

APPLYING TRADITIONAL BUDDHIST LOTUS PATTERNS TO CHINESE ARCHITECTURAL DECORATION

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ABSTRACT

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The lotus flower is a traditional Buddhist motif and is one of the decorative elements of Chinese architecture. Studies that examined many sites for architectural heritage conservation in China revealed that traditional Buddhist lotus decorative elements from different periods employ various surface decoration techniques and themes as well as varying forms of expression for such decorative elements. The current study compares the traditional Buddhist lotus decorative elements with the surviving Chinese heritage conservation objects and analyzes their influence on Chinese architectural decoration. The study investigates the relationship between the inspiration and application of the lotus pattern as decorative elements in the integration of architecture and culture. It uses the documentary method of analysis, fieldwork, and comparative analysis of lotus pattern motifs on Buddhist temple architectural sites from different periods. The researchers intend to reveal the links between fashion design and the structure of the lotus pattern decorative elements, to provide designers with methods and style details of design. China has many sites for architectural heritage conservation, but the key is how to get motifs and be inspired by motifs from traditional Buddhist monastery and ancient Chinese architecture. This article provides an example of the fusion between fashion design and a heritage theme in which lotus pattern decorative elements, as influenced by carved motifs found in Chinese architecture, are nearly unchanged. Finally, we discuss the use of traditional Buddhist lotus motifs in Chinese architectural decoration as a basis for the transmission and promotion of traditional Chinese culture with the lotus motif decorative elements.

Keywords: Traditional Buddhist lotus flower motif; cultural connotation; Chinese history; Chinese architecture; decorative elements

1. INTRODUCTION

Traditional Buddhist lotus motifs are an important part of traditional Chinese culture and have been widely used in Buddhist art, literature, and architecture. Contemporary traditional Chinese architectural decorative elements also exhibit different variations across periods and cultures. The lotus motif is crucial symbol in traditional Buddhist art (Ruan, 2023), and, as a decorative element, it was extensively used in ancient Chinese architectural and Buddhist decoration. As a physical representation of Buddhist teachings, it is also of great importance in the rapidly developing new era in China and needs to be passed on and carried forward.

In China, the primitive society of the lotus pattern was the beginning, the use of the motif began in China during the Shang and Zhou dynasties, and the style of the lotus pattern began to change and was applied to architectural decoration during the Northern and Southern dynasties (Lyu et al., 2021). Moreover, the lotus pattern flourished during the Tang dynasty and was widely popularized in society during the Ming and Qing dynasties. Different eras have different lotus characteristics, which is the purpose of studying contemporary lotus patterns.

1.1 Properties of the lotus plant

The lotus plant is one of the oldest dicotyledons in the world and features a few of the characteristics of monocotyledons. For these reasons, it is called a *living fossil*. Many species of lotus have been identified and grouped under two categories: ornamental and edible. China is rich in varieties of lotus with more than 200 traditional species and new ones constantly emerging.

1.2 Geographical features of the lotus

Lotus cultivation has been documented in China since the Zhou dynasty. Lotus flowers are found in most parts of the country such as Hainan Island in the south, Heilongjiang in the north, Shanghai and Taiwan Province in the east, and Xinjiang in the west. Originating from tropical and temperate regions in Asia, a few species are found in South Africa, Europe, and the more moderate and cold parts of Asia. The lotus is one of the top 10 popular flowers in China and is one of the national flowers of India, Vietnam, and Malawi. It is found in Japan, Korea, India, the former Soviet Union, Siberia, and Europe.

1.3 Symbolism of the lotus flower

The symbolic meaning of the lotus is expressed in four areas: religious, feminine, folklore, and gentlemanly sentiment, which have independently and simultaneously developed at cross-purposes and are integrated.

In ancient societies, the lotus was considered a clan totem, a symbol of good fortune and prosperity, and a symbol of the pursuit of prosperity. In Chinese folk culture, the lotus is frequently used to symbolize peace, harmony, unity, and union. The lotus flower symbolizes the cause of peace and harmony in the world of purity. Out of the sludge, the lotus flower symbolizes high purity, incorruptibility, sanctity, and wealth. Moreover, the lotus flower was one of the subjects of the songs and paintings of ancient Chinese poets. As such, it is a promotion of Chinese culture.

1.4 Feng shui doctrine of the lotus flower

Feng shui is a traditional culture left over from the long history of the Chinese people. In feng shui, architecture is divided into five elements, namely, gold, wood, water, fire, and earth. Wave-shaped and curved buildings represent water; therefore, architecture is typically curved, and the lotus flower is also the principle of the phase of water-producing wood in feng shui. Water is believed to be wealth, and the exuberant aura of the lotus flower stands for only the appropriate amount of water to generate wealth. The lotus is a very hardy flowering plant, which makes it very beneficial to architectural feng shui. Furthermore, the lotus is very auspicious as a feng shui object due to its luxuriant branches and leaves.

1.5 Doctrine of the lotus

Since the spread of Buddhism to China, the Chinese have regarded the lotus flower as a symbol of good fortune; not only has it been widely planted, but people have also been eating the seeds, puffs, and roots. According to Buddhism, "the flower blossoms to see the Buddha's nature." The blossoming of the flower means that the practitioner has reached a certain level of wisdom. This phrase is a metaphor for the fact that when one possesses the state of mind of a lotus, one will reveal Buddha's nature. The lotus flower also represents a state of great wisdom, which is known as *enlightenment*. The character and characteristics of the lotus flower are in line with Buddhist teachings. It is traditionally revered by Buddhism as a sacred and pure flower, and Buddhism advocates that people learn from its pure and resilient spirit. The lotus flower symbolizes Buddhist and Taoist practitioners.

Lotus flower reflects Taoist doctrines, Taoism is a native Chinese religion, and China has loved the lotus flower since ancient times. The lotus flower in Taoism is a symbol of the practitioner, a gentleman, and the magic weapon of the eight immortals.

2. LITERATURE REVIEW

Among traditional Chinese motifs, the lotus flower is one of the earlier botanical ones to appear in the history of Chinese decorative motifs in a pattern that has maintained a long period of continuity in its historical development (Kandeler & Ullrich, 2009).

