

## Research on the Decorative Patterns of the Bronze Drums (DPBD) in China: A Systematic Literature Review

Xin'ge Zhang<sup>1</sup> , Julina Ismail@Kamal<sup>2\*</sup> 

<sup>1</sup>Department of New Media Design and Technology, School of Arts, Universiti Sains Malaysia, 11800 Penang, Malaysia.

Email: [Zhangxinge966@student.usm.my](mailto:Zhangxinge966@student.usm.my)

<sup>2</sup>Department of New Media Design and Technology, School of Arts, Universiti Sains Malaysia, 11800 Penang, Malaysia.

Email: [julina@usm.my](mailto:julina@usm.my)

### CORRESPONDING AUTHOR (\*):

Julina Ismail@Kamal  
([julina@usm.my](mailto:julina@usm.my))

### KEYWORDS:

Bronze Drum  
Decorative Pattern  
China  
Systematic Review  
Inheritance and Development

### CITATION:

Xin'ge Zhang & Julina Ismail@Kamal. (2022). Research on the Decorative Patterns of the Bronze Drums (DPBD) in China: A Systematic Literature Review. *Malaysian Journal of Social Sciences and Humanities (MJSSH)*, 7(10), e001858. <https://doi.org/10.47405/mjssh.v7i10.1858>

### ABSTRACT

This study focuses on a systematic review of the research on the intangible cultural heritage of the decorative patterns of the bronze drums (DPBD) in China. The article attempts to answer two questions: first, the current status, trends, and unresolved issues of the research on the DPBD. Second, the current situation, trends and research gaps in the inheritance and development of the DPBD. It aims to identify and analyze the gaps to aid the inheritance and development of the DPBD culture in China and Southeast Asian countries. According to the PRISMA statement, forty-one articles were selected from six databases, including Web of Science (WOS), IEEEExplore, Scopus, ScienceDirect, SpringerLink, and CNKI for exploration. According to the research results, the decoration relationship with the socio-culture of the people of ancient China is the main content of many scholars' research, and some of the content is controversial. The classification methods of the DPBD tended to be consistent, and the research results on the variations of different types of the DPBD are relatively few. It has a significant gap. The categories of motifs represented on the DPBD need further empirical research. The study on the conservation and inheritance of Chinese DPBD proposes research on application methods and development strategies based on theoretical research on the DPBD. Most scholars believe that digital and new media fields positively affect the inheritance, dissemination, and development of the DPBD culture. Still there is a considerable gap in empirical research on the effectiveness of digital and new media.

---

**Contribution/Originality:** This study contributed to fill a gap in the existing literature on the review of DPBD in China, sorts out the current situation and main problems in the development of DPBD, and provides new ideas and directions for the study of DPBD, especially in terms of empirical research on DPBD.

## 1. Introduction

The drum was representative of the bronze-age culture of South-East Asia (Wen, 1978; Pan, 1980). The decoration of the bronze drum culture is another major controversy between Vietnamese and Chinese scholars (Han, 1998). Although bronze drums have been excavated in China, Vietnam, Myanmar, Laos, Thailand, Cambodia, Indonesia, and Malaysia, only a few regions and ethnic groups in Vietnam, Myanmar, Laos, and China still use bronze drums (Hee & Hong, 2014). The bronze drum was not just an archaeological artifact, but more importantly, a crucial part of their national culture and national identity. Bronze drum culture in China and Southeast Asia is suffering from an unprecedented existential crisis and is in danger of extinction (Wan et al., 2022). The preservation, dissemination, and development of bronze drum culture is an urgent task for the people of China and Southeast Asia. As one of the significant research countries in the study of bronze drum culture, DPBD is commonly applied in China. A systematic review of the DPBD in China will serve as a reference for study and preserving of bronze drum culture in China and Southeast Asian countries.

The decoration is an artistic technique, because it reflects human perceptions of the objective world, and is a creative expression of life, customs and ideas. In archaeology, we often regard it as a means of identifying the age of certain artifacts or distinguishing between ethnic groups and categories (Cheng, 1984). The various decorative motifs on the bronze drums come from nature and living objects or evolved from some animals and plants. The decoration on the bronze drum is a complete, typical, and meaningful image (Su, 1999). To study the DPBD in China, we should not only observe them one by one and compare them with each other. More importantly, we should comprehensively analyze their combination, arrangement, and overall layout to understand the author's intentions. Only through this can we understand its deep meaning (Li, 1991). The number of academic papers on the archaeological study of bronze drums in China has grown from six included in the 1960s to 342, and the number of academic papers related to the study of bronze drum culture has reached ten thousand from 2000 to the present. However, systematic reviews of the DPBD in China are rare.

