

Reimagining Traditional Ornamentation: Innovative Design of the Vernacular Architectural Heritage in Northwest Henan, China

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Abstract

The vernacular architectural ornamentation in Northwest Henan is a comprehensive system derived from regional culture and related factors. To explore this potential and align with local cultural industry development, this paper first analyzes the ornamentation types on various components of vernacular architecture. Then, this paper discusses the factors influencing the formation of motifs, including environmental constraints, the integration of Confucian culture and farming culture, the influence of religious symbols, and the impact of foreign cultures. Methodologically, the study adopts a triangulated qualitative approach, combining documentary analysis, participant observation, and systematic fieldwork across 32 traditional villages, supported by semi-structured interviews with 30 householders, three rounds of Focus Group Discussions (FGDs) with 15 participants representing diverse roles. Drawing on this integrated dataset, this paper establishes specific guidelines for innovative design of ornamentation, which were subsequently validated by an expert panel of 15 specialists. The research results show that the vernacular architectural ornamentation is deeply rooted in agrarian culture, with motifs that contain symbolic meanings of the natural surroundings, lifestyles, folklore, and beliefs. The proposed multi-dimensional guidelines, grounded in regional culture and validated through multiple perspectives, offer a robust framework for balancing heritage preservation with the sustainable development of local cultural industries.

Keywords: Vernacular Architecture; Traditional Ornamentation; Cultural Heritage; Innovative Design; Northwest Henan

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Introduction

In recent years, culture has become an accepted view that, like the economy, society, and the environment, is an essential pillar in the construction of sustainable development (Lazar et al., 2022). According to The Sustainable Development Goals Report 2022, one of Goal 8 targets is "By 2030, devise and implement policies to promote sustainable tourism that creates jobs and promotes local culture and products" (UNESCO, 2017). As a matter of fact, the Czech Republic, Denmark, France, Germany, Spain, and the United Kingdom, among others, had previously introduced policy documents to promote their regional cultures and preserve their architectural heritage (Pickard, 2002). The information on these initiatives in these countries reveals a fact: traditional architecture is an essential carrier of traditional culture and regional culture, and it reflects local people's living customs, production methods, cultural forms, and values (Ma et al, 2020).

Northwest Henan is administratively subordinate to Henan Province in central China, involving the areas of Jiyuan, Jiaozuo, and Xinxiang, located in the transition zone between the first and second terraces of China's geomorphological landscape. Its geographic location coincides with the southern foothills of the Taihang Mountains and the northern bank of the Yellow River (Zhao, 2024). In addition, the region has three different geomorphological forms: mountains, hills, and basins, which have given rise to rich natural resources (Shi, 1982). This area plays a vital role in the formation and development of Chinese agricultural civilization (Cheng & Yang, 2005). In the long process of historical development, Northwest Henan has gradually formed a distinctive vernacular architectural system that is suitable for the natural environment, customs, and lifestyle of locals. According to statistics, there are 33 national-level traditional villages in Northwest Henan, all of which are spread over a variety of traditional vernacular architectures with exquisite or simple ornamentation (CTDHP, 2017; PGHP, 2019; CTDHP, 2023; HPACH, 2023).

However, with the rapid development of urbanization, these unique elements are gradually being replaced by mass-produced components globally. Unsustainable construction practices further accelerate the decline of architectural culture. The difference between rural and urban vernacular architecture is narrowing progressively, and the architectural appearance tends to be similar and unified (An and Zhang, 2016). Furthermore, the studies above by Cheng et al. (2019), Jia (2015), Wang (2023) and others have yet to be fragmented travelogue accounts and sampling of a small area. Related research is either keen to discuss the characteristics of architectural appearance rather than the artistic characteristics and cultural connotations of local vernacular architecture or limited to the study of the ornamentation on a specific part of the building without a comprehensive and precise classification. More importantly, whether for the direct users of the buildings or for the cultural preservationists who are expected to contribute to the development and dissemination of the ornamentation, there is a lack of cognizance about the causes, evolutionary rules, and development tendency of the local vernacular architectural ornamentation.

In order to address these challenges, this study seeks to reimagine architectural ornamentation by exploring innovative design approaches which can be integrated into the sustainable transmission and development of architectural heritage. This study aims to investigate architectural ornamentation in Northwest Henan in order to explore its potential for adaptation and incorporation into contemporary architectural design. Based on the research aim, the following specific objectives have to be achieved: (1) To document the current existing types of traditional vernacular architectural ornamentation in Northwest Henan. (2) To analyze the factors influencing the design of traditional architectural ornamentation in Northwest Henan. (3) To develop a guideline for integrating traditional ornamentation into contemporary architectural design so as to promote the diversification of the local rural tourism industry.

Methodology

This research employs a qualitative research methodology that focuses on understanding the cultural significance and contextual factors that influence the ornamentation of traditional vernacular architecture (Yin, 2018; Creswell, 2014). Kawulich (2015) argued that participant observation is an effective method used to study the reflection of cultural identity. In order to explore complex social phenomena and gain insight into the cultural practices and values embedded in traditional architecture, this study, from the perspective of a participant, analyses documents and collects data from 32 national-level traditional villages in Northwest Henan and then analyses the data inductively with a problem-oriented approach.

The data collection was carried out from March 2024 to February 2025 (approximately twelve months). This timeframe allowed for cross-site comparisons, repeated field verification, and sustained engagement with diverse stakeholders (householders, artisans, designers, and local administrators), while also providing adequate time for systematic coding, inductive analysis, and the integration of preliminary validation and expert feedback.

At first, this study identifies the general structural features of traditional Chinese architecture based on a literature review and further employs observation methods and fieldwork to collect pictorial and textual information on the ornamentation of vernacular architecture. In order to facilitate the identification and tracking of ornamental details, the data are coded according to the categories of ornamentation and the sign of the building components to which they are attached, forming a data management pattern of architectural ornament that can be continuously expanded and improved.

Secondly, this study establishes universal regularities in the formation and production of architectural ornamentation through document analysis. However, whether these universal laws are applicable to the Northwest Henan region needs to be interpreted and justified based on fieldwork and semi-structured interviews with stakeholders. In this study, 30 householders were randomly selected for semi-structured interviews, and these interviews were guided by a structured interview outline (e.g., Table 1.), which ensured consistency across participants while leaving sufficient flexibility for open-ended responses. Table 1, therefore, does not represent a formal survey questionnaire, but an interview guide designed to explore a wide range of explicit and implicit factors such as environmental, social, economic, and cultural aspects. In the semi-structured interviews, these respondents were allowed to freely express the correlation between the choice of architectural ornamentation and the mode of production and life, as well as their willingness to participate in the preservation, improvement, and promotion of vernacular architectural ornamentation. Comparative analyses were also conducted to contrast regional ornamentation styles and to highlight distinctive cultural and artistic features (Rose and Mackenzie, 1991).