2.1 History of the lotus flower motif in China

The lotus flower motif has a long history in China and has passed through different eras such as the Primitive Period; Xia; Western Zhou; Spring and Autumn and Warring States, Qin, Han, Wei-Jin, and Northern and Southern dynasties as well as the Sui, Tang, Song, Yuan, Ming and Qing dynasties. Its meaning and appearance have continued to develop and evolve across these dynasties. The lotus petal motif in decoration is named after the lotus flower as a decorative element and is widely used. The lotus flower is depicted on buildings with various decoration techniques, such as carving, veneering, relief carving, painting, and printing, as well as in traditional folk decorative arts such as paper cutting, embroidery, New Year painting and so forth.

Buddhism began in India and spread to China. After Buddhism was introduced to China, the lotus flower motif began to take on a religious dimension (Peters, 2021). As Buddhism merged with Confucianism and Taoism in China, the inherent meaning of the lotus flower motif evolved into a more auspicious symbolism. In other words, the lotus has taken on a semiotic character. As a symbol, the Buddhist lotus is a combination of the temporal and the common in which the common will change in temporality. For this reason, the lotus is characterized by the time and nation brought by each era. As time changes and technology develops, the Buddhist lotus flower motif is frequently used in contemporary design as an integral part of traditional ornamentation. Lastly, it contains a unique Chinese culture with its symbolic connotations and contextual characteristics.

2.2 Evolution of the lotus flower motif across the periods of Chinese history

The development of the lotus pattern in China underwent four periods (Figure 1). The first is the Proterozoic Period, which covers the Primitive Period; the Xia and Zhou dynasties; the Spring and Autumn and Warring States periods; and the Qin dynasty. The second denotes the period of Buddhist influence, which includes the Eastern Han, Wei, Jin, and Northern and Southern dynasties. The third refers to the period of integration, which spans the Sui and Tang dynasties. The last period is one of prosperity and popularity, which includes the Song, Yuan, Ming and Qing dynasties (Wang, 2005).


































Original period					Fusion period							
												
												
												
Primordial period	Xia	Zhou	Spring and Autumn/Warring States	Qin	Han	Wei and Jin dynasties	Sui	Tang	Song	Yuan	Ming	Qin
					Buddhist influence period			Prosperity and popularization period				

Figure 1: Development of the lotus flower motif in China across eras

As one of the classic patterns in traditional Chinese motifs, the lotus pattern has been observed since primitive times and is an ancient cultural symbol that is widely used (Sun & Ab Aziz, 2023). The original lotus motifs in primitive Chinese society originated from the worship of the lotus as food and survival by the ancestors, a product of rituals, a mysterious irrational age, and the balanced beauty of the interplay between emotion and reason, which was an important condition for the creation of the lotus motif.

Archaeologists found a wide variety of lotus-printed square bricks of various uses at the sites of the Western Xia. Each brick is distinctive in composition (i.e., not repetitive) and rich in variation, and the patterns exhibit distinct national characteristics. This aspect demonstrates the love of the ancient people for the lotus flower, and people used the design to express the subjective feelings towards objects about objective things. The designed patterns are used to decorate various environments and applied to the decoration of everyday objects to enhance the artistic atmosphere and improve esthetic sensibilities.

The earliest use of the lotus motif after Chinese history entered civilization dates back to the Shang and Zhou periods. At the time, it was used to decorate bronze vessels and mostly displayed four, six, eight, or ten petals in an even arrangement.

During the Spring and Autumn and Warring States periods, the use of lotus motifs in art and culture gradually increased. The lotus motifs appeared in the form of single, heavy, and multiple petals. They were more naturally and vividly modeled than before, which enhanced the force and dynamism of the lotus gesture.

Such motifs were mainly found on bronze, pottery, jade, and other artifacts; in particular, the lotus motif is typically found on the base, ears, and ring band of an object to increase its esthetic and decorative qualities. In the middle of the Spring and Autumn and Warring States periods, the lotus motifs became increasingly spontaneous and naturalistic. By the late of these periods, however, the use of lotus motifs gradually increased and rendered it close to realistic forms, which were simple and generous. The most important feature was that they began to be combined with other motifs. Expressing the pursuit of people for a flourishing of life and their love of life, the symbolism of the lotus began to be expanded and has become an integral part of ancient Chinese culture.

During the pre-Qin period, lotus motifs were mainly decorated on tops of objects or buildings as a way of indicating the symbolic relationship of the vault of heaven. The lotus petal motif also gradually transitioned from its initial abstraction to geometric realism.

Later in the Qin dynasty, Chinese culture entered a new stage, which was dominated by pragmatism and military thinking. The development of decorative arts was relatively slow, and people were more concerned with practicality and functionality. The use of lotus motifs in the decoration of objects was relatively rare and less common than those in previous periods. The modeling of the lotus motif changed into a realistic style that only focused on large forms and overlooked small details. The most prominent shapes were the exaggerated new body of the lotus and the simple, concise overall image, which was a realistic model that remained within the sphere of the primitive period of realism. The more abstract lotus motifs were mostly used on decorations of objects and architectural buildings, e.g., the lotus tile from the Qin period, which was unearthed at the palace site of Qindu No. 1 in Xianyang, Shaanxi province, represents the lotus in the middle, with eight petals [four large and four small] in an abstract shape.) In summary, the use of lotus motifs was relatively rare during the Qin dynasty in China, but they could still be observed in a number of cultural artifacts. This use reflected the changing requirements of the social and cultural environments for decorative art at the time.

The lotus became a common decorative motif during the Han dynasty in which the use of lotus motifs increased and their symbolism were being explored and expressed in greater depth. It appeared in various objects, fabrics, and architecture. In the *Records of the Grand Historian*, an account exists of the carving of lotus motifs on jade used by Emperor Wu during his southern rituals, which reflected the importance of the lotus in religion and culture during the Han dynasty. The number of petals on the native Chinese lotus motifs of the early Han dynasty was relatively small, with four or eight out, and came under the influence of the Buddhist religion. At this point, the number of petals became significantly higher with the appearance of lotus puffs, and the petals becoming increasingly pointed. The lotus motif was most frequently found in the shape of a flower head in different motif designs in which the frontal flower head was radially symmetrical with a rounded lotus canopy in the center surrounded by well-proportioned petals, and the side flower heads were more freely expressed. This lotus motif was typically used in alcove patterns, on various border motifs, and on Buddhist pedestals. The appearance and application of the lotus motif renewed the decorative content of the Eastern Han period in China and laid a good foundation for the development of botanical motifs from the Eastern Han dynasty onward. As a cultural and artistic symbol, the lotus motif occupies a crucial position in Chinese history and culture.