Therefore, this paper uses bibliometric methods and text analysis methods to systematically analyze forty-one papers of literature on the DPBD published in SCI, CSSCI, and PKU, sort out the current trend and gaps of the DPBD studies and give some suggestions for research. The research of this paper stems from the objective analysis of mainstream research literature, aiming to further deepen the comprehensive understanding of bronze drum decorations research, and provide a reference for subsequent research.

## 2. Methodology

According to the PRISMA statements (Moher, 2009), the systematic review aims to investigate the status, trends, and gaps in the study of the DPBD in China, particularly in conservation and transmission studies. In terms of data selection, six databases were analyzed. Since China is one of the most significant countries where ancient bronze drums have been excavated and have the largest number of surviving bronze drums in the world, it has rich research papers on bronze drum culture, which provides sufficient knowledge reference for this study. This paper is organized using the main activities proposed by Kitchenham et al. (2017): planning, conducting, and reporting the study.

## 2.1. Review Planning

During the review process, details about the literature screening were determined, including the overall scheme and goals. The relevant review process is as follows:

### 2.1.1. Review Research Questions

RQ1: What are the main problems in the study of the DPBD?

RQ2: What are the main points of view on these problems?

RQ3: What are the research methods of the DPBD?

RQ4: What is the research trend of the DPBD?

RQ5: What research questions still need to be further resolved?

Based on the above research questions, the PICO (Schardt, et al., 2007) principles are used to help achieve the research goals:

- i. P: Population. The investigated object: DPBD.
- ii. I: Intervention. The issues/aspects of research are specified: systematic analysis of the DPBD.
- iii. C: Comparison. The comparison target: Different scholars' research on the DPBD.
- iv. O: Outcomes. The expected results of the review: sort out the theoretical research problems, methods, and research results of the DPBD and identify the gaps in this research field.

### 2.1.2. Inclusion and Exclusion Criteria

To more accurately locate the research object, identify the literature, and answer the research questions, Table 1 shows that the criteria for systematic review:

Table 1: Criteria for systematic review

Criteria	Inclusion	Exclusion
Scientific, peer reviewed journal and conference proceedings	√	
Quantitative and qualitative study	√	
DPBD are main discussed	√	
Studies whose full text was available.	√	
High-level papers in SCI, CSSCI, PKU, and CA that have been cited more than once.	√	
DPBD in China is a part of research		√
Studies for which the full text was not available		√
Duplicate papers		√

## 2.2. Literature selection process

Firstly, the works of literature were screened and sorted out using NoteExpress software. Use NoteExpress software to delete some wholly duplicated literature, and make a matrix of selected articles, so that valuable information can be obtained by evaluating the literature in the list. This study searched Web of Science (WOS), IEEEExplore, Scopus, ScienceDirect, SpringerLink, and CNKI for records published from 1970 to 2022, using the following search terms in the title and abstract:

- i. [Bronze drum OR Bronze drum culture OR Guangxi traditional Culture]

- ii. [decoration OR decorative pattern OR decorative motif]
- iii. [Sun pattern OR Flying bird OR Frog pattern OR Dance pattern]

This yielded fourteen records from Web of Science, one from IEEExplore, fifty-one from Scopus, four hundred and twenty-one from ScienceDirect, two hundred and ninety-eight from SpringerLink, and one thousand one hundred and five from CNKI, six papers records from the references of relevant articles, for a total of one thousand eight hundred and ninety-six articles. Records excluded due to published in the form of proceeding, book chapters, book series, books, and in non-social science fields. Following the review of the pieces, a total of one thousand two hundred and fifty-three articles after removing duplicates. According to the title, abstract, and keywords, the literature that is not related to the theme was eliminated, and the scope of the research object was further narrowed to the DPBD. After excluding one thousand and eleven articles, two hundred and forty-two articles were selected. According to the criteria, forty-seven high-level papers such as SSCI, CSSCI, CA and PKU were screened and cited more than once. Carefully read the full text of the article and download the paper, excluding some documents that are not focused on the ancient bronze drum decoration, as well as papers that cannot be downloaded in full. Finally, forty-one articles that were cited more than once were screened in high-level reports such as SSCI, CSSCI, CA and PKU. Table 2 shows the finally selections of participants and the questions that emerged from text analysis.

