

# Aesthetic Analysis and Innovative Design of Ming and Qing Furniture

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## ABSTRACT

**Objective:** Ming and Qing furniture is the crystallization of human wisdom in the Ming and Qing Dynasties, the modeling and pattern of which are not only beautiful, but also contain rich traditional cultural connotations. Today, with abundant material wealth, the quality of life has improved and the modernization of Ming and Qing furniture has encountered problems such as weak innovation and low fashion. **Methods:** This paper takes Ming and Qing furniture as the research object and explores its aesthetic features by analyzing the development process, modeling features and decorative patterns of Ming and Qing furniture implement design. **Conclusion:** Taking the cloud pattern as an example to carry out innovative design of modern furniture products can improve the novelty and innovation of Ming and Qing furniture and meet the diversified needs of modern consumers on the basis of protecting the cultural genes of Ming and Qing furniture. The research aims to promote and innovate Ming and Qing furniture and provide reference for its modernization development.

**Keywords:** Ming and Qing furniture, Aesthetic features, Decorative patterns, Furniture design.

## 1. INTRODUCTION

With the revival of traditional Chinese culture, traditional Chinese furniture has become a hotspot in the field of design and furniture industry research [1]. Chinese Ming and Qing furniture is a bright pearl in the long history of Chinese furniture development. The evolution of decorative patterns of Ming and Qing furniture has an important influence on the design and design style of modern Chinese furniture [2][3]. At present, the academic circles have carried out research on the design style, decorative patterns, inheritance and innovation of Ming and Qing furniture. Niu Xiaoting et al [4] explored the fundamental internal design rules of furniture decoration in Ming and Qing Dynasties based on the design ingenuity of furniture backboard decoration in Ming and Qing Dynasties, providing development ideas for the inheritance and innovation of traditional furniture culture in Ming and Qing Dynasties. Su Yan [5] discussed the auspicious meanings of typical auspicious decorative patterns on Ming and Qing furniture and straightened out the meanings expressed by each pattern on Ming and Qing furniture. Liu Sheng [6] took the waist components of several types of

furniture in Ming and Qing Dynasties as the research object and analyzed the "syntactics" relationship between waist components and the overall furniture shape from the perspective of semiotics. Cheng Xiaoxiao [7] analyzed its design style from different levels based on Ming and Qing furniture design schemes and drawings and elaborated its influence on modern Chinese furniture design. This research analyzes the aesthetic features of Ming and Qing furniture on the basis of previous research, uses shape grammar to extract and redesign typical patterns, combines the aesthetic features of Ming and Qing furniture with modern furniture design, and makes traditional cultural elements and furniture design complement each other and promote each other [8], which are not only conducive to meeting the aesthetic needs of users [9], but also conducive to inheriting and innovating Chinese traditional culture.

## 2. THE DEVELOPMENT HISTORY OF MING AND QING FURNITURE

The reason why Ming-style furniture can stand at the top for thousands of years today [10] is not only because of its skilled production technology,

but also due to the strict requirements of men of literature and writing on aesthetics [11], China's long-standing cultural heritage, national harmony, and commercial prosperity inside and outside the country, etc., all of which further promote the development of handicraft industry in Ming Dynasty and create a suitable social environment for Ming-style furniture design. The design and production of Ming Dynasty implements were inseparable from the social environment, political and cultural atmosphere, and economic conditions at that time [12]. First of all, traditional ideas had been rooted in the nation for thousands of years and had a profound impact on the functions of Ming-style furniture. Ming-style furniture was a product of simplicity and practicality as beauty. Appropriate decoration and practical functions were influenced by the simplicity and elegance of the Confucian culture of "benevolence" and "goodness". Secondly, Neo-Confucianism in the Ming Dynasty prevailed, which required rigorous structure, reasonable proportions and elegant shapes not only academically but even in the design of furniture implements. Every corner reflected the rigor and stability of "reason". With the introduction of Western culture, it had different influences on the aesthetics of Qing-style furniture. The exchange and collision of Chinese and Western cultures paved the way for the innovation of furniture styles in the Qing Dynasty. The European medieval baroque and rococo art styles set off a wave in the Qing Dynasty. Influenced by the Western art styles, the furniture of the Qing Dynasty began to appear luxurious and magnificent style. The style and pattern of the furniture were integrated with new blood and the style of the furniture in the Qing Dynasty gradually changed.