Lotus motifs were used extensively in various works of art and cultural relics during the Wei, Jin, and Northern dynasties, which was a period of frequent warfare when the unified ideology of the Qin and Han dynasties was dismantled. The same is true during the Wei, Jin, and Northern dynasties, when Buddhism flourished with lotus flowers used as motifs in certain Buddhist decorations. Botanical motifs replaced the animal motifs that symbolized power in the unified ideology of the Qin and Han dynasties, which opened the door to botanical motifs in China as an artistic salute to life. Lotus motifs became a new art form, and their unique artistic value was expressed in paintings, carvings, and decorative crafts. The lotus flower motif spread widely as a solemn symbol of the face and nature of Buddha. In the late Northern Wei dynasty, the lotus motif continued to change. At the time, the ethereal and flexible beauty of the lotus pattern from the Wei and Jin dynasties was incorporated into the design of the motif, which became increasingly full and exhibited an aesthetic philosophy of symmetry. This design reflected the idea that the excellent traditional culture of the Chinese nation was constantly accumulating and sublimating and expresses the esthetic significance and cultural value of the lotus during the Wei, Jin and Northern and Southern dynasties.

During the Sui dynasty, the use of the lotus motif began to increase in popularity due to its continued important role in culture, art, and religion. The flower forms were rich, ornate, lively, and full of interest in terms of practical applications. The lotus motifs were numerous, detailed, and exquisite, such that they became representative of the decorative components of the Sui dynasty. In terms of architectural decoration, lotus motifs were also used extensively in palaces, Buddhist temples, and tombs of the Sui dynasty, such as the Daming Palace of Emperor Yang, the Yungang Grottoes of the Northern Qi dynasty, and the White Horse Temple

in Luoyang, which were decorated with carvings and decorative elements of lotus motifs. People applied the bionic form of the lotus flower to their design and eventually designed lotus patterns that took on a realistic character. Lotus motifs were also used for secular applications and auspicious expectations in Chinese folklore in dyeing and architectural decoration. The use of the lotus flower motifs in China during the Sui dynasty not only became a common element of art and architectural decoration but was also deeply integrated into the culture and religion of the period.

The use of lotus motifs in the Tang dynasty reached its peak when the Tang dynasty actively absorbed the inflow of foreign cultures, and the interactive fusion of local and foreign cultures enriched and perfected the cultural system of the Tang dynasty. In this manner, the lotus motif became more prominent and achieved a breakthrough, which produced many new styles with rich, ornate and voluminous forms, rigorous modeling, and diverse styles. In terms of architectural decoration, the lotus flower motif was also widely used in buildings during the Tang dynasty. For example, the statue of Guanyin in the Mahamuni temple of many Chinese temples displayed a large number of decorative elements with lotus images and column bases with carved lotus-patterns, lotus-shaped roof and flower tiles, and lotus-shaped stone and wood carvings. All of these examples were common elements in the decorative elements of buildings at the time. Simultaneously, the lotus flower motif was used extensively as architectural adornments in temple buildings during the Tang dynasty, such as the Qixia Temple in Nanjing and the Baima Temple in Luoyang, in which a large number of lotus-shaped sculptures and architectural adornments were found. The strong tolerance of the culture and strength of the state during the Tang dynasty gradually led to the formation of auspicious motifs that symbolize the Chinese national style. The lotus flower motifs of this period are full-bodied with colorful secondary decorative motifs and range from simple to elaborate, from rudimentary to mature, and from the borrowing and fusion of foreign elements. Taken together, they formed a motif that was distinct to the Chinese national tradition.

During the Song dynasty, the lotus pattern changed from the rich, full-bodied depiction of the Sui and Tang dynasties to an elegant, refined, and elaborate secularization. It appeared in various artworks and architectural decorations. In terms of architectural decoration, lotus motifs were also widely used in palaces, Buddhist temples, and gardens of the Song dynasty, such as the Jiluo Temple in the Southern Song and the Longmen Grottoes in Luoyang, which exhibited numerous lotus carvings and decorative elements. The lotus pond, seat, and throne in Buddhism were symbols of the lotus flower, which was also closely associated with Buddhist teachings of nirvana and purity. Lotus motifs were rich in form, and the levels of painting and decoration have becoming increasingly sophisticated and refined in the pursuit of the interests of realistic Chinese painting. The concise and vivid lines of lotus motifs portrayed the shape of a lively, Chinese painting style. During the late Northern Song dynasty, the lotus motif became a general trend as a symbol of good fortune with a secular connotation.

The Yuan dynasty witnessed political shifts and social transformations, and the lotus motif underwent several new changes. The lotus motif was no longer the dominant decorative one, but it could not resist the widespread secularization of the extent to which it was used in daily life. During the Yuan dynasty, the lotus motif was still widely used in painting, carving, ceramics, and embroidery. The lotus motif appears with great frequency in which the lotus was more abundant and diverse in form. It remained an important symbol in the Buddhist art of the Yuan dynasty. The lotus throne and pedestal from the Yuan dynasty were still widely used in Buddhist temples and pagodas. At the same time, the Yuan dynasty developed a form of religious art known as *lotus paulownia*, which centered on the lotus flower and incorporated Buddhist stories, myths, and legends into it, which created a new style of religious art. The use of the lotus motif during the Yuan dynasty continued the tradition of the Song dynasty and subsequently developed new forms and colors.

The lotus motif from the Ming dynasty not only inherited the traditions of the Tang, Song, and Yuan dynasties but were also developed more exquisitely in terms of detail and technique. Compared with the Yuan dynasty, the lotus motif of the Ming dynasty was more detailed and elaborate and presented an exquisite handcrafted artistic style. Lotus motifs were also widely used in the architectural arts of the Ming dynasty. For example, decorative elements, such as stone, wood, and brick carvings in the form of lotus flowers could be found in palaces, gardens, and temples. As a symbol of good fortune, the lotus flower was widely used in architectural art not only for its decorative significance but also for its profound cultural connotations and religious significance. The lotus played an important role in architectural art, which demonstrates its profound influence on Chinese culture.