Table 1: Semi-Structured Interview Guide on Vernacular Architectural Ornamentation in Northwest Henan

Regional Background	Ownership Information	Building's Basic Information		Ornamentation Characteristics	Ornamentation Materials	Building Elements
Province, City, County	Title Vesting	Type name	Total area (m ²)	Appellation	Collection method	Roof
Climate, Geography	Age	Construction time	Building area (m ²)	Origin	Transportation distance	Wall
Distance to nearest town	Household population	Protected Status	Story height (m)	Planar form	Material type	Door/ Window
Natural economy category	Per capital income	Whether dangerous houses (grade)	Number of houses (block)	Functionality	Processing method	Gate (Pier)
Ethnic, Beliefs	Education level	Protection/ maintenance status	Orientation and direction	Interior structure	Processing time	Column
Population density	Contact number	Site Selection Environment	Building appearance	Implied meaning	Material coloring	Others

Finally, Key themes and keywords extracted from the literature review and fieldwork informed a preliminary set of guidelines for innovative ornamentation design. The basic thematic dimensions were further revised, refined, and elaborated through Focus Group Discussions (FGDs) with stakeholders. The FGDs were conducted in three separate rounds. Each FGD involved five participants representing diverse roles—local residents, designers, architects, cultural experts, and government officials—to ensure balanced perspectives. Discussions were conducted in sessions of approximately 60–90 minutes, moderated by the researcher using

a semi-structured guide focused on the innovative design dimensions originally derived from the literature review. The discussions examined the applicability, refinement, and integration of these dimensions in the context of Northwest Henan. All sessions were documented through notes, audio recordings, and transcriptions, and subsequently analyzed using descriptive statistics and thematic coding to identify consensus and further refine the innovative design dimensions. The refined guidelines were subsequently subject to expert evaluation using a structured 5-point Likert scale (Likert, 1932) and inter-rater agreement metrics (Fleiss, 1971). The expert evaluation results were used to revise wording, clarify the scope of application, and confirm the practical relevance of each guideline.

In summary, this study adopts a triangulation approach, whereby all research findings are substantiated through at least three independent sources of evidence—literature review, field observation and documentation, semi-structured interviews, and expert validation. This strategy strengthens the validity and reliability of the study and provides a solid basis for addressing the stated research objectives.

Results and Discussions

Based on the established methodology, this section presents the findings from field investigations conducted in 32 national-level traditional villages in Northwest Henan. The dataset comprises systematic visual and textual records, complemented by semi-structured interviews with 30 householders. Together, these sources reveal the typological characteristics of architectural ornamentation as well as their embedded environmental, economic, social, and cultural meanings. Moreover, insights from focus group discussions contribute to refining more targeted guidelines for the innovative integration of vernacular ornamentation into contemporary design.

Types of Ornamentation on Vernacular Architecture

Ornamentation, as a kind of cultural symbol, has developed throughout the development of humankind, in the economic, cultural, and ideological progress, through the continuous enrichment of its form and connotation of the way across the boundaries of time and space so that the human civilization can be widely and accurately dissemination, inheritance, and development (Gu,2017; Yussupova,2017).



Figure 1: The Main Forms of Vernacular Architecture in Northwest Henan (From Left: Stone Dwellings, Adobe Dwellings, Brick Dwellings and Cave Dwellings)

According to the *Jiaozuo Culture Series* compiled by Cheng et al. (2019), Jiaozuo, as the largest region in Northwest Henan, has forms of vernacular architecture forms that mainly include stone dwellings, adobe dwellings, brick dwellings and cave dwellings (e.g., Figure 1.). Also, this research group agreed that the ornamental motifs of cave and adobe dwellings are very scarce compared to those of brick dwellings and stone dwellings. Cheng et al. (2019) further pointed out that the typical ornamentation of brick dwellings is concentrated on roofs, gates, and walls. And the usual inquiries of stone dwellings are focusing on doors and windows. The photographs of vernacular architecture confirmed this view included in the book *Overview of Ancient Residential Buildings in Jiaozuo*, compiled by the official organization of the Jiaozuo City Cultural Relics Bureau (Cui, 2015). Not

coincidentally, Liu (2011), Jia (2015) and Wang (2023) also mentioned some of the types of ornamentation in the region in their studies.

This study, based on 3,066 photographs collected from field surveys of 32 national-level traditional villages in Northwest Henan, through repeated comparative analyses according to the structural characteristics of the vernacular architectures in Northwest Henan, the main distribution of ornamentation can be divided into five major categories: roof ornamentation, wall ornamentation, door and window ornamentation, column ornamentation, and gate pier ornamentation (e.g., Figure 2.).

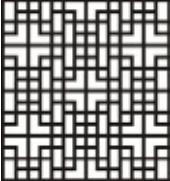
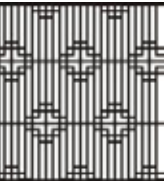
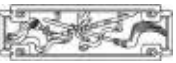


Figure 2: The Basic Form of "Double-Pitched Roof" Vernacular Architectures in Northwest Henan

In this study, the carriers of the ornamentation, which are the building components, are identified using a coding system. Specifically, the initial of each component is used for coding, with roof ornamentation, for instance, labeled as "R". The elements are then arranged in order using Arabic numerals, such as "R1", to denote the first type of roof ornamentation. If a variant exists, it is further identified by an additional numeral, such as "R1-001", to signify the first variant of the first roof ornamentation (e.g., Table 2.). In this study, motifs are extracted to depict the ornamentation of each architectural element.

Table 2: Statistics on the Categories of Vernacular Architectural Ornamentation in Northwest Henan

Serial No.	Types of Ornamentation	Building Component	Sample Image	Ornamental Motifs Extraction
R1	Ridge Beast	Roof (the two ends of the main ridge)		
R2	Flower Ridge	Roof (the middle body of the roof ridge)		
R3	Eaves Tile and Drip Tile	Roof (the end of the eaves)		

Serial No.	Types of Ornamentation	Building Component	Sample Image	Ornamental Motifs Extraction				
W1	Air Vents	Wall (the upper part of the wall)						
				W1-101	W1-102	W1-103	W1-104	W1-105
W2	Hitching Ring	Wall (the lower part of the wall)						
				W2-101	W2-102	W2-103		
DW1	Ornamental Lintel	Door and Window (above the door or window opening)						
				DW1-101	DW1-102	DW1-201		
DW2	Ornamental Grilles	Door and Window (the grilles of the door or window)						
				DW2-101	DW2-102	DW2-103		
DW3	Ornamental Panel	Door (the lower part of the door leaf)						
				DW3-101				
DW4	Mid Rail	Door (the middle of the door leaf)						
				DW4-101	DW4-102			
DW5	Corner Pattern	Door and Window (the corner above the door or window opening)						
				DW4-101				
C1	Column Pedestal	Column (below the column)						
				C1-101	C1-102	C1-103		
G1	Gate Pier Stone	Gate (below the gate pier)						
				G1-101	G1-102	G1-103	G1-104	G1-105

Roof Ornamentation

The roof is one of the main ornamental parts that attracts the most attention from the building facade (Opincariu, 2011). Compared with the complicated roof styles of official buildings with strict architectural hierarchy, the roof styles of traditional vernacular architectures in Northwest Henan are mainly double-pitched roofs, flat roofs, and arched roofs (Zuo et al., 2011; Cui et al., 2015). The latter two only appear in stone dwellings, which are made of stone slabs and almost without any roof ornamentation, so they are not discussed in this paper. In Northwest Henan, a double-pitched roof with eaves aligned with the gable end walls is called a “hard gabled roof,” which is distinctly different from the overhanging roofs in rainy and hot areas (Zuo et al., 2011). The locals favour this neat type of roof, and the exciting and regular ornamental motifs above them make the building facade more attractive. From the perspective of compositional design, the roof ornamentation of local vernacular architecture is mainly an independent composition and focuses on decorating the ridge and eaves (e.g., Figure 2.)

