theory, the study proposes a model in which Gan embroidery integration enhances perceived value and cultural identity, reduces hygiene stigma, improves consumer attitude, and strengthens purchase intention. The design process distinguishes surface decorative application from structural integration and evaluates both through cultural recognizability, integration with product structure, material compatibility, craftsmanship quality, functional contribution, and visual coherence. Visual cues of newness, including professional finishing, transparent cleaning information, controlled material treatment, and a contemporary silhouette, are proposed to moderate the relationship between cultural identity and hygiene stigma. For future empirical validation, the study outlines a standardized 3×2 experiment varying cultural-symbol integration and visual newness while holding denim quality, product form, and presentation constant. The framework supports the high-value redesign of post-consumer denim and the contemporary revitalization of Gan embroidery.

Keywords: Circular Fashion, Sustainable Consumption, Post-Consumer Denim, Gan Embroidery, Consumer Perception, Hygiene Stigma, Visual Cues of Newness

CITATION INFORMATION: Hu, Q., Inkuer, A., Mayusoh, C., & Puntien, P. (2026). The Influence Mechanism of Gan Embroidery Cultural Symbols on Consumer Perception of Redesigned Post-Consumer Denim Accessories: A Conceptual Model for Sustainable Consumption. *Procedia of Multidisciplinary Research*, 4(8), 4.

INTRODUCTION

Against the background of the rapid development of the global apparel industry, the fast fashion model has significantly shortened the use cycle of clothing products. A large number of garments are discarded prematurely not because of material damage or functional failure, but because of outdated styles, changes in aesthetic preferences, size mismatch, or shifts in consumer psychology. Denim garments are a representative category within this phenomenon. Denim was originally characterized by durability, strength, and long-term use. However, in the contemporary consumption context, denim garments are also affected by trend replacement and psychological obsolescence, becoming an important component of post-consumer textile waste.

Compared with many lightweight textile materials, post-consumer denim still retains relatively high structural strength and aesthetic value. Its natural fading, traces of wear, stitching, pockets, waistbands, and patchwork structures are not only part of the physical material, but also record time of use and bodily experience. Therefore, post-consumer denim should not be regarded merely as waste awaiting shredding, incineration, or low-value treatment. Instead, it should be understood as a circular material resource with redesign potential. Through redesign, post-consumer denim can be transformed into fashion accessories, decorative art objects, and cultural and creative products, thereby extending its material value, aesthetic value, and emotional value.

However, whether redesigned post-consumer denim products can be accepted by the market does not depend solely on material performance and environmental value. When consumers encounter second-hand textiles, they often develop psychological associations such as “unclean,” “used by others,” “low in value,” or “not respectable enough.” This second-hand consumption stigma may weaken consumers’ purchase intention toward redesigned products, making it difficult for many products with sustainable value to enter everyday consumption contexts. In other words, the core issue of post-consumer denim redesign is not only how to remake materials into products, but also how to change consumers’ ways of perceiving old materials.

Local cultural symbols provide a possible pathway for improving such perception. Gan embroidery is one of the representative traditional crafts of Jiangxi and has distinctive regional cultural characteristics and visual recognition value. Its landscape patterns, plant imagery, earth-toned colors, and delicate decorative language can endow post-consumer denim accessories with locality, cultural meaning, and emotional significance. When consumers’ attention shifts from “old textiles” to “Gan embroidery culture,” “intangible cultural heritage symbols,” and “unique design,” the negative psychological associations brought by old materials may be weakened, while the cultural value and aesthetic value of the product may be enhanced.

To avoid treating cultural decoration as an isolated addition, the framework proposed in this study distinguishes between surface decorative application and structural integration. It also recognizes that cultural identity alone may not overcome perceived contamination concerns; its stigma-reducing effect is expected to depend on visible cues of newness, including professional finishing, transparent cleaning information, controlled material treatment, clean edges, and a contemporary silhouette.