During the Qing dynasty, the lotus flower motif played an essential role in politics, culture, religion, and life as a cultural and a religious symbol. The lotus motifs of the Qing dynasty were more refined and delicate, which presented an elegant artistic style. The renewed economic prosperity prompted people to focus on the pursuit of material enjoyment, and lotus motifs appeared in all classes of life with a greater variety of forms of motifs, brighter colors, and elaborate details in addition to the original. In architectural art, such as in the palaces, gardens, and temples of the Qing dynasty, decorative elements such as stone, wood, and brick carvings

in the form of lotus flowers were also found everywhere. The skill with which the decorative elements in the lotus form were crafted in these buildings was superb. It demonstrated the high level of achievement of decorative arts in Qing architecture. Not only do they possess ornamental and aesthetic values, but they also depict a cultural connotation and religious significance, which made them one of the great symbols of Chinese culture.

2.3 Significance of the development of the lotus motif in Chinese history

In a comprehensive analysis and consideration of the literature on lotus patterns in Chinese history, scholars found that lotus patterns, which existed through the entire process of the origin and development of Chinese history, has been inherited and evolved. The development occurred in such a manner that the lotus motifs of each period reflect the characteristics of different times and esthetic features. Moreover, political and economic cultures across periods have constantly given new cultural and spiritual connotations to the lotus pattern, which reflects the cultural psychology of various eras and forms a distinctive Chinese culture. The evolution of the lotus motif is not only a summary of the past but also a reflection of the intermingling of Chinese and foreign cultures and the fruits of their cultural development. It also refers to an artistic sublimation of the Chinese national culture, which reflects the temperament of a Chinese culture that embraces the essence of all things.

The study of the use of traditional Chinese art and culture as a source of inspiration for the development of the lotus pattern to re-engage with a new medium and form of expression and its effective use in modern design renders examining it extremely important to determine the unique stylistic features and decorative ideas of the lotus pattern in depth. In innovative lotus-themed designs, designers should build on the theoretical basis of the evolution of the appearance and connotation of traditional lotus motifs. They should also inherit the essence of traditional motifs and identify lotus elements suitable for modern design. In this manner, individual motifs of the lotus can be recreated by combining tradition with modernity. By doing so, the lotus pattern was combined with local Chinese traits but absorbed foreign decorative elements over a long time and retained a number of fixed meanings, thus, becoming one of the traditional patterns with far-reaching influence today.

3. METHOD

The research methods are literature survey, fieldwork, and comparative research. The study used the temporal aspect to examine and analyze the continuous evolution and development as well as the interpretations and applications of Chinese lotus motifs across historical periods. The study utilized fieldwork and documentary research to explore the origins, evolution, and application of such motifs. Specifically, the study collected information on the motifs used in architectural decoration. Document the use of formal and content analyses of variations. The study conducted a qualitative discussion to identify and organize the comparative grouping of the data. To understand the motifs used in traditional Buddhist lotus motifs across periods, the researchers visited historical museums, temples, palaces, and ancient sites throughout China. To obtain further information, we visited local history researchers and heritage institutes. We browsed through many publications, journals, books, and websites. The different methods of documentary investigation enabled an in-depth investigation of Chinese lotus motifs across time from several perspectives. These studies will not only provide insights into the importance of the lotus motif in traditional Chinese culture and its deep historical and cultural heritage but also provide references and insights for designers, manufacturers, and user experiences.

4. FINDINGS

The content of this study requires the collection of numerous image materials to support the data and a special study on traditional lotus patterns from different periods. Thus, completing the research on the history and culture of lotus patterns, analysis of pattern types, research on the evolution of inheritance, analysis of esthetic values, and exploration of application development is necessary. To ensure the completeness and accuracy of the research material, the authors conducted an extensive literature research and field investigation in multiple locations to investigate and collect evidence and supplement each other's fundamental information database, which provides quality assurance for the research.

4.1 Technical lines of research

In terms of research on the history and culture related to the lotus motifs, the study focuses on the symbolism, meaning, and uses of traditional Chinese Buddhist lotus motifs across periods of culture and

religion. Analysis covers the types of motifs and their shapes, colors, combinations, and other characteristics, and similarities and differences between lotus motifs. In the area of inheritance and evolution research, the study examines the popularity, inheritance, and evolution of lotus patterns across historical periods through Chinese painting and folklore, and the lotus components of Chinese architecture. In terms of esthetic value analysis, the study considers the form, composition, color scheme, and expression of the lotus flower motifs. Lastly, the study explores the application and development of lotus flower motifs in modern society and their influence and inspiration on contemporary culture and art from the perspectives of design, art, and culture (Figure 2).