### **3. ANALYSIS OF THE AESTHETIC FEATURES OF MING AND QING FURNITURE**

Compared with traditional Chinese furniture in other periods, Ming and Qing furniture had rich artistic features no matter what material it was made of [13]. Ming-style furniture was simple and harmonious in structure and elegant and generous in style. In terms of decoration, sculpture and accessories, Ming-style furniture followed the style of "simple but elegant". In terms of accessories and decoration, the texture of the material itself was retained without losing the natural "nimbus" of the material. Craftsmen often made the decorative carved patterns or accessories as finishing touches at the waist or key points. The decorative patterns

not only enhanced the beauty of the furniture, but also strengthened the practical beauty and modeling beauty of the furniture itself, so that the practicality and aesthetics of the furniture were more deeply integrated. In the production process, the craftsmen didn't carry out too many carvings on the wood, but only carried out a small area of decoration on the chair surface, which was visually compared with the large-area plain surface, and the impact generated by the two gave users a unique aesthetic experience psychologically. Qing-style furniture was developed on the basis of Ming-style furniture. Due to the improvement of its decorative technology content and the integration of foreign cultural ideas in style, the decorative art was relatively sumptuous and complex.

#### ***3.1 Aesthetic Features of Ming-style Furniture***

##### ***3.1.1 The Material Beauty of Ming-style Furniture***

The aesthetic features of the times were influenced by the craftsmanship and materials at that time, and the superb craftsmanship of craftsmen could only be reflected with the help of materials. Therefore, Ming Dynasty furniture was rich in categories and the modeling was also simple and elegant, showing the furniture design idea of "beautiful material and ingenious craftsmanship" in ancient China. Most of the furniture materials were hardwoods of good quality and high price. In terms of materials, Ming-style furniture was mostly made of hardwood trees. In the Yuan Dynasty and the early Ming Dynasty, a good overseas trade market environment introduced a large number of Southeast Asian redwood, nanmu, padauk and other high-quality wood. The soul of Ming-style furniture is the combination of nature and manual work. Ming-style furniture presented the natural color and texture of wood as a whole, giving it practical functions on the basis of the natural beauty of wood. In the design, Ming-style furniture endowed with deep traditional and religious connotations and the natural beauty reflected the performance of wood and conformed to the beauty of its material.

##### ***3.1.2 The Beauty of Craftsmanship of Ming-style Furniture***

In the Ming Dynasty, the concept of "practical-centered" furniture production idea prevailed, and craftsmen had extremely strict requirements for the shaping of the overall modeling, structure and

decoration of furniture[14]. The modeling was simple and elegant and the external decoration was not deliberately emphasized. The overall design was simple, but the "point of breaking the stiffness" was carved at the key points, protecting the furniture and adding the sense of beauty. The design focus of the Huanghuali openwork official hat chair with four protruding ends was the natural wood itself. The decoration didn't deliberately create a gorgeous and cumbersome feeling, but included the craftsman's own ingenious mind, as

shown in "Figure 1". The backrest of the chair used the technique of "treasure inlays". The techniques of carving, painting, coloring, and waxing inlaid a picture of a bird perching green branches leaning on people repeatedly and carefully observing piglets, which was very appreciative. Appropriate embellishment of key parts showed the aesthetics of moderation, without taking into account wisdom and skill, which reflected the beauty of craftsmanship in the fusion of nature and decoration, as shown in "Figure 2".



Figure 1 Huanghuali openwork official hat chair with four protruding ends (Ming Dynasty) Source: Shanghai Museum <https://www.shanghaiuseum.net/mu/frontend/pg/article/id/CI00000291>.