Table 2: Main participants and questions that emerged from text analysis: research on the DPBD in China

Authors	Participants	Questions
Hong (1974)	The bronze drum in Guangxi	1. What are the decorative pattern? (Introduction rather than classification) 2. The relationship between motifs and social economy and politics
Wen (1978)	Kaihua bronze drum	1. What is the significance of the long ornaments in the kaihua drums? 2. Why does the Jieli look like the heads of animals? 3. Why is the bird's head-shaped figure calling a Chi tail? 4. What is the significance of the triangular bun on the Kangchuan drum?
Li (1979)	More than 800 bronze drums in southern of China	1. Classification of bronze drum decorative patterns 2. Bronze drum decorative patterns and the age 3. Evolution of decorative pattern
Pan (1980)	The DPBD in Guangxi	The cultural connotations of Guangxi bronze drum decorative patterns
Shi (1981)	Boat motif on DPBD	The boat on the bronze drum decorative pattern is not a crossing sea ship
Li (1983)	Wanjiaba, Shizishan, Guixi, two Guang Typ, Cenxi, Shrimp Toad, Guizhou, Sichuan bronze drum	Bronze drum decorative patterns of different periods
Cheng (1984)	Pleated skirt	The relationship between Bronze drum patterns and Sichuan Miao embroidery patterns

Liang (1985)	Beiliu type, Lingshan type, Lingshuichong type bronze drum	Variations of Three Types Bronze Drum decorative patterns and Ancestral Cosmology
Yi (1987)	Four flying birds	Explanation of the four flying birds on the bronze drum motif
Qi (1992)	Early bronze drum with bird motif	What kind of the bird was
Li (1985)	Bronze drum decorated with three-dimensional frog	Are the three-dimensional motifs on the bronze drums frogs or toads?
Niaoju & Huang (1997)	Zhongjia bronze Drum	Why do you want to juxtapose this "Yeu "character?
Lu (1999)	Guangnan Zhuang Bronze Drum	Guangnan Bronze Drum Decorative pattern
Su (1999)	Shizhai Mountain type, Lingshui Chong type, Majiang type, Zunyi type, Beiliu type, Lingshan type, Ximeng type bronze drum	The artistic value and cultural connotation of the bronze drum motifs
Sun et al. (2001)	Geometric motifs, animal motifs, plant motifs, religious motifs, three-dimensional motifs, and drum interior motifs.	Bronze drum decoration patterns in the National Palace Museum
Zhan (2002)	The DPBD in Yunnan	The Aesthetics of Bronze Drum decorative patterns in Yunnan
Bai (2003)	Sun pattern	The origin of the sun pattern on the bronze drum
Wang & Zhai (2004)	Geometric motifs, flora and fauna decorative patterns, figure narrative motifs	1.Classification of bronze drum decorative patterns.2. The relationship between bronze drum decoration patterns and ethnic history, cultural connotation
Su (2005)	The DPBD in southern of China	1.Classification of bronze drum decorative patterns.2. The cultural connotation of decorative patterns.
Long (2005)	Frog patterns of Zhuang bronze drums	The relationship between frog patterns, frog decorations and rice culture
Yi (2005)	The DPBD in southwest civil society	Types of bronze drum decorative patterns, cultural connotation, decorative patterns derivation
Qi (2006)	Bird pattern	Nipponippon pattern on Shizhaishan bronze drum
Chi & Zhang (2006)	The decorative patterns of the ancient bronze drum	The relationship between the decorative patterns of the ancient bronze drum and social life
Li & Huang (2007)	The decorative patterns of Wanjiaba bronze drum	1. What are the "diamond-shaped mesh pattern" and "four foots reptile pattern "on the Wanjiaba bronze drum? 2. The cultural connotation of the crocodile pattern on the inner wall of the bronze drum. 3. The reason for the arrows on the sun pattern
Li (2010)	Sun pattern	The origin and connotation of the sun pattern
Jia (2011)	The DPBD in China	The application strategy method of industrial product design in copper drum culture
Kong & Zheng	Beiliu type, Lingshan	The cultural connotation of three big type