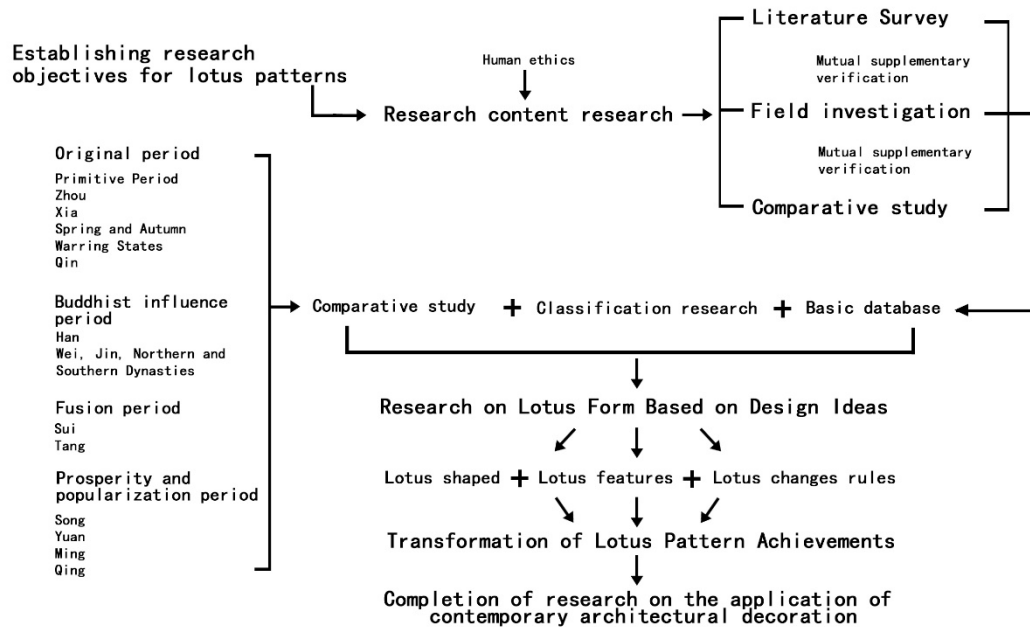


Figure 2: Technology roadmap

4.2 Analysis of lotus patterns

Based on the analysis of the characteristics of the lotus motifs across periods, the study performed a systematic interpretation of a series of books entitled *Interpreting Dunhuang*, *The Complete Collection of Dunhuang Murals in China*, *The Grottoes of China*, *Talking About the Image of the Lotus in Silk Road Cave Murals*, and *Lotus Motifs in Dunhuang Murals*. Through extensive data collection and collation analysis, a study of the morphology of 13 groups of representative dynastic lotus motifs has been collated, which present and interpret a large number of lotus flowers in different forms across disciplines. The study elaborated on the painting and artistic styles of each period, such that the basic outlook of the entire lotus art clearly emerges. Moreover, through analysis of data collected from numerous sources, the majority of these documents are distinguished for study by the locations where the lotus motifs are located, such as the tiles of Buddhist temple architecture, algal wells of caves and the backlit lotus, and pedestals in temple architecture, among others. This classification is convenient and many foundation materials are divided in this manner. However, this process has its shortcomings. For example, researchers focused only on the most prominent lotus flowers but overlooked scattered lotus flowers, which are equally rich in form.

The current study searched through a large amount of data, compiled and analyzed records, and found that the different meanings of lotus motifs in Buddhism can be classified into themes, which is a feasible strategy for research. Based on the uses and meanings of the lotus flower in Buddhism, the study classified them into themes: solemnity, symbolism, offering, incarnation, and the lotus platform in the context of the creative reality of lotus art. Each category is defined based on the description of the lotus in the scriptures.

The lotus form is very rich and wonderfully varies in its interpretation. The chart in Figure 3 depicts the symbolic theme horizontally and the 13 eras representative of China vertically. The researchers compiled a summary of lotus motifs across periods of time, compared and analyzed the characteristics of lotus patterns through themes and dynasties.

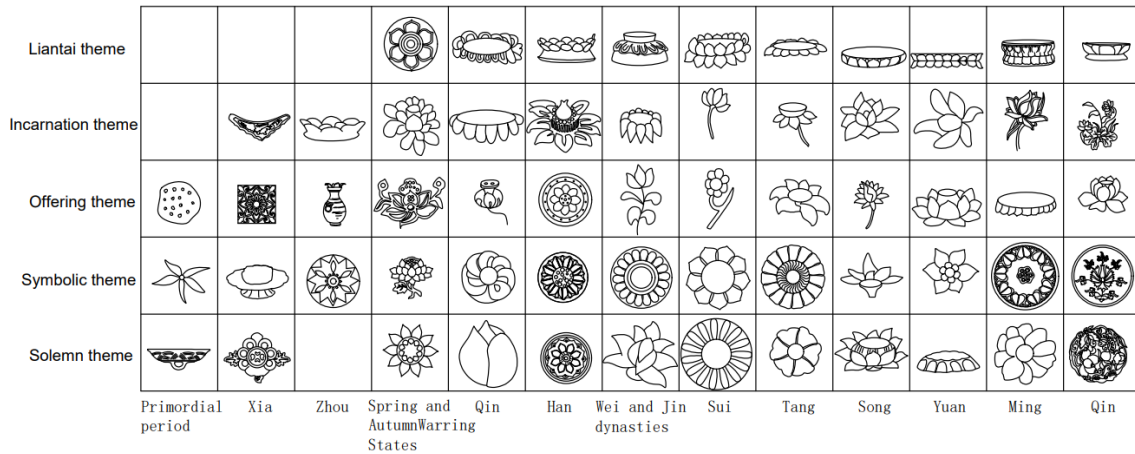


Figure 3: Morphological diagram of lotus patterns

4.2.1 Solemnity

The *Infinite Life Sutra* depicts various radiant lotus flowers scattered throughout the world of the Buddha. In Buddhist terminology, this notion is known as solemnity; hence, the title of this section. As a whole, the lotus form illustrates an evolutionary trend from non-realistic to realistic (Figure 4). Through the collection and collation of information, the researchers identify 13 periods, which are representative of the solemn theme of the lotus form.

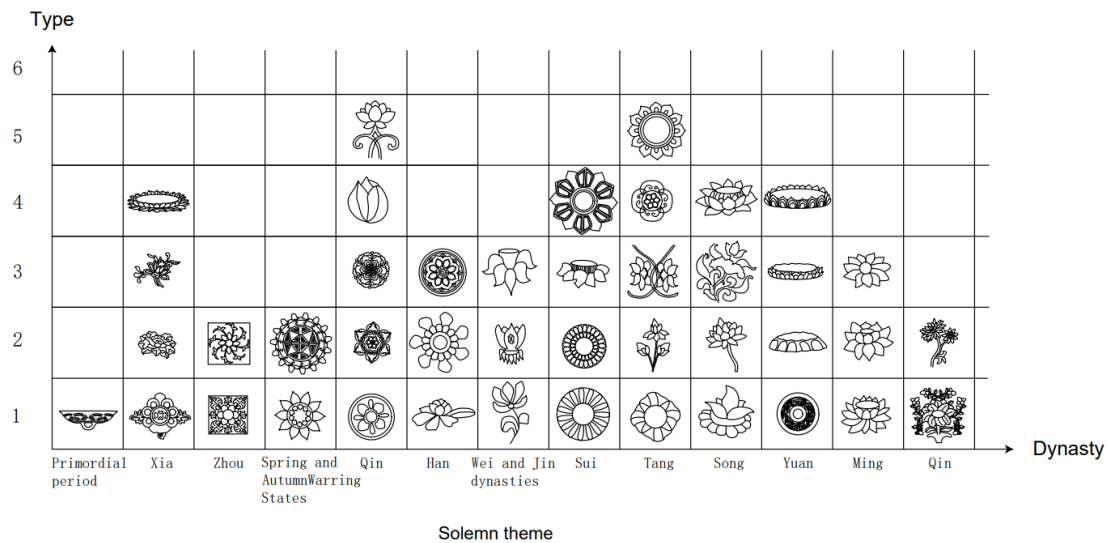


Figure 4: Lotus forms of the solemn theme

4.2.2 Symbolism

In temple architecture, the large lotus motifs in square wells at the center of alcoves symbolizes the infinite spiritual world of the Buddha, while the lotus motifs that appear in the backlights of Buddha statues and other locations symbolizes the light. The overall form of the symbolic theme is most uniform in the lotus flower motif, with the most extreme rendition of this form, that is, from simple to elaborate, such as an ornate lotus flower, which is the most characteristic (Figure 5.) The lotus motifs that symbolize the themes of the 13 Chinese dynasties have been compiled by reviewing various sources.

