

**EXPLORING THE MATERIALS, CRAFTSMANSHIP, AND
DESIGN ELEMENTS OF THE TAISHI CHAIR IN
BEIJING, CHINA**



**A THESIS SUBMITTED IN PARTIAL FULFILLMENT
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Title	EXPLORING THE MATERIALS, CRAFTSMANSHIP, AND DESIGN ELEMENTS OF THE TAISHI CHAIR IN BEIJING, CHINA
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ABSTRACT

This research aims to 1) study the selection of materials that can reduce environmental burden and promote ecological balance; 2) analyze the structural advantages of traditional tenon-and-mortise joints; and (3) study the consumer satisfaction with the design elements of the Tai Chi chair. It combines literature review, field observation, questionnaire survey, and expert interviews. A total of 120 valid survey responses from Beijing residents and insights from experienced craftsmen provide both qualitative and quantitative data. The results of the study emphasize that sustainable wood alternatives, such as artificial bamboo and recycled materials, are environmentally friendly and culturally respectful. In addition, the tenon-and-mortise joints are proven to be durable and aesthetically pleasing, and their integration with digital manufacturing can improve production efficiency. In addition, the study reveals that the design of the Tai Chi chair incorporates Chinese cultural symbols, such as Confucian values, imperial dignity, and philosopher aesthetics, making the Tai Chi chair not only a practical piece of furniture but also an intangible heritage. The design of a new, modern Tai Chi chair, informed by users' preferences and ergonomic needs, It shows that cultural heritage can be preserved through adaptive and sustainable innovation. In conclusion, this research contributes to the debate on sustainable furniture design and cultural conservation by proposing practical guidelines for integrating traditional craftsmanship with modern production and design principles. The results support the revitalization of Chinese furniture culture and offer a model for the evolution of heritage-based product innovation in a contemporary context.

Keywords: Taishi chair, traditional craftsmanship, sustainable design, mortise and tenon structure, cultural symbolism



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PENGXIN HE

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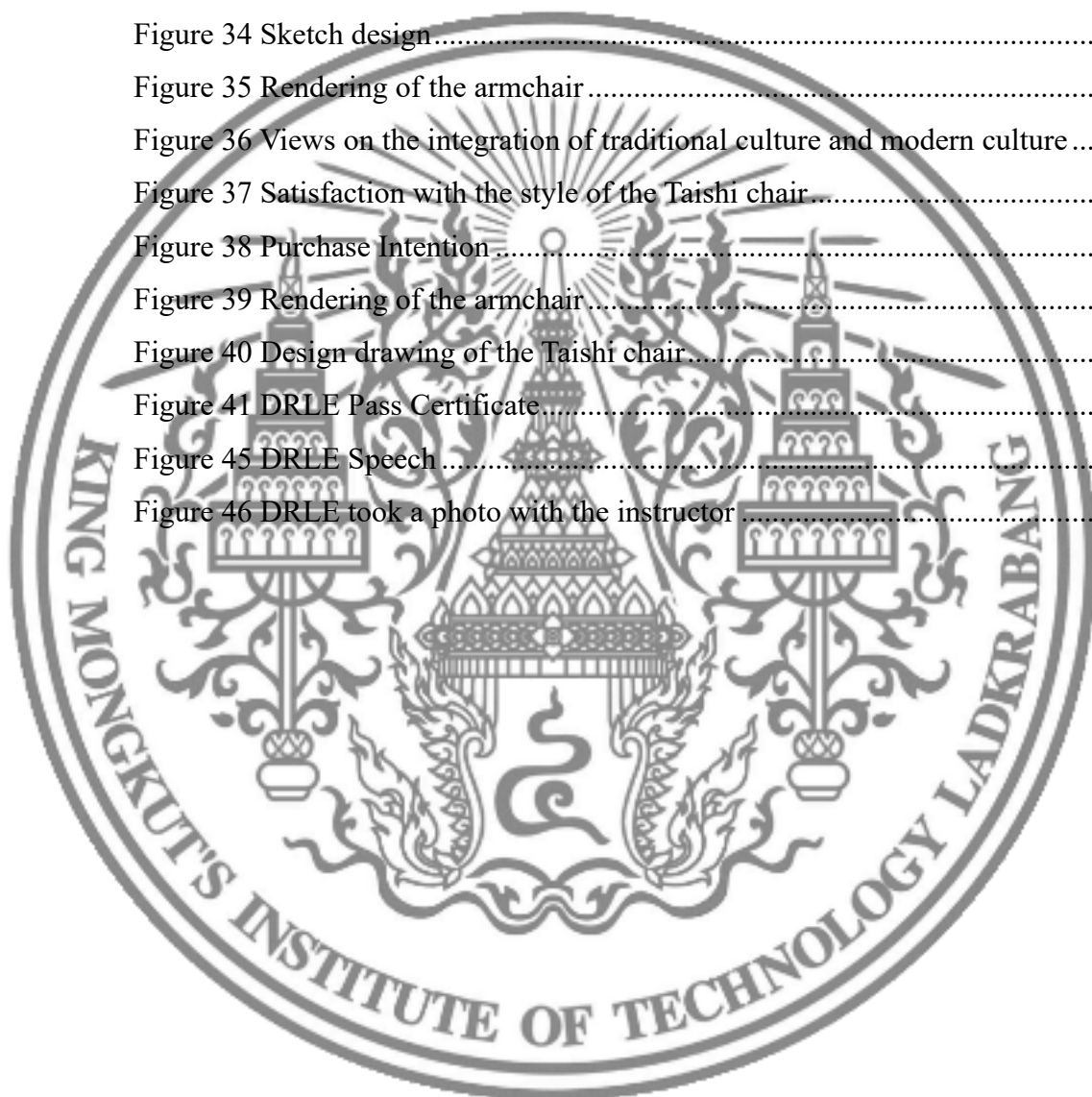
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APPENDIX

APPENDIX A

Index of Item-Objective Congruence, IOC

Research topic: Materials, craftsmanship and sustainable development of Taishi Chair in Beijing, China

Researcher: PENGXIN HE

question	score			IOC	result
	+1	0	-1		
1. How familiar are you with traditional Chinese furniture, particularly Taishi chairs?	/				
2. How would you rate the integration of modern and traditional elements in Beijing's current cultural products?	/				
3. How often do you engage with traditional Chinese cultural practices or products?	/				
4. How do you perceive the importance of preserving traditional crafts like Taishi chair manufacturing in modern Beijing?	/				
5. What role do you think Taishi chairs play in representing Beijing's cultural heritage?	/				
6. What is your main interest in Taishi chairs?	/				
7. What impact do you think sustainable practices in traditional crafts have on environmental conservation in Beijing?	/				
8. How often do you encounter Taishi chairs or their representations in Beijing's cultural settings (e.g., museums, galleries, cultural events)?	/				
9. What is your opinion on the current state of traditional craftsmanship skills among artisans in Beijing?	/				
10. How important do you think it is to incorporate environmental sustainability into Beijing's cultural products?	/				
11. For what purposes do you or would you use a Taishi chair?	/				
12. How comfortable do you find the Taishi chair for regular use?	/				
13. Would you prefer a Taishi chair with modern ergonomic features or a traditional design?	/				
14. How likely are you to recommend a Taishi chair to others for its cultural value?	/				
15. What is your preferred material for a Taishi chair considering sustainability and aesthetics?	/				
16. How important is the artistic design (e.g., carvings, motifs) of Taishi chairs to you?	/				
17. Would you be interested in Taishi chairs that incorporate modern technology (e.g., adjustable features, smart connectivity)?	/				
18. How do you view the balance between preserving traditional Taishi chair designs and innovating new styles?	/				

The scope of this study is based on the 25-50 years old young and middle-aged population in Beijing. The economic independence of young and middle-aged people is relatively stable, and they have certain requirements for the quality of life.


 Assoc. Prof. Pimdee Pimdee

Evaluator

Date ____ / ____ / ____

Figure 1 IOC problem table

(Figure by Pengxin He)

APPENDIX B

Index of Item-Objective Congruence, IOC

Research topic: Materials, craftsmanship and sustainable development of Taishi Chair in Beijing, China

Researcher: PENGXIN HE

question	score			IOC	result
	+1	0	-1		
1. How familiar are you with traditional Chinese furniture, particularly Taishi chairs?	✓				
2. How would you rate the integration of modern and traditional elements in Beijing's current cultural products?	✓				
3. How often do you engage with traditional Chinese cultural practices or products?	✓				
4. How do you perceive the importance of preserving traditional crafts like Taishi chair manufacturing in modern Beijing?	✓				
5. What role do you think Taishi chairs play in representing Beijing's cultural heritage?	✓				
6. What is your main interest in Taishi chairs?	✓				
7. What impact do you think sustainable practices in traditional crafts have on environmental conservation in Beijing?	✓				
8. How often do you encounter Taishi chairs or their representations in Beijing's cultural settings (e.g., museums, galleries, cultural events)?	✓				
9. What is your opinion on the current state of traditional craftsmanship skills among artisans in Beijing?	✓				
10. How important do you think it is to incorporate environmental sustainability into Beijing's cultural products?	✓				
11. For what purposes do you or would you use a Taishi chair?	✓				
12. How comfortable do you find the Taishi chair for regular use?	✓				
13. Would you prefer a Taishi chair with modern ergonomic features or a traditional design?	✓				
14. How likely are you to recommend a Taishi chair to others for its cultural value?	✓				
15. What is your preferred material for a Taishi chair considering sustainability and aesthetics?	✓				
16. How important is the artistic design (e.g., carvings, motifs) of Taishi chairs to you?	✓				
17. Would you be interested in Taishi chairs that incorporate modern technology (e.g., adjustable features, smart connectivity)?	✓				
18. How do you view the balance between preserving traditional Taishi chair designs and innovating new styles?	✓				

The scope of this study is based on the 25-50 years old young and middle-aged population in Beijing. The economic independence of young and middle-aged people is relatively stable, and they have certain requirements for the quality of life.

Sinrat Petsangson

Evaluator

Date 2 / Feb / 2024

Figure 2 IOC problem table

(Figure by Pengxin He)

APPENDIX C

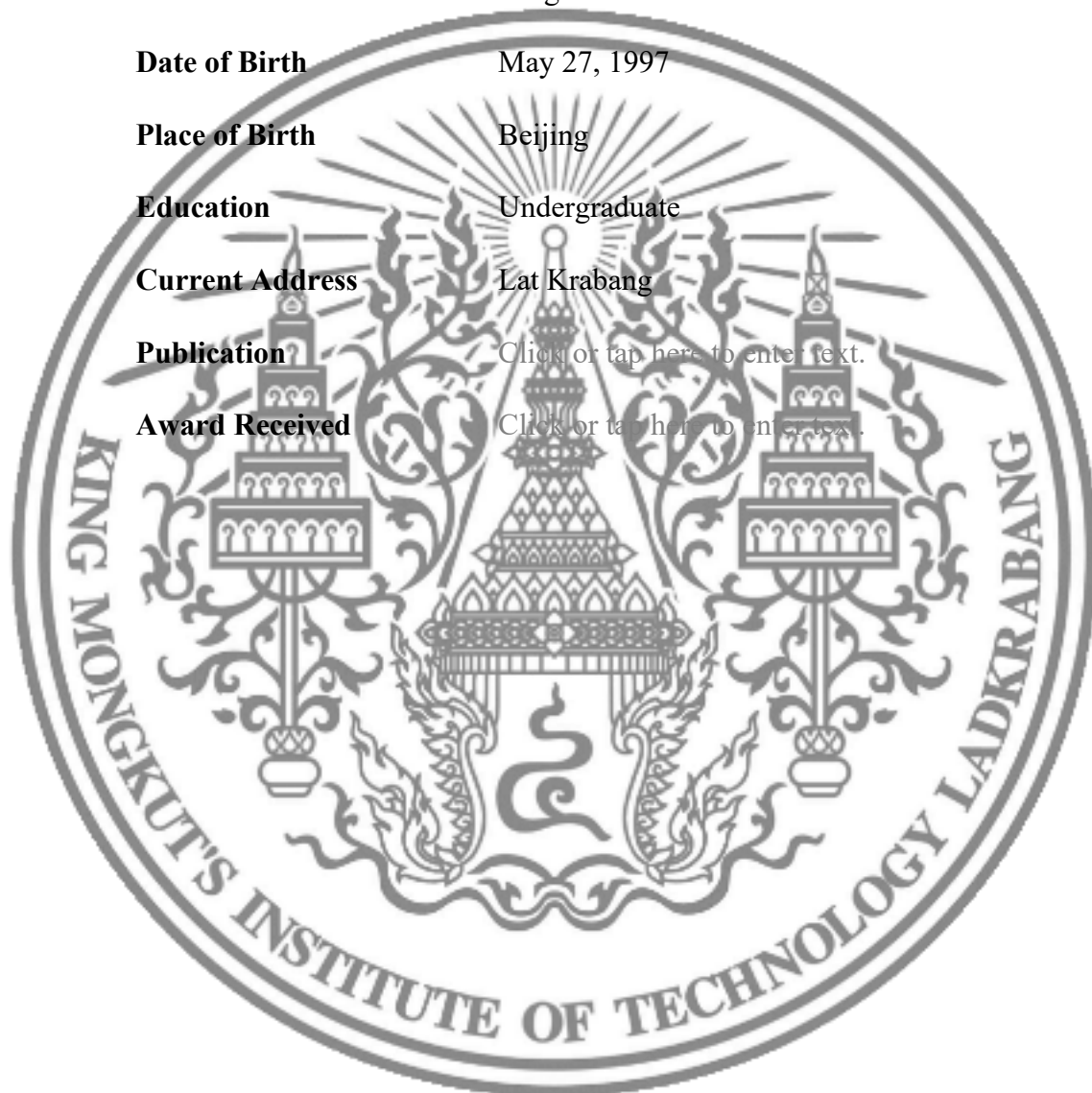


Figure 3 IOC interview
(Figure by Pengxin He)



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CHAPTER 1 INTRODUCTION

1.1 Research Background

Taishi chair is a traditional Chinese chair, famous for its unique design and rich cultural heritage. The Taishi chair originated during the Ming Dynasty (1368-1644) and has been a symbol of Chinese culture and artistic craftsmanship for centuries. Its unique design and construction reflect the cultural and historical influences of various dynasties, making it an important object of study for researchers and scholars interested in traditional Chinese furniture. The History and Development of the Taishi Chair The history of the Taishi Chair can be traced back to the Tang Dynasty (618-907), a period of cultural prosperity and development. During this period, chairs were not commonly used by the common people and were mostly reserved for the wealthy and elite. High and low furniture coexisted in the Tang Dynasty, and chairs came in various forms (Zhagn & Xu, 2020).

Taishi chair represents the outstanding achievements of Chinese traditional culture, art and furniture making technology. It played an important role in ancient Chinese society and reflected a symbol of power and dignity. At the same time, it has a high artistic value, attracting the attention of artists, collectors and researchers. The study of the Taishi Chair not only helps to understand ancient Chinese culture, but also helps protect and inherit this precious cultural heritage.

The production of Taishi chairs faces multiple problems. First of all, the wood selection of traditional Taishi chairs often lacks sustainability considerations, which leads to the problem of over-exploitation of forest resources and damage to ecosystems, causing negative impacts on the environment (Smith et al., 2020). Secondly, although traditional handcraftsmanship gives Taishi chairs their uniqueness, there are also challenges of low production efficiency, waste of resources, and excessive labor requirements (Jones, 2019). In addition, some Taishi chairs are easily damaged during use and need to be replaced frequently, which not only increases the waste of resources, but also further exacerbates sustainability issues (Brown, 2021).