Based on this, this paper focuses on the influence mechanism of Gan embroidery cultural symbols on consumer perception of redesigned post-consumer denim accessories. It does not report empirical statistical results that have not yet been collected. Instead, as a theoretical model and design-research paper, it proposes a conceptual framework for subsequent empirical testing. The study addresses three questions: First, what psychological factors affect consumer acceptance of redesigned post-consumer denim accessories? Second, how do surface decorative application and structural integration influence perceived value, cultural identity,

and hygiene stigma? Third, how can a standardized conceptual model and validation design be constructed to test these relationships?

Research Objectives

This paper aims to construct a theoretical model of how Gan embroidery cultural symbols influence consumer perception of redesigned post-consumer denim accessories and to propose a pathway for subsequent empirical validation. The specific research purposes include the following four aspects.

First, this paper analyzes the second-hand textile hygiene stigma, perceived low value, and social image concerns that redesigned post-consumer denim accessories may encounter in the process of consumer acceptance.

Second, this paper examines how Gan embroidery cultural symbols can transform the meaning of post-consumer denim accessories and potentially enhance aesthetic value, cultural identity, and emotional value. It distinguishes between surface decorative application and structural integration and defines criteria for high-value cultural design.

Third, this paper constructs a conceptual model linking Gan embroidery cultural-symbol integration, perceived value, cultural identity, hygiene stigma, consumer attitude, and purchase intention. Visual cues of newness are positioned as a moderator of the relationship between cultural identity and hygiene stigma.

Fourth, this paper proposes a questionnaire survey, a standardized 3×2 between-subjects experiment, and expert interviews to provide a methodological basis for empirical validation. The experiment holds the base denim material and product presentation constant while manipulating the mode of Gan embroidery cultural-symbol integration and the level of visual cues of newness.

LITERATURE REVIEW

Circular Fashion and Post-Consumer Denim Redesign

Circular fashion emphasizes changing the traditional linear model of “production-consumption-disposal” by extending product life cycles, improving material-use efficiency, and reducing waste generation. The Ellen MacArthur Foundation (2017) points out that the apparel industry needs to establish a new textile circular system through design, recycling, reuse, and systemic collaboration. The cradle-to-cradle concept proposed by McDonough and Braungart (2002) also emphasizes that products should not become valueless waste at the end of their life cycles, but should instead be designed as resources that can enter the next cycle.

Post-consumer denim is a representative redesign material in circular fashion. On the one hand, denim production involves cotton cultivation, water consumption, dyeing and finishing processes, and chemical treatment, which creates considerable environmental pressure (Niinimäki et al., 2020). On the other hand, post-consumer denim garments usually still retain good fabric strength and structural integrity. Compared with downcycling methods such as mechanical shredding, design-led upcycling places greater emphasis on preserving fabric form, surface texture, and traces of use, thereby better retaining material value and emotional value (Sandin & Peters, 2018).

Existing studies on post-consumer denim redesign mainly focus on methods such as patchwork reconstruction, zero-waste cutting, modular structures, and craft-based remaking. Among them, zero-waste design emphasizes establishing a closer coordination between pattern making and material use in order to reduce offcut waste during the cutting process (Rissanen & McQuillan, 2016). These studies provide technical pathways for material transformation, but they discuss relatively less why consumers accept or reject such products. For redesigned accessories intended for the market, consumer perception directly affects purchase intention. If consumers still regard post-consumer denim as “unclean material” or a “low-cost substitute,”

redesigned products will find it difficult to form a sustainable consumption cycle, even if they have environmental significance.

Second-Hand Consumption Stigma and Consumer Perception

Second-hand consumption stigma refers to the psychological rejection, hygiene concerns, and value-devaluation judgments that consumers develop when encountering items that have been used by others. The study on consumer contamination by Argo, Dahl, and Morales (2006) shows that even when a product does not present any actual hygiene problem, consumers may still develop negative feelings simply because it has been touched or used by others. Clothing and accessories are closely related to bodily contact, and therefore they are more likely to trigger such psychological reactions.

