

## Article

# Extraction of Visual Elements from Animal Patterns on Bronze Artifacts in Henan Museum and Their Cultural and Creative Applications

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**Abstract:** The bronze artifacts collected by Henan Museum carry thousands of years of cultural accumulation in the Central Plains region. The animal patterns on them are not only an intuitive reflection of the aesthetic tastes and spiritual beliefs of the ancient ancestors, but also cultural and creative design materials with great development value. Taking the representative bronze artifacts of Henan Museum as the research object, this paper focuses on the animal patterns on the surface of the artifacts, systematically sorts out the two major types of real animal patterns and mythical animal patterns, and in-depth analyzes their morphological characteristics and cultural connotations. It explores and establishes a four-step visual element extraction method of "Traceability - Deconstruction - Extraction - Reconstruction", and combines modern design concepts and market demands to propose targeted cultural and creative application paths from four dimensions: practicalization, youthfulness, scenarization, and IPization. The purpose of this study is to realize the dynamic inheritance and innovative development of bronze culture through scientific element extraction and innovative design transformation, and to make the ancient bronze animal patterns radiate new vitality in contemporary life.

**Keywords:** Henan Museum; Bronze artifacts; Animal patterns; Visual element extraction; Cultural and creative application

## 1. Introduction

The ancient Chinese bronze civilization emerged during the prehistoric period and reached its peak throughout the Shang and Zhou dynasties. Within this developmental trajectory, the bronze culture of Henan occupied a central and irreplaceable position, exerting sustained influence on the formation and evolution of early Chinese ritual, artistic, and technological systems [1]. The Henan Museum preserves an extensive collection of bronze artifacts spanning from the Xia Dynasty to the Warring States Period, encompassing ritual vessels, weapons, tools, and other functional categories. Representative masterpieces-including the "Fuhao" Owl Zun, the Spring and Autumn Lotus and Crane Square Hu, and the Warring States Bronze Divine Beast-demonstrate both exceptional craftsmanship and profound symbolic value, and are widely recognized as iconic achievements of ancient Chinese art [2].

The animal motifs depicted on these bronze objects cannot be reduced to mere ornamental devices. Rather, they constitute a visual language rooted in the lived experiences of early communities. Through the transformation of everyday observations and aspirations into stylized forms, these motifs encode emotional expression, aesthetic judgment, and collective imagination. More importantly, they synthesize multiple layers of cultural meaning, including nature worship, totemic belief systems, and hierarchical order [3]. As a result, bronze animal patterns function as complex symbolic structures that

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integrate artistic expression with ideological representation, ultimately forming a distinctive and internally coherent visual system.

Against the backdrop of rising cultural confidence and the accelerated expansion of the cultural and creative industries, the reinterpretation of traditional visual resources has become increasingly significant [4]. The integration of bronze animal motifs into contemporary cultural and creative design not only facilitates the transmission of historical culture, but also responds to the diversified and experience-oriented consumption demands of modern audiences [5]. In recent years, the Henan Museum has actively explored this domain, achieving notable market attention through products such as the "Archaeological Blind Box." Despite these successes, persistent limitations remain evident, including superficial extraction of visual elements, insufficient engagement with underlying cultural narratives, and a lack of balance between functional utility and aesthetic value.

In response to these issues, this study centers on the animal motifs found in the bronze collections of the Henan Museum. It systematically examines methods for visual element extraction and proposes application strategies oriented toward cultural and creative product design. By reconstructing the relationship between traditional imagery and contemporary design logic, this research aims to provide both conceptual frameworks and practical references for the innovative transformation of bronze cultural resources.

## **2. Types and Cultural Connotations of Animal Patterns on Bronze Objects in Henan Museum**

The animal patterns on the bronze artifacts in the Henan Museum are diverse in type and form. According to the types of animals, they can be divided into two categories: realistic animal patterns and mythological animal patterns. Different types of patterns carry different cultural connotations and together form the visual symbol system of the Central Plains bronze culture [6].

### *2.1. Real Animal Patterns*

Real animal patterns are based on animals that actually exist in nature. After artistic refinement and processing, they become decorative elements of bronze artifacts, mainly including beasts, birds, fish, etc., among which beasts and birds are the most common. Such patterns not only reflect the ancestors' observation and awe of all things in nature, but also embody their yearning for a better life [7].