### 3.1.3 *The Formal Beauty of Ming-style Furniture*

#### 3.1.3.1 *Beautiful and Practical Colors*

"Beautiful in natural colors, conforming to nature" is the core concept of Ming Dynasty furniture. "The most natural is the best" is the vane of Ming Dynasty furniture. In the Ming Dynasty, there were a lot of high-quality woods. In order to retain the natural texture and pure nature of high-quality wood, craftsmen didn't lacquer, dye or color, just to show a plain and ordinary "simple but elegant" artistic conception. Therefore, the word "Shangya Tiancheng", which means that "With few decorations and elegant lines, it will be a natural one as if made by heaven", is the most comfortable style of Ming Dynasty furniture.

#### 3.1.3.2 *Rigorous and Smooth Modelings*

The modeling of Ming-style furniture was considered and discussed [15]. Craftsmen learned from the construction methods of wooden buildings to enhance the rationalization and stability of furniture structures. The overall lines of Ming-style

furniture were smooth. For example, the inclination angle of the chair back and the angle of the back panel of the Huanghuali openwork southern official hat chair with four protruding ends were in line with the curve of the human back skeleton, which was used to support the combination of the head and the back of the chair, and the smoothness of the lines reflected both aesthetics and functionality. The modeling design of Ming-style furniture reflects the concept of humanized design. From the scientific point of view of ergonomics, the human spine presents an "S"-shaped curve in the normal state, and the backboard of the southern official hat chair and the undulating lines of the human spine both present an "S"-shaped curve, as shown in "Figure 2". This modeling design makes users more comfortable during use. At the same time, dynamic lines of "S"-shaped and "C"-shaped curves are used in the design, which is also based on users' feelings when using the chair. The man-machine curves of the head and the backboard of the chair back fit the human spine more closely and conform to the principle of ergonomics, which also reflects the design idea of "objects for people's usage".



Figure 2 A chair back of man-machine lines (drawn by the researchers).

### 3.1.4 *The Beauty of Connotation of Ming-style Furniture*

The design of ancient Chinese implements revolved around the "people-oriented" design principle and concept and took the user's using experience as the starting point. The aesthetic taste and pursuit of the scholar class in furniture design was that the use of furniture could reflect their noble sentiments and virtues. The log-made furniture was influenced by the Taoist pursuit of "advocating nature" and the free and romantic idea of advocating the harmony between man and the natural environment. It integrated nature and furniture design and users felt like they were in nature. Ming Dynasty furniture integrated traditional spiritual culture and scientific theories into the rigorously modeling design, intertwined living habits, personal morality, and implicit cultivation, and improved the user's personal cultivation and aesthetic quality. Ming Dynasty furniture is synonymous with restraint, simplicity, elegance and practicality. In the form, the scientific man-machine principle is used to fully take into account the physical and mental experience of the user, and the design uses the spirit of traditional Chinese culture to present the "people-oriented" design concept as a whole.

## 3.2 *Aesthetic Features of Qing-style Furniture*

### 3.2.1 *The Material Beauty of Qing-style Furniture*

Qing-style furniture is made of excellent materials and exquisite workmanship. The craftsmen of the Qing Dynasty adhered to the organic combination of craftsmanship and materials.

There were not many hardwood materials left over from the Ming Dynasty to the Qing Dynasty. The craftsmen mainly used huanghuali, beech, elm, etc., and due to the improvement of the interior lighting of the houses in the Qing Dynasty, wood with dark colors was more valued and favored. Qing-style furniture had strict standards in the selection of materials: (1) The wood must be bright and uniform in color; (2) There should be no knots and no scars on the trunk and integrity should be emphasized during production; (3) No other wood should be spliced. It was precisely because of the strict requirements on materials that more Qing-style furniture survived in the world.

