



RESEARCH ARTICLE

Inheritance and Innovation of Chinese Traditional Furniture Culture from the Contemporary Furniture Design Styles——Focus on Ming Dynasty Chair Furniture

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This research explores the inheritance and innovation of Chinese traditional furniture culture in contemporary furniture design styles, focusing on Ming Dynasty chairs. Through historical literature research and a mixed-methods approach, elements such as form, function, decoration, and aesthetic consciousness are analyzed. The study proposes three core concepts: "Tangible, " optimizing functional elements to enhance usability; "Emotional, " creating deeper connections through emotional resonance; and "Effective, " promoting cultural interaction by dynamically utilizing cultural symbols. The research aims to balance traditional cultural heritage and contemporary design innovations, thereby improving the relevance of Chinese furniture in modern life and aesthetics. Integrating advanced materials and technologies also contributes to sustainability and economic development within the furniture industry. Moreover, the study uses empirical data to support the theoretical model and evaluate the extent of traditional cultural inheritance in contemporary furniture design.

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1. INTRODUCTION

China has a long history and unique cultural, aesthetic, and artistic views. As Xiujian (2019) put it, "After thousands of years of development, the Chinese nation has formed a unique cultural, aesthetic and artistic outlook. The spirit of Chinese aesthetics is the concentrated embodiment of this aesthetic view, the essential manifestation distinguishing Chinese civilization from other social civilizations, and the core content of excellent traditional Chinese culture." As an essential part of Chinese traditional culture, traditional furniture culture embodies the national spirit and shows national style. Tao (2003) pointed out that Chinese traditional furniture culture is a part of the splendid national culture created by the Chinese nation in five thousand years. Chinese traditional culture is the sum of material and spiritual wealth created by the Chinese nation in the process of development. Traditional furniture culture is an integral part of Chinese traditional culture.

However, due to globalization, traditional lifestyles of oriental cultural significance are not fully reflected in modern furniture. Furniture design should shift from physical design to the inheritance and innovation of cultural connotations. Starting from traditional furniture design, the research focus should be shifted from physical design to the inheritance and innovation of cultural connotations to open up a new path for furniture design. (Zhidong, 2019)

Although the Chinese furniture market is increasing, it faces the dual demands of consumers for modern simplicity and cultural inheritance. The furniture styles of the Ming and Qing dynasties in China profoundly influence modern design. Under the internationalization trend, contemporary furniture needs to balance tradition and modernity and achieve the inheritance and innovation of traditional furniture culture. This is a critical issue in the current field of furniture design. The

inheritance and innovation of Chinese furniture is a complex and exciting field that needs to be comprehensively considered, including various factors such as history, culture, design, and market, to achieve sustainable development in the furniture industry. (Zhenyu, 2006) This study will focus on this complex field and explore how modern design methods can inherit traditional Chinese furniture culture and provide innovative solutions for contemporary furniture design.

Furniture with cultural connotations and unique styles is increasingly popular in today's domestic and international markets. Researching traditional furniture culture can meet the market's demand for culturally rich and personalized products and create commercial value. The history of Chinese furniture has been continuously evolving and encompasses three periods: ancient traditional furniture, modern traditional furniture, and contemporary traditional furniture (Zhou Xuebing, 2021). Combining traditional culture with modern innovation is crucial for establishing a systematic modern Chinese furniture system. Continuously exploring the design direction of modern Chinese furniture and meeting contemporary social and cultural needs will help drive innovation in the modern furniture industry.

In conclusion, researching traditional furniture culture can meet the market's demand for culturally rich and personalized products, create commercial value, and provide a necessary theoretical basis and practical guidance for establishing a systematic modern Chinese furniture system and promoting the innovation and development of the contemporary furniture industry.

2. LITERATURE REVIEW

2.1 Culture and furniture culture

The term "culture" has existed in early vocabulary worldwide. In cultural anthropology, British anthropologist Edward Burnett Tylor first defined the term "culture" in 1871. He stated: "Culture or civilization, taken in its wide ethnographic sense, is that complex whole which includes knowledge, belief, art, morals, custom, and any other capabilities and habits acquired by man as a member of society." (Maret, 1936)

Analyzing from the human-furniture-society-nature (environment) system, the relationship between furniture and nature is examined from the horizontal spatial axis, analyzing the material and aesthetic relationship between furniture and the natural environment. On the other hand, the relationship between furniture and society is discussed along the vertical axis, considering the impact and influence of traditional culture and contemporary attributes on furniture style and aesthetics (Jifeng, 2009). The formation of furniture's aesthetic and cultural mechanism cannot be separated from the relationships between various consciousnesses and facts. It requires a systematic organizational framework with various components.