First of all, the two ends of the main ridge are a pair of symmetrical animal sculptures, of which the most common animal species is an imaginary character known as the “Chiwen” that has evolved from ancient China to the present day. Legend has it that the Chiwen is a descendant of a dragon and a fish, with a dragon head and a fish body, capable of spraying waves and sending down rain. Its image used in vernacular architecture has the symbolism of fire prevention (Wang, 2022). The face of the Chiwen sculpture presents a fierce expression, which makes the whole roof shape more solemn, and the gravity of the sculpture itself also makes the roof structure more stable. The vertical ridge, which is in a secondary position at 90° to the main ridge, would likewise be decorated with animal forms in the same style as the main ridge. As Table 1 shows, serial numbers R1-101 to R1-105 are five variations of Chiwen sculptures in Northwest Henan.

However, this complex and costly shape of the Chiwen beast is not invariable. In some vernacular architectures, the Chiwen beast is streamlined into a more accessible form that resembles an upturned horn, which is an abstract symbolic decorative technique commonly used in the vernacular architectures of northwest Henan. Although this simplified shape of roof sculpture is visibly different from the Chiwen, the two possess the same merits of beautiful implications and practical function for the local residential roof. As Table 1 shows, serial numbers R1-201 to R1-204 are four variations of ridge sculptures that resemble upturned horns in Northwest Henan.

In addition, the main body of the roof ridge, which is the connecting part between the roof beast, is usually decorated with different motifs and called the “flower ridge.” The ornamentation on the flower ridge is mostly brick carving patterns according to the continual design of the compositional principle. The main types of ornamental motifs are botanical patterns such as scroll patterns (R2-101), chrysanthemum patterns (R2-102), and lotus patterns (R2-103). In addition to this, there are also floral patterns spliced with curved tiles on the main body of the roof ridge (e.g., Figure 1.).

The ornamentation of the roof eaves should indeed be noticed. Eaves tile with ornamental patterns appears at the end of the eaves, which is one of the primary roofing materials of the traditional vernacular architectures in Northwest Henan. Eaves tile is a creation of high integration of aesthetics and practical functions and has two shapes: One type is a semi-cylindrical tile with rounded ends, and the other is a curved tile with triangular ends, also known as “drip tile.” The two forms of eaves tile interact and jointly form the protection system, which prevents the rafters and the wall from sun and rain damage. The patterns on the round tile surface are mainly dominated by relatively symmetrical motifs such as animal faces (R3-101

and R3-102), lotus (R3-103), and calligraphy with special meanings (R3-104 and R3-105). The motifs on the drip tiles include animal faces (R3-201), horses (R3-202), bats (R3-203), butterflies (R3-204), chrysanthemums (R3-205), orchids (R3-206), and many more types of independent patterns. Regardless of the former or the latter, these patterns are generally an abstract treatment of natural flora and fauna.

Wall Ornamentation

There is minimal wall ornamentation in the vernacular architecture of Northwest Henan. The ornamental elements with regional characteristics are the air vent above the roof and the hitching ring on the lower part of the wall.

The types of air vents of the wall, apart from the most common circular and rectangular, are also ingeniously molded into the shape of Chinese copper cash (W1-101), hexagons (W1-102), octagons (W1-103), eight diagrams (W1-104), stars (W1-105), and others. Due to the climate of four distinct seasons in Northwest Henan, the walls of vernacular architecture are pretty thick in order to protect inhabitants from the scorching summer and freezing winter, which results in insufficient indoor light and poor air circulation. These various air vents are just the right solution to this problem.

The hitching ring is an evolution of the traditional hitching post, which is usually carved from a single piece of stone and named the “cattle-nosed ring” (W2-101, W2-102, W2-103) because it resembles a cattle’s nose, not only a load-bearing component of a wall like a building block, but also been used for hitching horses, cattle, donkeys, or other livestock. Professor Lou (2019), an expert in folklore, has further explained this ornamental technique by stating that the number of tethering rings reflects the wealth of the house owner in terms of livestock. Over time, this cattle-nosed hitching ring has become a unique ornamentation with particular significance in the region (Cheng & Lou, 2019).

Door and Window Ornamentation

The doors and windows of traditional vernacular architectures in northwest Henan are mainly fabricated of wood, supplemented by stone, which improves the feasibility of carrying out elaborate carvings with diverse motifs.

At first, the ornamental motifs appear concentratedly at the lintel above the door or window opening, which is of two types: rectangular and arcuation. The composition of these motifs adapts absolutely to the outline of the lintel, and the types of motifs mainly consist of symmetrical double fishes (DW1-101), calligraphy (DW1-102) or scrolled plants (DW1-103).

Secondly, the leaves of doors and windows are undoubtedly one of the focal points of decoration. The types of motifs for door leaf, the multi-element composite, are not only plants and calligraphy, but more sophisticated folkloric elements such as utensils, stationery, and animals are also visible (DW3-101). The ornamental motifs of the window leaf depend on the shape of the panes, which include snow crystal (DW2-101), swastika (DW2-102), endless knot (DW2-103), and other geometric patterns that are regular, neat, and conducive to more favourable lighting.

Last but not least, the corner above the door opening is a good location for decoration, but it is optional. Only the parts of specific vernacular architectures with higher budgets are decorated with corner patterns, which are mainly styles of floral reliefs (DW4-101). Besides, both sides of the doorway have calligraphy works that have excellent implications and express the owner’s taste.

Column Ornamentation

The volume of the vernacular architecture in Northwest Henan is relatively small size, which creates a situation where the columns are only used as a supplement to the load-bearing capacity of the walls rather than as an independent force member. In other words, the role of local residential columns to satisfy aesthetic demands is much greater than their load-bearing function. Throughout the whole column, the ornamentation is not on the main body but on the column pedestal. The overall structure of the column pedestal reveals that it is rounded at the upper part and square at the lower part, which is inspired by the Chinese original philosophy concept of “Hemispherical dome cosmology” (Wang, 2011). In view of the above, the abstracted Sumeru seat (C1-101), book cabinet (C1-102) or cube (C1-103) made up the ornamentation of the lower part of the column pedestal. By contrast, circular Chinese drums with bright symbolism became the best type of ornamentation for the upper part of the column bases. It is an indisputable fact that the drum is one of the leading musical instruments used in official honour guards in ancient China, signifying that the residence has been distinguished and honoured for generations and that it is an expectation and wish for future generations (Chang, 2008). The shape and texture of the column pedestal are perfectly combined with the column, which demonstrates classical aesthetic taste.