(2013)	type, and Lingshuichong type bronze drums.	bronze drum
Jusoh et al. (2013)	Several bronze drum motifs and decorative patterns	Boat motifs on bronze drums and its relationship with the socio-culture of the people of the late prehistoric period
Hee & Hong (2014)	The DPBD in China	Patterns and symbolic system of bronze drum culture
Jusoh et al. (2014)	Bronze drum in Southeast Asia	The cosmology and social culture of decorative patterns
Wan & Wei (2015)	The DPBD in south China	The relationship between decoration and rice culture.
Kong & Wu (2015)	The dance decorative patterns of bronze drum in ancient China	The relationship between dance motifs and religious culture
Lizhan (2017)	The DPBD in Guangxi	Approaches to the inheritance and development of bronze drum motifs in jewelry application design
Xie (2016)	Bronze Drums of Upper Yunnan and Luo Yue	The Influence of the Bronze Drums of the Upper Dian System on the Ornamentation of Luo Yue Bronze Drums
Huang & Shi (2018)	The DPBD in China	Changes of bronze drum decorative patterns and modern design
Ding (2018)	The DPBD in China	Research on the application strategy of packaging design with bronze drum pattern
Chen (2019)	Twenty-two images of ancient bronze drums dance motifs	Classification and characteristics of dance patterns
Zhang (2020)	The decorative patterns of Shizhaishan type bronze drum in China	The cultural connotations of the Shi Zhai Mountain Bronze Drum Motif
Guo & Hu (2021)	The DPBD in China	Application of bronze drum pattern in table and chair design
Chen & Kim (2021)	The decorative patterns of Zhuang ethnic bronze drum in Guangxi	The application of bronze drum pattern in cultural and creative products
Wei & Lian (2021)	The DPBD in Guangxi	Visual cognition of bronze drum patterns on SPSS analysis
Peng & Zhu (2022)	The DPBD in Guangxi	Application of Guangxi bronze drums in lantern design

### 3. Result and Discussion

#### 3.1. The Main Problems of the DPBD in China

Through the comparative analysis of the papers, the research on the DPBD by Chinese scholars focuses on seven problems. The research questions (RQ) can be divided into the following aspects and [Table 3](#) shows the main problems and methods of the DPBD study in China.

RQ1: What was the relationship between ancient DPBD and social, economic, political, and cultural connotations?

RQ2: How did the decorative pattern change among different bronze drums?

RQ3: How was the DPBD classified?

RQ4: What was the kind and use of the DPBD?

RQ5: How was the DPBD created?

RQ6: How to inherit and develop the culture of the DPBD?

Table 3: The main problems and methods of the DPBD study in China

Authors	Research Questions						Method				
	R Q 1	R Q 2	R Q 3	R Q 4	R Q 5	R Q 6	Case study	Descriptive study	Multi-case study	Application study	Survey
Hong (1974)	√		√				√				
Wen (1978)				√				√			
Li (1979)		√	√				√				
Pan (1980)	√			√				√			
Shi (1981)				√				√			
Li (1983)		√	√				√				
Liang (1985)	√	√						√			
Yi (1987)				√				√			
Qi (1992)				√				√			
Li (1985)				√				√			
Niaoju & Huang (1997)	√	√		√			√				
Lu (1999)	√	√			√		√				
Su (1999)	√				√			√			
Sun et al. (2001)	√	√	√				√				
Zhan (2002)	√				√			√			
Bai (2003)	√				√			√			
Wang & Zhai (2004)	√		√				√				
Su (2005)	√		√				√				
Long (2005)	√						√				
Yi (2005)	√	√	√					√			
Qi (2006)				√			√				
Chi & Zhang (2006)	√		√							√	
Li & Huang (2007)	√			√			√				
Li (2010)	√	√			√		√				
Jia (2011)						√				√	
Kong & Zheng (2013)	√									√	
Jusoh et al. (2013)	√							√			
Hee & Hong (2014)	√							√			
Jusoh et al. (2014)	√							√			
Wan & Wei (2015)	√							√			
Kong & Wu (2015)	√	√						√			
Xie (2016)	√	√								√	

Lizhan (2017)				√	√		√
Huang & Shi (2018)	√			√		√	
Ding (2018)				√	√		
Chen (2019)	√	√				√	
Zhang (2020)	√	√	√		√		
Guo & Hu (2021)				√		√	√
Chen & Kim (2021)				√		√	√
Wei & Lian (2021)				√			√
Peng & Zhu (2022)				√		√	√