The Warring States Gilded Bronze Leopard-shaped Base collected by Henan Museum (as shown in Figure 1) is overall shaped like a crouching leopard, lying on its side with its head resting on its hind legs, a protruding nose, slightly bulging big eyes, flexible forelimbs, and a long tail curved around its abdomen and back [8]. The shape is highly realistic, which is highly consistent with the shape of modern leopards. The leopard's body is fully decorated with orange petal-shaped leopard spot patterns, each of which is edged with gilded wire, and the gaps were originally inlaid with gold foil, showing exquisite and luxurious beauty. The leopard pattern on this artifact not only shows the superb casting and gilding craftsmanship of the Warring States Period, but also contains the ancestors' awe of ferocious beasts. The design of the collar around its neck also provides important clues for the study of animal taming and domestication at that time, and highlights the social life style of a specific historical period.



**Figure 1.** The Geometrically Decorated Leopard-shaped Vessel Base from the Warring States Period.

The Shang Dynasty "Fuhao" Owl Zun (as shown in Figure 2), modeled after an owl, features a main body that stands tall and proud. It has small ears topped with a high crown, round eyes, and a broad beak. Its wings are held close to the body, while its sturdy feet and broad, drooping tail form a stable fulcrum [9]. The body of the vessel is decorated with auxiliary patterns such as cicada patterns, double-headed Kui patterns, and beast face patterns, set against a background of thunder patterns.



**Figure 2.** "Fu Hao" Owl Zun.

In the Shang Dynasty, the owl was not recognized as a "nocturnal animal" as it is today, but rather a symbol of the "God of War." It represented wisdom and bravery, as well as supreme power and majesty. As the first documented female military commander in Chinese history, the Owl Zun not only symbolized Fuhao's identity and status but also carried the ancestors' reverence for the spirit of courage and perseverance.

The Bronze Zun with Three Animal Heads and Beast Face Patterns (Early Shang Dynasty) (as shown in Figure 3) is decorated with three relief animal head sculptures on its shoulder. Both the abdomen and the ring foot are adorned with beast face patterns, and three groups of flanges are set at the junction of the shoulder and the abdomen [10]. The animal heads adopt the separate casting and welding technology, the beast face patterns are made by the combined pottery mold casting technology, and the flange decorations are formed by mold line processing. The combined use of such animal shapes and geometric patterns fully reflects the artistic characteristics and casting craftsmanship level of bronze artifacts in the early Shang Dynasty.



**Figure 3.** The Bronze Zun with Three Animal Heads and Beast Face Patterns.

### *2.2. Mythical Animal Patterns*

Mythical animal patterns are modeled after divine beasts imagined by ancient ancestors. As a concentrated reflection of totem worship and religious beliefs, they primarily include dragons, phoenixes, taotie (mythical beast faces), and kui dragons (one-legged dragon-like monsters). Such patterns often exude an air of mystery and grandeur, and are commonly used on ritual vessels to highlight the user's social hierarchy and power.

The Spring and Autumn Lotus and Crane Square Hu (as shown in Figure 4) is a representative work of the peak period of bronze art, with a total height of 125.6 centimeters and a weight of 64.3 kilograms. The body of the Hu is ellipsoidal, covered with coiled dragon patterns, with a frontal dragon pattern as the main pattern in the center, and side dragon patterns around the dragon pattern [11]. All dragon bodies are decorated with intertwined transformed cicada patterns. On both sides of the neck of the Hu, there is a pair of giant dragon-shaped ears looking back, with two horns standing upright and long tails curled upward, and the hollowed-out scale patterns on the dragon bodies are extremely exquisite. The crown cover is equipped with double-layer hollowed-out lotus petals, and a crane stands tall in the center of the lotus petals, raising its neck to sing and spreading its wings as if about to fly. Mr. Guo Moruo praised it as "a symbol of the spirit of the times", marking the aesthetic transformation of bronze art from the ferocious and mysterious style of the Shang and Zhou dynasties to the vivid and realistic style of the Spring and Autumn and Warring States periods.