### 3.2.2 *The Beauty of Craftsmanship of Qing-style Furniture*

The conceptual style of Qing-style furniture was not much different from that of Ming-style furniture, both of which pursued the aesthetic concept of "naturalness". Qing-style furniture added the most complex carving techniques to the "simple but elegant" of Ming-style furniture. Economic prosperity had a certain impact on furniture design. In the middle and late Qing Dynasty, people's basic survival needs were met, aesthetic needs were gradually improved, and the craftsmanship reached a certain level, so the design of Ming-style furniture was in bloom. First, Qing-style furniture pursued a gorgeous, delicate, majestic and surging aesthetic design, which added a bit of boldness compared to Ming-style furniture. Second, Qing-style furniture continued to optimize and innovate while absorbing the structural advantages of Ming-style furniture. In terms of proportion, the size of the furniture was enlarged, and the focus of making furniture was more on the pattern of the furniture. The craftsmanship was extremely cumbersome and the decorative patterns were very innovative. Third, Ming-style furniture developed the practicability of furniture structure to the peak, while Qing-style furniture continued in structure and modeling, using carvings to describe a series of decorative skills and craftsmanship, showing its style on plain surfaces. In addition, the handicraft in the Qing Dynasty was extremely developed at that time, and the craftsmen were ingenious in the decorative patterns. The wonderful combination of various patterns, such as complicated forms, flower and plant patterns, bird and beast patterns, dragon and phoenix patterns, etc., made the Qing Dynasty furniture greatly show its style.

### 3.2.3 *The Formal Beauty of Qing-style Furniture*

#### 3.2.3.1 *Modeling*

Qing-style furniture broke through the inherent pursuit of structural proportions of Ming-style furniture. The structural proportions of Qing-style furniture were larger than that of Ming Dynasty furniture, which was more of royal style and more majestic in the visual sense. Compared with Ming-style furniture design, Qing-style furniture design presented a square aesthetic in design, and the carving decoration was also square-shaped fret patterns. The whole was generous and the partial decoration was delicate. The overall size of Qing-style furniture tended to be wide, high, large and thick, and accordingly the partial size and component materials also became wider and increased.

#### 3.2.3.2 *Decoration*

Qing-style furniture was designed in combination with different rooms such as halls, bedrooms and study rooms, with detailed classification and clear functions. Qing-style furniture was solemn in modeling, onerous in carvings, large in size and grand in bearing. The decoration technique paid attention to form, regardless of skills and materials, and the craftsmanship reached an unparalleled level. The decorative patterns were rich and ingenious, and the craftsmen made full use of each plain surface to demonstrate super high carving skills. As shown in "Figure 3", the Qing Dynasty Suanzhi wood inlaid marble chair with auspicious cloud patterns can be taken as an example. The back-rest chair was made of Suanzhi wood, the back gathered turned cloud patterns, and the head was engraved with protruding auspicious cloud patterns, and a circle was inlaid for opening the light in the middle of the back of the chair, which was then inlaid with marble and combined with mahogany. The whole is a combination of square and circle. The circle is inclusive, symbolizing that all rivers run into sea; the square is steady, symbolizing following the rules. The roundstone was also tattooed with distant mountains and plum blossom patterns to enhance its decorative beauty and the diversity of materials used, combining the beauty of materials with superb craftsmanship and expressing the meaning of "white as jade, pride over frost and snow". In terms of skills, it achieved the technique of "as skillful as heaven", and the decoration was

appropriately loose and tight, in accordance with the ingenuity of laws and rules, and the natural beauty of wood and stone was integrated with artificial skills. There were Zhanya (站牙, used for fasten the stand column of the chair) with turned patterns on both sides to fix, and the seat surface was in the form of Luotang Caigu (落堂踩鼓, namely, a skill to step down the four sides of the mounting board so that it is lower than the frame, but the middle part doesn't move, forming a small raised platform). There was a waist under the seat, with four stretching legs, flat cheng on four sides, and everted feet with banana leaf patterns. The modeling features were in the style of the late Qing Dynasty. The complex patterns on the chair surface reflected the traditional aesthetic culture. Although the decoration was too complicated, it could also reflect the beauty of the craftsmanship of the Qing Dynasty.