RQ1 is a leading research problem for scholars, including twenty-five papers, occupying with 60.98%. Sunbursts and their social, economic, political, and cultural connotations have received the most attention with nine articles, followed by birds of prey with eight papers. The research questions of the DPBD are not independent research but integrated with others. For example, when [Hong \(1974\)](#) focused on the romantic relationship between patterns and the social economy and politics of the past dynasties, he also studied the types and classifications. Moreover, [Li \(1979\)](#) researched the relationship between the DPBD, social life and culture in southern China and first learned about the change in the decorations. There are twenty-two articles, including more than two research questions. There are eleven articles researched on RQ2, occupying with 26.83%, including seventeen scholars. There are five articles from 1970 to 2000 and there are six articles after 2000 years. RQ3 and RQ4 have ten articles. Scholars studying RQ4 also study the relationship between it and social culture and life. For example, [Li and Huang \(2007\)](#) focused on determining, what kind of mesh rhombus pattern was, at the same time, researching the social significance of crocodile patterns. After 2010 years, some scholars paid attention to RQ6. There are eight articles and ten scholars researching the application of bronze drum decorative patterns.

### 3.2. The Main Points of View on These Problems

#### 3.2.1. The Relationship Between the DPBD and Social, Economical, Political and Cultural Connotations

Most scholars have studied the cultural connotation of the DPBD, mainly focusing on the sun motif, (flying) bird motif, clouds and thunder motif, and frog decoration. Different scholars have different views.

First, the sun motifs. The sun motif is the most frequently appeared on the bronze drums. eighteen papers and twenty-six scholars discuss the cultural connotations of the sun motifs. [Hong \(1974\)](#) believed that the sun motif comes from the ancient worship of nature gods. Because in ancient China, with low social productivity and a lack of awareness and understanding of natural phenomena ([Bai, 2003](#)), the rulers had the custom of making pilgrimages to the sun, and the ancient Lingnan also had the custom tradition of worshipping the sun. Ancient humans believed that the human life span is short, but the sun never dies ([Chi & Zhang, 2006](#)). The sun's performance greatly impacts human life ([Bai, 2003](#)), they need abundant sunlight to grow rice, and sunlight could help humans get more food ([Wan & Wei, 2015](#)). The sun motif shows the worship

of the sun god respect and agricultural timing (Zhang, 2020). Li (2010), furthermore, believed that the worship of the sun was a gradual process.

*"A combined study by the Metallurgical History Research Office of the Beijing Iron and Steel Institute, the Guangxi Zhuang Autonomous Region Museum, and the Yunnan Provincial Museum (1986, p. 88) concluded, from the perspective of actual manufacturing, that "from the analysis of some bronze drums with more casting defects, these drums may have taken the sun motif body part as the pouring entrance, using the central top pouring type." Li (2010)*

Lu (1999), Bai (2003), and Li (2010) argued that the sun motif was the scar left by the casting of the bronze drum, which was then artistically processed by the ethnic minority ancestors, and combined with the worship of the sun, eventually forming the basic concept and connotation of the sun pattern. In addition, Li (1983) argued that the sun motif symbolized the worship of the sun the insignia of clan nobility and tribal chiefs. Some scholars believe that the sun pattern is a pronunciation symbol, and the sound spreads around, forming layers of sound waves. In conclusion, Chinese scholars believed that many ancient ethnic groups in the south of China all worshipped the sun. Moreover, rulers have an important ruling role.

Second, (Flying) Bird Motif. Bird was also often appeared on the bronze drum. Thirteen papers and sixteen scholars discuss the cultural connotations of flying bird motifs. There were two main viewpoints. One view was that the bird motif represented the idea of hierarchy, while another was that it indicated to good harvest and happiness. The majority of them, such as Hong (1974), Chi and Zhang (2006) and Zhang (2020), believed that the bird on the bronze drum was a heron, and that the flying bird motif symbolized the image of ancient officials. Because in ancient China, humans use herons to represent ancient officials, such as their official clothes with the heron. Therefore, the bird is also symbolic of the notion of hierarchy (Bai, 2003) while subconsciously dividing social class and ritual order (Zhang, 2020). In addition, Pan (1980) argued that the bird was a Water Crane (snow crane). Because there was no weather forecast in ancient times, but Water Cranes can predict the weather. If it rained, they would tweet and passed up the mountain. Otherwise, they would tweet and passed down the mountain hill. The ancient people, whose scientific knowledge was relatively backward, believed that the Water Crane had the divine power to communicate with God (Su, 2005). It could summon rain and bring winds and rain, heralding the auspiciousness of a good harvest (Zhan, 2002).