**Figure 4.** The Spring and Autumn Lotus and Crane Square Hu.

Bronze architectural components with animal face patterns (Shang Dynasty) (as shown in Figure 5) have the animal face patterns outlined in black lines on the front. The two horns are huge and forked like deer antlers, with both eyes wide open and the corners of the eyes raised. The upper parts of the left and right sides are dragon patterns with curved bodies and curled tails, the middle part is elephant patterns, and the bottom part is tiger patterns. The decorative layout on all three sides is rigorous and the lines are delicate and fine, presenting a sense of solemnity and majesty. This artifact is the earliest known bronze-like object that has been used on buildings and is of great significance for studying the development history of ancient Chinese architecture.



**Figure 5.** Bronze architectural components with animal face patterns.

The bronze pot with bird and beast patterns on the handle (Warring States Period - Wei State) (as shown in Figure 6) adopts a layered pattern layout. The ground pattern is a fine quic pattern, and the main patterns are created using the relief technique. The cover part is decorated with frog patterns at the corners, and symmetrical tiger patterns are cast below the handle. The main patterns on the abdomen are a combination of animal face patterns, phoenix bird patterns, and tiger and deer patterns. This layering of relief and

ground patterns demonstrates the maturity of the casting technique during the Warring States period, providing important evidence for the study of the bronze art and social culture of the State of Wei.



**Figure 6.** Bronze Pot with Bird and Beast Pattern on the Lid.

### **3. Method for Extracting Visual Elements of Bronze Animal Patterns from Henan Museum of History**

The extraction of visual elements from animal patterns on bronze artifacts focuses on preserving their cultural connotations and artistic essence while transforming the complex patterns into simple and practical visual symbols suitable for creative design. Considering the characteristics of the bronze artifacts in the Henan Museum, a four-step extraction method can be adopted to ensure that the extracted elements are both faithful to the original and meet modern design requirements.

#### *3.1. Uncovering the cultural essence behind the patterns*

The prerequisite for extracting visual elements is to deeply explore the cultural connotations and historical background of animal patterns, avoiding blind extraction that is divorced from the essence of culture. By consulting archaeological materials and museum archives, and combining with the excavation background and era characteristics of bronze artifacts from Henan Museum, the symbolic meaning, usage scenarios and cultural implications of each animal pattern are clearly defined.

For example, when extracting the owl-shaped elements from the "Fuhao" Owl Zun, it is necessary to clarify its cultural attribute as an object of worship by the ancestors in the Shang Dynasty, as well as its symbolic meaning of "bravery and defeating enemies"; when extracting the dragon-shaped elements from the Bronze Divine Beast, it is necessary to take into account the dual characteristics of its inheritance of Central Plains culture and innovation of Chu culture, and understand the witchcraft beliefs and the desire for ascension to immortality it carries; when extracting the taotie pattern elements, it is necessary to recognize that this pattern does not represent the "cruelty and greed" of the taotie in the contemporary academic context, but symbolizes the good wishes of power, solemnity and mystery, ensuring that the extracted elements can convey the core value of bronze culture.

#### *3.2. Disassembling the Visual Constituent Elements of Patterns*

Complex animal patterns are disassembled into four core visual constituent elements: shape, line, color, and texture. Each of their artistic characteristics is analyzed one by one to lay a foundation for subsequent extraction and reconstruction.

In terms of shape, the focus is on disassembling the overall form, proportional relationship, and dynamic characteristics of the animals. For example, the crouching posture of the leopard and the undulation of its muscle lines in the Gilded Bronze Leopard-shaped Base; the prominent dragon head and the curvilinear beauty of the beast body in the Bronze Divine Beast; the upright posture of the owl in the Owl Zun; and the posture of the crane spreading its wings as if about to fly in the Lotus and Crane Square Hu. Distinguish between the realistic shapes of real animals and the exaggerated shapes of mythical animals, and capture their most recognizable morphological characteristics.

In terms of lines, sort out the types of lines (straight lines, curved lines, broken lines) and their combination methods in the patterns. For example, the winding curved lines of the dragon horns on the Bronze Divine Beast, the outline lines of the leopard spots on the Gilded Bronze Leopard-shaped Base, the simple straight lines of the owl's wings on the Owl Zun, and the symmetrical curved lines of the taotie patterns. Analyze the sense of rhythm and power created by the lines: straight lines highlight solemnity and majesty, while curved lines reflect agility and softness.