In redesigned post-consumer denim accessories, second-hand consumption stigma is mainly reflected in three dimensions. The first is perceived hygiene risk, which means that consumers worry that old fabrics may have problems related to cleanliness, odor, bacteria, or residual traces. The second is perceived low value, which means that consumers believe products made from recycled or reused materials are less refined than products made from new materials. The third is social image concern, which means that consumers worry that wearing or using products made from post-consumer materials may be interpreted by others as cheap, old, or not respectable.

The theory of planned behavior argues that individual behavioral intention is influenced by attitude, subjective norms, and perceived behavioral control (Ajzen, 1991). In the consumption context of redesigned post-consumer denim accessories, if consumers believe that the products are environmentally friendly, aesthetically pleasing, and culturally meaningful, their attitude may become more positive. If surrounding social groups recognize sustainable consumption, subjective norms may also strengthen purchase intention. If the product price is acceptable, the usage scenario is clear, and cleaning information is transparent, consumers' perceived behavioral control will be further enhanced. Therefore, improving consumer perception is an important foundation for promoting the marketization of post-consumer denim accessories.

Gan Embroidery Cultural Symbols and Cultural Identity

Cultural sustainability emphasizes the role of local culture, traditional crafts, and community memory in sustainable development. Hawkes (2001) argues that culture is an important dimension of sustainable development and can provide identity and value meaning for social practices. In product design, cultural symbols are not only decorative elements, but can also become media that connect local memory, aesthetic experience, and consumer emotion.

As a local traditional craft of Jiangxi, Gan embroidery contains visual resources such as landscapes, flowers and birds, plants, wetland ecology, and imagery of local life. Its colors are often associated with regional characteristics such as ochre, cinnabar, dark green, indigo, and gold, giving it a strong degree of cultural recognition. Applying Gan embroidery cultural symbols to redesigned post-consumer denim accessories does not mean simply copying traditional embroidery. Instead, it involves reinterpreting its patterns, colors, and symbolic meanings through a contemporary design language suited to denim, small accessories, and modern consumption contexts.

From the perspective of consumer perception, Gan embroidery cultural symbols may play three roles. Belk (1988) points out that objects can participate in the construction of individual identity and self-expression; Chapman (2005) also emphasizes that designs with emotional meaning are more likely to form lasting use relationships. Based on this, the first role is symbolic transfer, which shifts consumers' attention from "old materials" to "local culture" and "design meaning". The second role is value enhancement, which improves the aesthetic value and emotional value of the product through intangible cultural heritage and regional cultural narratives. The third role is identity recognition, which enables consumers to

understand the product as an object with local belonging and cultural expression, rather than as a simple reuse of post-consumer materials.

Criteria for Gan Embroidery Integration and Visual Cues of Newness

Surface decorative application places localized embroidery, printed motifs, detachable patches, or decorative modules on an otherwise unchanged denim structure. Structural integration uses Gan embroidery patterns, colors, and stitch logic to guide module division, seam direction, reinforcement, connection, or silhouette. The two approaches are evaluated through six criteria: cultural recognizability, degree of integration with product structure, compatibility between delicate embroidery and rugged denim, craftsmanship quality, functional contribution, and visual coherence.

Visual cues of newness are observable signals that a redesigned product is clean, professionally processed, and intentionally contemporary. They include controlled rather than accidental distressing, clean edges, consistent stitching, professional finishing, transparent cleaning narratives, modern silhouettes, and refined presentation. These cues are expected to strengthen the ability of cultural identity to reduce hygiene stigma rather than replace cultural identity itself.

RESEARCH METHODOLOGY

This paper adopts a method that combines theoretical analysis and research design, and it belongs to conceptual model research. The research process includes four steps: literature analysis, variable extraction, model construction, and the design of a subsequent validation plan.

First, literature analysis. This paper synthesizes relevant studies on circular fashion, post-consumer textile redesign, second-hand consumption stigma, the theory of planned behavior, and cultural identity, in order to identify the main factors influencing consumer perception of redesigned post-consumer denim accessories.

Second, construct operationalization. The mode of Gan embroidery cultural-symbol integration is defined as the explanatory construct with three levels: no cultural symbol, surface decorative application, and structural integration. Perceived value and cultural identity are treated as parallel mediators; hygiene stigma as the central negative construct; consumer attitude and purchase intention as outcome constructs; and visual cues of newness as a moderator. Age, income, environmental awareness, prior second-hand consumption, and familiarity with Jiangxi culture are included as control variables.