Gate Pier Ornamentation

Gate pier stone is a structural stone component that fixes the door axis and stabilizes the door (Hao, 2013). Moreover, the part outside the gate becomes another decorative focus of residential architecture in Northwest Henan. In this area, people are keen to raise and enlarge the exposed part of the gate pier to form a synthesis in compliance with the traditional concept. After the unique carving of the gate pier by the upper and lower parts of the composition, the upper part is the standing drum, and the lower part is a rectangular pedestal—the place where the two meet is the shape of a scroll. The surface of the upper drum has various auspicious motifs: deer and plum blossom combinations (G1-102), unicorn and auspicious clouds (G1-103), phoenix and peony combinations (G1-104), egret and lotus (G1-105), and others. The lower square base is similarly sculpted into the shape of a book cabinet, a Sumeru seat, or a cube, which is in the same style as the lower part of the column pedestal, covered with calligraphy, dragons, phoenixes, or other motifs.

Factors Influencing Traditional Architectural Ornamentation in Northwest Henan

Traditional vernacular architecture is a form of building closely tied to people's daily lives and shaped by multiple constraints on its design and construction (Zalejska, 2014). As shown in the previous section, Northwest Henan has a wide variety of ornamentation. Nevertheless, the emergence and evolution of its motifs did not occur in isolation. Rather, they were gradually shaped through the dynamic interplay of multiple forces, including the natural environment, economic foundations, religious and regional cultures, and prevailing social ideologies. The environment strongly determined the materials, textures, and levels of complexity employed in ornamentation (Saleh, 1998; Ivashko et al., 2020). Economic Types promotes the development of craftsmanship and diversity of subject matter in traditional vernacular architectural ornamentation (Žmudzinska, 2023; Saleh, 1998). The different attributes of regional culture, together with the symbolic systems of religious culture, influence the themes, types, and stylistic variations of residential architectural ornamentation (Žmudzinska, 2023). Social ideology leads to vernacular architectural ornamentation acquiring the characteristics of the times (Baper et al., 2010; Vongvilay et al., 2015; Alamiri et al., 2018). These

factors, however, did not function independently but were intertwined in subtle yet significant ways. Economic foundations, for instance, exerted influence through the organization of craftsmanship, the circulation of materials, and market structures, thereby becoming embedded within cultural values and religious symbolism. Together, these interconnections shaped both the typology and expressive modes of ornamentation. In view of the central aim of this study, to illuminate the cultural meanings underlying ornamentation, the economic dimension is not treated as a discrete analytical category. Instead, it is examined as a contextual variable interwoven with religion, regional culture, and the broader social settings, thereby underscoring the complexity of their interactions.

The Absolute Influence of The Natural Environment on The Formation of Ornamentation

The geographical environment provides the primary conditions for the diversity of architectural ornamentation (e.g., Figure 3.). According to the research report of Professor Shi (1982), a geologist from Henan University, the Northwest Henan region is abundant in mineral resources such as coal, limestone, quartzite, and clay, as well as deciduous broad-leaved forests (Shi, 1982). The richest coal resources in the area provided fuel for more deeply processed architectural components, which were usually sculpted with clay to create a variety of ornamentation and then fired at high temperatures to mould them, such as ridge beasts, floral ridges, eaves tiles, and brick. Beyond their technical utility, these resources also supported local economic activity and encouraged the development of artisanal workshops, which in turn expanded the range of available materials and techniques for ornamentation. Not only that, but the natural stone also led to the creation of more straightforward, inexpensive textural and geometric patterns. Although these patterns themselves do not have any theme, through the conscious design of the carvers, they create a series of motifs: meteor, stripe, splashes, and others (e.g., Figure 4.). The climatic conditions of Northwest Henan, characterized by aridity and distinct seasonal contrasts, further shaped the stylistic tendencies of ornamentation, which generally display a more rugged and solid aesthetic. In this way, the abundance of natural resources, together with climatic influences, not only promoted the diffusion and popularization of ornamental motifs but also indirectly fostered their diversity through economic and artisanal channels.



Figure 3: Village Environments at the Southern Foothills of the Taihang Mountains in Northwest Henan



Figure 4: The Intentionally Designed Textures on Stone Architectural Components in Northwest Henan

The Influence of Integration of Confucian and Farming Culture on The Connotations of Ornamentation

The Northwest Henan is long belonged to a typical agriculture-dominated society. The distinctive production and livelihood practices of this farming culture gave rise to numerous agricultural motifs, such as pig face (R3-101), horse (R3-202), and village scenes (G1-105), which commonly appear in vernacular ornamentation and articulate popular wishes for abundance, fertility, and well-being. However, this relatively fixed and monotonous mode of production has not prevented other cultures from spreading and evolving in the region. Among them, the Confucian culture, which has been dominant in China for more than 2,000 years, has had a profound impact on the aesthetic sensibilities of the local people (Pohl, 2009). Confucian cultural values advocate the realization of personal aspirations through the imperial examinations, which was a relatively fair examination system for ordinary peasants in ancient China. As a result, the local people gradually developed the educational tradition of studying spontaneously as a family unit - the so-called "farming-reading" culture (Liu, 2020). As a matter of fact, from ancient times to the present, there are plenty of successful cases in Northwest Henan where some outstanding people who are recognized for their dedication to the country and society through this educational pathway, such as Wei Siqian and Pei Xiu who were prime ministers of the Tang Dynasty, Xu Heng who was educator of the Yuan Dynasty, Zhu Zaiyu who was musician of the Ming Dynasty, and others (e.g., Figure 5.). This reverence for the Farming-reading culture is reflected in the ornamentation of vernacular architecture, which is a series of Confucian cultural elements. For example, unicorns (G1-103), phoenixes (G1-104), drums (C1-101 to C1-103; G1-101 to G1-105), brushes (DW3-101), scrolls (G1-104, G1-105), book cabinets (C1-102; G1-102, G1-103), plums (G1-102), chrysanthemums (R3-205), and orchids (R3-206) represent the status and qualities of intellectuals. These motifs signify the expectations for the future careers and status of the family members and also reflect the educational function of Chinese folk art (Lingzhu et al., 2021).



Figure 5: Xu Heng Cultural Centre and Zhu Zaiyu Cultural Centre in Northwest Henan

The Influence of Religious Elements on The Subjects of The Ornamentation

The influence of religion on the ornamentation of vernacular architecture is enormous. In addition to Confucianism as the fundamental ethical code, Buddhism and Taoism also play an essential role in guiding the ornamental motifs of vernacular architecture.