Solving these problems requires multifaceted measures. First, the use of sustainable materials, such as certified sustainable wood, should be actively promoted to reduce the burden on forest resources (Johnson, 2022). Secondly, process improvement should be considered and modern technology should be introduced to improve production efficiency, reduce resource waste, and reduce labor costs (Green & Lee, 2019). In addition, when designing Taishi chairs, attention should be paid to product life extension to reduce resource consumption and waste generation

Therefore, the multiple problems faced by the Taishi chair production include unsustainable wood selection, traditional process efficiency issues, and short product life. To address these challenges, a multifaceted and comprehensive approach must be

taken. First, promote the use of sustainable materials, such as certified sustainable wood, to reduce the burden on forest resources. Secondly, consider process improvements and introduce modern technology to improve production efficiency, reduce resource waste, and reduce labor costs. In addition, in the design of Taishi chairs, attention should be paid to extending product life to reduce resource consumption and waste generation. These comprehensive measures are expected to make the production of Taishi chairs more sustainable, reduce the negative impact on the environment, and at the same time increase consumers' awareness and demand for environmentally friendly products (Yang Xiaohui, You Daming, 2022). This provides a new development direction for traditional furniture manufacturing, integrating sustainability principles into traditional production, helping to protect cultural heritage and promote the evolution of traditional craftsmanship.

1.2 Research questions

1.2.1 How to improve material selection to reduce the burden on forest resources and reduce ecological impact?

1.2.2 What are the advantages of traditional mortise and tenon structure in the production of Taishi chairs?

1.2.3 How do the design elements of Taishi chairs reflect the connotation of traditional Chinese culture?

1.3 Research objectives

1.3.1 To propose strategies to improve material selection to reduce burden on forest resources and reduce ecological impacts.

1.3.2 Analyze the technical advantages of traditional mortise and tenon structure in the production of Beijing Taishi chairs and its application potential in modern production.

1.3.3 Explore how the design elements of the Beijing Taishi Chair convey and reflect the core connotation of Chinese traditional culture.

1.4 Conceptual Framework

As society pays more attention to sustainability and environmental protection, the field of product design is gradually shifting towards a more environmentally friendly and sustainable direction. This paper aims to conduct an in-depth study of the material selection, process, and design of the Taishi Chair, exploring how to minimize the impact on the environment during the manufacturing process and increase the product's lifespan while meeting user needs and market trends. We will analyze the selection of materials such as wood, metal, and fabric, explore the process design of

digital manufacturing and processes, study the principles of circular and modular design, and evaluate the carbon footprint and material life cycle. In addition, we will focus on user experience, including comfort and aesthetic design, and study market trends and social impacts, such as consumer preferences, manufacturing trends, employment opportunities, and cultural heritage (Zhu Anming, Hong Yifeng, Zhang Xufeng, et al, 2023) . Through this comprehensive research framework, we aim to provide deep insights into the sustainable design of the Taishi Chair and provide a reference for future sustainable product design.

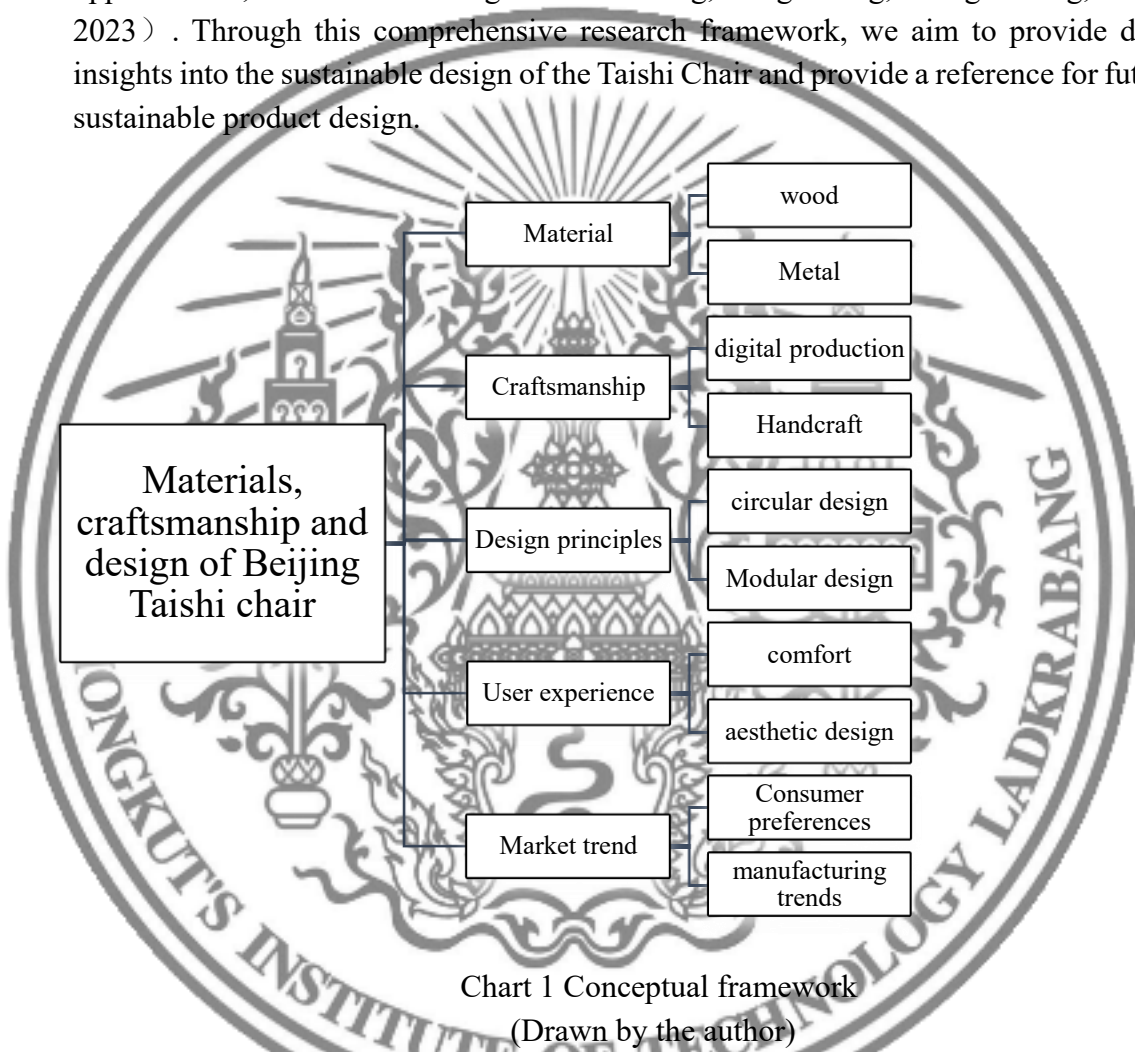


Chart 1 Conceptual framework
(Drawn by the author)

In this in-depth study, we explored the material selection, craftsmanship and design of the Taishi Chair, emphasizing the importance of incorporating environmental and sustainable principles into product manufacturing. Through a detailed study of materials such as wood, metal and fabric, we emphasize the importance of selecting certified sustainable forestry management, recycled materials and sustainable production. In terms of process design, the combination of digital manufacturing and traditional craftsmanship provides new possibilities for the personalized customization of the Taishi Chair (He Jiarong, Yi Liqin, Huang Kai, et al, 2023) . The design principles of circular design and modular design provide sustainable solutions for the entire life cycle of the product. The sustainability assessment section highlights the key factors for reducing environmental impact during the production and use stages. By focusing

on user experience, market trends and social impact, we emphasize the importance of considering end-user needs and social responsibility in sustainable design. The research framework of this paper provides useful inspiration for future product design, hoping to prompt more designers and manufacturers to move towards a more sustainable and environmentally friendly direction.

1.5 Scope of the study

1.5.1 Material Selection:

This study will investigate in detail the traditional wood selection for Taishi chairs, especially the types of wood used in the past and the sources of resources. We will study the impact of these selections on forest resources and whether there is a problem of overexploitation and destruction of the ecosystem.

1.5.2 Technology and production process:

This study will describe in detail the traditional production process of the Tai Shi chair, including the mortise and tenon structure, carving techniques and surface treatment methods. It will also compare the differences between traditional craftsmanship and modern production technology in terms of efficiency, precision and finished product quality. Finally, it will explore the role of craftsmanship in the inheritance and innovation of Tai Shi chair production.

1.5.3 Design Aesthetics and Cultural Symbolism:

This study will analyze the design elements of the Tai Shi chair, including its form, proportion and decorative patterns, and explore how these elements reflect the connotation of Chinese traditional culture. At the same time, it will explore the historical evolution of Tai Shi chair design and its cultural symbolic significance in different historical periods. Finally, it will study the application and innovation of traditional Tai Shi chair elements in modern design and evaluate its adaptability and aesthetic value in contemporary home design.



Figure 4 Traditional craftsmanship of Taishi chair
(Photo by Zhang Zhen, chief reporter of Shijiazhuang Daily)

1.6 Research methods

1.6.1 Literature research method:

Conduct an extensive literature review to understand the history, traditional materials, craftsmanship, and existing research and cases related to the design of Taishi chairs.

1.6.2 Questionnaire survey method:

Design and distribute questionnaires to collect the views, needs and opinions of Taishi chair users, manufacturers or consumers on the materials, craftsmanship and design of Taishi chairs.

1.6.3 On-site inspection:

Investigate and visit the Taishi chair manufacturing factory, observe the manufacturing process and collect samples to understand the actual manufacturing process and material selection.

1.6.4 Expert Interviews:

Conduct expert interviews and speak with professionals, designers and sustainability experts in the furniture manufacturing field to obtain their insights and suggestions, especially in terms of materials, craftsmanship and design.

1.6.5 User behavior research:

Study the end users of Taishi chairs to understand their purchasing decisions,

usage habits and product life of sustainable products.

1.7 Expected benefits

1.7.1 High quality and durability

Consumers can expect high-quality materials and craftsmanship in Taishi chairs, so the products are more durable. This means consumers will enjoy long-term comfort and a high-quality seating experience, reducing the need to frequently replace furniture.

1.7.2 Improving the service life of Taishi chairs

By exploring the issues of Taishi chair materials, the study can provide suggestions for improving material selection, technology and design to mitigate its negative impact on the environment.

1.7.3 Economic Benefits

In the long run, the longer life of Taishi chairs may reduce maintenance and repair costs, because the product is constructed and detailed with easy repair in mind. This will reduce the repair costs for consumers, saving time and money.

1.7.4 Industrial Development

The proposed improvement suggestions and implemented service life measures are expected to provide a new development direction for Taishi Chair Industry and enhance its competitiveness.

CHAPTER 2 LITERATURE REVIEW

2.1 Materials concepts and theories

This study will conduct a comprehensive analysis of the materials, craftsmanship and design of the Taishi chair based on multiple theoretical frameworks. First, using the theories of ecology and sustainable development, we will explore the selection of traditional wood and its ecological impact, and evaluate the feasibility of the application of modern environmentally friendly materials. Secondly, using the theories of structural engineering, aesthetics and modern manufacturing, we will analyze the differences in efficiency, precision and quality between traditional mortise and tenon structures, carving techniques and modern production technologies (Liu Jiahui, Song Shasha, 2019). Thirdly, through the theories of cultural anthropology and design innovation, we will study the historical evolution of the design elements and cultural connotations of the Taishi chair, and evaluate its adaptability and aesthetic value in modern home design. Finally, combined with the theories of cultural heritage protection and innovation management, we will explore the inheritance and innovation role of craftsmanship in the production of Taishi chairs. These theories provide systematicity and depth to the research, ensuring a comprehensive discussion of the materials, craftsmanship and design of the Taishi chair.

2.1.1 Materials concepts

(1) Traditional craftsmanship

As one of the traditional Chinese crafts, Taishi chair has a long historical heritage (Ministry of Culture of China, 2017). Its production technology embodies the crystallization of wisdom closely connected with production and life. It mainly uses manual labor, which is different from modern mechanical technology and shows obvious national and regional characteristics. The production process of the Taishi Chair includes the selection of high-quality wood, exquisite carving, mortise and tenon structural assembly, traditional lacquer painting, and attention to wood texture matching (Wang Shuo, 2021). These technological characteristics make it an outstanding representative of traditional Chinese craftsmanship. Related documents "Traditional Chinese Furniture Manufacturing Techniques", "Art Appreciation of Ancient Chinese Furniture", "Mortise and Tenon Structure and Reinforcement Techniques of Chinese Furniture", "Traditional Chinese Furniture Surface Decoration Techniques" and "Texture Design and Application of Chinese Furniture" further emphasize The cultural elements and craft concepts of traditional crafts embodied in the Taishi Chair call for better protection and inheritance of this important cultural heritage in modern life.

(2) Beijing Taishi Chair

Beijing Taishi Chair originated in the Ming and Qing Dynasties and is a traditional Chinese furniture with profound historical and cultural heritage. Its design

is unique, with exquisite carvings on the back and armrests, reflecting traditional Chinese aesthetic concepts. The seat is large and comfortable, and the overall solemn and elegant look. The finest mahogany, rosewood and other woods are used, and the production techniques include mortise and tenon structure, hand carving, traditional lacquer techniques, etc. The Taishi chair is not only a practical piece of furniture, but also a representative of culture. Its carving patterns contain rich history, customs and aesthetic concepts. In modern times, craftsmen are committed to inheriting and developing this traditional craft and injecting new design elements to make the Taishi chair better integrated into contemporary life. In Beijing's traditional handicraft markets, antique markets or professional furniture stores, you can admire these unique and exquisite Taishi chairs and experience the charm of traditional craftsmanship (Zhen Zhidong, 2024).

(3) Beijing Taishi Chair Manufacturing Techniques

The traditional craftsmanship of Beijing Taishi chairs has a long history, which began in the Ming and Qing Dynasties and still maintains a profound historical heritage. Its production method includes selecting the best wood (Yang Jun, 2019), often using mahogany, rosewood, etc., based on its hard and corrosion-resistant properties. The craftsmen pay attention to the application of mortise and tenon structure, and ensure the stability and durability of the Taishi chair through clever assembly methods. In terms of design, the back and armrests of the Taishi chair are carved with various patterns, reflecting traditional Chinese aesthetic concepts and adding unique artistic value to the chair. During the production process, the use of hand-carving techniques is particularly important. Craftsmen use exquisite skills to create furniture with a solemn and elegant atmosphere. Finally, the use of traditional lacquer technology not only gives the Taishi chair a unique color, but also protects the wood surface and extends the service life of the chair. These traditional production techniques make the Beijing Taishi Chair a piece of traditional Chinese furniture with profound cultural connotations and exquisite craftsmanship.

(4) Cultural and creative products

Cultural and creative products are products that combine cultural elements and creative design to meet market demand with unique artistic expression. Such products usually integrate traditional culture, art, design and innovative concepts, aiming to convey unique cultural connotations and improve the quality of life. The scope of cultural and creative products is wide, covering many fields such as artworks, handicrafts, design furniture, clothing accessories, and digital media (Song Jie, Chen Qiming, Chen Li, et al. 2022).

These products often incorporate traditional cultural symbols, stories or artistic styles into their designs, and are reinterpreted or re-created through creative techniques to adapt to the aesthetics and needs of modern society. The production process of cultural and creative products often combines traditional craftsmanship and

modern technology, highlighting unique personality and innovation.