Third, clouds and thunder motif. Eight papers and eleven scholars discuss the cultural connotations of the clouds and thunder motif. The motif of clouds and thunder is another extremely popular decoration on the surface of the bronze drum. Primarily found in the Leizhou region of western Guangdong and the adjacent southeastern Guangxi region of China (Pan, 1980). Because of much thunder in these places, ancient humans built the temple and drum of the god of thunder, etc. To pray for the protection of the god of thunder, and it was hoped that the god of thunder would bring plenty of rain for a good harvest (Zhang, 2020). Usually, clouds pattern was a realistic pattern; thunder pattern was a pattern of imagery (Lu, 1999). The clouds and thunder motif represents the social custom and religion believe (Chi & Zhang, 2006) and also symbolizes that ancient man had the idea of the heavenly realm (Wang & Zhai, 2004).

As a result, clouds and thunder imply the worship of clouds, thunder and nature by the minority groups in southern China.

Forth, the frog decoration. Frog decoration was another type of decoration often found on bronze drums. Seven papers and nine scholars discuss the cultural connotations of frog decoration. Frog was a three-dimensional decoration on the surface of a bronze drum in China. The frog decoration first appeared on the early bronze drums of the Lengshuichong type, where four counterclockwise frogs were decorated on the rim of the drum, and later on the drums of the Beiliu, Lingshan, Ximeng, and Lengshuichong types, which are all large bronze drums (Su, 2005).

Due to the similarity between a frog and toad, much scholarly attention was devoted to identify it as a frog or a toad. But whether it is a frog or a toad, they both have the same cultural connotation. Some scholars believed that the cultural sense of frog decoration was totem worship. Because in Yunnan Zhuang folklore, there is a frog girl who is the daughter of the Dragon King, helping people with rainfall and making fields, and people worship the frog girl with frog totems (Long, 2005). Frogs were totemic gods of some ancient southern peoples, with elements of totem worship (Su, 2005). It also was worshipped by agricultural peoples. Because in ancient times, most southern peoples had a tradition of growing rice, and the frog could eat pests that help crops grow.

What is more, when it rains, the frog will call. Ancient man believed that frog could bring rain, so the frog pattern symbolizes praying for rain (Wang & Zhai, 2004). Overall, the above cultural connotations are related to rain and crops. Lu (1999), Long (2005) and Yi (2005), however, argued that frog pattern was not only associated with rain and crops, but also with the reproduction of offspring, because the ancient Chinese believed that a prosperous population was a happy thing.

To sum up, the DPBD show various aspects of the production life, ritual customs, religious beliefs, ecological environment, thoughts, and emotions of the ancient bronze drum nation. It reflects people's good wishes for good wind and rain, prosperity, and happiness in life.

### 3.2.2. The Decorative Pattern Change Among Different Bronze Drums

There are few studies on change in the DPBD. It discusses three main aspects: the change in the DPBD, the evolution of layout, and the restrictive factors of change. Li (1979) divided into three types and seven styles of bronze drums, and the evolution pattern of decoration is studied according to this drum type.

*"First, patterns sometimes appeared and sometimes disappeared, such as, the cattle pattern was common in type Ib, type Is was not seen, but type Ic appeared as "Ding Sheng Pattern". Second, the same pattern had different changes, such as the pattern of the bird in type Ib was more realistic, but gradually programmed in type Ic. Third, from one pattern to another pattern, such as the feathered crown dancer in type Ib, change into the feathered crown bird pattern in type Ic, and then change into the "beast pattern" and even the "knight pattern" in type Ila". (Li, 1979)*