Henan is the birthplace of Chinese Buddhism (Jiang, 2020). Buddhist elements are used extensively in the ornamentation of traditional vernacular architecture in Northwest Henan. For example, as shown in Table 1, the shape of Sumeru (C1-101, G1-103) comes from the pedestal of the Buddha statue, the lotus flower (R2-103) comes from one of the main symbols of Buddhism, and the Endless Knot (DW2-103) and the treasure vase come from the Buddhist magic weapon (Wu, 2016).

Taoism is another religion that has a profound influence on architectural ornamentation, and this indigenous form of religion exhibits elements that are more closely attuned to people's lives. For example, as shown in Table 1, the double fish (DW1-101) represents Yin and Yang, Bagua diagrams (W1-104) represent the laws of the evolution of the universe, and copper cash coins (W1-101) represent the Chinese original philosophy concept of "Hemispherical dome cosmology," which is also a harmonious concept (Hu, 2021). In addition, Taoist deities' magic weapons: fans, gourds, flutes, swords, flower baskets, and others are also a source of ornamental motifs, which belong to the non-mainstream type due to requiring more professional and detailed carving.

In practice, economic capacity often determined whether such motifs could be afforded: households with limited budgets usually opted for simpler and more schematic religious symbols—such as the eight diagrams, the double fish, or stylized copper coin motifs,—that were less costly to produce and easier to apply to brick or stone. By contrast, complex deity figures, narrative scenes, and finely detailed ritual implements were generally reserved for the wooden components of houses belonging to officials, gentry, and wealthy merchants (e.g., Figure 6.), whose greater resources allowed them to commission such elaborate works.



Figure 6: The Religious Elements in the Ornamentation of the Ancestral Hall and Vernacular Architecture in Northwest Henan

The Influence of Cultural Ideologies on the Innovation of Ornamentation

The cultural system with regional identity in Northwest Henan has changed to a certain extent as a result of the drastic changes in society since modern times. From 1897, the British exploited the region's minerals for half a century, [Revised text: with the intensive extraction of coal not only catalysing local industrial development,

spurring mines, railways, and brick-and-tile works, but also introducing European construction techniques and aesthetic models that gradually permeated local building practice and ornamentation, accompanied by a strong impact of foreign cultures. Northwest Henan became the earlier region in China to introduce modern building industry concepts, and significant changes occurred in infrastructure and decorative techniques (Huang, 2006). For example, the larger curved arched doorways (DW1-201) were accepted and favoured by the locals. In line with this, the curly grass and vine motifs with European aesthetic tastes also became new ornamental elements in vernacular architecture. Since the modern era, local ornamentation has also reflected the local people's revolt against imperialism, such as the tile of "Fandi" (R3-105), which means "anti-imperialism," the drip tile of a pentagram pattern (R3-207) that means "victory", which are distinctive marks of the times (Lin, 2001). In fact, the ability to sufficiently reflect the cultural trends and political tendencies of different periods is one of the reasons for the vitality of vernacular architectural ornamentation (e.g., Figure 7.).



Figure 7: Architectural Ornamentation Influenced by Western Cultural Thinking (1920s), Architectural Ornamentation Influenced by Chinese Political Propaganda (1970s) in Northwest Henan

The evolution of ornamentation under the influence of different cultures in Northwest Henan is not mutually separated but on the basis of sufficient integration with local customs, myths, and legends. Therefore, an interesting phenomenon is that the roofs, doors, windows, pillars, and other components of the same vernacular architecture reflect the ornamental elements of different cultures and beliefs. This multicultural hodgepodge of combinations may seem irrational. Still, all of them reflect a positive theme: the people's hope for harmony with nature, happiness in life, and continuity of progeny.

The Guidelines for Integrating Traditional Ornamentation into Contemporary Architectural Design

Discussion on Guidelines for the Multiple Dimensions of Innovative Design of Ornamentation

Innovative design is a crucial link in the value chain of the cultural industry (Brandellero & Kloosterman, 2010). This study aims to develop a guideline for the innovative design and implementation of ornamentation in Northwest Henan in order to integrate the cultural pedigree into the sustainable development of the local cultural industry. This study, from 58 articles involving innovative design for traditional culture and 25 articles involving innovative development of architectural heritage, examines existing guidelines and principles related to vernacular architectural ornamentation through literature reviews, assessing their relevance, applicability, and limitations. To ground these literature-derived guideline units in local practice, semi-structured interviews were conducted with 30 local residents. Interviews solicited participants' suggestions regarding the preservation and

development of ornamentation and invited preliminary judgements on the relevance and acceptability of each of the ten dimensions identified in Table 3.

Table 3: Existing Guidelines Related to Design for Implementation to Vernacular Architectural Ornamentation

Research Unit	Main Points of the Guidelines	References	Whether adaptations to Northwest Henan		
			Yes / No	Remarks	Requirements for improvement
Cultural Preservation	Emphasizes cultural preservation through traditional materials and techniques	Conejos et al. (2011)	Yes	Highly applicable	Needs contextualization to specific regional styles
Aesthetic Consideration	Focuses on aesthetic principles such as harmony, proportion, and symmetry	Richter et al. (2017)	Yes	Applicable	Designers must be versed in local artistic traditions
Sustainability	Advocates for eco-friendly materials, energy-efficient designs, and minimal environmental impact	Omole et al. (2024)	Yes	Applicable	Should incorporate traditional sustainable practices of the region
Economic and Social Integration	Promotes integration of ornamentation into local cultural industry, emphasizing economic viability	Erlewein (2015)	Yes	Highly applicable	Guidelines suggest promoting local crafts and community involvement to foster economic opportunities
Modern Adaptations	Advocates for contemporary interpretations of traditional designs	Lee (2022)	Yes	Applicable	Ensures relevance and attractiveness in modern architectural practices
Technological Integration	Explores the use of digital tools and technologies in ornamentation design	Lee et al (2020)	Yes	Highly applicable	Enhances precision and allows for innovative design possibilities
Environmental and Climatic Adaptation	Highlights the importance of adapting ornamentation to local climatic conditions	Gleiniger et al. (2012)	Yes	Applicable	Ensures durability and functionality of ornamentation
Cultural Sensitivity and Inclusivity	Emphasizes inclusive design practices that respect cultural diversity	Zhang et al.(2022)	Yes	Applicable	Fosters respect for cultural diversity and community engagement
Historical Continuity	Discusses the balance between historical continuity and innovation	Chen et al.(2023)	Yes	Applicable	Ensures the evolution of traditional ornamentation while retaining cultural significance
Integration with Modern Construction	Suggests guidelines for integrating traditional ornamentation with modern construction techniques	Nilam (2023)	Yes	Highly applicable	Promotes practical implementation in contemporary architecture

Table 3 summarizes ten guideline units for innovative architectural design: Cultural Preservation, Aesthetic Consideration, Sustainability, Economic and Social Integration, Modern Adaptations, Technological Integration, Environmental and Climatic Adaptation, Cultural Sensitivity and Inclusivity, Historical Continuity, Integration with Modern Construction. These units provide a valuable reference for the innovative design of vernacular architectural ornamentation. Based on semi-structured interviews with 30 local residents, respondents consistently expressed a strong desire for the protection and development of vernacular ornamentation. This aspiration not only indicates enhanced cultural awareness but also reflects stakeholders' growing interest—particularly under rural revitalization policies—in converting cultural resources into economic value. However, as the respondents were local residents who generally lacked relevant professional knowledge, despite their high recognition and willingness to participate, many reported difficulty in providing well-founded judgement when asked to classify, refine, or expand the ten proposed dimensions. This underscores the need for methodological guidance and expert input to support effective integration and practical application. Moreover, the ten research units overlap to some extent, complicating clear identification and labeling during the innovative design process.