Third, model construction. The model specifies two parallel pathways from Gan embroidery cultural-symbol integration to perceived value and cultural identity. Both constructs are expected to reduce hygiene stigma, which subsequently influences purchase intention through consumer attitude. Visual cues of newness moderate the relationship between cultural identity and hygiene stigma.

Fourth, subsequent validation design. A standardized 3×2 between-subjects experiment is proposed, supplemented by expert interviews. The experiment compares three modes of Gan embroidery cultural-symbol integration and two levels of visual cues of newness while holding denim color, fabric quality, product silhouette, dimensions, pocket and hardware positions, camera angle, lighting, background, image scale, and resolution constant. Manipulation checks will assess recognition of Gan embroidery, perceived degree of structural integration, professional finishing, and perceived newness. Expert interviews with specialists in sustainable design, fashion accessories, Gan embroidery craftsmanship, and material redesign will examine craft feasibility, cultural authenticity, and market positioning.

A 30-participant pretest will verify stimulus clarity before a formal sample of 385 Nanchang consumers is randomly assigned across the six conditions. The analysis plan includes reliability

testing, confirmatory factor analysis, ANOVA, structural equation modeling, bootstrap mediation analysis, and moderation analysis.

RESEARCH RESULTS

As a conceptual design-research paper, the results comprise the operational design taxonomy, construct system, conceptual model, research hypotheses, and validation roadmap rather than statistical outcomes. The study produces four main results.

Constructing the Core Variable System of Consumer Perception of Redesigned Post-Consumer Denim Accessories

Consumer perception of redesigned post-consumer denim accessories is not determined by environmental attitude alone, but by a psychological process involving material source, hygiene trust, aesthetic judgment, cultural meaning, and social image. The model therefore comprises seven constructs: Gan embroidery cultural-symbol integration, perceived value, cultural identity, hygiene stigma, visual cues of newness, consumer attitude, and purchase intention.

Table 1 Main Variables in the Conceptual Model

Variable Type	Variable Name	Description
Explanatory variable	Gan embroidery cultural-symbol integration	No cultural symbol, surface decorative application, or structural integration.
Mediating variable	Perceived value	Includes aesthetic value, emotional value, perceived craftsmanship, product uniqueness, and overall worth.
Mediating variable	Cultural identity	Includes Jiangxi cultural meaning, regional belonging, cultural authenticity, and cultural self-expression.
Negative variable	Second-hand consumption stigma	Includes perceived hygiene risk, perceived low value, and social image concerns.
Moderating variable	Visual cues of newness	Includes professional finishing, transparent cleaning information, controlled material treatment, clean edges, and a modern silhouette.
Attitude variable	Consumer attitude	Consumers' overall evaluation of redesigned post-consumer denim accessories.
Outcome variable	Purchase intention	The likelihood that consumers will purchase, recommend, or try such products in the future.

Taxonomy of Gan Embroidery Integration in Post-Consumer Denim Design

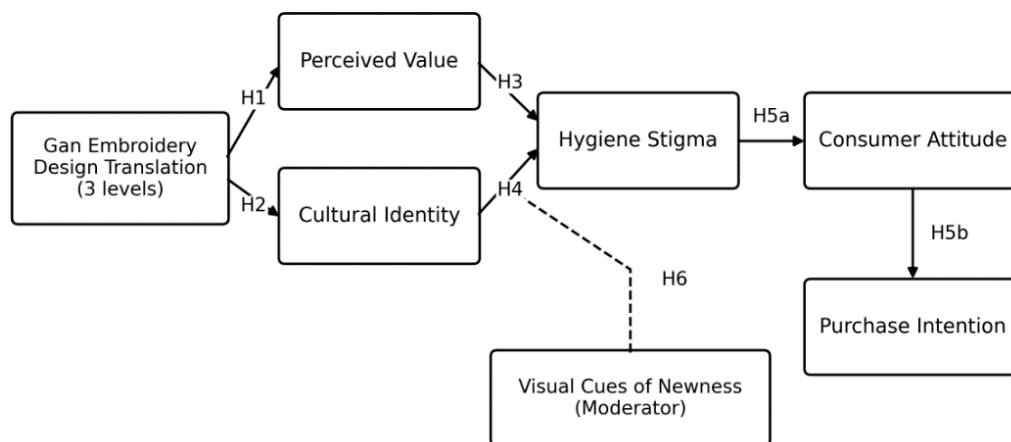
Table 2 Comparison of Surface Decorative Application and Structural Integration