The most important viewpoint of Chinese scholars on the definition of "culture" is that "culture is a complex of different forms of traits created by human beings." (Yunjie, 1996)

"In Chinese culture, furniture holds significant importance. As a typical form of craftsmanship, Chinese-style furniture exhibits distinctive characteristics in terms of materials, craftsmanship, techniques, and aesthetics." (Jifeng, 2009)

Overall, there are significant differences between traditional and modern furniture cultures in terms of style, design concepts, use of materials, and manufacturing methods, and each culture has its unique characteristics and values. Chinese furniture culture has a rich and colorful history, reflecting the unique charm of traditional Chinese culture. Furniture is not only a practical living thing but also a carrier of artistic expression and cultural inheritance. Through the study and heritage of Chinese furniture culture, the perfect function and form of furniture not only changed people's living habits and regulated people's manners and etiquette but even became the physical manifestation of the political order, economic strength, philosophical thinking, aesthetic level, folk customs and other aspects of a specific historical period. In a sense, Chinese furniture history is a thematic cultural history. On the one hand, it testifies to the whole history of China. (Association, 2022)

2.2 Contemporary furniture design

Contemporary furniture has unique beauty and value with exquisite craftsmanship and innovative design. This furniture is the real things of life and the crystallization of art and craft, highlighting the

essence of contemporary furniture design. "Since the mid-1990s, a definable movement in contemporary Chinese furniture design has been growing and evolving and has now reached such creative critical mass that it is possible to speak of it enjoying a 'moment'." The exceptional quality and innovation of the furniture associated with what has already become known as 'New Chinese Design' will undoubtedly set in motion a significant reappraisal of contemporary Chinese design in general." (Fiell et al., 2019) Contemporary furniture design encompasses all environmental products, urban facilities, household spaces, public spaces, and industrial products. Due to the progress of civilization and technology, the connotation of contemporary furniture design is endless. Furniture has evolved from the wooden era to the metal, plastic, and ecological era. From architecture to the environment, from indoors to outdoors, from households to cities, the design and manufacturing of contemporary furniture aim to meet people's ever-changing functional needs, creating a better, more comfortable, and healthier way of life, work, entertainment, and leisure. With continuous changes in human society and lifestyles, new furniture forms will continue to emerge, and furniture design is endowed with unlimited vitality. (Renyi, 2018)

2.3 Taking chairs as the focus: an exploration of reasons

There are many theories about the origins of elevated seating in China, but the emergence of chairs sparked revolutionary changes in daily life habits. (Pengliang, 2015) "Chairs are the most prominent furniture item for nearly all ethnicities worldwide, and no other utensil is used as frequently in everyday life" (Wenbin & Shoulin, 2002). From East to West, from ancient to modern times—chairs remain one of the timeless themes in furniture design. The design of chairs involves multiple elements such as functionality, form, materials, structure, technology, art, aesthetics, and ergonomics, having a profound theoretical foundation and extensive practical application value, and are the best reflection of a nation's furniture design level (Pengliang, 2015). as one of the items least restricted by spatial conditions in the human world, the aesthetic values, conceptual consciousness, and material combinations of chairs in different eras give them a vocabulary that encapsulates the world of design (Idealist, 2018). Finnish design master Tapiovaara said, "The design of a chair is the beginning of any interior design" (Pengliang, 2015). In modern society, whether in the East or West, when people think of seating, chairs come to mind first, holding a significant place in the furniture design history of both the East and the West.



Figure 1: Late Ming Dynasty Huanghuali plain wreath chair

2.4 Inheritance and development of traditional Ming style seats in contemporary furniture

2.4.1 Human-centered innovation in contemporary furniture design

Fu Yang's paper "Research on Modern Seating Systems Based on Chinese Chairs" presents a summary and organization of furniture literature. The origins and techniques of design can be attributed to human factors, including users and designers. Users have practical needs for objects, and traditional items evolve and innovate over time to meet these ever-changing user needs. User needs are divided into material and immaterial needs, corresponding to objects' material and immaterial factors, as shown in Figure 2.