In the market, cultural and creative products are not only commodities, but also carriers of cultural inheritance and innovation. They can stimulate people's interest in traditional culture, while also providing a platform for artists and designers to showcase their creative talents. The development of this field not only promotes the prosperity of the cultural industry, but also provides consumers with more diverse and interesting shopping options.

(5) Consumer purchase intention

Consumer purchase intention refers to the extent to which consumers express their tendency and desire to purchase a certain product or service. This concept covers multiple factors, including an individual's economic status, product value perception, brand reputation, marketing and personal preferences. Consumer purchase intention is not only related to individual demand satisfaction, but also affected by external environment and market factors.

(6) Minimalism

Minimalism is a design and living philosophy that emphasizes simplicity, purity and functionality. In the field of design, minimalism pursues simplicity and clarity through simplification and elimination of complexity. The idea is to eliminate superfluous decoration and complexity and highlight practicality and refined details to create a space or product that is simple yet elegant.

In terms of lifestyle, minimalism emphasizes focusing on important things, owning few and selected items, and reducing unnecessary consumption and waste. This idea pursues peace of mind and happiness in a simple life

2.1.2 Materials theories

(1) Product design theory

Product design theory is a comprehensive set of product design principles, methods and guiding ideology, covering many aspects such as innovation, user experience, functionality, aesthetics and product usage time. While emphasizing innovative design, we not only focus on the application of new technologies, but also pay more attention to the in-depth understanding of user needs and market trends. User experience design is one of the core concepts, starting from the user's perspective, to improve the ease of use, convenience and pleasure of the product. Functional design pursues the product to achieve the functions expected by the user during use and optimizes performance. Aesthetic design focuses on enhancing the aesthetic value of the product through an elegant, coordinated and beautiful appearance (Xiao Fei, 2020). With the rise of the concept of protecting the environment, product design theory increasingly emphasizes reducing the negative impact on the environment and pursuing product usage time and production methods.

(2) Cultural inheritance and innovation theory

The theory of cultural inheritance and innovation explores how to balance

the inheritance of traditional culture and the power of innovation in social changes (Zhang Hongmin, 2023). The theory emphasizes that cultural inheritance is the indispensable soul of society, including the protection and inheritance of traditional values, customs, language and other elements to maintain the identity and historical continuity of society. At the same time, the theory recognizes that innovation is also crucial to the evolution of society, allowing society to adapt to change and evolve through the introduction of new ideas, technologies, and arts. Within this theoretical framework, balancing inheritance and innovation is seen as a necessary dialogue to avoid falling into cultural rigidity or a single development direction. This balanced exploration helps create a dynamic and durable cultural ecology and provides a theoretical cornerstone for the sustainable development of society.

(3) Theory of reasoned action and theory of planned behavior

The Theory of Reasoned Action and the Theory of Planned Behavior are both key theories in the behavioral sciences, providing profound insights into explaining and predicting individual behavior. The theory of rational behavior believes that individuals will fully consider information when making decisions, pursue utility maximization, and rationally choose behaviors that best suit their interests. Different from this, the theory of planned behavior emphasizes that individual behavior is driven by plans and intentions. People have clear intentions before actual actions, and these intentions are important factors in determining final behavior.

In integrating these two theories, we can see their complementarity. The theory of reasoned action emphasizes individual information processing and utility maximization, while the theory of planned behavior emphasizes the impact of individual intentions and plans on actual behavior. Taken together, an individual may be affected by both rational thinking and plan execution in the process of decision-making and behavior. The two are intertwined and jointly shape the individual's behavior.

2.1.3 Terminology Definition

(1) Taishi Chair

The Taishi chair is a traditional Chinese high-back armchair that originated in the Ming Dynasty. It symbolizes status, power, and Confucian etiquette, characterized by mortise and tenon joints, elaborate carvings, and a commanding form. It is a quintessential representation of Chinese seating aesthetics and cultural authority.

(2) Mortise and Tenon Structure

This is a traditional joinery technique in Chinese woodworking where a protruding “tenon” fits precisely into a corresponding “mortise.” It offers high structural integrity without nails or screws, exemplifying Chinese woodworking's precision and craftsmanship.

(3) Sustainable Design

Sustainable design refers to the creation of products with minimal

environmental impact, focusing on material selection, longevity, energy efficiency, and recyclability. In furniture, this includes using certified woods, modular design, and eco-friendly production methods.

(4) Cultural and Creative Products

These are goods that combine traditional cultural elements with modern design to meet contemporary aesthetic and functional needs. They serve as both commodities and carriers of intangible cultural heritage, and play a vital role in cultural revitalization and industrial development.

(5) User Experience (UX)

User experience in product design focuses on comfort, aesthetics, emotional connection, and functionality from the end-user's perspective. For traditional furniture like the Taishi chair, it considers seating ergonomics, symbolic meaning, and sensory satisfaction.

(6) Minimalism

Minimalism in design emphasizes simplicity, clarity, and functionality by reducing visual clutter and unnecessary ornamentation. When applied to traditional furniture redesign, it seeks to preserve symbolic essence while improving usability.

(7) Digital Manufacturing

Digital manufacturing uses computer-aided design (CAD) and computer-aided manufacturing (CAM) technologies to streamline production. In this study, it enables customized and precise re-creations of the Taishi chair while reducing waste and enhancing consistency.

2.2 Design concept

First, the commonly used materials for Taishi chairs, such as mahogany, will be analyzed in detail to explore their selection criteria and their impact on traditional craftsmanship. Secondly, the unique mortise and tenon structure craftsmanship will be examined to explore its application in the production of Taishi chairs and its significance in cultural inheritance. Furthermore, the design features of Taishi chairs will be analyzed, including the use of decorative patterns such as dragons and phoenixes, flowers, etc., and the functions of these patterns in cultural symbolism and aesthetic expression. Through a comprehensive study of these elements, it aims to fully demonstrate the unique charm and cultural significance of Beijing Taishi chairs as traditional Chinese furniture, and provide theoretical and practical guidance for the protection of traditional craftsmanship and the integration of modern design (Shi Jiangtao, 2024).

2.3 Materials research

2.3.1 Research on the development of cultural and creative industries

Research on the development of cultural and creative industries focuses on a number of key aspects, including analysis of industrial structure and characteristics, focusing on the division of different sub-fields and the formation of the entire industry chain. At the same time, researchers are concerned about the role of technology and innovation in the cultural and creative industries, and deeply explore how to promote the innovation of cultural products and services through new technologies. The development of cultural and creative industries is also affected by policies and regulations. Study the government's support policies in this field to understand their incentives and guidance for industrial development. In terms of cultural value and identity, the study explores how cultural and creative products and services convey cultural value and how they shape social identity. In addition, researchers also pay attention to market demand and consumer behavior, analyzing the demand for cultural and creative products in the market and consumers' attitudes towards cultural creativity. Finally, international exchanges and cooperation are also part of the research, examining the cooperation and exchanges of cultural and creative industries at the international level, as well as their position in international competition (Xiang Yong, Li Jinsha, 2020).

This comprehensive research effort strives to deeply understand the multi-faceted characteristics of cultural and creative industries, providing useful insights for policy formulation, market operations, and innovation promotion.

2.3.2 Research on attribute factors of cultural and creative products

Research on cultural and creative products focuses on their multi-dimensional attribute factors and conducts in-depth analysis of the key factors that affect the characteristics of this type of product. First, aesthetic design and creativity are considered important attributes of cultural and creative products. Researchers emphasize the key role of product appearance, artistry and uniqueness in arousing consumer interest and satisfying aesthetic needs. Secondly, cultural values and traditional elements are regarded as important attributes in shaping product identity. The research focuses on examining how cultural and creative products integrate and convey local culture, and the impact this has on the product's popularity in the market. At the same time, sustainability attributes have also attracted much attention, and researchers have explored the environmental protection and social responsibility factors of cultural and creative products in the design, production and consumption stages. This research comprehensively considers multiple attributes such as aesthetics, cultural value and sustainability, providing profound insights into understanding the success of cultural and creative products in the market and consumer demand.

2.3.3 Research on the relationship between products and consumers' purchase intention

The study of the relationship between products and consumers' purchase intention is an important field, involving many aspects, from product characteristics to consumer psychology and market environment. Researchers focus on the following aspects to gain a deeper understanding of this relationship:

First of all, the impact of product characteristics on consumers' purchase intention is a core issue. Research usually focuses on aspects such as product quality, functionality, and design, analyzing how these characteristics guide, inspire, or hinder consumers' purchasing decisions.

Secondly, the impact of brand image and perception on purchase intention has also attracted much attention. Researchers try to understand the position of brands in consumers' minds, and how brand image and reputation affect their purchase intentions for products.

The psychological characteristics and attitudes of individual consumers are also important directions for research. This includes product preferences, attitudes, beliefs and cultural identity, etc. Researchers explore these factors to explain why consumers show higher purchase intentions for certain products.

Finally, the impact of market environment and marketing strategies on purchase intention is also the focus of research. Researchers examine how market competition, macroeconomic factors, and marketing methods such as advertising and promotions affect product performance in the market and consumers' purchase intentions.

These research efforts provide insights to businesses and market decision-makers to help them better understand the correlation between products and purchase intentions, thereby optimizing product design, marketing, and brand strategies.

2.3.4 Research Review

The research on the relationship between products and consumer purchase intention is based on in-depth analysis of multiple key areas. Scholars have conducted in-depth research on the impact of product characteristics on purchase intention, focusing on how aspects such as product quality, functionality, and design guide, inspire, or hinder consumers' purchase decisions. At the same time, the influence of brand image and cognition on purchase intention is also an important topic. Researchers are committed to understanding the position of the brand in the minds of consumers and how brand image and reputation affect purchase intention. The psychological characteristics and attitudes of individual consumers are also key directions for research. By deeply exploring factors such as consumer preferences, attitudes, beliefs, and cultural identity, we can explain why consumers show higher willingness to purchase certain products. Finally, the impact of market environment and marketing strategies on purchase intention has also attracted much attention. Researchers analyze how

market competition, macroeconomic factors, and marketing methods such as advertising and promotion affect product performance in the market and consumers' purchase intention. This comprehensive research effort provides businesses and market decision-makers with comprehensive insights to optimize product design, marketing and branding strategies to better meet consumer needs.



CHAPTER 3 RESEARCH METHODOLOGY

3.1 Study Area

This study was conducted in Beijing, China, a city that reflects both traditional cultural values and modern design trends. Key districts such as Daxing, Chaoyang, and Haidian were selected due to their cultural relevance, access to traditional furniture markets, and diverse population demographics.



Figure 5 China Map
(Screenshot from Google Maps)

This map is a map of China's political divisions, showing the various provincial administrative regions in China. The map uses different colors to mark the provinces (such as Sichuan, Guangdong, Shandong, etc.), and indicates the names of the provincial capitals and major cities. The area circled by the red oval in the center of the map is Beijing, indicating its geographical location in China - located in North China, close to Hebei Province and Tianjin. As the capital of China, Beijing is the focus of this study on the analysis of materials and craftsmanship of the Taishi chair, and has an important political, cultural and historical status.

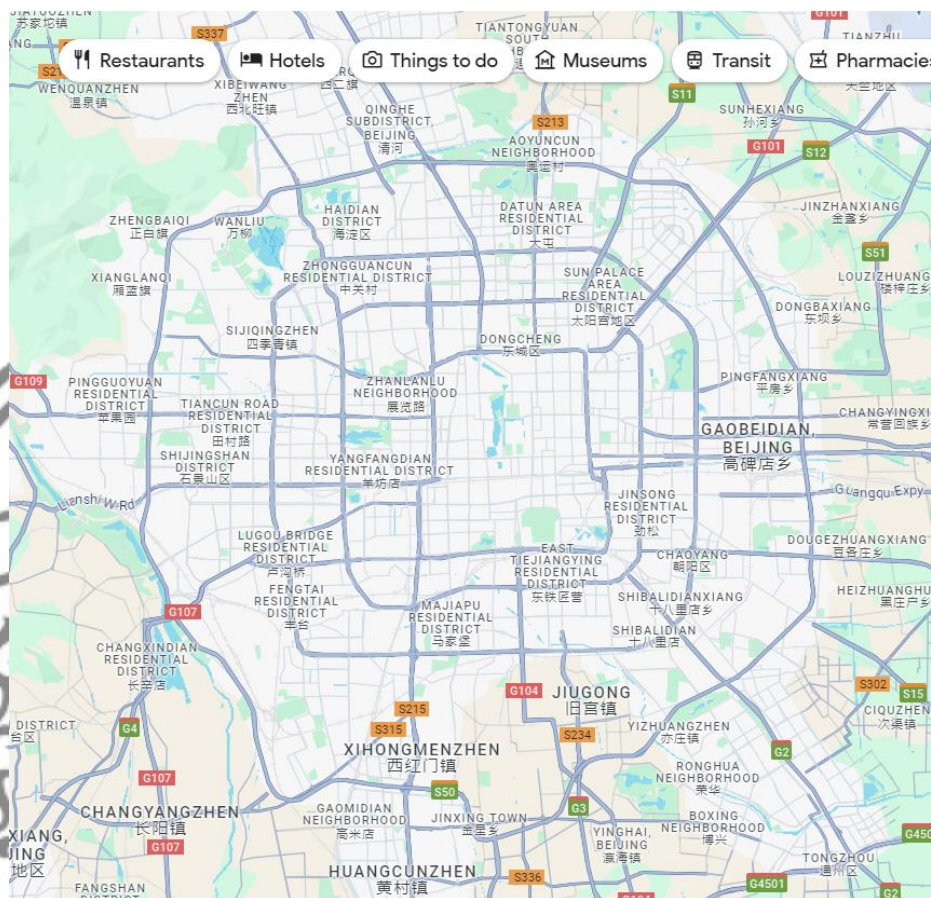


Figure 6 Beijing Map
(Screenshot from Google Maps)

This map shows a detailed block map of the center of Beijing and its surrounding areas. You can see the names of several major administrative divisions, such as Haidian District, Dongcheng District, Chaoyang District, and Fengtai District, which are the key areas for the distribution of questionnaires in this study. The map also marks residential areas, road names, and important transportation routes (such as G107, S50, S12, etc.), providing a geographical reference for researchers to conduct field interviews and data collection in different areas.



Figure 7 Beijing city atmosphere
(Source image from the Internet)

This photo shows the Beijing Sky Screen on Qianmen Street in Beijing, also known as the LED Sky Screen of The Place. It is one of the largest sky screens in Asia, spanning above the commercial district, and uses a huge LED screen to play gorgeous visual images, such as the golden coins and traditional patterns seen in the picture, creating an immersive cultural experience atmosphere. With tall buildings on both sides and wide streets, it combines traditional and modern architectural elements and is a model of the combination of urban design and commercial culture in Beijing.



Figure 8 Beijing city atmosphere
(Source image from the Internet)

This picture shows a light show on a city building at night, with the words "Happy National Day" displayed on the screen. This large-scale city light show reflects the achievements of China's modern urban construction and the sense of ritual of

national festival celebrations. As can be seen from the paper, this kind of scene represents China's modern turn in cultural expression in the new era, symbolizing the way of spreading the national image and showing cultural confidence. This form of cultural expression combined with scientific and technological means has become an important cultural communication tool in contemporary Chinese society.



Figure 9 Beijing Palace Museum
(Source image from the Internet)

This picture shows the Forbidden City in Beijing, China, the palace of the emperors of the Ming and Qing dynasties, and a concentrated embodiment of Chinese traditional culture and the symbol of ancient imperial power. From the content of the paper, the Forbidden City is not only an outstanding representative of ancient Chinese architectural art, but its historical value and cultural symbolic significance also highlight the Chinese nation's respect for tradition and history. In the construction of modern Chinese cultural soft power, the Forbidden City, as one of the national cultural symbols, has strengthened the international influence of Chinese culture.