In terms of color, combine the natural color of bronze artifacts (blue-gray, copper-green) with decorative colors (gold of gilded wire, emerald green of inlaid turquoise) to extract their classic color matching. For example, the contrast between gold and copper-green on the Gilded Bronze Leopard-shaped Base, the echo between copper color and turquoise green on the Bronze Divine Beast, and the integration of the five-element color concept in the design of taotie-patterned bracelets, retaining the unique primitive texture of bronze artifacts.

In terms of texture, extract the decorative textures and craft textures of the patterns. For example, the thunder-pattern background and cicada pattern details on the body of the Owl Zun; the orange petal-shaped leopard spots and gilded wire textures on the Gilded Bronze Leopard-shaped Base; the turquoise inlay textures on the Bronze Divine Beast; and the coiled dragon pattern background on the Bronze Hu with Bird and Beast Patterns and Through Ears. Explore their craft beauty and decorative value.

### *3.3. Simplification and Optimization: Preserving Core Features*

On the basis of disassembly, the visual constituent elements are simplified and optimized to eliminate tedious and redundant details, retain the most recognizable core features, and form concise and distinct visual symbols.

For instance, when extracting the owl-shaped elements from the "Fuhao" Owl Zun, the complex auxiliary patterns such as thunder patterns and cicada patterns on its body are simplified. Only the core morphological features of the owl, including its upright head, round eyes, broad beak, and closed wings, are retained, and the outline of the owl is depicted with concise lines. When extracting the dragon-shaped elements from the Bronze Divine Beast, the complicated details of intertwined small dragons and turquoise inlay are simplified, preserving the majesty of the dragon head, the curvilinear beauty of the beast body, and the overall dynamic posture. For the leopard pattern elements on the Gilded Bronze Leopard-shaped Base, the tedious details of the orange petal-shaped leopard spots are simplified, retaining the leopard's crouching posture and the texture of the gilded lines to highlight its realistic and luxurious characteristics.

Current digital technologies provide efficient tools for this stage. Studies have proposed an image contour extraction algorithm based on the U2Net neural network. This technique can extract image features of the "Fuhao" Owl Zun from an encoder, and use a decoder to generate segmentation maps based on these features. This significantly improves the efficiency of designers by eliminating the need for manual extraction of cultural relic element shapes. Such a technological approach offers new possibilities for the precise extraction of visual elements.

### *3.4. Fusion and Innovation: Adapting to Cultural and Creative Needs*

On the basis of extracted core visual elements, reconstruction and combination are carried out. Combining with modern design concepts, it breaks the constraints of original patterns and forms a new visual symbol system suitable for different types of cultural and creative products. During the reconstruction process, the following three methods can be adopted:

Single element magnification involves enlarging a specific core element (such as the owl shape, leopard shape, or dragon shape) to highlight its recognizability, making it suitable for accessories and ornaments. For example, the "Fuhao Owl Zun" digital skin launched by Henan Museum magnifies the cute and adorable image of the Owl Zun, accompanied by the golden phrase "Take a break and relax," expressing a vision of a beautiful life.

Multi-element combination refers to the rational combination of extracted elements from different animal patterns (such as the outline of an owl with the texture of a taotie pattern, or a dragon shape with cloud patterns) to form new patterns. For instance, a design practice combines the abbreviation of Henan Province, "Yu," with elephant motifs, and extracts traditional patterns from cultural relics for reconstruction, repetition, and recombination to form auxiliary graphic designs.

Integration of ancient and modern combines bronze animal elements with geometric shapes, minimalist lines, and vibrant color schemes found in modern fashion aesthetics. This approach weakens the ancient and heavy sense of the original forms, enhancing their contemporary fashion appeal. For example, the "New Rhythm of Bronze" design series uses vibrant color matching and modern illustration techniques to transform cultural relics such as the "Fuhao" Owl Zun and the Lotus and Crane Square Hu into dynamic illustrations, which are then extended into products like fridge magnets, gift boxes, and pencil cases.