To address the above issues, the study employed multi-round Focus Group Discussions (FGDs), conducted in three rounds with five participants per round (one designer, one architect, one resident, one government official, and one cultural expert), totaling fifteen participants. In each round, the group collectively

reviewed ten research units on innovative architectural ornamentation (e.g., Table 4.) and reached a group-level consensus evaluation. The group allocated up to five stars across the units to indicate relative importance (more stars denote greater importance); stars were allocated collectively rather than by individuals. In addition to star allocation, each group could designate a unit with an 'O' to indicate conceptual overlap and recommend consolidation (i.e., merging, subsuming, or replacing it with a unit bearing stronger attributes). The 'O' mark, therefore, functions as a recommendation for consolidation rather than a simple statement of low importance. If a unit received an 'O' in two or more of the three independently composed FGD rounds, it was flagged for consolidation and subjected to further group deliberation and researcher adjudication to determine whether to merge, rephrase, or remove the unit. Final decisions, together with their underlying rationale, were documented and incorporated into the revised set of dimensions.

Table 4: Results of the Multi-Round Focus Group Discussions (FGDs) on Innovative Design Guidelines for Vernacular Architectural Ornamentation

	Item 1 Cultural Preservation	Item 2 Aesthetic Consideration	Item 3 Sustainability	Item 4 Economic and Social Integration	Item 5 Modern Adaptations	Item 6 Technological Integration	Item 7 Environmental Adaptation	Item 8 Cultural Sensitivity Inclusivity	Item 9 Historical Continuity	Item 10 Integration with Construction
A-FGD	☆☆☆☆☆	☆☆☆	○	☆☆☆☆	○	☆	☆☆☆☆	☆☆	○	☆☆☆
B-FGD	○	☆☆☆☆	○	☆☆☆☆	☆☆	☆☆☆	☆	○	☆☆☆☆☆	○
C-FGD	☆☆☆☆☆	☆☆☆☆	○	☆☆☆☆	☆☆	☆	☆☆☆	○	○	○
Results (Remark)	10☆ 1○ (Combined Item 9)	11☆	3○ (Substituted by all Items)	12☆	5☆ 1○ (Combined Item 10)	6☆	8☆	2☆ 2○ (Combined Item 5)	5☆ 2○ (Combined Item 1)	3☆ 2○ (Combined Item 5)

Table 4 indicates that Cultural Preservation (Item 1+ Item 9) is the most critical dimension in terms of the innovative design of vernacular architectural ornamentation, followed by Economic and Social Integration (Item 4), Aesthetic Consideration (Item 2), Modern Adaptation (Item 5+ Item 8+Item 10), Environmental and Climatic Adaptation (Item 7), Technological Integration (Item 6, which are the six dimensions that must be adhered to for the innovative development of vernacular architectural ornamentation in Northwest Henan.

Developing Guidelines for Innovative Design of Vernacular Architectural Decorations in Northwest Henan

This section interprets the specific incorporation process of the six dimensions of innovative design of vernacular architectural ornamentation in Northwest Henan mentioned above based on the results and recommendations of the Focus Group Discussions (The name of each FGD member is replaced with one of the letters A-O).

The innovative design of vernacular architectural ornamentation should take the protection and inheritance of local culture as the primary goal. On the one hand, the identification and classification of vernacular architectural ornamentation is carried out, which involves the form and symbolism of the ornamentation as well as the components of the building in which it is located, and so on. The implementation of this process is based on documentary research and fieldwork, and the information obtained from semi-structured interviews with residents is to be fully taken into account. One FGD member A (an architect with a long history of renovating and refurbishing local vernacular buildings) commented:

“The inheritance and innovation of traditional ornamentation should possess the ‘cultural temperature’. It is essential to invite older residents to participate in this work. Listening to their understanding of the history and symbolic meanings of the different ornamental motifs can avoid misinterpretation and over-interpretation so as to ensure that each design conveys an accurate cultural connotation effectively.”

On the other hand, the elements of the ornamentation are refined into symbols with typical cultural values to ensure that they are in line with the regional cultural symbolism and core concepts. Take Jiaozuo in the Northwest Henan region as an example. Jiaozuo is the birthplace and prosperity of Chinese Taijiquan, which originates from the Chinese Taoist concept of yin and yang dialectics as its core idea, while Chinese Taoism takes the Taiji diagram derived from the double-fish pattern as its religious symbol (Dell’Olio, 2022). Residents tend to be more inclined to accept, preserve and propagate the traditional forms of Taiji ornamentation, and they will avoid oversimplifying or complicating these symbols. Therefore, in contemporary innovative design, the researcher should maintain the original symbolism and representativeness of the ornamentation in the modern environment through meticulous design (e.g., Figure 8.). In this process, guiding residents to actively participate in the development of guidelines for the conservation of ornamentation and giving feedback is an effective way of cooperation, which can make the application of cultural symbols win great popular support by paying due attention to the practices and emotions of residents.