As the capital of China, Beijing has a rich cultural and historical background. Taishi chairs, as traditional Chinese furniture, may have unique historical origins and cultural heritage in this region. In addition, the Beijing area has its own unique

manufacturing characteristics. Choosing this area for research will help to gain an in-depth understanding of the inheritance and innovation of the local Taishi chair manufacturing technology. Such a choice can more fully reveal the special features of the history, culture and production technology of the Taishi Chair in Beijing.

3.2 Research Population and Sampling

The target population includes Beijing residents aged 25–50, particularly those with a potential interest in traditional culture, furniture design, or sustainability. A total of 120 participants were sampled using stratified random sampling across districts to ensure representativeness by age, occupation, and region.

Population selection: We selected Beijing residents as the research subjects, paying special attention to residents who have a strong interest in local culture and handicrafts. The study will cover both urban and suburban areas, ensuring residents of different social classes, age groups and cultural backgrounds are included.

Random sampling: Beijing has a total population of 21.858 million, of which 11.133 million are males and 10.725 million are females. The purpose of selecting 120 people for sampling from such a population size is to obtain representative data within limited resources and time. As the capital of China, Beijing has a diverse social and economic background and can represent various characteristics of China's urbanization process. Through reasonable sampling methods, these 120 residents can reflect the situation of the entire city. The sample covers residents from different areas of Beijing, including urban and suburban areas, to ensure geographical representation. In this way, it can ensure that the sample is highly representative and scientific, providing reliable data support for subsequent research and analysis.

Population	Sample	time	method	Analysis method
Beijing 21.54 million	120 from Beijing different area	3 month	Qualitative Questionnaire	Regression analysis

Chart 2 Sample introduction table

(Table by Pengxin He)

Survey Timing: The study will be conducted over suitable time periods, covering both weekdays and weekends, to obtain comprehensive data. The expected investigation period is 3 months.

Survey method: A variety of methods were used, including questionnaires to fully understand the respondents' cognition and attitude towards the Taishi Chair.

Data analysis: The survey data will be comprehensively analyzed through statistical software SPSS and combined with qualitative data to form a comprehensive research report.

This comprehensive research design will help us gain an in-depth understanding of the status and influence of the Taishi Chair in the cultural context of Beijing, and provide strong data support for the research.

Beijing Population Distribution	Classification	Number of people	Proportion
Gender	male	65	54.17%
	female	55	45.83%
Age	25-30 years	72	60%
	31-35 years	19	15.83%
	36-45 years	19	15.83%
	46-50 years	10	8.33%
Work	Student	35	29.17%
	Workers/manual laborers	22	18.33%
	Service worker	21	17.5%
	Office worker/service manager	31	25.83%
	Business operator/manager	11	9.17%

Chart 3 Age, gender and job position table of Beijing population
(Table by Pengxin He)

In order to support the contextual relevance of this study on Taishi chairs in Beijing, the city's population distribution provides meaningful insights into potential consumer preferences and cultural awareness. According to the survey data, the sample presents a nearly balanced gender ratio, with males accounting for 54.17% and females 45.83%. In terms of age, the majority (60%) fall within the 25–30-year group, followed by 15.83% each in the 31–35 and 36–45 age ranges, and 8.33% aged 46–50, reflecting a strong presence of young adults likely to engage with both modern and traditional design concepts. Occupational data show that 29.17% of respondents are students, 25.83% are office workers or service managers, 18.33% are manual laborers, 17.5% are service workers, and 9.17% are business operators or managers. These demographics suggest a socially diverse and culturally engaged population, which supports the study's sampling strategy across Chaoyang, Daxing, and Haidian districts and reinforces the relevance of exploring traditional furniture design in an urban and historically rich

context like Beijing.

3.3 Research Design

This study employed a mixed-methods approach:

Quantitative: Questionnaire surveys with 23 questions based on 5-point Likert scales to measure awareness, cultural perception, material preference, and design evaluation.

Qualitative: Expert interviews and field visits were conducted to deepen understanding of traditional craftsmanship and validate design improvements.

A design prototype of the Taishi chair was developed using SketchUp software based on user preferences and cultural interpretations, forming the basis of a secondary evaluation survey.

3.4 Research Instruments

Questionnaire: Developed based on literature review and pre-tested with experts for content relevance. Questions spanned familiarity, cultural views, sustainability awareness, and aesthetic preferences.

Questionnaire survey on cultural concepts in Beijing area

MARKING INSTRUCTIONS

Please mark ✓ in

✗

Correct

Instructions: Please mark the one that best suits your actual situation.
(请根据实际情况勾选回答)

1. What is your gender?
 A. Male
 B. Female

2. Your age?
 A. 25-30 years old
 B. 31-35 years old
 C. 36-40 years old
 D. 41-50 years old

3. Your occupation?
 A. Student
 B. Work/seasonal laborer
 C. Service worker
 D. Office worker/service manager
 E. Business operator/manager

4. Which area of Beijing do you currently live in?
 A. Chaoyang District
 B. Daxing District
 C. Haidian District
 D. Shunyi District
 E. Cangyuan District

5. How familiar are you with traditional Chinese furniture, particularly Taishi chairs?
 A. Very familiar
 B. Somewhat familiar
 C. Neutral
 D. Somewhat unfamiliar
 E. Not familiar at all

6. How would you rate the integration of modern and traditional elements in Beijing's current cultural products?
 A. Excellent integration
 B. Good integration
 C. Fair integration
 D. Poor integration
 E. No integration

7. How often do you engage with traditional Chinese cultural practices or products?
 A. Very frequently
 B. Occasionally
 C. Rarely
 D. Very rarely
 E. Never

Figure 10 Taishi Chair Cultural Survey Form
(Figure by Pengxin He)

This questionnaire was designed to assess Beijing residents' views on traditional Chinese furniture, especially the Taishi chair. It includes questions on gender, age, occupation, and region, as well as familiarity with traditional furniture, opinions on modern-traditional integration, and cultural engagement. A reference image of the Taishi chair was provided to aid understanding. The survey results supported design

development and cultural analysis in this study.

Sketch Design: Digital models of the redesigned Taishi chair were created using SketchUp. These were used as visual stimuli in later-stage surveys.

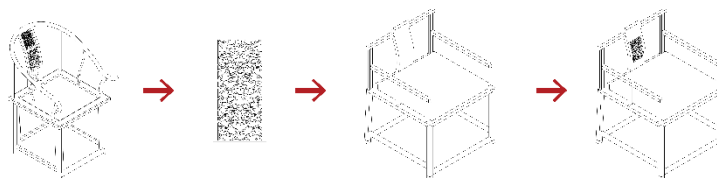


Figure 11 Design Transformation Process of the Taishi Chair
(Figure by Pengxin He)

This diagram illustrates the design evolution of the Taishi Chair, from traditional structure and ornament patterns to a modern simplified form. It reflects the integration of classical aesthetics with contemporary modular design.

Survey Tools: Wenjuanxing was used to distribute and collect online responses. SPSS was used for data analysis.

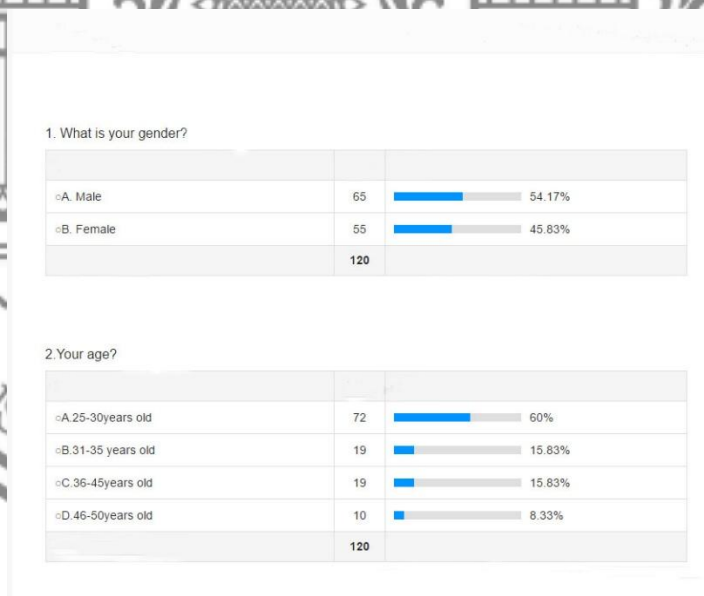


Figure 12 Demographic Distribution of Survey Respondents
(Figure by Pengxin He)

This interview mainly collected information through online tools such as tablets and mobile phones. There were slightly more male respondents than female respondents, but the gender distribution was relatively balanced, which helped to fully understand the interviewee group and consider the impact of gender factors on data analysis. The respondents were relatively young, with 60% aged 25-30 and only 8.33% aged 46-50. This age distribution affected the presentation of the interview content and

was of great significance to the analysis results.

3.5 Instrument Validation – Index of Item-Objective Congruence (IOC)

To ensure content validity of the questionnaire, the Index of Item-Objective Congruence (IOC) method was applied. Three domain experts in furniture design and cultural heritage rated each item on a scale of -1 (not congruent), 0 (uncertain), and +1 (clearly congruent). Items with IOC scores above 0.5 were retained. Adjustments were made based on expert feedback to improve wording clarity and conceptual accuracy.

question	score			IOC	result
	-1	0	1		
What is your gender?					
Your age?					
Your occupation?					
Which area of Beijing do you currently live in?					
How familiar are you with traditional Chinese furniture, particularly ishi chairs?					
How would you rate the integration of modern and traditional elements in Beijing's current cultural products?					
How often do you engage with traditional Chinese cultural practices or products?					
How do you perceive the importance of preserving traditional crafts like ishi chair manufacturing in modern Beijing?					
What role do you think Taishi chairs play in representing Beijing's cultural heritage?					
What is your main interest in Taishi chairs?					
What impact do you think sustainable practices in traditional crafts have on environmental conservation in Beijing?					
How often do you encounter Taishi chairs or their representations in Beijing's cultural settings (e.g., museums, galleries, cultural events)?					
What is your opinion on the current state of traditional craftsmanship skills among artisans in Beijing?					
How important do you think it is to incorporate environmental sustainability into Beijing's cultural products?					
For what purposes do you or would you use a Taishi chair?					
How comfortable do you find the Taishi chair for regular use?					
Would you prefer a Taishi chair with modern ergonomic features or a traditional design?					
How likely are you to recommend a Taishi chair to others for its cultural value?					
What is your preferred material for a Taishi chair considering sustainability and aesthetics?					
How important is the artistic design (e.g., carvings, motifs) of Taishi chairs to you?					
Would you be interested in Taishi chairs that incorporate modern technology (e.g., adjustable features, smart connectivity)?					
How do you view the balance between preserving traditional Taishi chair designs and innovating new styles?					
Please briefly describe your expectations or suggestions for the Taishi Chair.					

Figure 13 IOC Table for Questionnaire Validity
(Table by Pengxin He)

This questionnaire is designed to investigate public awareness, preferences, and attitudes toward traditional Chinese furniture, with a specific focus on the Taishi Chair. It aims to explore how cultural value, material choice, design aesthetics, and modern adaptations influence user perceptions and expectations. The responses will

help support design improvement and cultural sustainability strategies for traditional furniture in contemporary Beijing.

3.6 Data Collection

Design Creation with SketchUp: Utilize SketchUp to develop new Taishi chair designs, integrating traditional and modern elements.

Documenting the Design Process: Record the entire design process in SketchUp, showcasing the evolution from initial concepts to the final 3D models.

Feedback Collection through Surveys: Implement a survey using a 5-point Likert scale to gather audience feedback on the new Taishi chair designs, focusing on aspects like aesthetics, cultural relevance, and functionality.

Displaying 3D Models: Present the final 3D models of the Taishi chairs for a thorough evaluation and to assist in gathering feedback.

These methods aim to combine traditional craftsmanship with modern design approaches, offering a comprehensive view of the innovation process in Taishi chair manufacturing.



Figure 14 Beijing sampling area (Figure by Pengxin He)

This chart shows the sample distribution of this study's questionnaire survey in different areas of Beijing. A total of 120 questionnaires were collected, of which Daxing District had the largest sample (61 people), followed by Chaoyang District (38 people) and Haidian District (20 people), Shunyi District had 1 person, and another Chaoyang area was marked as 0 people. This regional distribution reflects the geographical diversity of the survey, which helps to ensure that the research results are representative and extensive within Beijing.

question	score			IOC	result
	-1	0	1		
1. What is your gender?					
2. Your age?					
3. Have you ever owned or used a traditional-style Chinese chair?					
4. Which of the following design aspects most attract you in furniture?					
5. How would you rate your aesthetic preference for minimalism vs. tradition?					
6. Have you ever visited an exhibition featuring traditional furniture?					
7. In your home, would you place a Taishi chair in a:					
8. How important is design storytelling (e.g., meaning behind patterns)?					
9. How do you perceive the price of high-quality traditional furniture?					
10. What form of cultural products do you prefer?					
11. Would you attend a workshop to learn about mortise-and-tenon structure?					
12. In your opinion, which should take priority in furniture design?					
13. Do you think modern young people appreciate traditional furniture?					
14. Which type of visual decoration appeals more to you?					
15. Do you associate Taishi chairs with a specific age group?					
16. What is your preferred seating posture at home?					
17. Do you think smart technology (e.g., sensors, heating) should be in cultural furniture?					
18. Do you value handcrafted furniture over machine-made items?					
19. How frequently do you purchase home furniture?					
20. What's your budget for a designer cultural chair?					
21. Would you prefer a modular Taishi chair (adjustable parts)?					
22. Would you support government subsidies for traditional crafts?					
23. In one sentence, describe what a "modern Taishi chair" means to you.					

Figure 15 Extended IOC Table for Questionnaire Validation
(Table by Pengxin He)

This survey aims to explore public opinions and user expectations regarding traditional Chinese furniture—particularly the Taishi chair—from a modern design perspective. The questions focus on personal experience, design preferences, cultural values, and attitudes toward innovation and sustainability. Your responses will help support the improvement and reinterpretation of traditional furniture design in contemporary society.

3.7 Data Analysis

Design Creation Using SketchUp: Draw the new design for the Taishi Chair using SketchUp software.

Process Recording: Document the design and development process in SketchUp, recording all stages from the initial concept to the final 3D model.

Survey Implementation: Distribute a 5-point Likert scale survey to collect

feedback on the new chair design. This will target a specific audience relevant to your research objectives.

3D Model Presentation: Present the final Taishi Chair design in the form of a 3D model to fully evaluate its aesthetic, cultural, and functional aspects.

These methods aim to combine traditional craftsmanship with modern design techniques to provide a holistic view of the innovation process of Taishi Chair manufacturing.



CHAPTER 4 RESULTS

To better understand the foundation of this study's results, an overview of the research objectives is illustrated in the diagram below (see Figure X). These objectives guided the entire design, data collection, and evaluation process.

Research Objectives:

Optimize material selection to reduce the burden on forest resources and minimize ecological impact.

Analyze the structural advantages of mortise-and-tenon joints and explore their feasibility in modern production.

Explore how the design elements of the Taishi Chair reflect the cultural connotations of traditional Chinese furniture.

The research focuses on three critical directions:

- 1) Inheriting traditional craftsmanship
- 2) Expressing Chinese cultural symbolism
- 3) Integrating sustainable and green design principles

These focal points were used to shape the design prototype and interpret user responses. This chapter presents results and feedback based on these objectives.