#### **4. Cultural and Creative Application Paths of Visual Elements of Bronze Animal Patterns in Henan Museum**

Combining the extracted visual elements of bronze animal patterns, based on the cultural positioning and market demand of Henan Museum, this paper proposes targeted cultural and creative application paths from four dimensions: "practicalization, youthfulness, scenarization, and IPization", so as to achieve a win-win situation between cultural inheritance and market value.

##### *4.1. Practical Application: Adapting to Daily Life and Enhancing Product Practicality*

Practicalization is the core of cultural and creative products entering the public life. Combining the visual elements of bronze animal patterns with daily practical products allows culture to integrate into every bit of daily life.

In the field of home life, pillowcases and tablecloths can be designed inspired by the gilded leopard spot textures; desk lamps and storage boxes can be designed with owl-shaped elements as the shape; tableware and tea sets can be designed with dragon-shaped elements of bronze divine beasts as decorations. These designs not only retain the primitive texture of bronze artifacts but also meet daily use needs. At present, Henan Museum has developed various categories of cultural and creative products such as accessories, toys, and household items.

In the field of stationery and office supplies, notebooks and fountain pens can be designed with taotie patterns and cicada patterns as decorations; bookmarks and sticky notes can be designed with owl-shaped and dragon-shaped elements as the shape. Combining bronze elements with office and study scenarios enhances the cultural sense of the products.

In the field of clothing and accessories, scarves can be designed with turquoise textures of bronze divine beasts as patterns; necklaces and earrings can be designed with owl-shaped and leopard-shaped elements as the shape; bracelets and brooches can be

designed with gilded lines as elements, balancing cultural and decorative properties and adapting to daily wear. For example, the "Five Elements Bracelet" launched by Henan Museum integrates taotie patterns into the design of fragrance pendants, adopts intangible cultural heritage incense-making craftsmanship, blends spices such as Hainan sandalwood, clove, mint, and borneol according to classic incense formulas, and manually kneads them into mud to make fragrant pendants, realizing the in-depth integration of traditional culture and life aesthetics.

#### 4.2. Youth-Oriented Application: Innovative Expression to Attract Younger Generations

The young generation is one of the core consumer groups for cultural and creative products. It is necessary to break the profound sense of traditional bronze culture and adopt a youthful expression approach to attract the attention of the young group.

Cuteification (Adorable Stylization) involves transforming the visual elements of bronze animal patterns into cute, chibi-style (Q-version) cartoon characters. For example, the owl shape of the "Fuhao" Owl Zun, the dragon shape of the Bronze Divine Beast, and the leopard shape of the Gilded Bronze Leopard can all be reimaged as Q-version cartoons. The "Fuhao" Owl Zun inherently possesses an adorable and endearing character; this feature can be amplified to develop products such as plush toys, keychains, and phone cases, which weaken the sense of solemnity and enhance cuteness.

Trend Integration combines bronze animal elements with street fashion and graffiti styles to design Guochao (Chinese trendy) cultural and creative products like T-shirts, hoodies, and canvas bags, meeting the personalized needs of young consumers. The "New Rhythm of Bronze" series uses vibrant color schemes and modern techniques to present bronze cultural relics from a youthful visual perspective, providing a valuable exploration of this approach.

Blind Box Gameplay draws on the successful experience of Henan Museum's "Archaeological Blind Box." It integrates bronze animal elements into blind box designs. Titled "Lost Treasures," the blind box is categorized into Legendary, Inherited, and Epic levels. Consumers may dig out various "treasures," such as "Chinese Zodiac Beast Head Seals" and "Great General Tiger Tally," transforming the passive act of learning about archaeology into an engaging and proactive exploration. This format attracted a massive number of young consumers, with products selling out in less than two minutes.

Digital Interaction leverages digital technology to develop online cultural and creative products, such as emojis, wallpapers, and phone themes featuring bronze animal elements. As Henan's first digital skin launch, the "Fuhao" Owl Zun, a star cultural relic, achieved widespread dissemination via the internet, sparking interest in traditional culture among younger generations. The AR interactive product enables users to scan the product with their mobile phones, allowing them to view the dynamic effect of the bronze animal pattern, thereby enhancing the product's entertainment value and interactivity.