Figure 3 Suanzhi wood inlaid marble chair with auspicious cloud patterns (Qing Dynasty) Source: Prince Kung Museum  
<https://www.pgm.org.cn/pgm/shoucang/shoucang.shtml#d2k>.

#### 3.2.4 *The Beauty of Connotation of Qing-style Furniture*

The innovation in the decorative techniques of Qing-style furniture patterns not only inherited the excellent traditional Chinese culture, but also enriched the library of Chinese furniture patterns. The craftsmen of the Qing Dynasty made full use of various means and materials in order to make the final effect of the furniture reach the gorgeousness and stability they expected. Therefore, Qing-style furniture used a variety of materials and a combination of craftsmanship to form its own

unique features and styles in decorative techniques. At the same time, it was also for the Qing rulers to show their identity and status.

#### 4. INNOVATIVE APPLICATION CASES OF MING AND QING FURNITURE

##### 4.1 The Innovative Design Process of Ming and Qing Furniture

Based on the aesthetic features of Ming and Qing furniture, combined with modern design

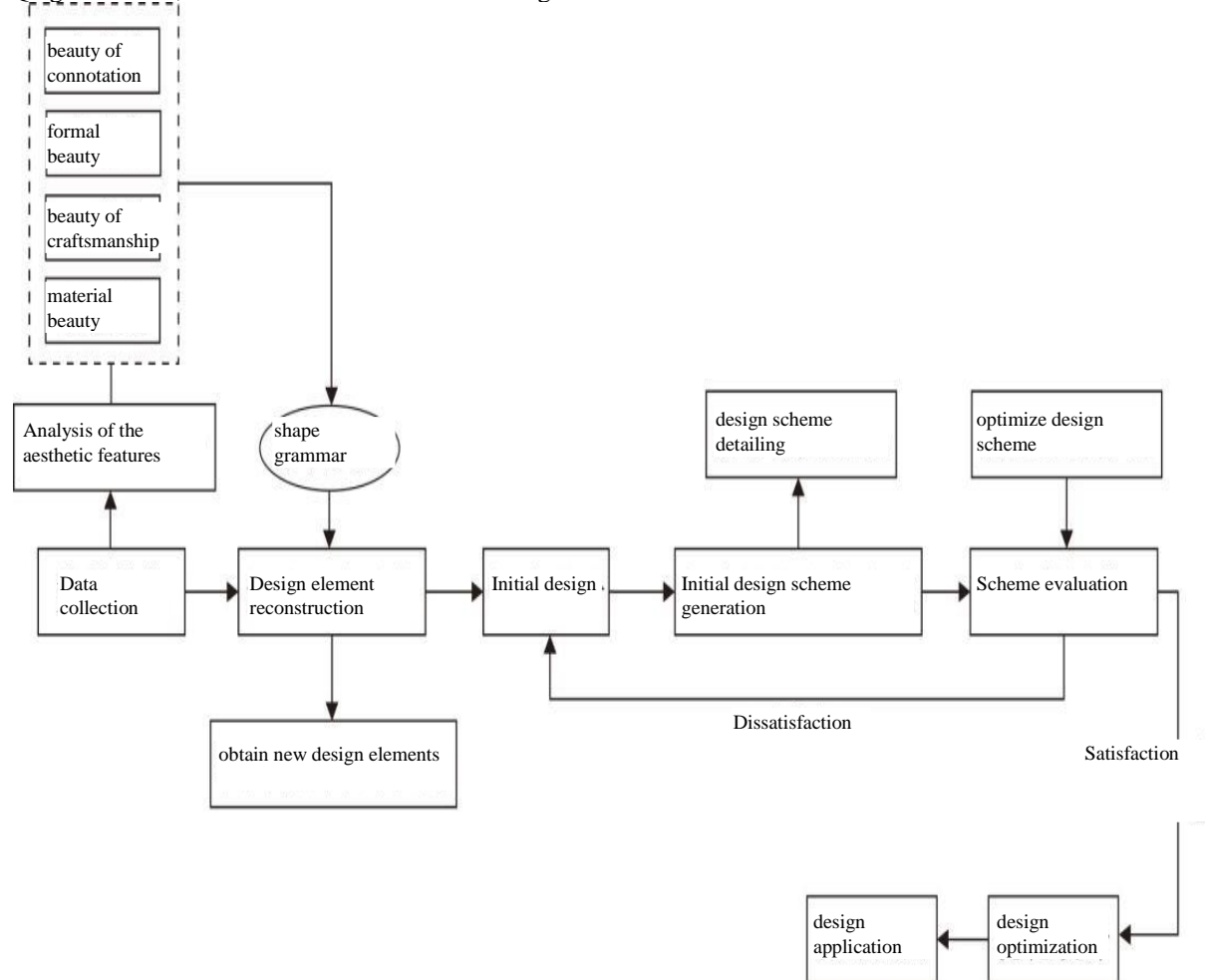


Figure 4 The innovative design process of Ming and Qing furniture (drawn by the researchers).