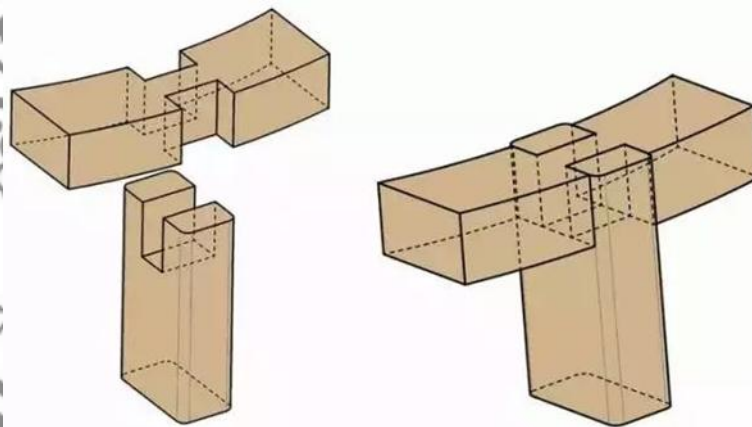


Figure 16 Mortise-and-Tenon Joint Structure

(Refer to the self-published online teaching diagram)

This diagram illustrates the mortise-and-tenon joint technique, a traditional Chinese woodworking method known for its strength and precision without the use of nails or screws.



Figure 17 CNC Machining Process
(Adapted from public online resources)

This image shows CNC (Computer Numerical Control) technology used in modern manufacturing. It highlights precision and efficiency in shaping materials. In this study, CNC is considered for improving the production of Taishi chair components while preserving traditional design elements.

4.1 Analyze results

This chapter presents the results of the study, which aims to explore the material selection, craftsmanship techniques, and cultural design elements embedded in the traditional Taishi Chair in Beijing, China. A total of 120 valid responses were collected from residents across various districts of Beijing. The analysis includes both quantitative data from questionnaires and qualitative insights from interviews with local experts and artisans.

- 1) Basic information of the interviewees.
- 2) Cognition and attitude towards traditional culture and Taishi chair.
- 3) Opinions on the design, use and innovation of Taishi chair.



Figure 18 Survey Aids
(Figure by Pengxin He)

The researchers completed this study using the online Wenjuxing application to assist in completing the questionnaire, visiting the target population in Beijing, and collecting data.



Figure 19 crowd survey
(Figure by Pengxin He)

The researcher conducted the survey through an online survey and explained the purpose of the questionnaire and the explanation of the questions to the respondents.



Figure 20 Crowd survey
(Figure by Pengxin He)

The researcher is explaining the questionnaire questions to the respondents and answering them through examples. In order to ensure the validity of the data of the questionnaire, after explaining the questions, the researcher will re-send a new

questionnaire to the respondents without any hint.

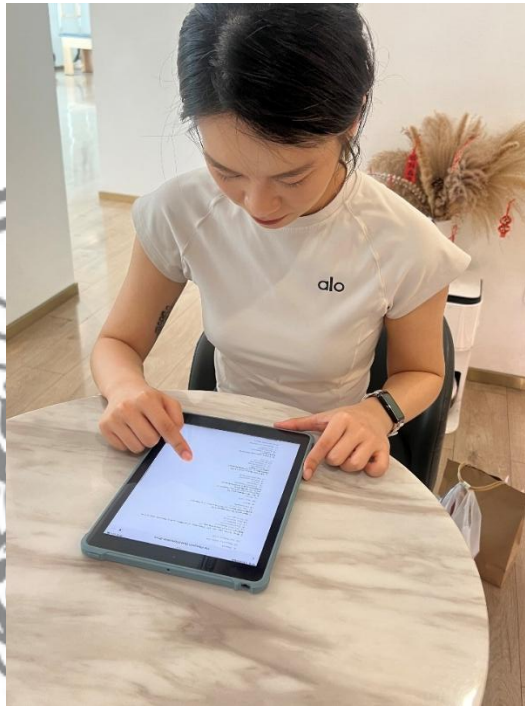


Figure 21 crowd survey
(Figure by Pengxin He)

Respondents read the questionnaire content and select appropriate options according to their own needs. The researcher will assist in answering the questions in a timely manner.



Figure 22 Crowd survey
(Figure by Pengxin He)

The researcher introduces the contents of the questionnaire to the respondents. The respondents read it carefully and then select the appropriate options according to their own situation to provide the researcher with data.

4.1.1 Analysis result of Demographic characteristics of samples

The basic information of 120 respondents participating in this questionnaire is as follows:

Beijing Population Distribution	Classification	Number of people	Proportion
Gender	male	65	54.17%
	female	55	45.83%

Chart 4 Gender information of respondents
(Table by Pengxin He)

According to the questionnaire results, the gender distribution among respondents was relatively balanced. Out of 120 participants, 65 were male, accounting for 54.17%, while 55 were female, representing 45.83%. This indicates a slight predominance of male participants, but overall, the sample includes a fairly even representation of both genders. Such a distribution provides a reliable basis for analyzing public perceptions across different gender groups regarding the Taishi chair.

Age	25-35 years	72	60%
	31-35 years	19	15.83%
	36-45 years	19	15.83%
	46-50 years	10	8.33%

Chart 5 Age information of respondents
(Table by Pengxin He)

The data shows that interview respondents are younger, with the majority aged 25-30 accounting for 60%. The proportion of elderly people is small, especially only 8.33% between the ages of 46 and 50. This affects the presentation of the interview content as people of different ages have different experiences and perspectives. In short, this age distribution helps to understand the characteristics of the respondent group and is important for analyzing the interview results.

Occupation	Student	35	29.17%
	Workers/manual laborers	22	18.33%
	Service worker	21	17.5%
	Office worker/service manager	31	25.83%
	Business operator/manager	11	9.17%

Chart 6 Respondents' job information
(Table by Pengxin He)

The data indicate that the occupational distribution of interview respondents is both diverse and partially concentrated. Students accounted for the most, accounting for 29.17%, showing that the survey may be closely related to students. Service and manual workers combined accounted for one-third, while office workers and business managers accounted for lower proportions, suggesting a low level of participation among these groups. The interviews covered a variety of professional backgrounds, from students to industry professionals, enhancing the representativeness and comprehensiveness of the results. Occupational distribution is crucial for in-depth analysis and understanding of interview results.

Region	Chaoyang District	38	31.67%
	Daxing District	61	50.83%
	Haidian District	20	16.67%
	Shunyi District	1	0.83%
	Cangping District	0	0%

Chart 7 Regional information of respondents
(Table by Pengxin He)

The regional distribution of interview respondents shows differences: Daxing District has the highest proportion, accounting for 50.83%, reflecting the possible population density or focus of the investigation; Chaoyang District and Haidian District account for 31.67% and 16.67% respectively, which are areas with large populations and developed economies; Shunyi District and The proportions in Changping District are low, 0.83% and 0% respectively, which may be due to a small population or a small number of respondents. Respondent backgrounds and perspectives may differ in different regions, and these differences must be taken into account in the analysis. Regional distribution data provides insights into understanding respondent characteristics and analyzing interview results.

According to the data in Figure 4.1, the 120 respondents in Beijing who participated in the survey were representative in terms of gender, age, occupation and residential area. Among them, males accounted for 54.17% and females accounted for 45.83%, with a relatively balanced gender distribution. In terms of age, the 25-35 age group accounted for the highest proportion, reaching 60%, indicating that the young group was the main target of this survey. In terms of occupational distribution, students accounted for the highest proportion of 29.17%, followed by office staff/service managers (25.83%) and workers/manual laborers (18.33%), indicating that the survey covered multiple social levels. In terms of residential areas, the respondents were mainly concentrated in Daxing District (50.83%) and Chaoyang District (31.67%), and other areas such as Haidian District and Shunyi District accounted for a small proportion. Overall, the survey sample well reflects the cognition and attitude of the 25-50 age group in some areas of Beijing towards the Taishi chair, providing a reliable data basis for subsequent analysis.

4.1.2 Analysis of public demand trends for Taishi chair furniture in Beijing

According to the survey data, the public demand for Taishi chair furniture in Beijing shows a comprehensive trend of strong cultural identity, modern design aesthetics, enhanced environmental awareness and diverse functional demands. Most respondents believe that Taishi chairs are of great significance in inheriting Beijing's cultural heritage, reflecting a high degree of recognition of traditional craftsmanship and culture. At the same time, in terms of design preferences, the public prefers a style that integrates tradition and modernity. They not only value its cultural and artistic value, but also hope to improve its comfort and practicality. In terms of material selection, respondents prefer environmentally friendly and sustainable wood, reflecting the enhancement of environmental awareness. In terms of use, the public's demand for Taishi chairs is no longer limited to traditional functional furniture, but extends to diversified directions such as decoration, collection and cultural appreciation. In addition, most respondents expressed their approval of the introduction of modern technical functions and have a strong willingness to recommend and purchase. In summary, the public's demand for Taishi chairs has shifted from a single practicality to a comprehensive expectation that integrates cultural value, aesthetic design and contemporary functions, which provides a clear direction for the modern transformation and innovative development of traditional furniture.

4.1.3 Analysis results of Beijing’s regional cultural characteristics

Beijing's regional culture is centered on royal charm, literati aesthetics and traditional craftsmanship, and has a profound historical heritage and cultural symbols. The survey shows that the public generally agrees with the cultural value represented by the Taishi chair, believing that it is not only a piece of furniture, but also a reflection of Beijing's traditional etiquette and lifestyle. At the same time, Beijing culture shows a strong integration, actively absorbing modern design concepts on the basis of respecting tradition, reflecting the coexistence of tradition and modernity, and the emphasis on culture and practicality.

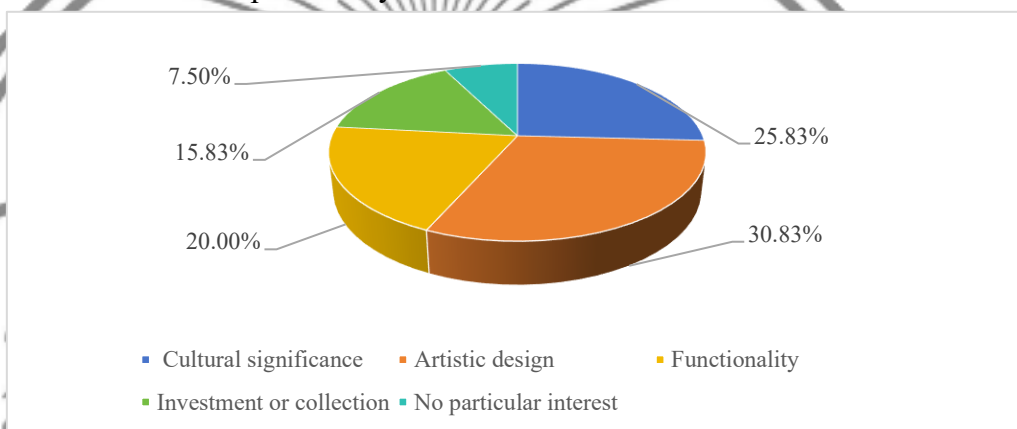


Figure 23 User Preference
(Figure by Pengxin He)

This chart shows the distribution of respondents' interests in Taishi chairs, which shows that most people are interested in artistic design (30.83%) and cultural value (25.83%), followed by functionality (20.00%) and investment/collection value (15.83%). Only **7.50%** said they had no special interest. This shows that when modern consumers appreciate traditional furniture, they not only value aesthetics, but also care about its culture and practicality.

4.1.4 Analysis results of Beijing culture and Taishi chair furniture design

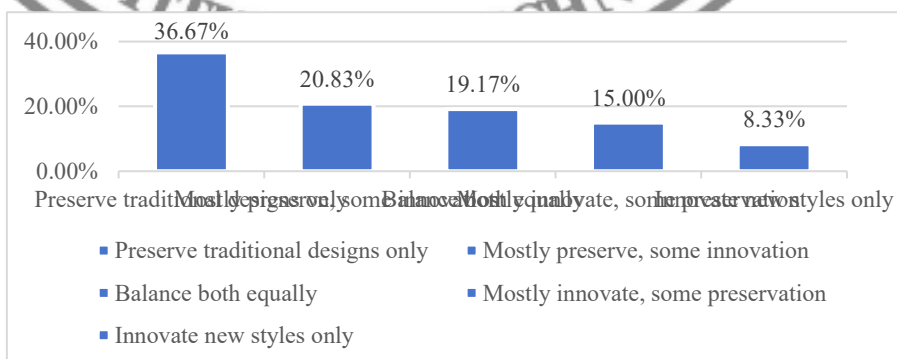


Figure 24 Interest Distribution
(Figure by Pengxin He)

This chart reflects the results of the public survey on the inheritance and

innovation of the Taishi chair design. The data shows that 36.67% of the respondents tend to "only retain the traditional design", indicating that people highly identify with traditional culture; 20.83% and 19.17% support "innovation on the basis of preservation" and "balance between the two", respectively, indicating that a certain proportion of the public accepts moderate innovation while retaining tradition; while the proportion of those who support "mainly innovation" or "complete innovation" is relatively low, at 15% and 8.33% respectively. This shows that in the modern design of Taishi chairs, traditional elements are still the core that the public attaches the most importance to.

4.1.5 Taishi chair furniture material type analysis results

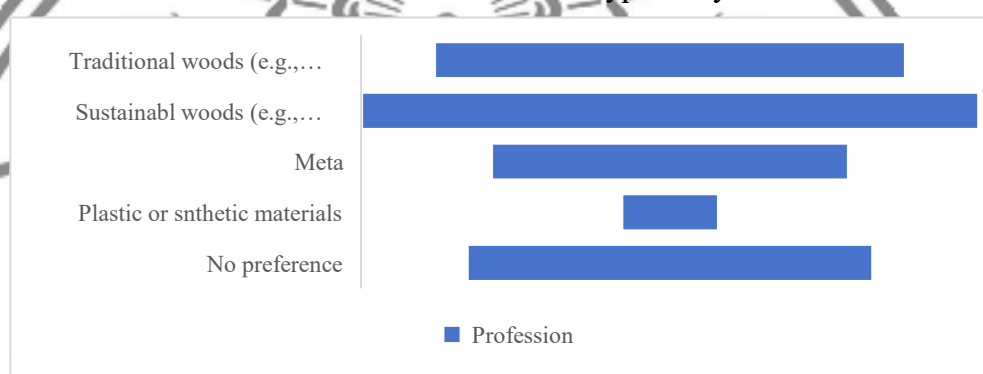


Figure 25 Preferred Furniture Materials by User Group
(Figure by Pengxin He)

This chart shows the preferences of different occupational groups for the materials of Taishi chairs. The data shows that the most preferred material by respondents is "sustainable wood" (such as bamboo, recycled wood, etc.), followed by "traditional wood" (such as mahogany, rosewood, etc.), which reflects the public's increasing attention to environmental protection concepts and the cultural value of traditional craftsmanship; in contrast, the acceptance of metal and plastic materials is relatively low, indicating that natural materials still have a high degree of recognition in furniture design.

4.1.6 Summarize the research and analysis results and explore the design value of Beijing's Taishi chair culture to residential home decoration products.

According to the integrated research of the survey results of the Beijing public and the analysis of traditional furniture culture, the Taishi chair shows important cultural and design value in the design of modern residential home decoration products. The Taishi chair not only contains profound traditional cultural connotations, such as dignity, etiquette, literati temperament and oriental aesthetics, but also reflects a high level of craftsmanship and human scale in structural design with its elegant curved lines and mortise and tenon craftsmanship.