Integration Approach	Design Strategy	Expected Design Contribution	Potential Limitation
Surface decorative application	Localized embroidery, printed motifs, detachable patches, or decorative modules are applied to a denim product without changing its underlying structure.	Provides immediate cultural recognition, involves relatively low production complexity, allows decorative components to be replaced, and is suitable for entry-level products.	May be perceived as an added ornament rather than an integral part of the product and may not sufficiently reduce perceptions of low value or hygiene concerns.
Structural integration	Gan embroidery motifs, color schemes, and stitch logic are incorporated into module division, seam direction, reinforcement, connection details, and product silhouette.	Strengthens visual coherence, perceived craftsmanship, cultural authenticity, and the functional role of the cultural elements.	Requires greater technical precision and may increase production time and cost.

Conceptual Model of Consumer Responses to Gan Embroidery-Integrated Denim Accessories

The proposed model specifies that the mode of integrating Gan embroidery cultural symbols into post-consumer denim influences perceived value and cultural identity through two parallel pathways. Both constructs are expected to reduce hygiene stigma, which subsequently influences purchase intention through consumer attitude. The model does not assume that cultural symbolism alone directly eliminates contamination concerns.

Visual cues of newness moderate the relationship between cultural identity and hygiene stigma. Cultural identity is expected to reduce stigma more strongly when a product demonstrates professional finishing, transparent cleaning information, controlled material treatment, and a contemporary silhouette. Environmental awareness, age, income, previous second-hand purchasing experience, and familiarity with Jiangxi culture are included as control variables.



Control variables: age, income, environmental awareness, prior second-hand consumption, and familiarity with Jiangxi local culture

Figure 1 Conceptual Model of Consumer Perception (H1-H6)

Formulating Testable Research Hypotheses for Future Validation

Based on the model, this paper proposes the following hypotheses for future experimental and survey-based validation.

H1: Structural integration of Gan embroidery cultural symbols produces higher perceived value than surface decorative application and the no-symbol condition.

H2: Structural integration of Gan embroidery cultural symbols produces stronger cultural identity than surface decorative application and the no-symbol condition.

H3: Perceived value negatively affects hygiene stigma toward redesigned post-consumer denim accessories.

H4: Cultural identity negatively affects hygiene stigma toward redesigned post-consumer denim accessories.

H5: Hygiene stigma negatively affects consumer attitude, and consumer attitude positively affects purchase intention.

H6: Visual cues of newness positively moderate the stigma-reducing effect of cultural identity, such that cultural identity reduces hygiene stigma more strongly under high-newness conditions.

Table 3 Proposed Standardized Experimental Validation Plan

Stage	Design and Participants	Purpose	Controls, Measures, and Outputs
Stimulus development	A 3×2 factorial design comprising three cultural-symbol integration conditions no cultural-symbol integration, surface decorative application, and structural integration and two levels of visual cues of newness low and high.	Produce six comparable visual stimuli that differ only in the two manipulated factors.	Use the same product type, denim color, fabric texture and quality, silhouette, dimensions, pocket and hardware positions, camera angle, distance, lighting, background, image scale, and resolution.
Pretest	Thirty participants drawn from or comparable to the target population.	Confirm successful manipulation of cultural-symbol integration and visual cues of newness and identify unintended differences among the stimuli.	Measure recognition of Gan embroidery, perceived degree of integration, perceived cleanliness, professional finishing, and visual newness. Non-manipulated attributes should not differ significantly across conditions.
Formal experiment	A proposed sample of 385 adult consumers in Nanchang, randomly assigned	Examine between-condition differences and test the proposed	Each participant views only one stimulus. Participation should be voluntary and based on informed consent.