##### 4.2 Design Element Extraction and Evolution

In order to better obtain the innovative design elements of Ming and Qing furniture and meet the aesthetic needs of modern consumers, this study selects a representative Qing Dynasty Suanzhi wood inlaid marble chair with auspicious cloud

techniques, this research uses shape grammar to extract and redesign the selected implements to generate new patterns, and from this, a number of design schemes are deduced, a preliminary evaluation is carried out according to design schemes, and finally a suitable design scheme is selected for verification. The innovative design process of Ming and Qing furniture is shown in "Figure 4".

patterns, analyzes its aesthetic features and obtains design elements, as shown in "Figure 5". The obtained design elements are extracted and evolved by using shape grammar and finally new design elements are obtained. The innovative redesign of design elements through shape grammar not only satisfies the innovation of new elements, but also retains the typical features of the original design

elements, which is the support for the evolution of design elements. The basic transformation rules of

shape grammar are shown in "Figure 6".

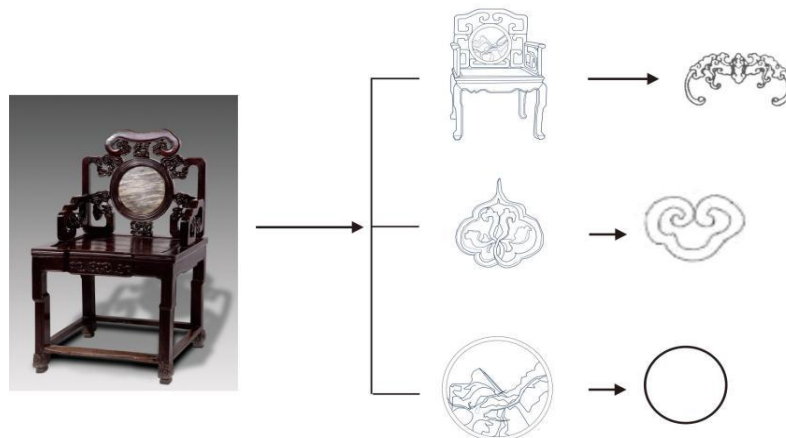


Figure 5 Analysis of design elements (drawn by the researchers).