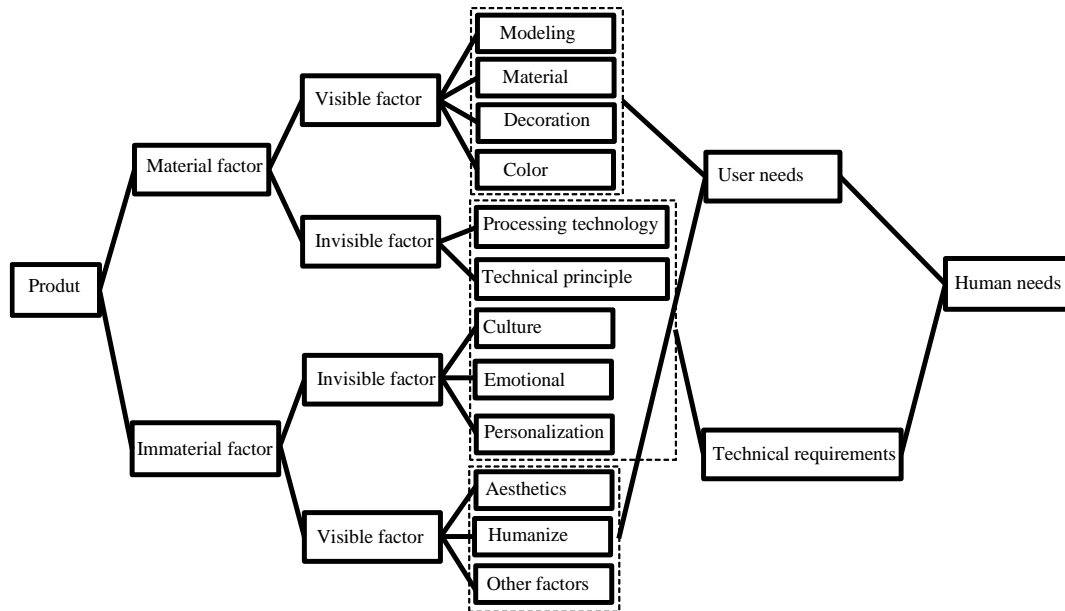


Figure 2: The relationship between product design and human needs(Yang, 2017)

Modern furniture design increasingly emphasizes human-centered design, focusing on comfort and functionality. It explores how ergonomic design can enhance the comfort of contemporary chairs, making them better suited to the needs of today's users. The growing demand for higher standards of living and working environments has increased the focus on the comfort and adaptability of seating. A vital aspect of this is the design of chair back curves, which has been shown to significantly influence human health and comfort. Zhang Shuai (2017) emphasizes in his Master's thesis that ergonomically designed chair backs can reduce spinal pressure and mitigate discomfort, thus preventing long-term health issues associated with extended periods of sitting. (Shuai, 2017)

2.4.2 Personalized service in contemporary furniture design

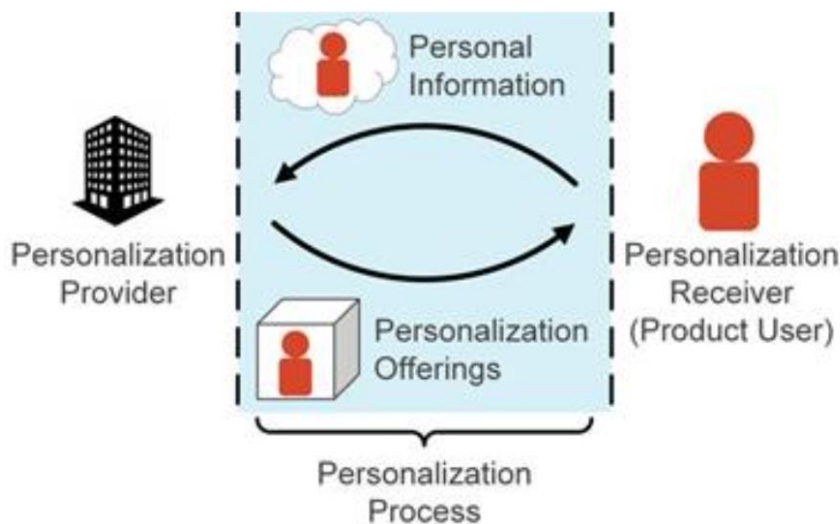


Figure 3: Concepts of personalization

Source: Proposal for the design of personalization procedure (Kaneko et al., 2018)