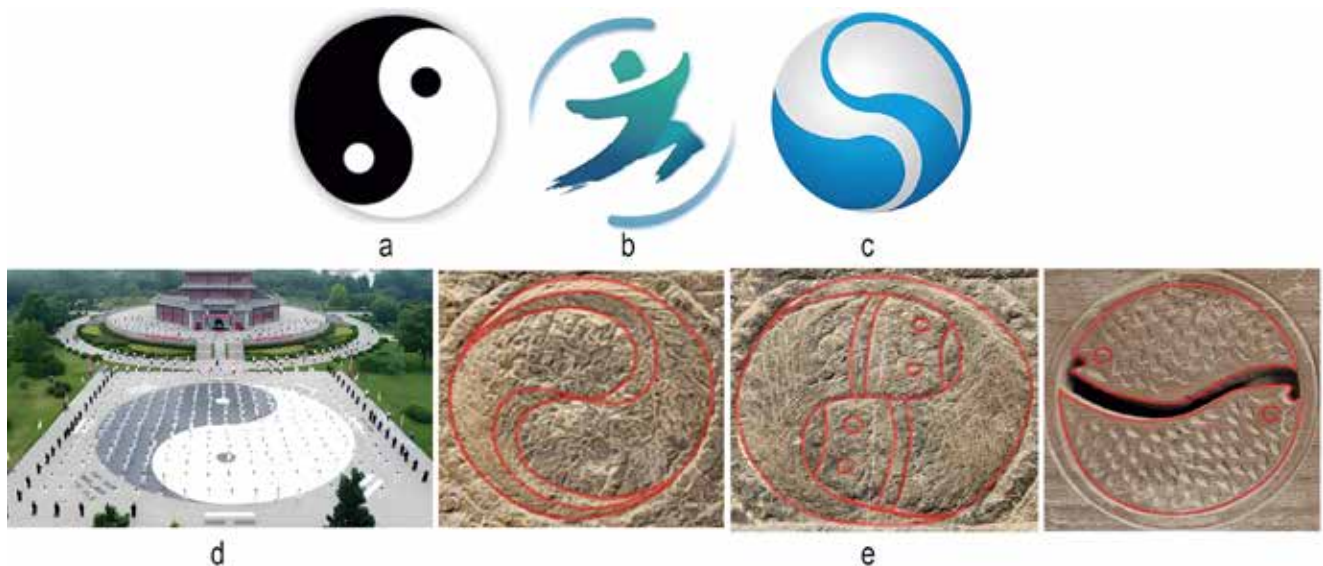


Figure 8: The Widespread Application and Extension of Taiji Culture in Northwest Henan (From Left: A. Taoist Taiji Diagram, B. Jiaozuo City Logo, C. Jiaozuo Radio and Television Station Logo, D. Taiji Cultural Theme Square, E. Taiji Double-Fish Motifs on the Door Lintel of Vernacular Building)

The innovative design of vernacular architectural ornamentation should fully consider its economic value and social benefits. Good design is not only about improving the aesthetics of our lives but also should have the role of increasing economic value (Macmillan, 2006). One FGD member D (a 50-year-old man who is the current owner of a set of traditional brick houses built in the 1950s), was even more outspoken that “no one would be willing to spend an even higher amount of money and a lot of time on this matter (building renovation or decorative upgrading) if there was no financial return”. In Northwest Henan, there are three World Geoparks: Taihang Mountain, Wangwu Mountain and Daimei Mountain, occupying 3/4 of the total number of World Geoparks in Henan, which is a prime area for tourist economic development that provides a market for the innovative design of ornamentation. Another designer F, who has long been engaged in product development of cultural tourism, further pointed out that the innovative design of

traditional ornamentation can not only be applied to architectural design to attract tourists but also to be applied to household products, clothing accessories, and souvenirs through the secondary creation of ornamental motifs, which can extend the economic value chain of culture. In addition, a local government official H also gave a more secure proposal that the local culture and tourism bureau lead the development of a local architectural culture promotion strategy in line with the regional economic development.

The innovative design of vernacular architectural ornamentation should be based on aesthetic theory. According to several rounds of FDGs, it is determined that the process of aesthetic application includes, firstly, extracting the aesthetic elements, analyzing their artistic characteristics such as technique, composition, shape and subject matter, and clarifying their unique visual element features. Secondly, the visual elements are adjusted and recreated, which involves the integration of the inheritance of traditional ornamental art features with contemporary mainstream aesthetic trends. Thirdly, different design styles must be adjusted to adapt to different ornamental carriers.

Take the roof beast as an example (e.g., Figure 9.) to explore the specific implementation process of aesthetic consideration: through comparative analysis, to determine that the ornament is a separate pattern of animal species with exaggerated expression technique and further analyse its commonality with other roof beasts in Northwest Henan, all of which are taken from the traditional Chiwen shape, and its uniqueness of the mouth like a trumpet, the tail looks like a rooster's tail of the clumsy and cute personality characteristics. After that, the whole pattern is extracted, and tedious parts are deleted to form a new motif that has the typical characteristics of traditional ornamentation. On this basis, the new motifs are applied to travel products such as mugs, bags, gift cases and other carriers. As the examples show, each step of the design has aesthetic consideration. However, note that this does not mean that the design is finished (this is just a brief example to illustrate this dimension). There are still other dimensions to be considered, such as environment, climate, contemporary adaptation, technical support and so on.



Figure 9: The Process of Taking Traditional Architectural Ornamentation into Artistic Consideration

The innovative design of vernacular architectural ornamentation should be adequately adapted to environmental and climatic conditions. The environment and climate constrain the emergence and development of vernacular architecture, which is equally a response to a specific environment and climate (Coch, 1998). The geographical environment of the northern mountains and southern beaches in Northwest Henan and the climate feature of four distinct seasons determine that the architectural ornamentation should contribute to the essential functions of the building, such as lighting, ventilation, protection against cold, and prevention against heat. As a resident in an interview, “the south of those cumbersome and delicate ornamental patterns, it is difficult to adapt to the cold wind from the north in winter”. Secondly, the choice of alternatives to natural materials, such as wood and stone, is also an effective means of protecting the environment.

An FDG architect J (42 years old, with extensive experience in sourcing building materials) gave the example of using wood-like PVC panels to reproduce classic wood carving ornamentation in a rural landscape upgrade, which enhances the aesthetics and durability of the ornamentation and reduces the reliance on natural wood. Another designer M in the same group concurred, 'This composite material is more beneficial to withstand the changeable local climate and maintains the cultural flavour of the ornamentation'. There is no doubt that environmental-friendly architecture is the rule for any innovative design.

Contemporary adaptation is an effective way to keep the viability of the innovative design of vernacular architectural ornamentation. On the one hand, traditional ornamentation should be integrated with contemporary design language. Most of the traditional ornamentation is symbols with substantial implications, and such symbols can only be dissected and recreated according to modern design requirements in order to become design works with the aesthetic value of the times. An FGD member L (a designer with a long career in interior design), provided an example of a traditional snow crystal pattern on panes (DW2-101), which would have appeared out of place if it was simply copied and applied to any modern space. On the contrary, the extraction of a particular part of the pane pattern and the simplification of unnecessary details are very well-designed elements of contemporary style.

On the other hand, traditional ornamentation has to meet new contemporary functional demands. The production and living styles of local people have changed dramatically. People no longer need too much space for storing farm tools or drying grains, and houses have become a combination of living, working, and recreation. One resident, K, commented that "no one likes deep, dark spaces now, and bright, air-conditioned rooms are much more common and popular". The replacement of dense and geometric window panes with spacious glass is a natural consequence of this. Besides, the individual demands of the young group cannot be ignored in any innovative design. As cultural expert N (a professor at a university who has long been engaged in research on the tourism economy of Yuntai Mountain) said, young people are the biggest recipient group of cultural and creative products. Catering to the preferences of young people is beneficial to enhancing the dissemination and influence of cultural products. Therefore, adapting to new contemporary needs can increase the sense of identity and belonging of local people to traditional culture.