#### 4.3. Scenario-Oriented Application: Precise Positioning to Adapt to Different Scenarios

Combining different usage scenarios, develop targeted cultural and creative products to enhance the adaptability and experience of the products.

In the tourism scenario, for tourists of Henan Museum, develop lightweight and portable cultural and creative products, such as mini Owl Zun ornaments, Bronze Divine Beast keychains, and animal-patterned commemorative coins, which are easy for tourists to carry and collect. At the same time, integrate Henan regional cultural elements to create tourist souvenirs with regional identification. While visiting the star cultural relics, tourists can also experience activities such as intangible cultural heritage kite making on site, extending the cultural experience scenario.

In the cultural scenario, for cultural enthusiasts and researchers, develop high-end cultural and creative products, such as reprinted prints of bronze animal patterns,

hardcover notebooks, and craft ornaments, focusing on detail restoration and craft quality to convey the artistic value of bronze culture.

In the gift scenario, develop high-end gift sets. For example, combine tea sets with Owl Zun elements, scarves with taotie patterns, and bookmarks with dragon-shaped elements into gift sets, design exquisite packaging, and integrate bronze cultural elements, which are suitable for business gifts, holiday gifts and other scenarios, balancing cultural and practical properties.

#### *4.4. IP-Oriented Application: Building a Brand to Achieve Long-Term Development*

Taking the visual elements of bronze animal patterns as the core, create exclusive cultural and creative IP to realize the long-term development and brand operation of cultural and creative products.

**IP Image Shaping:** Integrate the animal pattern resources on the bronze artifacts of Henan Museum to create exclusive IP images such as "Bronze Divine Beast", "Owl Zun Elf" and "Gilded Leopard Baby", clarify the positioning, personality and visual characteristics of the IP, and form a unique IP system. As the "cute pet of the female war god", the "Fuhao" Owl Zun, with its more than 3,000 years of historical stories and cultural connotations, provides rich materials for the personification of the IP.

**IP Product Matrix:** Around the IP images, develop a series of cultural and creative products to realize the diversified layout of products, such as IP image dolls, stationery, clothing, home furnishings, etc., forming a linkage model of "IP + products".

**IP Communication and Promotion:** Strengthen the communication and promotion of IP, use new media platforms such as short videos, Xiaohongshu and Douyin to release short videos and graphic content of IP images, and hold IP-themed activities to enhance the popularity and influence of IP. Song Hu, director of the Cultural and Creative Department of Henan Museum, said that the popularity of the "Archaeological Blind Box" is directly related to China's high attention to archaeology and the hit of cultural and museum exploration programs such as "National Treasure", which has led many young people to fall in love with archaeology. This enlightens us that IP communication needs to take advantage of cultural hotspots to achieve cross-circle communication.

**IP Authorization and Cooperation:** Strengthen IP authorization and cooperation, and cooperate with other brands to develop co-branded cultural and creative products to expand the communication scope of IP. For example, the cross-time linkage between Luoyang Bronze Danglu and the trendy play IP "Labubu" provides a useful reference for IP cross-border cooperation. Through IP authorization, the dynamic inheritance of bronze culture and the sustainable development of the cultural and creative industry can be realized.

### **5. Conclusions and Prospects**

The animal patterns on the bronze artifacts of Henan Museum serve as important visual carriers of Central Plains civilization, embodying profound historical and cultural connotations as well as unique artistic values. Through a systematic sorting of these animal patterns, this paper classifies them into two main categories: real animal patterns and mythical animal patterns. Taking representative artifacts such as the "Fuhao" Owl Zun, the Lotus and Crane Square Hu, the Bronze Divine Beast, the Gilded Bronze Leopard-shaped Base, the Taotie-patterned Bronze Architectural Component, and the Bronze Hu with Bird and Beast Patterns and Through Ears as examples, it conducts an in-depth analysis of the morphological characteristics and cultural connotations of each type. On this basis, the study proposes a four-step extraction method of "Traceability - Deconstruction - Abstraction - Reconstruction". It also constructs a cultural and creative application framework from four dimensions: practicalization, youthfulness, scenarization, and IPization. Combined with existing practical cases such as the "Archaeological Blind Box", digital skins, and the Five Elements Bracelet, this research

provides systematic ideas for the innovative development of cultural and creative products featuring Henan's bronze culture.