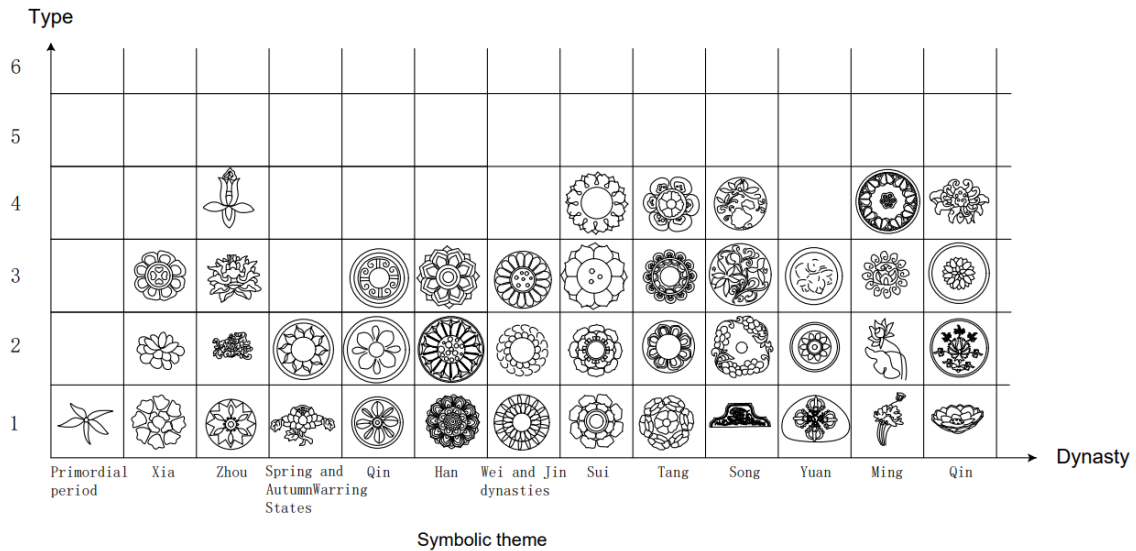


Figure 5: Morphological diagram of the symbolic motif of the lotus flower

4.2.3 Sustenance

The *Mahayana Benevolent Heart Sutra* is full of references to the offering of lotus flowers to the Buddha. The lotus flower, which is the subject of the offering, depicts overall independence in its basic botanical form with great similarity to the solemn lotus and a more obvious evolution of form from non-realistic to realistic (Figure 6). The lotus-offering motifs of the 13 dynasties are also distinctive.

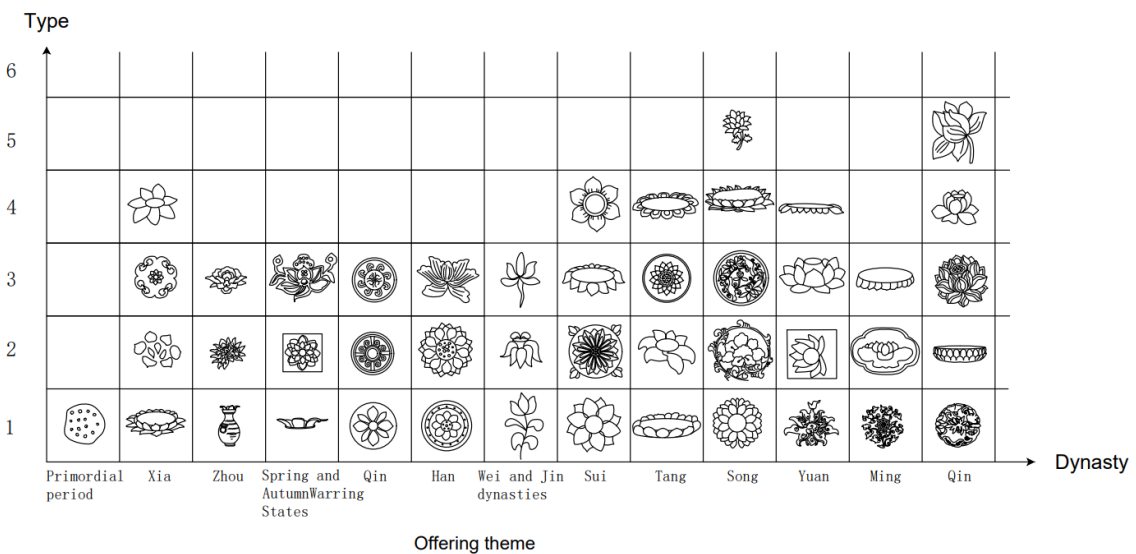


Figure 6: Drawing of the lotus form as the subject of offering

4.2.4 Chemical and biological themes

In the *Kama Sutra*, Buddhism holds that a believer needs to be reborn in the form of an incarnation to be reborn in the blissful world of the Buddha. The lotus as the subject of rebirth is less distinctive in its overall form, because it can mostly be observed in a form similar to other themes, and no apparent consistency of features exists, which renders it confusing (Figure 7). Lotus motifs on the theme of incarnation took on more diverse forms after the period of the Chinese Buddhist influence.