Personalized customization service is an essential trend in modern furniture design. The literature shows that furniture designers need to meet users' personalized needs through customization services and create unique designs with the diversification of consumers' needs. As consumer demand for personalized and sustainable furniture grows, the design and development of bamboo furniture based on customization principles has become an increasingly popular topic of interest. In her Master's thesis, Zhang Chuchu (2019) explores how personalized customization can be integrated into bamboo furniture design to better cater to individual user preferences while promoting sustainability. Zhang's (2019) research paves the way for further exploration of bamboo

furniture design, particularly in modern production methods and digital customization technologies. As consumer demands continue to shift towards more sustainable and personalized products, the fusion of traditional materials such as bamboo with cutting-edge design technologies presents exciting opportunities for innovation. (Chuchu, 2019)

2.4.3 Traditional design thinking and harmony in contemporary furniture green design

Green design is currently the most crucial design trend and an essential standard in furniture design. Green design, also known as ecological design, is an international design trend that emerged in the 1980s. Dalipi, Kurti, and Ferati's (2024) thesis on a Blockchain-Based Model of Digital Product Passports for the furniture industry focuses on the lifecycle of products and tracking sustainability through digital innovations. (Dalipi et al., 2024)

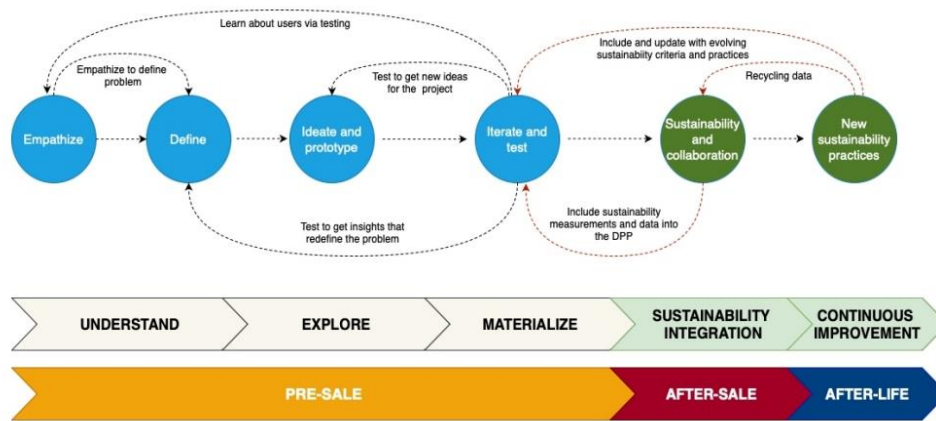


Figure 4: Design thinking and the DPP lifecycle

Similarly, Septiani, Putri, Verma, and Sasongko's (2022) paper on Eco-design Practices Towards Sustainable Furniture integrates eco-design strategies into furniture development. Their work presents a conceptual model incorporating sustainability into the traditional furniture design process, considering the end-of-life of products and resource consumption.

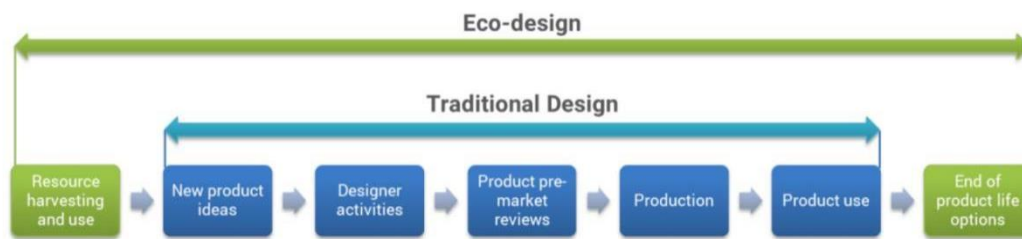


Figure 5.A: Conceptual model of traditional and eco-design processes for furniture product development.