Stage	Design and Participants	Purpose	Controls, Measures, and Outputs
	to one of the six conditions, with approximately 64-65 participants per condition.	conceptual relationships.	
Measurement	Five-point Likert-scale questionnaire using established or appropriately adapted measurement items.	Measure the constructs included in the conceptual model.	Assess perceived value, cultural identity, hygiene stigma, consumer attitude, purchase intention, visual cues of newness, and manipulation-check items.
Expert review	Purposively selected specialists in sustainable design, fashion accessories, Gan embroidery craftsmanship, and material redesign.	Examine design feasibility and provide contextual interpretation of the experimental findings.	Evaluate craftsmanship feasibility, cultural authenticity, structural integration, market positioning, and recommendations for improvement. Analyze interview data thematically.
Data analysis	Reliability and validity assessment, two-way ANOVA, structural equation modeling, bootstrap mediation analysis, and moderation or moderated-mediation analysis.	Test the proposed hypotheses and indirect relationships.	Use Cronbach's alpha, composite reliability, and confirmatory factor analysis; test H1–H2 using two-way ANOVA, H3–H5 using SEM and bootstrapping, and H6 using an interaction term or moderated-mediation analysis. Control for age, income, environmental awareness, prior second-hand consumption, and familiarity with Jiangxi culture.

CONCLUSION AND DISCUSSION

This paper investigates the influence mechanism of Gan embroidery cultural symbols on consumer perception of redesigned post-consumer denim accessories, and constructs a theoretical model and a pathway for subsequent validation. The study argues that post-consumer denim redesign has clear environmental value and material regeneration potential, but its market acceptance does not depend only on sustainable concepts. Consumers' hygiene stigma toward second-hand textiles, perceived low value, and social image concerns may become important psychological barriers affecting purchase intention.

Gan embroidery cultural symbols provide a possible way to weaken these barriers. Through the inclusion of landscape patterns, regional colors, intangible cultural heritage narratives, and

Jiangxi regional imagery, redesigned post-consumer denim accessories can be transformed from “products made from old materials” into “design products with local cultural meaning.” This transformation not only enhances the aesthetic value of the products, but also strengthens consumers’ cultural identity and emotional connection, thereby potentially reducing negative perceptions of second-hand materials.

From a design perspective, surface application remains suitable for replaceable and lower-cost accessories, whereas structural integration is more appropriate for high-value cultural products because Gan embroidery logic participates in module division, seam direction, reinforcement, connection, and silhouette.

In terms of theoretical contribution, this paper integrates circular fashion, second-hand consumption stigma, the theory of planned behavior, cultural identity, and design integration into a framework linking Gan embroidery cultural-symbol integration with perceived value, cultural identity, hygiene stigma, consumer attitude, and purchase intention. It also identifies visual cues of newness as a boundary condition for the stigma-reducing effect of cultural identity. The framework shows that post-consumer textile redesign involves not only material reuse but also the reconstruction of consumption meaning and visual trust.

The proposed model does not assume that cultural identity automatically eliminates hygiene stigma. Contamination concerns may remain strong when denim shows uncontrolled stains, excessive distressing, unfinished edges, or an unclear cleaning history. Cultural meaning and visual trust should therefore be understood as complementary rather than substitutive mechanisms.

In terms of practical significance, this paper provides ideas for post-consumer denim redesign, local cultural and creative product development, and the revitalization of Gan embroidery intangible cultural heritage in Nanchang and the wider Jiangxi region. Future product development should not only emphasize “environmental protection” or “old-object transformation.” Instead, it should gradually build consumer trust through transparent cleaning information, contemporary reinterpretation of cultural symbols, and lightweight accessory design. Low-threshold products such as brooches, keychains, pendants, and small bag ornaments can serve as market entry points, helping consumers move from trial purchase to stable acceptance.