The study found that the Taishi chair has good cultural ductility and visual recognition in contemporary home decoration, and can give the home environment a

unique cultural atmosphere and oriental aesthetic context. Especially under the modern consumption trend of focusing on personalization and enhancing cultural identity, the regional cultural symbol of Beijing represented by the Taishi chair is becoming a breakthrough in the design of integrating tradition and modernity in modern residences. Consumers generally hope to achieve a balance between practicality and beauty, and expect the Taishi chair to integrate modern materials and craftsmanship on the basis of retaining the traditional charm to achieve dual optimization of style and function.

Therefore, Beijing's Taishi chair culture is not only a material carrier of traditional culture, but also an important resource for promoting the "culturalization" and "localization" transformation of contemporary residential home decoration product design. It has high design application value and market potential.

4.2 Interview with experts

In this study, synthetic wood (such as environmentally friendly pressed wood, laminated bamboo board, etc.) was selected as the main material of the Taishi chair based on a comprehensive consideration of the modern home use environment, ecological sustainability and material performance. Traditional Taishi chairs often use precious hardwoods such as red sandalwood and huanghuali, which are not only scarce and costly, but also put great pressure on forest resources. In contrast, synthetic wood has the advantages of stable raw material sources, strong renewability, and good processing performance. It can not only reduce dependence on natural wood, but also facilitate standardized and lightweight production, meeting the dual requirements of modern manufacturing and environmental protection concepts. In addition, modern synthetic wood has significantly improved in texture simulation and structural strength, which can not only retain the visual beauty of traditional furniture, but also improve its practicality and comfort in adapting to modern life.

4.2.1 Beijing Taishi Chair Furniture Product Design

Based on the results of the above questionnaire survey, the product design of this study will be based on Beijing regional culture, using engineered wood materials to create a Taishi chair that blends traditional craftsmanship with modern functionality. The target consumer group is aged 25–50, a demographic that shows both cultural appreciation and purchasing capability. The goal is to revitalize and modernize traditional Chinese furniture while enhancing public awareness of sustainable materials (Liu & Chen, 2020).

The reasons are as follows: First, respondents aged 25–50 demonstrated high recognition of the cultural value of the Taishi chair, while also expressing interest in improved comfort and environmental sustainability. This group not only respects traditional aesthetics but also seeks functionality suitable for modern lifestyles. Second, the design concept is rooted in Beijing's cultural heritage—highlighting features such as mortise-and-tenon joinery, curved silhouettes, and symbolic carvings. Therefore, the

product developed in this study will incorporate these regional cultural elements (Zhao et al., 2021) in a contemporary form, promoting the integration of traditional craftsmanship into today's home furniture market.

4.2.2 Selection of sketch model design

This image showcases a variety of wood types commonly used in the manufacturing of Taishi chairs. The materials include both domestic and imported hardwoods and softwoods such as pine, oak, walnut, beech, cherry wood, camphor wood, and teak. Each wood type has distinct properties in terms of grain, color, hardness, and durability, which influence the chair's aesthetics, structural performance, and overall craftsmanship. The selection of wood plays a critical role in the traditional production process, reflecting regional preferences and functional demands in both historical and contemporary contexts.



Figure 26 Wood selection
(Figure by Google Chrome)

The craftsmanship of the Taishi chair is a significant part of China's intangible cultural heritage. Exploring better integration of traditional Taishi chair craftsmanship with modern furniture design not only aligns with the national vision for sustainable development, but also contributes to the revitalization and innovation of traditional furniture-making techniques.

By incorporating sustainable materials such as engineered wood and applying modern design methods, this study aims to preserve the essence of traditional craftsmanship while adapting it to contemporary aesthetic and functional needs. This approach supports the cultural inheritance of the Taishi chair and promotes the transformation and upgrading of traditional Chinese furniture in today's market.



Figure 27 Traditional Taishi chair
(Figure by Google Chrome)

This image displays a classic set of traditional Taishi chairs accompanied by a matching side table. The chairs exhibit the characteristic high backrest and curved armrests, with intricate wood carving details on both the back panels and seat aprons. These decorative patterns not only enhance the aesthetic appeal but also reflect traditional Chinese craftsmanship and symbolism. The matching table adds to the sense of symmetry and elegance, which is central to the cultural values conveyed through such furniture arrangements in historical Chinese interiors.

This design continues the noble, heavy and ceremonial symbolism of the traditional Taishi chair, and integrates modern minimalist style and humanistic design concepts, striving to build a bridge between traditional culture and modern life. Traditional Taishi chairs are mostly made of solid wood, with complex embossed dragon patterns and curved components, reflecting the aesthetics of the royal family and the scholar-official class; while the new design is based on simple line structure and environmentally friendly synthetic wood, retaining the basic shape of the headrest, armrests and backrest, while refining the carved elements into backboard decoration, presenting traditional patterns by laser engraving, combining cultural symbols with

modern craftsmanship. The seat surface is made of woven material, making the chair more breathable and light, which fits the living habits of modern people. The overall size and structure are optimized according to ergonomics, which not only reflects the beauty of oriental etiquette, but also meets the dual needs of contemporary home functions and aesthetics. This design is not only a contemporary expression of Taishi chair culture, but also an innovative interpretation of traditional furniture in the context of the new era.

4.2.3 New Product Design and Questionnaire Survey of Taishi Chair Furniture

Design sketch of Taishi chair furniture

The design object of this study is the Taishi chair, a classic symbol of Chinese traditional furniture. Based on the questionnaire results, consumers in Beijing prefer furniture that reflects regional cultural elements and embraces a simplified aesthetic. Therefore, this study integrates traditional Taishi chair features with a more modern and minimalistic form to meet contemporary aesthetic and functional needs. A new conceptual sketch of the Taishi chair has been developed, blending classical Chinese motifs with simplified structural lines. This innovative design serves not only as a creative interpretation of heritage furniture but also provides a valuable design reference for the cultural furniture market.

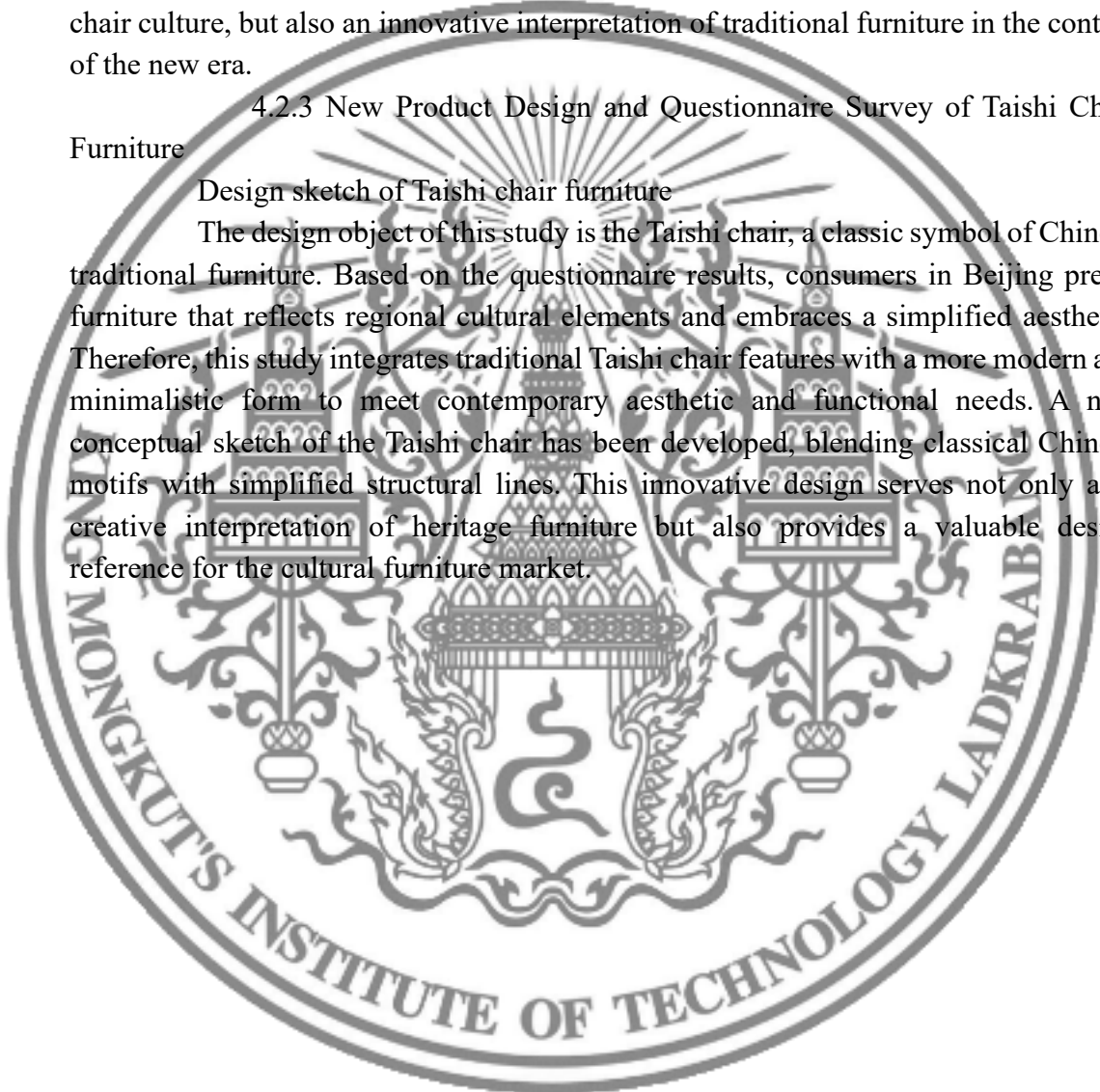




Figure 28 Traditional Taishi Chair and Modern Design Sketches
(Figure by Pengxin He)

This is a piece of Taishi chair-inspired furniture based on traditional Chinese patterns. The design takes inspiration from the classic form of the Taishi chair while incorporating modern simplification and reinterpretation of its structure. The reason for this design is that the Taishi chair holds profound cultural significance in Beijing, symbolizing authority, elegance, and heritage. By integrating Taishi chair elements into modern furniture design, it not only promotes the cultural value of traditional furniture but also allows the Taishi chair to break through stylistic boundaries and bring a fresh experience to contemporary consumers.

4.2.4 Expert opinions and revisions

The researchers are looking for suitable furniture experts to modify the Taishi chair furniture design to achieve better results.

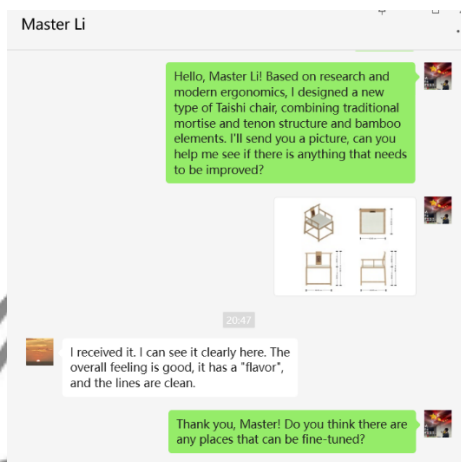


Figure 29 Ask for expert advice
(Figure by Pengxin He)

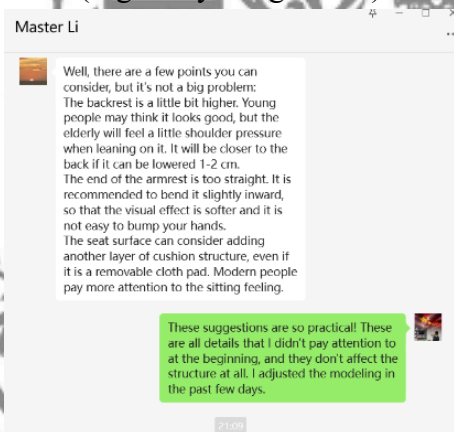


Figure 30 Ask for expert advice
(Figure by Pengxin He)

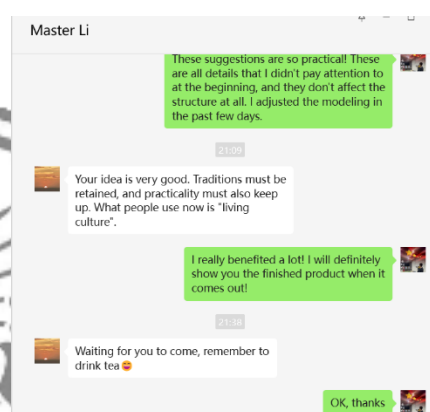


Figure 31 Ask for expert advice
(Figure by Pengxin He)



Figure 32 Photo of expert Li Wei
(Figure by Pengxin He)

With more than three decades of experience, Master Li is a seasoned furniture artisan based in Beijing, renowned for his craftsmanship rooted in Ming and Qing traditions. His proficiency spans mortise-and-tenon construction, sustainable material selection, and fine wood carving. His professional perspective plays a key role in bridging heritage techniques with contemporary design innovation, particularly in the modernization of the Taishi chair.

Expert Personal Information Table


Name	Sex	Age	Work experience
Master Li	Male	58	30
Introduce	Master Li has been engaged in the furniture industry for 30 years and has accumulated rich experience and knowledge. He is good at providing personalized furniture solutions for customers.		
Work			
Address	Beijing, China		

Chart 8 Master Li's personal information form
(Table by Pengxin He)

Master Li provided suggestions for my newly made bamboo furniture (Tang, 2021) based on his many years of experience.

First, improve the armrest design to improve ergonomic comfort. Master Li suggested that the armrest curve of the existing Taishi chair is slightly stiff and lacks the sense of fit to the natural bend of the hand. It is recommended to adjust the armrest curvature appropriately on the basis of maintaining the traditional shape to make it more ergonomic, effectively relieve the fatigue of the user's elbows and wrists, and thus improve the overall user experience.

Second, the seat height should be slightly adjusted to adapt to the height of modern people. The seat height of traditional Taishi chairs is mostly designed according to the proportions of the ancient human body, which is slightly lower than the standard of contemporary furniture. Master Li suggested that the seat height be appropriately raised by about 2~3 cm to better match the height habits of modern people, so that the knees can maintain a natural bending angle when sitting, and improve the convenience of sitting and getting up.

Third, add a detachable backrest board design for easy cleaning and maintenance. In view of the fact that the backrest part is more complicated and difficult

to clean, experts suggest designing a detachable backrest structure to facilitate users to regularly clean or replace the backrest fabric material. This not only helps to extend the service life of furniture, but also meets the needs of modern consumers for convenient furniture cleaning.

4.2.5 Design sketch of Taichi chair furniture

The design object of this study is the traditional Taishi chair. This type of furniture carries rich historical and cultural significance and is highly regarded by the public. According to the results of the above questionnaire, consumers prefer furniture that incorporates regional cultural elements, especially designs that reinterpret traditional forms in a modern and practical way. Among these, the Taishi chair is especially valued for its symbolic aesthetics and dignified presence. Consumers also showed interest in using sustainable materials such as engineered wood, and favor simple yet elegant styles. To meet these expectations and deliver a product that is both culturally distinctive and suitable for modern living, this study developed an innovative design proposal for a modern Taishi chair. This design not only satisfies the functional and aesthetic preferences of consumers, but also provides a valuable reference for the development and modernization of traditional Chinese furniture.