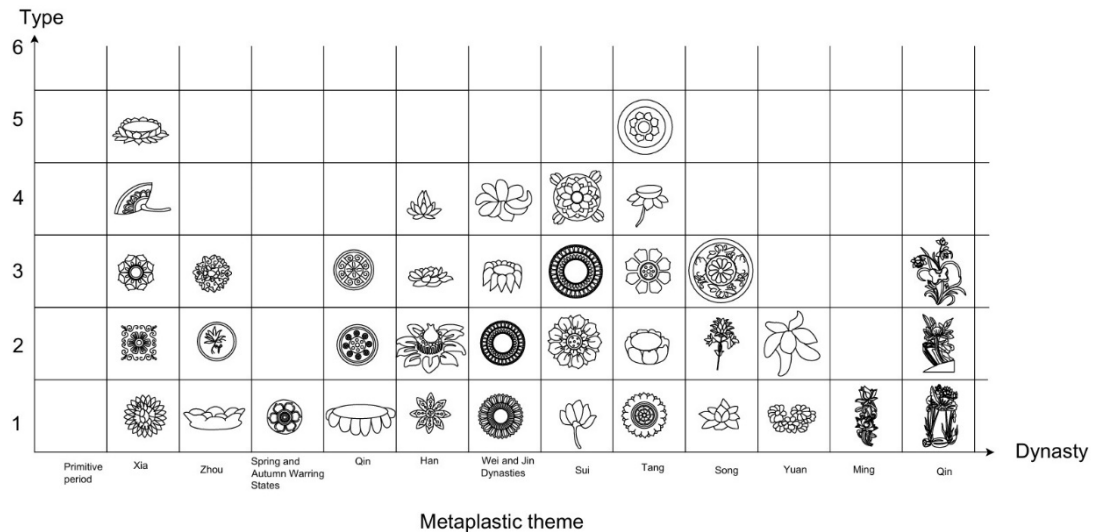


Figure 7: Morphological drawing of the lotus flower motif on the subject of incarnation

4.2.5 Lotus Terrace

Lotus platforms are common in Buddhist architecture, and the charts summarize and categorize lotus platforms from different eras, which depicts a wide array of lotus platform. Specifically, the lotus platform serves a clear functional purpose which is met by the use of an exaggeratedly proportioned lotus canopy that acts as a foil. The core consists of two parts, namely, the flower and petals, which exhibit the biggest and most stable features. The seated platform of the Buddhist congregation of Bodhisattvas is the sacred flower of Buddhism and presents a hallowed meaning. For this reason, buildings related to temples, such as the Lotus Temple, exists (Figure 8).

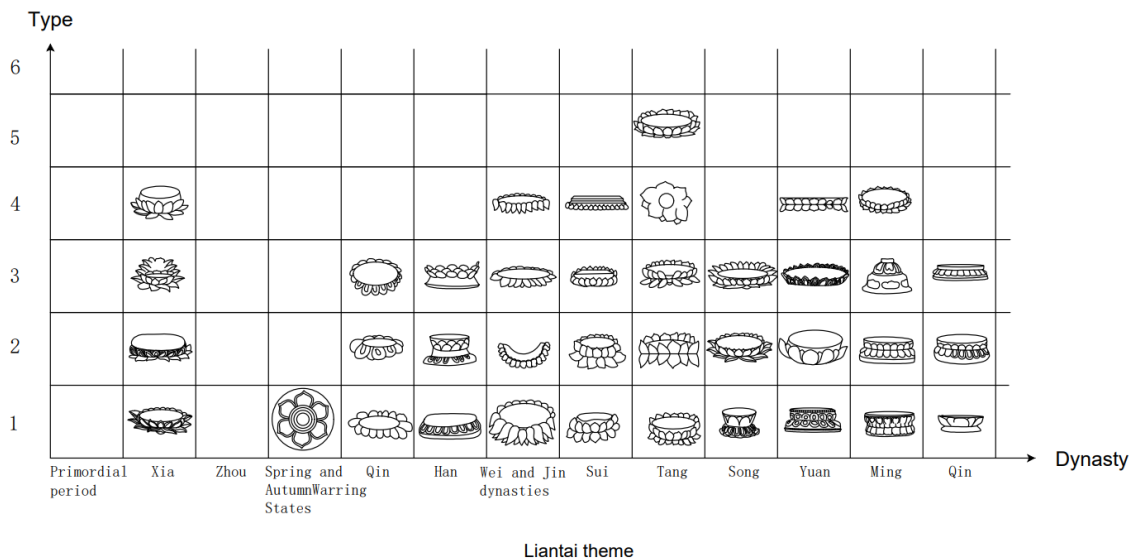


Figure 8: Lotus motif on the lotus terrace

4.3 Use of gene extraction for structural analysis of lotus flower patterns

The study presented the overall characteristics of the lotus flower according to a comparative analysis of the lotus motifs; based on the line drawings, the shape of the lotus flower is used as an object to organize and refine the genes of the lotus flower, thus extracting the most basic types of forms, which are presented in the form of line drawings in Figures 9–11.

The components of the lotus patterns are petals, stamens, and the rosette. The forms of the components include the petal, stamen, and lotus canopy forms. The structure of the flower takes the form of a single layer of petals spread horizontally around a ring of rosettes and multiple layers of petals spread down around a circle of rosettes.




Lotus stamen						
	Linear type	Straight bead shape	Curved Ball Type			

Figure 9: Gene extraction map of the lotus pistil







Lotus seedpod						
	Disc	Cylindrical	Pendant cylindrical shape on both sides	Folded cylindrical shape	Conicalness	Fold conical shape

Figure 10: Gene extraction map of the lotus plant





Lotus petals						
	Round head multi split curly pointed shape	Square headed small pointed shape	Square head multi crack shape	Multi lobed leaf form	Cirrus shaped	Square headed U-shaped curly shape

Figure 11: Gene extraction map of the lotus petal







Floral structure						
	Two layers of lotus petals surround the lotus Spread outwards and upwards	Lotus petals surround lotus buds Spread outward and downward	Flat lotus petal surround Lotus spreads outwards	Lotus petals surround lotus seeds Spread outward and upward	Three petal lotus bud	Lotus petals surround lotus seeds Spread horizontally inward

Figure 12: Gene extraction map of the floral structure

By conducting a comprehensive analysis of line drawings of the lotus, the evolutionary processes and characteristics of the lotus form are more clearly presented (Figure 12). Moreover, the essential elements of the lotus shape are abstracted, such that the complex lotus form in traditional Buddhism can be more easily applied to certain forms and later designs.

Figure 13 presents a flowchart that demonstrates the process of analysis and reassembly of the lotus structure.