This paper still has limitations. Since it is a theoretical model and research-design paper, it does not report actual questionnaire data or interview coding results. Therefore, the variable relationships and research hypotheses in the model still need to be further validated in subsequent empirical research. Future studies may produce comparative samples of ordinary post-consumer denim accessories and accessories incorporating Gan embroidery cultural symbols, and examine whether Gan embroidery cultural symbols can significantly improve consumer perception and enhance purchase intention through questionnaire surveys, purchase-intention experiments, user interviews, and expert evaluations.

The standardized 3×2 validation roadmap strengthens methodological reproducibility by holding the base denim material and product presentation constant while varying only the mode of cultural-symbol integration and the level of visual cues of newness. This structure allows future research to determine whether changes in consumer perception arise from Gan embroidery integration rather than unrelated visual differences.

Overall, the value of post-consumer denim redesign lies not only in reducing textile waste, but also in reinterpreting the time traces and cultural meanings of materials through design. The introduction of Gan embroidery cultural symbols provides a possible pathway for post-consumer denim accessories to move from material circulation toward cultural circulation. Through theoretical model construction and subsequent empirical validation, this study is expected to provide a reference for the coordinated development of sustainable fashion, intangible cultural heritage revitalization, and local cultural and creative industries.

REFERENCES

- Ajzen, I. (1991). The theory of planned behavior. *Organizational Behavior and Human Decision Processes*, 50(2), 179-211. [https://doi.org/10.1016/0749-5978\(91\)90020-T](https://doi.org/10.1016/0749-5978(91)90020-T)
- Argo, J. J., Dahl, D. W., & Morales, A. C. (2006). Consumer contamination: How consumers react to products touched by others. *Journal of Marketing*, 70(2), 81-94. <https://doi.org/10.1509/jmkg.70.2.081>
- Belk, R. W. (1988). Possessions and the extended self. *Journal of Consumer Research*, 15(2), 139-168. <https://doi.org/10.1086/209154>
- Chapman, J. (2005). *Emotionally durable design: Objects, experiences and empathy*. Earthscan.
- Ellen MacArthur Foundation. (2017). *A new textiles economy: Redesigning fashion's future*. <https://www.ellenmacarthurfoundation.org/a-new-textiles-economy>
- Hawkes, J. (2001). *The fourth pillar of sustainability: Culture's essential role in public planning*. Common Ground Publishing.
- McDonough, W., & Braungart, M. (2002). *Cradle to cradle: Remaking the way we make things*. North Point Press.
- Niinimäki, K., Peters, G., Dahlbo, H., Perry, P., Rissanen, T., & Gwilt, A. (2020). The environmental price of fast fashion. *Nature Reviews Earth & Environment*, 1, 189-200. <https://doi.org/10.1038/s43017-020-0039-9>
- Rissanen, T., & McQuillan, H. (2016). *Zero waste fashion design*. Fairchild Books.
- Sandin, G., & Peters, G. M. (2018). Environmental impact of textile reuse and recycling: A review. *Journal of Cleaner Production*, 184, 353-365. <https://doi.org/10.1016/j.jclepro.2018.02.266>
- Sweeney, J. C., & Soutar, G. N. (2001). Consumer perceived value: The development of a multiple item scale. *Journal of Retailing*, 77(2), 203-220. [https://doi.org/10.1016/S0022-4359\(01\)00041-0](https://doi.org/10.1016/S0022-4359(01)00041-0)

Data Availability Statement: The raw data supporting the conclusions of this article will be made available by the authors, without undue reservation.

Conflicts of Interest: The authors declare that the research was conducted in the absence of any commercial or financial relationships that could be construed as a potential conflict of interest.

Publisher's Note: All claims expressed in this article are solely those of the authors and do not necessarily represent those of their affiliated organizations, or those of the publisher, the editors and the reviewers. Any product that may be evaluated in this article, or claim that may be made by its manufacturer, is not guaranteed or endorsed by the publisher.



Copyright: © 2026 by the authors. This is a fully open-access article distributed under the terms of the Attribution-NonCommercial-NoDerivatives 4.0 International (CC BY-NC-ND 4.0).