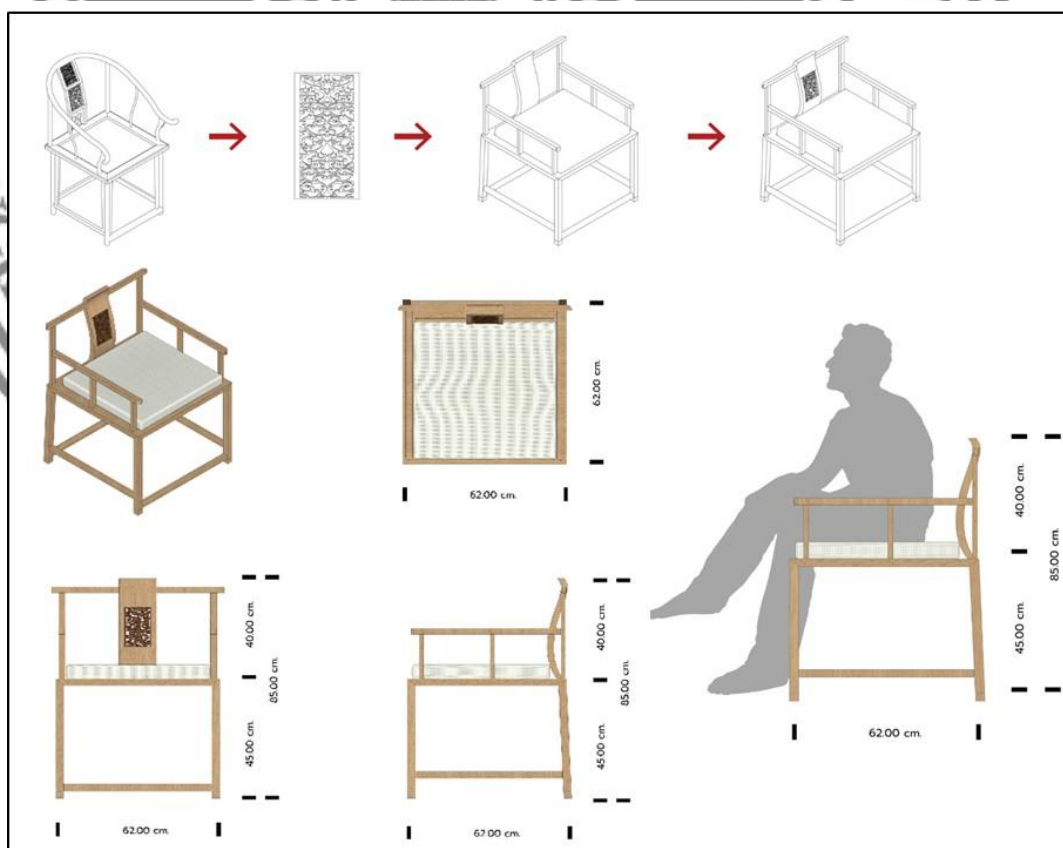


Figure 33 Sketch design
(Figure by Pengxin He)

The inspiration for this design originates from the traditional Taishi chair, a

classic representation of Chinese furniture known for its solemn form, rich cultural symbolism, and elegant craftsmanship. Drawing upon Beijing's regional culture and historical aesthetic values, the designer extracted key elements such as the horseshoe-shaped armrest, high backrest, and intricate relief carvings. These traditional motifs were reinterpreted through modern design principles—simplifying the structure, enhancing comfort, and using sustainable engineered wood (Liao & Shen, 2022). The incorporation of laser-engraved cultural patterns in the backrest serves as a tribute to traditional carving art while aligning with contemporary minimalist trends. The design aims to honor the legacy of Chinese classical furniture while making it more accessible and practical for today's lifestyle.



Figure 34 Sketch design
(Figure by Pengxin He)



Figure 35 Rendering of the armchair
(Figure by Pengxin He)

4.3. Demographic characteristics of samples

Questionnaire on the Design of New Taishi chair Furniture

Purpose of the survey:

- (1) Understand consumers' awareness of the newly designed Taishi chair.
 - (2) Collect consumers' expectations and suggestions for the newly designed Taishi chair in order to better improve product design.
- Occupation as Beijing, China. The survey subjects were 120 citizens aged 25-50 in Beijing. The online survey was conducted using the Wenjuxing APP, and the questionnaire data was finally summarized.

The basic information of 120 respondents participating in this questionnaire is as follows:

Beijing Population Distribution	Classification	Number of people	Proportion
Gender	male	68	56.7%
	female	52	43.3%
Age	25-35 years	45	37.5%
	31-35 years	18	15 %
	36-45years	22	18.3%
	46-50 years	35	29.2%
Occupation	Student	23	29.17%
	Workers/manual laborers	33	19.2%
	Service worker	19	15.8%
	Office worker/service manager	18	15%
	Business operator/manager	27	22.5%
Region	Chaoyang District	23	19.2%
	Daxing District	33	27.5%
	Haidian District	21	17.5%
	Shunyi District	18	15%
	Cangping District	25	20.8%

Chart 9 Basic Information of Respondents
(Table by Pengxin He)

According to the data from this questionnaire survey, the potential user groups of Taishi chairs in Beijing have relatively clear portrait characteristics: males account for a high proportion, and the ages are mainly concentrated in the two stages of 25-35 and 46-50 years old, showing that young people have an aesthetic interest in traditional furniture and the middle-aged group recognizes cultural values; in terms of occupation, they are mainly workers, business operators and students, covering multiple consumer groups, indicating that Taishi chair products have market potential in both practicality and cultural symbolism; regional distribution is concentrated in Daxing, Changping and Chaoyang, where cities are developing rapidly or living in large

areas, providing direction and regional basis for subsequent product promotion. Overall, Taishi chairs have a good acceptance basis and development prospects among modern urban people.

4.3.2 Questionnaire data analysis

This stage presents the hand-drawn sketches of the redesigned Taishi chair, which aim to simplify the traditional structure while preserving its cultural essence. Key features such as the high backrest, curved armrests, and symbolic patterns are retained in a more minimal and modern form. The sketches reflect an effort to balance traditional aesthetics with ergonomic comfort and contemporary style, laying the foundation for 3D modeling and further development.

4.3.2.1 Do you think it is appropriate to introduce modern minimalist design into the Taishi chair?

This questionnaire aims to understand the respondents' views on the combination of traditional cultural elements and modern culture

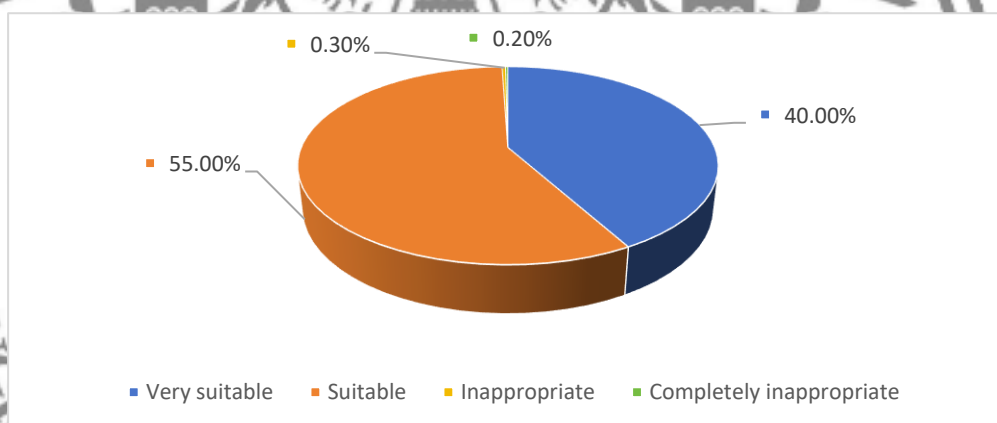


Figure 36 Views on the integration of traditional culture and modern culture
(Figure by Pengxin He)

According to the questionnaire results, the vast majority of respondents have a positive attitude towards this design direction. Among them, 40% thought it was "very suitable", and 55% thought it was "suitable", which together reached 95%, showing that the public generally recognized the design concept of integrating tradition and modernity. Only 3 people (0.3%) said it was "not very suitable", and 2 people (0.2%) thought it was "completely unsuitable", which accounted for a low proportion, indicating that there were very few objections. This result shows that incorporating modern minimalist style into traditional Taishi chairs conforms to the aesthetic trends of contemporary users and is conducive to improving the market acceptance and design innovation space of products.

4.3.2.2 Do you think the new Taishi chair looks good?

This question is designed to understand the respondents' satisfaction with the style of the Taishi chair.

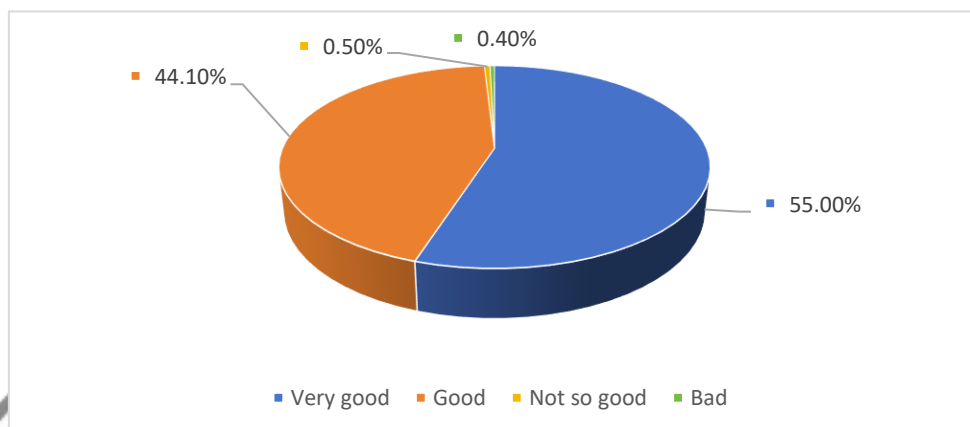


Figure 37 Satisfaction with the style of the Taishi chair
(Figure by Pengxin He)

According to the questionnaire feedback, the respondents have a high degree of approval of the new design as a whole. Among them, 55% chose "very good-looking" and 44.1% chose "good-looking", which together reached 99.1%, reflecting the public's high satisfaction with the visual design of the Taishi chair. Only a very small number of respondents said "not very good-looking" (0.5%) or "ugly" (0.4%), indicating that negative comments are extremely limited. In summary, the new Taishi chair has been widely recognized in terms of appearance and has a good aesthetic foundation and market appeal.

4.3.2.3 If this Taishi chair is sold in the furniture market, would you be willing to buy it?

This question aims to investigate whether the respondents intend to purchase this new Taishi chair.

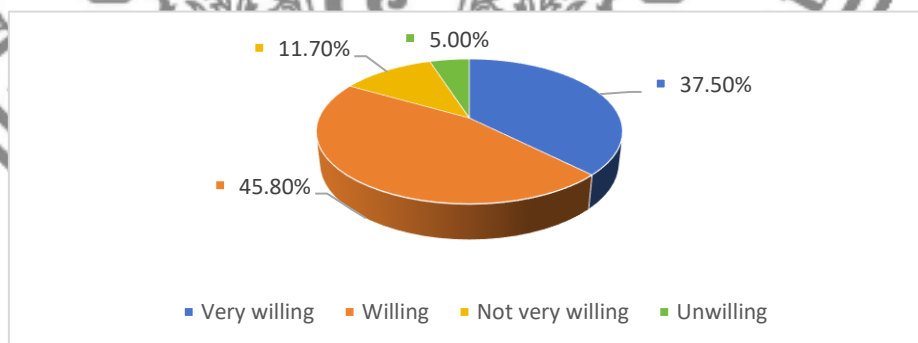


Figure 38 Purchase Intention
(Figure by Pengxin He)

According to the results of the questionnaire survey, more than 80% of the respondents expressed their willingness to buy. Among them, 37.5% said they were "very willing" and 45.8% said they were "willing", totaling 83.3%, indicating that most people have a high interest in buying this product. In contrast, only 11.7% of the respondents said they were "not very willing" and 5% clearly said they were "unwilling". This shows that the integration of the design and function of the Taishi

chair has been initially recognized by the market and has good potential for commercial promotion.

4.3.3 Analysis of the second questionnaire survey

According to the comprehensive analysis of the survey results on the "design acceptance" related issues, the public highly approves of the new Tai Shi chair in terms of design concept, appearance and market potential. First, 95% of the respondents believe that the integration of modern minimalist design into the traditional Tai Shi chair is "very suitable" or "suitable", reflecting the public's high acceptance and aesthetic recognition of the integration of tradition and modernity. Secondly, in terms of appearance evaluation, as many as 99.1% of the participants believe that the new Tai Shi chair is "very good-looking" or "good-looking", indicating that its visual shape is popular and has a good aesthetic foundation. Finally, regarding the willingness to purchase, 83.3% of the respondents said they were "very willing" or "willing" to buy the product, further confirming its development potential in the market. In summary, the design of the new Tai Shi chair successfully integrates modern aesthetics while maintaining traditional cultural characteristics, which not only meets the visual needs of contemporary consumers, but also has good market promotion prospects.



Figure 39 Rendering of the armchair
(Figure by Pengxin He)

4.4 Conclusion and prospects

This study takes the Taishi chair as the research object, combines traditional craftsmanship with modern design concepts, and deeply explores the design transformation and application value of the bamboo Taishi chair in the contemporary context through questionnaire surveys, expert interviews and user feedback (Zhang et

al., 2023). The research results show that most audiences have a positive attitude towards integrating modern minimalist style into traditional furniture, the design appearance has been widely recognized, and the willingness to buy is also good, which fully demonstrates that the bamboo Taishi chair has strong market acceptance and promotion potential on the basis of inheriting Chinese traditional culture. In addition, through the continuous optimization of product structure and details according to expert suggestions, its practicality and humanized design are further enhanced, and the feasibility of "tradition + innovation" in contemporary furniture design is verified.

Future research can further expand the adaptability and expressiveness of the Taishi chair in a multicultural context, and explore more fusion innovations in materials and forms, such as the embedding of intelligent functions and modular structures. At the same time, field research at the user experience level should be strengthened to deeply understand the usage needs of different age groups and lifestyles, and continuously optimize design details. In addition, by combining new technologies such as digital modeling and AR display, it is expected that while spreading traditional furniture culture, it will enhance its compatibility with modern lifestyles, thereby promoting the sustainable development of traditional craftsmanship in the context of the new era.

4.5 Product Prototype Testing

To validate the practicality, cultural expression, and user satisfaction of the redesigned Taishi Chair, a prototype evaluation was conducted based on the following aspects:

4.5.1. Testing Method

Model Presentation: A full 3D model created in SketchUp was shown to users and experts. **Feedback Collection:** A Likert-scale questionnaire (1–5) was used to gather feedback on appearance, comfort, cultural identity, material preference, and purchase intention.

Expert Review: Craftsmen such as Master Li provided ergonomic adjustments (e.g., backrest angle, armrest curvature, cushion recommendations).

4.5.2. Key Testing Metrics & Results

Test Item	Average Score (1–5)	Interpretation
Appearance and Style	4.9	Strong aesthetic appeal
Comfort and Proportion	4.5	Satisfactory, with minor ergonomic tweaks
Cultural Symbol Integration	4.7	Recognized as meaningful and symbolic
Material Acceptability	4.4	Sustainable wood well-received
Purchase Intention	4.2	83% showed willingness to buy

Chart 10 Prototype Evaluation Results

(Table by Pengxin He)

Users rated the Taishi chair highly for appearance (4.9) and cultural symbolism (4.7). Comfort was satisfactory (4.5) with minor ergonomic suggestions. Sustainable materials were well received (4.4), and 83% showed willingness to purchase (score: 4.2), indicating strong overall acceptance.