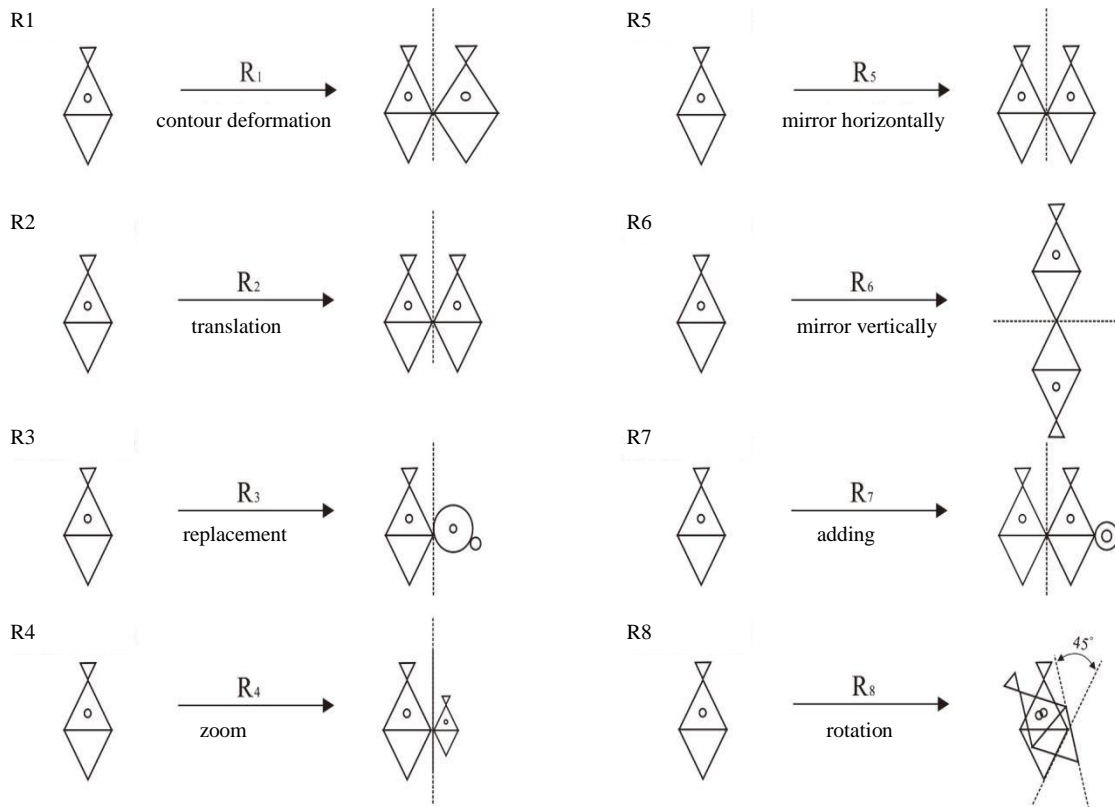


Figure 6 Shape grammar evolution rules (part) (drawn by the researchers).

The shape grammar construction process of innovative design elements of Ming and Qing furniture is mainly divided into two stages: The first stage applies "Rule 1", "Rule 3", "Rule 4", "Rule 7" and "Rule 8", and finally forms different

pattern units. In the second stage, it is further evolved by the pattern units obtained in the first stage, and the extraction and evolution process of design elements is shown in "Figure 7".

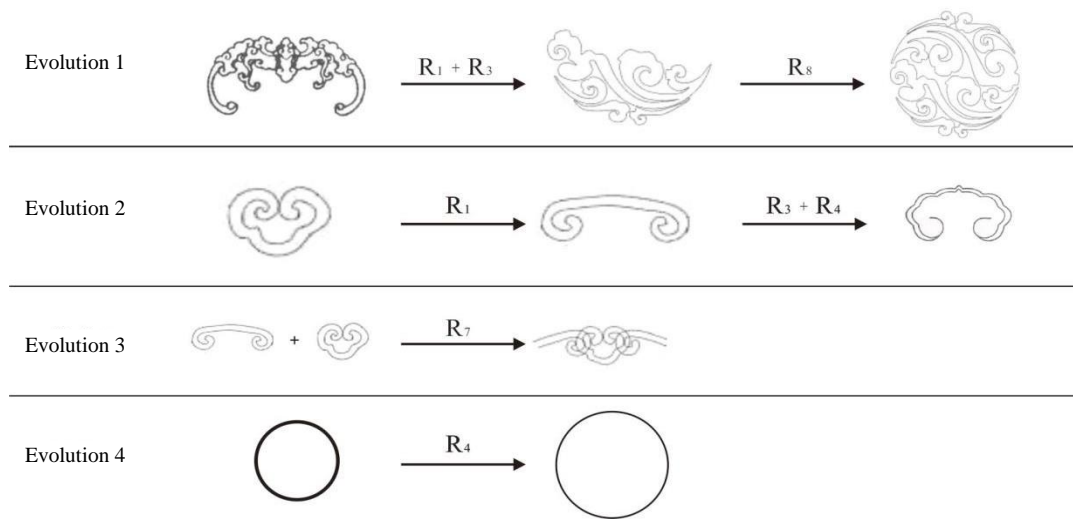


Figure 7 Design element extraction and evolution process (drawn by the researchers).