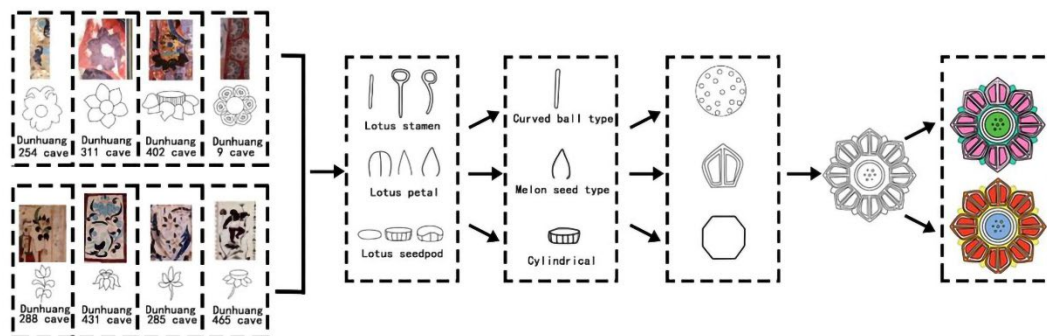


Figure 13: Flowchart of gene extraction for structure analysis of the lotus flower

5. DISCUSSION

Buildings are esthetically pleasing and functional. They possess a technical and an artistic character. Many buildings are an expression of culture and an important artistic heritage. In modern design, designers

from various fields have widely used the lotus element due to its agreed auspicious symbolism in Chinese folk culture.

5.1 Use of lotus motifs in contemporary Chinese architectural design

Chinese architecture that depicts the lotus flower as a theme demonstrates the unique charm of Chinese architectural art and culture and is an extremely important symbol of Chinese culture. Specific examples include the Lotus Pavilion in Wujin (Changzhou), the Olympic Sports Center in Hangzhou (Figure 14), Yangzhou's Slim West Lake with the Lotus Bridge on the dike, Hangzhou's New Qu Yuan Feng He, a large park with the lotus flower as the main attraction, the Lotus Pavilion in Qingdao Expo Park, the Lotus Hotel in Ordos, the iconic building of the Lotus Park in Luoyang Lingshan, the Tianshan Snow Lotus in Xinjiang Grand Theatre, and the Lotus Hotel in the desert of Ringshawan in Inner Mongolia. Regional features of decoration and detailing characterize the exterior form of these buildings, which contains elements of traditional Chinese lotus culture. These buildings exhibit a greater tendency to use lines (a combination of real and imaginary) and light and transparent materials to better reflect the cultural characteristics of the buildings with regional elements of lotus motifs. The appearance of the buildings is colorful and distinctive.

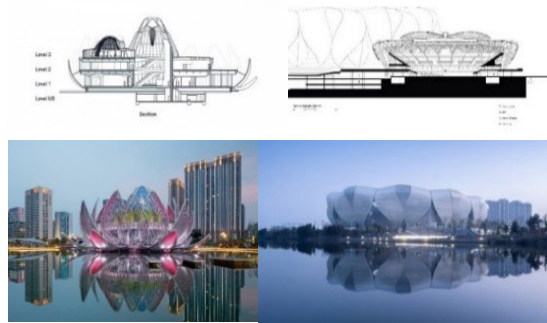


Figure 14: Wujin Lotus Pavilion and Hangzhou Olympic Sports Center

5.2 Use of lotus motifs in the design of the contemporary decorative elements of Chinese architecture

With its enormous influence and strong vitality, the lotus culture is a symbol of a beautiful personality and good things; it also poses connotations of human reproduction and national prosperity and is frequently used in architectural decorative design. Thus, it has become an essential expression of the vitality of life and the cohesion of the Chinese.

In Buddhist temples in China, the lotus flower is extensively used in decorative architectural elements. In ancient Chinese palace and temple architecture, lotus motifs are typically used to decorate parts of pillars, beams, and door fans. Examples include the lotus throne at Famen Temple, the lotus cave at Putuo Mountain, and the lotus throne at the Great Buddha of Lingshan (Figure 15), among others. One of the representative buildings of ancient Chinese Buddhist temples, namely, the Big Wild Goose Pagoda, was built during the Tang dynasty. The Big Wild Goose Pagoda is octagonal in appearance, and a lotus flower is carved on each floor a theme, which symbolizes wisdom and the Buddhist Guru Lotus. The Tai Shan Dai Temple is a place where ancient Chinese emperors worshipped Mount Tai. The temple houses numerous buildings, and the lotus flower is carved into wood and stone carvings in the pavilion as the theme, which displays the great skills of ancient Chinese architectural art.



Figure 15: The Great Buddha of Lingshan

Lotus motifs are also becoming increasingly common in modern architectural design. For this perspective, the development of the lotus theme is frequently qualified as informative, celebratory, amusing and entertaining, and educational, among others. People exaggeratedly process lotus motifs and combine them with geometric shapes and are geometrized. Lotus motifs are mainly composed of leaves and petals, which are very simple and abstract the lotus image, then decompose and reconstruct them. The use of large lotus motifs to increase the visual impact of buildings can be observed in the façade designs of contemporary Chinese buildings, as well as in several other aspects such as building material and structure. The use of particular materials on the façade can demonstrate the details of lotus patterns through carvings or projections; alternatively, the natural form of the lotus can be used in building structure and applied to parts of buildings such as columns and beams. Thus, this aspect creates a modern building with a traditional cultural taste. Not only does this feature add to the beauty of buildings but also expresses the cultural values and spiritual connotations represented by such buildings.

6. CONCLUSION

This study explored the lotus culture and found that it has penetrated literature, music, dance, art, medicine, religion, politics, economics, and other aspects of social life. Toward this end, understanding the different symbolic meanings of graphic art in the east and west and across nationalities can render the decorative effect of pattern design to produce different characteristic styles. By combining decorative patterns and crafts in the process of harmony and unification, architectural, commodity, and metal relief decoration, among others, play a humanistic aesthetic role and enrich the cultural connotation of the design. With the advancement of the times, the expansion of the planting surface, increase in varieties, and the extension of the degree of use of lotus motifs are continuously enriched and perfected and given specific connotations according to the times.

The design skills required in the innovative design of lotus motifs are the ability to create three-dimensional shapes (esthetics, building materials, and construction), attract crowds, and organize the movement of people, among others. At the same time, the commonly used design techniques are spatial, graphic, color, media, and sound techniques. Through the effective use of planes and dimensions, combining physical and visual objects creates a perfect visual space, while integrating architecture into nature in the layout of the environment serves the audience. The innovative design of traditional Buddhist lotus motifs in Chinese architectural decoration is based on the environment or culture that people are most familiar with and understand. This aspect brings people and objects closer together and facilitates communication. At the same time, it can also effectively enhance the cultural literacy of the local people and promote urban development and construction.

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