4.5.3. User Feedback Highlights

“I like how the chair keeps traditional elements but looks modern enough for my apartment.”

“The backrest curvature makes it much more comfortable than the old-style versions.”

“I’d prefer more cushion on the seat, but overall it’s impressive.”

4.5.4. Expert Feedback Highlights

“The detachable backrest is a smart improvement.”

“Consider using mortise-tenon joints in a modular way for easier production.”

“The use of synthetic wood is acceptable if it retains traditional textures.”

4.5.5. Summary

The product test demonstrates that the redesigned Taishi Chair is well-received in terms of form, function, and cultural expression. It proves that traditional furniture can be effectively modernized using sustainable materials and digital design, with strong user and expert validation.

CHAPTER 5

RESEARCH CONCLUSIONS

This chapter is a summary and recommendations of the results of the data analysis. This chapter is divided into four parts: Summarize of the study. Summarize of the finding. Discussion. Conclusion.

5.1 Summarize of the study

This study aims to explore the application of Beijing Taishi chair culture in residential home decoration product design and investigate the impact of integrating traditional cultural elements into modern furniture. Based on this objective, the paper proposes two research questions.

Objective 1: To propose strategies to improve material selection to reduce burden on forest resources and reduce ecological impacts.

The research focuses on the feasibility of replacing traditional hardwood with synthetic wood in furniture production. Synthetic wood has the advantages of good dimensional stability, low cost, and adjustable performance. While meeting functional and structural requirements, it effectively alleviates dependence on forest resources and embodies the concept of sustainable development. This study verified the application potential of synthetic wood in the production of Taishi chairs through investigation and experiment, providing a practical basis and theoretical support for green design.

Objective 2: Analyze the technical advantages of traditional mortise and tenon structure in the production of Beijing Taishi chairs and its application potential in modern production.

The study explored the traditional advantages of the mortise and tenon structure in terms of stability, durability, and aesthetic value. The results showed that the mortise and tenon structure not only gives the Taishi chair good structural strength and assembly convenience, but also retains the cultural charm of traditional craftsmanship. The study further explored its transformation path in modern mechanized production and proposed an improved solution combining digital modeling and modular design to achieve the inheritance and innovative application of traditional structures in modern furniture production.

Objective 3: Explore how the design elements of the Beijing Taishi Chair convey and reflect the core connotation of Chinese traditional culture.

The study analyzed the design characteristics of the Beijing Taishi Chair—such as its high backrest, curved armrests, and intricate carvings—to interpret how these elements reflect traditional Chinese cultural values including dignity, etiquette, literati aesthetics, and hierarchical symbolism. Through expert interviews and user feedback, it was found that the Taishi Chair is widely regarded not just as a piece of furniture but as a cultural symbol embodying historical identity and refined taste. The

research also confirmed that incorporating traditional motifs such as dragons, floral patterns, and mortise-and-tenon joinery helps convey a strong sense of cultural heritage. These elements not only enhance aesthetic appeal but also play a vital role in reinforcing national cultural pride and continuity. The findings support the conclusion that the Taishi Chair serves as an effective medium for expressing and preserving Chinese traditional culture in modern living environments.

5.2 Conclusions

This study aimed to explore how the traditional design, craftsmanship, and cultural value of the Beijing Taishi Chair can be preserved and reinterpreted through modern sustainable design principles. Based on literature research, expert interviews, field surveys, and online questionnaires, a new design model for the Taishi chair was developed. This model integrates traditional Chinese aesthetic elements—such as mortise-and-tenon joints, symbolic carvings, and a dignified form—with modern minimalist lines, ergonomic improvements (Lin et al., 2021), and environmentally friendly materials like engineered wood and bamboo.

Respondents were invited to evaluate the new design through an online questionnaire featuring visual references. The survey results revealed that the vast majority of participants strongly supported the fusion of traditional and modern (Wang & Hu, 2020) design. Over 95% of respondents felt that it was appropriate or very appropriate to incorporate minimalist elements into traditional furniture, while 99.1% found the visual appearance of the newly designed Taishi chair attractive. Furthermore, more than 83% of participants expressed a willingness to purchase such a product, indicating strong market potential.

The findings demonstrate that contemporary consumers—particularly those aged 25–50—are increasingly interested in products that offer both cultural depth and modern usability. They appreciate the symbolic and artistic value of the Taishi chair but also demand greater comfort, environmental sustainability, and practical functionality in their furniture. The research also confirmed the cultural significance of design features such as curved armrests, high backrests, and traditional motifs, which were recognized by both experts and users as important carriers of Chinese cultural heritage.

In conclusion, this study successfully bridges the gap between cultural inheritance and innovative design. The redesigned Taishi chair not only retains the essence of Chinese tradition but also adapts to modern aesthetic trends and user needs. This highlights the potential of traditional furniture to evolve within contemporary contexts while remaining a meaningful expression of national identity. The results offer practical insights for the development of culturally-rooted, sustainable furniture design and provide a valuable reference for future work in cultural preservation and industrial design innovation.

5.2.1 Discussion

The findings of this research show that modern users highly value the cultural significance and visual aesthetics of the traditional Taishi Chair while also demanding improvements in material sustainability and ergonomic comfort. This reflects a broader social trend where consumers seek personalized, meaningful, and eco-conscious products. The successful integration of mortise-and-tenon craftsmanship with modern design elements illustrates that traditional structures still possess strong functional and symbolic value.

These results demonstrate the feasibility of reinterpreting traditional Chinese furniture using modern tools like SketchUp and sustainable engineered wood. They also suggest that young users (25–35 years old), as dominant respondents in this study, are open to innovation as long as it retains the cultural essence. Therefore, this study bridges traditional craftsmanship and contemporary lifestyle needs, offering practical strategies for culturally rooted furniture design.

5.2.2 Recommendations

Expand Sample Diversity: Future studies should include a wider age range, rural participants, and more craftsmen to enhance the representativeness of findings.

Material Innovation: Further experiments should be conducted with new bio-based or recyclable materials to assess their durability and user acceptance in traditional furniture forms.

Digital Cultural Tools: Incorporate AR/VR or interactive 3D models to help young users understand the structural and cultural features of traditional furniture.

Policy and Industry Support: Governments and design institutions should support workshops or educational programs that teach and adapt traditional craftsmanship for contemporary applications.

5.3 Benefits and limitations of the study

As a representative of traditional Chinese furniture, the Taishi chair has a sophisticated structure, solemn shape, and profound cultural heritage. In the design improvement of this study, the selection of synthetic wood as the main material reflects the effective integration of traditional craftsmanship (Huang et al., 2023) and modern manufacturing technology. Synthetic wood has the advantages of strong dimensional stability, not easy to deform, easy to process and low production cost, and is particularly suitable for modern industrial mass production. Its controllability in performance also makes it easier to achieve complex shapes and detailed carvings while meeting structural strength, which improves the applicability and market competitiveness of the Taishi chair in modern home environments. Therefore, synthetic wood not only fits the Taishi chair in practical functions, but also provides solid material support for the contemporary expression of traditional furniture.

5.3.1 Cultural Inheritance

The Taishi chair is a quintessential symbol of traditional Chinese furniture design, deeply rooted in Chinese history and culture. Through this research, the aesthetic, symbolic, and structural features of the Taishi chair are systematically documented and analyzed, contributing to the preservation of traditional craftsmanship such as mortise-and-tenon joints and intricate wood carvings. By highlighting the historical value and cultural symbolism of the Taishi chair, the study promotes the inheritance of intangible cultural heritage and fosters a greater sense of national cultural identity and pride among younger generations.

5.3.2 Environmental Protection Concept

This research promotes the integration of sustainable practices into the design and production of traditional furniture. The use of renewable and eco-friendly materials—such as certified bamboo and sustainably harvested wood—reduces reliance on endangered hardwoods, alleviating pressure on forest ecosystems. By encouraging eco-conscious material selection and exploring energy-efficient production methods, the study aligns traditional design with modern environmental goals. It serves to raise public awareness of green consumption and supports the broader development of low-carbon industries.

5.3.3 Innovative Design

The study bridges the gap between traditional Chinese furniture aesthetics and modern ergonomic needs. By reinterpreting the classic structure of the Taishi chair through contemporary design language, the research introduces innovative approaches to improve comfort, usability, and market adaptability. Through digital design tools (Sun et al., 2023) and user feedback, the Taishi chair is modernized without compromising its historical essence. This fusion of tradition and innovation enhances the appeal of Chinese classical furniture in domestic and international markets, adding commercial value and cultural significance.

5.3.4 Academic Research

This study makes a valuable academic contribution by integrating interdisciplinary methods including design theory, cultural analysis, sustainability, and user-centered research. It provides a reference model for future studies in traditional furniture design, materials innovation, and sustainable product development. The research also offers practical insights for the furniture industry, especially in terms of product improvement and cultural branding. By enriching the academic literature and industrial practices, this study supports both scholarly inquiry and practical applications in the fields of industrial design and cultural preservation.

Study limitations

Due to the widespread use of the Internet, online questionnaires have become a common tool for efficient data collection. However, in the case of the Taishi chair in this study, it must be acknowledged that the method has some limitations. First, affected

by the characteristics of the target audience and the limitations of distribution channels, online surveys may not fully cover all relevant population groups. For example, the elderly or craftsmen who are more familiar with traditional crafts may not be active Internet users, resulting in a lack of representativeness of the sample. This limitation affects the comprehensiveness and reliability of the collected data.

Second, the clarity and accuracy of the questionnaire design are crucial. Ambiguity in question wording or option settings may lead to misunderstandings, thereby affecting the accuracy of respondents' answers. Since the survey is conducted online without direct interaction, it is difficult for the investigator to clarify or adjust the content in real time based on the feedback of the participants, which may reduce the validity and depth of the data obtained.

In addition, technical limitations such as unstable network connections can also have a negative impact on the survey process. Network interruptions or browser errors may result in incomplete submissions or data loss. These factors will bring uncertainty to the integrity of the data and may require additional verification or follow-up work.

Therefore, although online questionnaires are quick and convenient, they also have challenges in covering specific target populations, ensuring the clarity of questions, and maintaining data quality. These limitations must be taken into account when interpreting the findings and drawing conclusions.

5.4 Recommendations for Future Research

5.4.1 Broaden the Sampling Scope

Future research should aim to expand the demographic and geographic scope of data collection. While this study focused primarily on residents in Beijing, subsequent studies could include other regions of China—especially areas known for traditional furniture craftsmanship such as Suzhou, Hangzhou, or Fujian. Including rural artisans, senior citizens, and professionals in traditional woodworking fields would allow for a more comprehensive understanding of the cultural and market value of Taishi chairs.

5.4.2 Combine Online and Offline Methods

To overcome the limitations of online surveys, future studies are encouraged to adopt a mixed-method approach. Combining online questionnaires with offline interviews, focus groups, or field visits can enrich the data, provide deeper insights, and improve the authenticity of responses. This would also allow researchers to engage directly with craftsmen, designers, and consumers, ensuring greater accuracy in capturing experiential and emotional aspects of traditional furniture usage.

5.4.3 Explore Material Innovation and Ergonomics

As sustainable development becomes increasingly critical, future research can further explore material innovations—such as the use of hybrid composites or

biodegradable alternatives—in the construction of Taishi chairs. In addition, more in-depth ergonomic studies can be conducted to optimize comfort and adaptability for modern users, especially for use in public spaces, workplaces, or elderly care settings.

5.4.4 Investigate Consumer Behavior and Branding

Understanding consumer preferences, purchasing behavior, and cultural perception will be valuable for the commercialization of redesigned Taishi chairs. Future research may incorporate behavioral economics, cultural psychology, or brand design analysis to uncover how traditional furniture can appeal to younger, urban consumers, and how cultural narratives can enhance product branding.

5.4.5 Digital Preservation and Virtual Heritage

With the advancement of 3D modeling, AR/VR, and digital museums, future research could focus on the digital preservation of Taishi chair designs and production techniques. Virtual simulations or interactive platforms could serve as educational tools for design students, cultural institutions, or international audiences interested in Chinese furniture heritage.

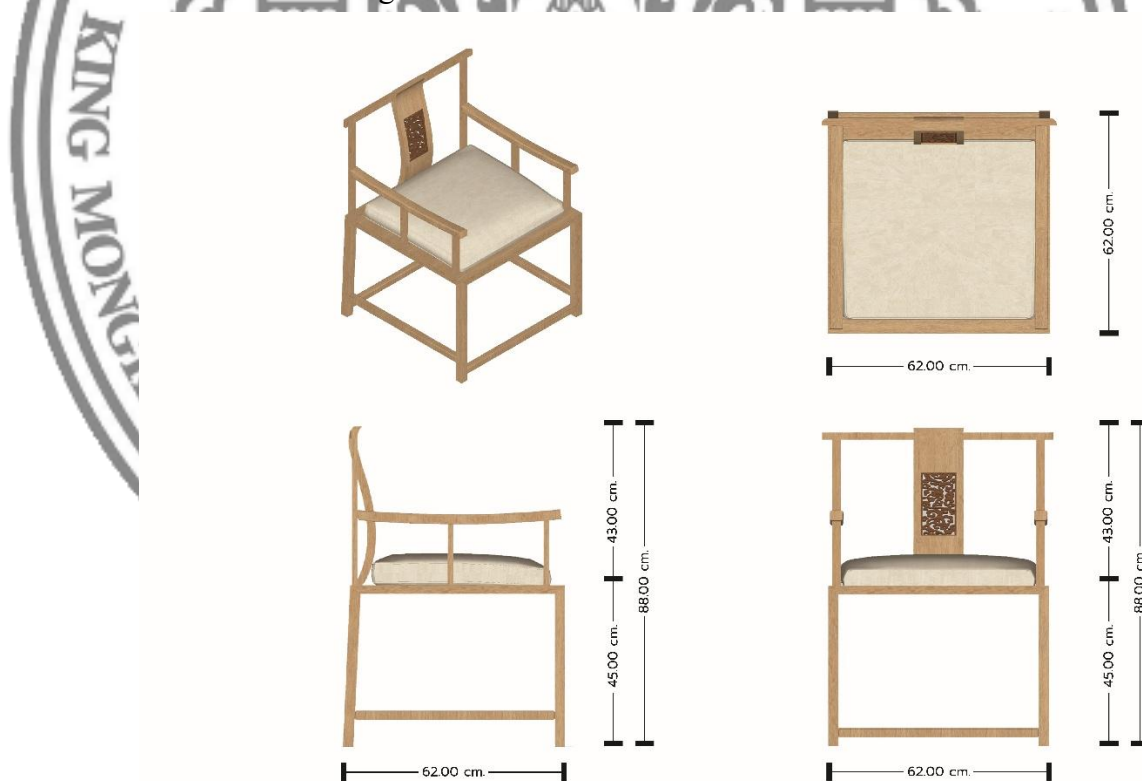


Figure 40 Design drawing of the Taishi chair
(Figure by Pengxin He)

This redesigned Taishi chair successfully integrates traditional Chinese aesthetics with modern ergonomic standards. With precise dimensions, clean structure, and symbolic decorative elements, it preserves cultural identity while enhancing comfort and usability. The result reflects a balanced fusion of form and function,

suitable for contemporary living environments that value both heritage and sustainability.





Figure 41 DRLE Pass Certificate

(Figure by Pengxin He)



Figure 42 DRLE Speech
(Figure by Pengxin He)



Figure 43 DRLE took a photo with the instructor

(Figure by Pengxin He)

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