For the future creative application of the bronze animal patterns in Henan Museum, designers can delve deeper into the cultural connotations, avoiding the superficiality and homogeneity of element extraction. They should strengthen the typological research on bronze animal patterns and establish a genetic database for animal patterns design in Henan Museum, providing systematic material support for creative design. Designers can enhance design innovation, taking into account cultural, practical and fashionable aspects. They can explore the deep integration of bronze animal elements with modern lifestyles and aesthetic trends to create culturally competitive creative products. Designers can draw on the "one museum, one school, one enterprise" model to deepen museum-school cooperation and introduce the innovative strength of design colleges. They should focus on the integration of technology and culture, using digital technology, artificial intelligence and other means to enrich the expression forms and interactive experiences of creative products.

Director Ma Xiaolin of Henan Museum believes that the popularity of "archaeological boxes" demonstrates the charm of traditional culture. By presenting cultural relics in a familiar and enjoyable form, it helps to strengthen cultural confidence. In the future, we need to continuously explore contemporary expressions of traditional culture, allowing ancient bronze culture to regain new vitality and vigor in the contemporary era, and contribute to the inheritance and promotion of excellent Chinese traditional culture.

## References

1. J. Liu, M. A. Ghafar, and A. Ab Halim, "Preferences For Cultural Relic Preservation Method In Chinese Traditional Museums," *International Journal of Art and Design*, vol. 9, no. 1, pp. 48-62, 2025.
2. X. Hua, and G. Shelach-Lavi, "Bronze Art, Cultural Norms, and Group Identity: A Group of Late Western Zhou and Early Spring and Autumn He Vessels Analyzed in Their Temporal and Spatial Contexts," *Asian Perspectives*, vol. 63, no. 1, pp. 70-97, 2024. doi: 10.1353/asi.2024.a923664
3. Y. L. Lin, "Paleo-Environmental Pollution of the Bronze Production during the Shang Period at Anyang, Henan Province, China (Doctoral dissertation, Washington University in St. Louis)," *Louis*, 2021.
4. H. Huang, "A Study on Design Factors of Cultural Creative Products in the Capital Museum," In *2024 3rd International Conference on Social Sciences and Humanities and Arts (SSHA 2024)*, June, 2024, pp. 965-976. doi: 10.2991/978-2-38476-259-0\_99
5. A. Gitonga, "The role of a news media information resource centre in preserving national heritage: the case of the Nation Media Group library and archives," 2013.
6. S. Lijuan, S. M. A. Yasin, Z. Harun, L. Zhou, and W. Lizhi, "Decoration Elements and Symbolic Meanings in Yixing Purple Clay Teapots: A focus on nature-themed decorations," *Environment-Behaviour Proceedings Journal*, vol. 10, no. SI29, pp. 171-178, 2025.
7. X. Lu, "Research on the cultural creative industry's development strategy in Henan Province," In *2011 2nd International Conference on Artificial Intelligence, Management Science and Electronic Commerce (AIMSEC)*, August, 2011, pp. 7205-7208.
8. C. Zhou, and Z. Han, "Research on the Design of Museum Cultural and Creative Products under the background of new cultural and Creative culture," In *SHS Web of Conferences*, 2024, p. 01001. doi: 10.1051/shsconf/202418301001
9. J. Zeng, and Y. He, "Discussion on the Design of Cultural Creative Products in the Context of Museum Culture," In *International Conference on Humanities, Cultures, Arts and Design (ICHCAD 2019)*, Sydney, Francis Academic Press, London, December, 2019, pp. 710-715.
10. X. Mengjin, P. Supasetsiri, and S. Phanthabutr, "The Research on Design and Development of Cultural and Creative Products in Henan Museum," *Arts of Management Journal*, vol. 9, no. 1, pp. 314-325, 2025.
11. N. Lu, and H. Jiang, "Design Optimization of Cultural Creative Products Based on Neural Network Algorithm," In *2025 3rd International Conference on Data Science and Network Security (ICDSNS)*, July, 2025, pp. 1-8. doi: 10.1109/icdsns65743.2025.11168766

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