### 4.3 Scheme Optimization and Design Application

The obtained design elements are carried out by unit using the shape grammar evolution rules and finally the new design patterns are obtained and applied to the design practice. Then the designers screen the generated design schemes to determine the final design scheme, and use Rhino6.0 software and KeyShot6 software to complete the final design elements, as shown in "Figure 8". The dining table is an essential item in people's daily life, which not only provides convenience for users, but also enhances the dining atmosphere and experience. Therefore, the application of innovative design patterns to modern dining table design can not only enhance the artistic atmosphere of the restaurant, but also expand the influence of Ming and Qing furniture and promote the modern and lively inheritance of traditional culture.

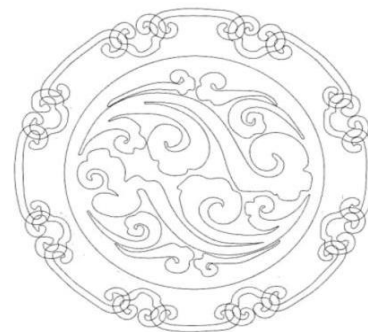


Figure 8 Display of design elements (drawn by the researchers).

This study applies the finalized pattern scheme to the design of modern dining table, starting from the aesthetic point of view of the beauty of material, craftsmanship, form and connotation of the dining table, in order to realize the inheritance and innovation of Ming and Qing furniture. The overall design follows the principles of modern design aesthetics: In terms of material, the birch material is combined with the slate material, the material structure is delicate, soft and smooth, and the texture is soft or moderate; in terms of craftsmanship, birch belongs to hardwood, with good load-carrying strength, and it's easy to carve patterns, with strong economical practicability; while slate has the hardness and toughness that natural rock should have, and has the properties of natural rock, which is more wear-resistant and durable; in terms of modeling, the desktop is round, the purpose of which is to facilitate the communication between users, and it has a harmonious effect in the meaning, symbolizing the reunion and intimacy of a family of old and young,



and it also means that there is no boundary between each other's identities; in terms of connotation, the cloud patterns are applied to the desktop turntable, and the user may feel blessed when using it, which

has the beautiful meaning of auspicious luck and constant blessing. The final design sketch is shown in "Figure 9".



Figure 9 Product design sketch display (drawn by the researchers).

## 5. CONCLUSION

The design of Chinese furniture implements has its own unique aesthetic features in each era, and the aesthetic standards with the features of the times are formed by the differences in the political, cultural, economic, religious belief, social environment, technical level, military environment and humanistic quality of the era. In response to the inheritance, innovation and development needs of Ming and Qing furniture, this study proposes a modern and innovative design method for Ming and Qing furniture and uses cloud patterns to innovate modern furniture design to explore the modern design path of Ming and Qing furniture. To a certain extent, this method provides ideas for realizing the innovative design and application of traditional implements.

To inherit and innovate Ming and Qing furniture in the context of modern aesthetics, it is necessary to respect history and retain its basic features. This study mainly focuses on the modeling and decorative features of Ming and Qing furniture and proposes a design method study. Subsequent research will expand the scope of the study, target more traditional patterns, study its innovative designs under different structures, and explore design methods that meet the needs of modern design on the basis of retaining traditional cultural genes.

## AUTHORS' CONTRIBUTIONS

Qi Wang analysed data, Mengqian Liu wrote the manuscript, Mingwei Dai was responsible for experimental design.

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