Both traditional Chinese thought and modern eco-design research emphasize the significance of harmonizing human requirements with sustainable furniture design practices, highlighting these concepts' long-lasting and relevant nature. Green design represents a crucial direction in modern furniture design. As indicated in the literature, by integrating traditional design thinking with the green design concept, designers can create modern furniture that not only inherits cultural traditions but also meets the requirements of sustainable development.

In conclusion, contemporary furniture design is continuously evolving across multiple aspects, including materials, structure, concept, service, technology, and sustainable development. These elements are interconnected and mutually influential, which drive the furniture design industry towards greater diversification, human orientation, intelligence, and sustainability, thereby meeting the increasingly complex and diverse requirements of modern society.

3. METHODS AND TOOLS

This section explains the following aspects:

1. Historical documentation research method
2. Important index setting and analysis
3. Mixed Methods Research (MMR)

3.1 Historical documentation research method

The Thesis of Yuan Jindong“Research on Ming-style Furniture System”(2018) Many relevant historical documents at home and abroad are systematically analyzed and commented on. The specific situation in the current research field of Ming-style furniture is analyzed. Relies on factual accounts recorded in documents as known statements, using these accounts as either antecedents or consequents in logical argumentation to obtain the necessary research results (Y. Jindong, 2018).

3.2 Important index setting and analysis

Determine the impact indicators of furniture design culture on contemporary furniture. Promote the inheritance and innovation of furniture design culture and enhance the quality and value of contemporary furniture. Specific impact indicators include cultural inheritance, modern integration, and innovation and development, especially in the current era of balancing traditional culture's rich heritage and contemporary society's needs. These indicators form a structured framework to identify critical cultural factors such as traditional furniture's inherent symbolic meaning, aesthetic value, and craftsmanship. At the same time, it covers modern element indicators such as ergonomic function, environmental sustainability, and digital manufacturing processes.

These indicators are (1) Furniture Use Function, with 3 subcategories: A1 Practicality, A2 Functionality, A3 Durability; (2) Production Technology, with 3 subcategories: B1 Furniture Material, B2 Manufacturing Techniques, B3 Technology; (3) Furniture Spiritual Culture, with 4 subcategories: C1 Values, C2 Symbolism, C3 Emotional Experience, C4 Cultural Exchange; (4) Contemporary Aesthetic, with 3 subcategories: D1 Aesthetic Appeal, D2 Furniture Style, D3 Design Concept ; (5) Design Considerations, with 3 subcategories: E1 Minimalist Design, E2 Material Innovation, E3 Color Matching; (6) Development Demand, with 3 subcategories: F1 Sustainable Design, F2 Personalized Service, F3 Technology Intelligence.

Table 1: The influence index of furniture design culture on contemporary furniture

Category	Subcategory	Description
Furniture Use Function	A1 Practicality	Enhance practical use with cultural elements while maintaining functionality.
	A2 Functionality	Integrate traditional craftsmanship or materials to improve usability.
	A3 Durability	Utilize historical techniques or materials known for their longevity.
Production Technology	B1 Furniture Material	Explore traditional materials and their modern equivalents.
	B2 Manufacturing Techniques	Adapt traditional joinery or crafting methods for modern production.
	B3 Technology	Incorporate smart technology subtly to enhance functionality without overshadowing cultural elements.
Furniture Spiritual Culture	C1 Values	Reflect cultural values through design choices.
	C2 Symbolism	The harmonious coexistence between man and nature is embodied and the

		cultural, social and aesthetic concepts of that time are reflected.
	C3 Emotional Experience	Create designs that evoke cultural nostalgia or significance.
	C4 Cultural Exchange	Blend elements from different cultures for a global appeal.
Contemporary Aesthetic	D1 Aesthetic Appeal	Draw inspiration from historical styles and motifs.
	D2 Furniture Style	Develop designs reflecting specific historical periods or regions.
	D3 Design Concept	Conceptualize designs based on historical narratives or cultural stories.
Design Considerations	E1 Minimalist Design	Emphasize clean lines and balanced proportions influenced by traditional aesthetics.
	E2 Material Innovation	Experiment with sustainable and innovative materials inspired by traditional choices.
	E3 Color Matching	Use traditional color palettes or symbolic colors in contemporary designs.
Developmental Needs	F1 Sustainable Design	Prioritize eco-friendly materials and practices inspired by traditional sustainability.
	F2 Personalized Service	Offers custom designs incorporating cultural elements based on individual preferences.
	F3 Technology Intelligence	Integrate smart features subtly to enhance user experience and functionality.