Technological Integration can effectively lengthen the lifespan of the innovative design of vernacular architectural ornamentation. First of all, digital technology is used to record and archive vernacular architectural ornamentation with high precision, which provides an accurate reference for subsequent design. A local cultural expert O, commented that digitally capturing traditional ornamentation through 3D scanning technology not only preserves this precious cultural heritage but also enables people to intuitively experience the aesthetic and historical connotations of this ornamentation through virtual reality (VR) and augmented reality (AR) technologies. This approach is particularly suitable for school education and cultural displays to enhance the public's interest in and awareness of traditional culture.

Secondly, combining modern intelligent manufacturing techniques to achieve efficient fabrication and dissemination of innovative ornamentation. One FGD architect B, shared his practical experience in an urban design project, where he optimized traditional ornamentation using computer-aided design (CAD) software and 3D printing to produce detailed ornamental elements. Moreover, a number of new contemporary crafts and techniques, such as CNC engraving machines and laser cutting technology, are effective in shortening the fabrication time of ornamentation and ensuring the accuracy of the details.

Last but not least, the industrialized application of innovative ornamentation design is promoted by big data technology. Local official C pointed out that big data analysis has become a new growth pole for the development of the cultural industry. Making full use of the results of big data in the innovative design of ornamentation can effectively catch the market demand to design more market-leading design works.

Validation of the Proposed Guidelines

The proposed guidelines were developed through a multi-stage process to ensure both academic rigour and practical relevance. First, a systematic literature review provided the theoretical foundation and identified common dimensions in innovative ornamentation design. Second, Focus Group Discussions (FGDs) with local stakeholders—including residents, artisans, architects, cultural experts, and government representatives—were conducted to refine and test these dimensions within the socio-cultural background of Northwest Henan. On this basis, a preliminary set of guidelines was drafted.

To validate and further optimize the guidelines, an expert panel of 15 specialists in architecture, cultural heritage, and rural development was convened. Experts assessed the proposed dimensions in terms of clarity, feasibility, and practical significance using a structured 5-point Likert scale (1 = strongly disagree; 5 = strongly agree) (Likert, 1932). Validation was based on two straightforward criteria: the mean score for a dimension (threshold ≥ 4.0) and the agreement rate (percentage of experts rating 4 or 5; threshold $\geq 70\%$). Dimensions meeting both thresholds were accepted, while those falling short were revised in light of expert feedback. Expert input was then systematically integrated, leading to targeted refinements of wording and scope where appropriate. This approach ensured transparent and rigorous evidence of the guidelines' validity and practical relevance.

Table 5: Expert Validation Results for Guideline Dimensions on Innovative Design of Vernacular Architectural Ornamentation

Guideline Dimension	Mean Score (1–5)	Agreement Rate (% rating 4–5)	Validation Result
Cultural Preservation	4.6	93%	Accepted
Economic & Social Integration	4.3	87%	Accepted
Aesthetic Consideration	4.2	93%	Accepted
Environmental & Climatic Adaptation	4.1	80%	Accepted
Modern Adaptation	4.0	73%	Accepted (with revision)
Technological Integration	4.4	90%	Accepted

As shown in Table 5, all dimensions attained mean scores of 4.0 or higher and agreement rates between 73% and 93%, indicating strong expert endorsement of their academic value and practical relevance. “Cultural Preservation” received the highest support ($M = 4.6$; 93% agreement), confirming its centrality. “Modern Adaptation” ($M = 4.0$; 73% agreement) was generally accepted and considered a relatively flexible dimension, permitting context-sensitive adjustments in practical implementation. Overall, the six guideline dimensions passed expert validation under the specified acceptance criteria, demonstrating their rationality and applicability within the theoretical framework of vernacular architectural ornamentation studies.

Conclusion

The ornamentation of the vernacular architecture in Northwest Henan is mainly displayed on the roofs, walls, doors, windows, columns, gate piers, and other architectural components, each of which is imbued with profound cultural information. The types of ornamental motifs involve six categories: plants, animals,

utensils, geometry, texture, and calligraphy. Botanical motifs, focusing on the external structural features of flowers, vines, or leaves without paying attention to the internal details, are highly extracted and simplified for presentation. Animal motifs, focusing on the sense of movement, mystery, and majesty of the animal, are concomitant with imaginative or abstract treatments of animals. Utensils and geometric motifs, which focus on the regularity of arrangement, are mainly derivatives of religious elements. Texture motifs are more available for the local people, which makes the natural stone become more aesthetic quality through different carving techniques. Calligraphy motifs, as the most direct visual symbol with distinctive regional and contemporary characters, usually reflect people's concerns, positions, and expectations of social trends in a clear and concise writing style.

The formation and development of ornamental motifs are associated with factors influencing them by multiple dimensions. The natural environment plays a decisive role in the style of ornamentation, which indicates the inevitability of harmonious coexistence between human beings and the natural environment. The fusion of Confucianism and farming culture has given ornamentation a profound connotation, which makes it an essential carrier for conveying historical and cultural values. The integration of religious symbols makes the orientation of ornamental implication stronger and adds to the mystery of ornamentation. The influence of modern foreign cultures has, to a certain extent, contributed to the innovation and evolution of architectural ornamentation.

On this basis, this paper further proposes guidelines for the innovative design of vernacular architectural ornamentation to promote the development of cultural industries: To take regional cultural inheritance and protection as the primary goal, classify the ornamentation and emphasize the typical cultural symbols in line with the symbolic meaning and core value of regional culture; to combine the development of ornamentation with local cultural industries to extend the economic value chain of culture; to decompose and reconstruct the ornamental motifs based on aesthetic theory; to take the regional environment and climate into full consideration to ensure that the ornamentation is functionally complete; to redefine the ornamentation in contemporary design language to enhance the adaptability of the times; to use new technology to promote the dissemination of architectural culture and the innovative design of ornamentation. By considering these six dimensions, it is possible to ensure that vernacular architectural ornamentation can be integrated into contemporary innovative design in the cultural industry.

The limitation of this paper is that due to time, workforce and resource constraints, more than the sample size of the actual survey and interviews may be required to cover all types of architectural ornamentation, especially in remote areas. The guidelines proposed in this paper are still only at the theoretical research stage, which may have to be adjusted at a later stage based on the users' feedback on innovative design products of ornamentation.

Research Contribution

This study on the ornamentation of vernacular architecture in Northwest Henan fills the research gap, which is conducive to protecting and promoting the diversity of culture while also promoting the improvement of the architectural culture system in related fields. The guidelines for integrating traditional ornamentation into modern innovative design will serve as a reference for practitioners involved in the cultural industry.

Practical Contributions

This study on the typology of ornamentation in Northwest Henan is essential for restoration and conservation work to ensure that any restoration or new construction maintains the historical and cultural lineage of the area. At the same time, the research results can be directly applied to innovative design, which will contribute to the promotion of Innovative development in the local cultural industry.

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