3.2 Mixed methods research (MMR)

Mixed methods research (MMR) is a research methodology that combines multiple methods to address research questions in a comprehensive and principled manner. It involves collecting, analyzing, interpreting, and reporting qualitative and quantitative data. MMR integrates elements of both quantitative research, which focuses on numerical data and statistical analysis, and qualitative research, which explores subjective experiences, meanings, and context. (Clark et al., 2021) Researchers use MMR to gain a more comprehensive understanding of complex phenomena by integrating the benefits of both methods.

4. QUANTITATIVE DATA RESULTS AND DATA ANALYSIS

4.1 Descriptive analysis of research subjects' basic information

As shown in Table 2, Through the comparison of 173 furniture design education/academic/research personnel, 165 furniture design/creative personnel, and 165 furniture design students in China were selected to fill out the questionnaire and set up two different eras of Ming and Qing furniture during the whole research process, through its different eras of furniture characteristics and summarized.

Table 2: Basic information of the survey group sample

1.1 What is your gender?			
Variable	Category	frequency	Percentage
Gender	Male	201	32.8%
	Female	411	67.2%
1.2 What is your age?			
Age	18 years and under	24	3.9%
	19-29 years old	250	51.0%
	30-39 years old	181	34.8%
	40-49 years old	44	9.2%
	50-59 years old	4	0.7%
	More than 60 years old	3	0.5%
1.3 What is your working background?			
valid	Furniture culture and history researcher	16	2.6%
	Art and Design/ Creative	82	13.4%
	Educational/academic/research staff	157	25.7%
	Furniture design students	165	27%
	Furniture designers	165	27%
	Freelance	7	1.1%
	Other	20	3.3%
	Total	612	100%

4.2 Discussion of quantitative results

From the professional backgrounds and goals of the three groups, we can analyze the inherent mechanisms behind their average ranking of various indicators.

16 furniture culture historians (FCH) focus on design's historical and cultural value. Symbolic significance (4.063) ranks high.

Furniture design educators (FDE) value symbolic significance (3.885). They use design as a cultural carrier in teaching. For example, they guide students in analyzing designs and incorporating cultural elements. Functionality is key. Durability, aesthetic appeal, and technical intelligence rank lower.

Furniture industry stakeholders (FIS) focus on market competitiveness and customer satisfaction. Personalized Service(3.752).They conduct market research to optimize design. Symbolic significance, aesthetic appeal, and values should be more emphasized as they care more about market performance and economic benefits.

Table 3: Comparison of satisfaction levels across furniture design indicators, ordered by average satisfaction rating in descending order

Indicator	Object Category	Items	Mean	Standard Deviation
Symbolism	FCH	16	4.063	0.854
Symbolism	FDE	157	3.885	0.734
Minimalist Design	FDE	157	3.777	0.739
Personalized Service	FIS	165	3.752	0.917
Emotional Experience	FCH	16	3.750	0.577
Sustainable Design	FDE	157	3.704	0.741
Symbolism	FIS	165	3.682	0.848
Emotional Experience	FIS	165	3.675	0.886
Sustainable Design	FIS	165	3.549	0.93
Minimalist Design	FIS	165	3.452	0.665
Minimalist Design	FCH	16	3.438	0.727

Sustainable Design	FCH	16	3.188	0.403
Emotional Experience	FDE	157	3.178	0.895
Personalized Service	FDE	157	3.146	0.973
Personalized Service	FCH	16	3.125	0.500

4.3 Qualitative data results of sustainable design and material innovation (NVivo 14 analysis)

As shown in Figure 6, when discussing “How do you view the integration of cultural elements of furniture and the incorporation of sustainable development and green design principles in contemporary furniture design?” an analysis of interview data from the FCH, FDE, and FIS groups reveals their differing perspectives and focal points on integrating traditional furniture cultural elements and incorporating sustainable development and green design principles in contemporary furniture design. Two relevant themes were identified: “Material Innovation” and “Sustainable Design”.

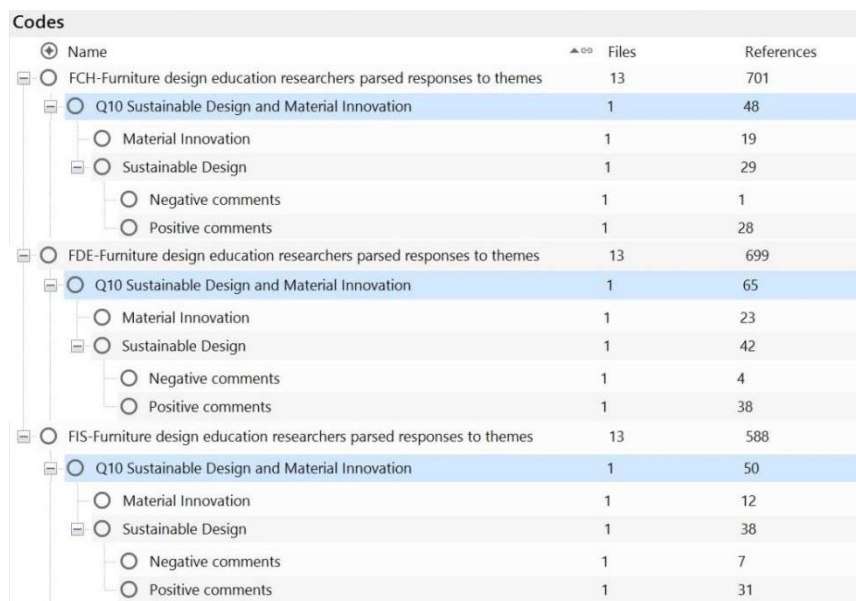


Figure 6: Parent and child nodes applying to “Sustainable Design and Material Innovation” theme highlighted in the reference sources

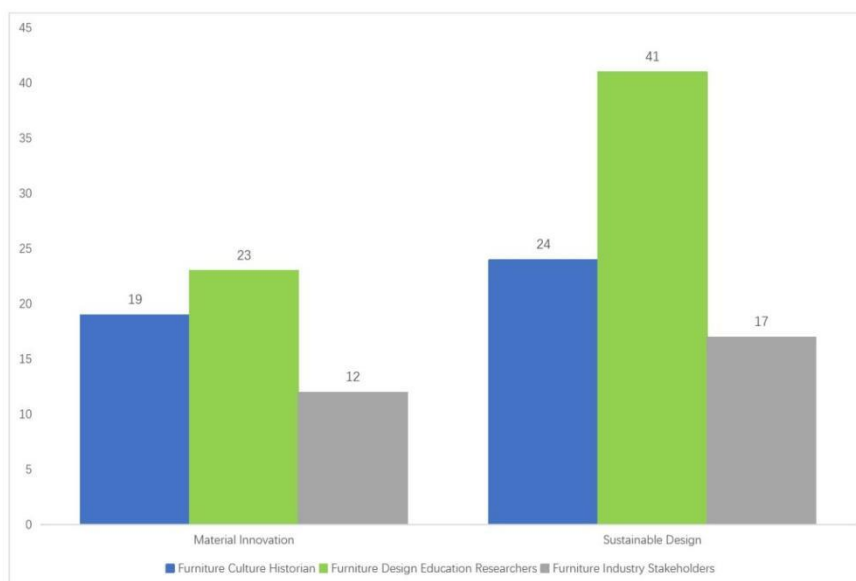


Figure 7: Numbers of coding references to “material innovation” and “sustainable design”

As shown in Figure 7, each group has distinct focal points. In the theme of “Material Innovation,” the scores are as follows: FCH(19 references), FDE(23 references), and FIS(12 references). Regarding “Sustainable Design,” FCH(24 references), FDE(41 references), and FIS (17 references).

This comparison shows that FDE places the highest emphasis on material innovation and sustainable design. FCH has a balanced focus on both themes, while FIS prioritizes sustainable design less but still recognizes its importance.

In summary, The FDE, FCH, and FIS groups all recognize the importance of sustainable design and green innovation, though their approaches differ based on their professional backgrounds and responsibilities. The FDE Group, as educators, emphasize instilling environmentally friendly values in students, reflecting their commitment to addressing environmental challenges through design education. The FCH Group balances innovation, practicality, and sustainability, leveraging their deep understanding of traditional culture to ensure that cultural heritage is preserved and adapted to modern contexts. The FIS Group, focused on practicality and market trends, aims to balance aesthetics, functionality, and environmental sustainability, driven by the need to meet market demands and enhance competitiveness. Despite these differences, all groups are highly concerned about sustainable design, highlighting its acceptance as a fundamental principle in contemporary furniture design. This consensus underscores the evolving recognition that green design is essential for environmental protection, economic success, and social responsibility.

<p><Files\FCH Q10> - § 28 references coded [43.93% Coverage]</p> <p>Reference 1 - 1.40% Coverage</p> <p>I believe that integrating traditional furniture culture elements into contemporary design while embracing sustainable and green principles is a commendable approach.</p>
<p><Files\FDE Q10> - § 43 references coded [63.82% Coverage]</p> <p>Reference 1 - 0.84% Coverage</p> <p>Moreover, in terms of material use and recycling, this combination also embodies green environmental protection and sustainable development.</p>
<p><Files\FIS Q10> - § 33 references coded [40.03% Coverage]</p> <p>Reference 1 - 1.17% Coverage</p> <p>Sustainable development and green design principles are fundamental principles in contemporary design, conveying cultural significance while maintaining environmental consciousness.</p>

Figure 8: Sample of positive comments regarding “sustainable design and material innovation” the internally developed child nodes of three Groups

These positive references share common characteristics, emphasizing the integration of traditional furniture cultural elements with modern design while focusing on sustainability principles, including using eco-friendly materials and promoting recycling. By adopting natural and environmentally friendly materials such as wood wax oils and beeswax, this design approach not only preserves cultural heritage but also meets modern consumers' demands for environmental friendliness and sustainability. These comments imply that combining traditional culture with modern sustainable design can preserve cultural heritage and meet contemporary environmental demands, aligning with market trends. Choosing natural, eco-friendly materials in design enhances the environmental friendliness of products while conveying cultural significance. By innovatively integrating traditional craftsmanship with modern technology, it is possible to create furniture products that embody cultural richness and modern functionality, thus gaining greater recognition and success in the market.

5. DISCUSSIONS

Symbolic representation: Consistently high satisfaction, especially in the FDE group, with qualitative solid support emphasizing its cultural significance.

Minimalist design: Satisfaction varies across groups, with FDE showing the highest satisfaction, while qualitative acceptance is more varied.

Emotional experience: Although the FIS group reports the highest satisfaction, the qualitative data from FCH and FDE suggests a strong preference for emotionally resonant designs.

Sustainable design: While there is qualitative solid support for sustainability, the lower satisfaction scores, particularly in FCH, highlight a need for better alignment with user expectations.

Personalized service: The FIS group demonstrates the highest satisfaction, pointing to the importance of customization in meeting user needs.

This combined table directly compares quantitative satisfaction scores and qualitative support across different user groups, providing a more comprehensive understanding of user preferences and satisfaction.

6. CONCLUSION

This study delved into the inheritance and innovation of Chinese traditional furniture culture in contemporary design through a systematic approach. In conclusion, this study has deeply explored the inheritance and innovation of Chinese traditional furniture culture in contemporary design through a systematic approach. It has proposed a comprehensive strategy integrating culture, functionality, emotion, and technology. The core findings emphasize product functionality while considering cultural dissemination and emotional experience. The multi-level design framework of “tangible,” “emotional,” and “effective” provides strong support for contemporary furniture design. “Tangible” optimizes product functionality, “emotional” establishes emotional connections, and “effective” enhances cultural interaction. The innovation path combines functionality, serviceability, and dissemination. Future research should focus on user experience, sustainable development, and technological innovation. This study provides a design framework for Chinese contemporary furniture design, which is conducive to cultural continuation and offers new cultural dissemination approaches. Looking ahead, furniture design needs to continuously explore the path of integrating tradition and modernity, pay attention to user experience, sustainable development, and technological innovation, strengthen emotional experience and user participation, promote the integration of technology and design, and interdisciplinary cooperation, to create furniture products with both cultural depth and market competitiveness. These research results are believed to be important in future furniture design practices and promote further innovation and development of Chinese furniture design on a global scale.

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