Sun (2001), however, argued that the feathered man changes to holding the flag on a boat pattern. Because it symbolizes a Taoist streamer, it is a floating streamer. Taoism is

one of the cultures of the Middle Kingdom of China. It is debatable whether Taoist culture has had an enormous influence on Chinese bronze drum people to the extent that it is reflected in the DPBD. Taoism is one of the native cultures of China, and it is debatable whether Taoist culture has had a profound influence on the bronze drum people to the extent that it is reflected in the DPBD. Otherwise, Sun (2001) believed that the triangular pattern evolved from the triangular pendant leaf pattern. But, Zhang (2020) argued that the serrated pattern formed by the triangle is derived from the shape of the teeth of crocodiles and other reptiles. Because the pottery excavated from the Zhu site had a crocodile sideways pattern, the sharp teeth are exposed. It is presumed that the early Neolithic people knew about crocodiles with sensitive teeth. However, no clearer more apparent arguments are given, and I believe that many objects in life can be transformed into triangles, not necessarily crocodiles. Zhang's (2020) arguments are not sufficient. The evolution of the triangle pattern needs further in-depth study.

### 3.2.3. *The bronze drum decorative pattern classified*

The classification of bronze drum decoration is another focus of scholars' research (twelve articles total). For the type of the DPBD researched by RQ3, most scholars agree with the division of geometric patterns, but the emphasis and division methods are different. The DPBD is divided into geometric patterns, animal patterns, plant patterns, religious patterns, and narrative patterns according to the content. Among them, geometric patterns designs are also named abstract patterns by scholars, which correspond to the concrete patterns in realistic patterns. According to the spatial relationship of the patterns, bronze drum decorative pattern is also divided into two-dimensional patterns and three-dimensional patterns. The three-dimensional patterns are mainly three-dimensional statues on the drum surface, such as frogs, horses, cows, birds, *etc.* The more controversial pattern is the cloud-thunder pattern. Lu (1999) classified it as a religious pattern and believed that the cloud pattern is vital in realism and the thunder pattern is freehand. Most scholars divide cloud and thunder patterns into geometric patterns or symbolic patterns. The author believes that the cloud-thunder pattern represents a symbol of a natural phenomenon and is an object visible to the naked eye of the ancient working people. Seeking reference from nature is artisans' most basic creation method, but the cloud-thunder pattern is not entirely the same as the actual cloud and thunder. Still, it adds to the imagination and re-creation of the craftsman. So, the author agrees that the cloud-thunder pattern is a freehand geometric pattern.

### 3.2.4. *Kind and Use of the DPBD in China*

This part research questions focus on what kind of bird it is, what the boat uses on the bronze drum is and why the number of sun rays is twelve. And these problems are common among scholars. None of these issues have yet reached a consensus and require further study.

First, what kind of bird was it? A flying bird with a long beak and long feet appeared very on the bronze drums. Plenty of scholarly attention was devoted to determining what kind of bird it was (See Table 4). Li Weiqing believed that it was a heron. Because the Dianchi area, where the Shizhai Mountain bronze drum was unearthed, had conditions for the heron to survive. There are many lakes in the dam area of Yunnan, which is a suitable environment for waterfowl to inhabit. The familiar heron is used as a motif, which is simulated from its auspicious state of being good at catching fish and has the

meaning of good fortune. Herons are birds of the heron family, several of which are commonly known as Egretta Gurzetta, so some scholars also believe that the bird on the brass drum is Egretta Gurzetta. Pan (1980), However, argued that the bird was not Egretta Gurzetta because the Water Crane (snow crane) “looks like Egretta Gurzetta”, people mistook it for heron. According to Pan (1980), the Water Crane has the characteristic of “being able to weather the wind and rain, and if there is wind and rain, it sings and goes up to the mountain. Otherwise, it sings and goes down to the sea.” Hence, in ancient times there was no weather forecast so, people often used the crane as a basis for detecting weather changes.

Moreover, Qi (1992, 2006) argued that the bird was not Egretta Gurzetta, but Nipponippon. Because the long beak of the ibis is much more prominent than that of the egret, the bird on the early bronze drums has a long, pointed beak, and the long beak of the ibis is much more prominent than that of the egret. The bird on the drum has large eyes, which are characteristic of the crested ibis. Still, other scholars, Yi (1987) argued that the flying bird was the legendary hemlock, a poisonous and vicious bird that could kill people in ancient China, and that the bronze drums used for burial were decorated with the “sun” and a hornbill that sounded like a drum. At the same time, Yi (1987) believes that the anthracoceros albirostris and the hemlock were the same. The first appearance of hemlock as a messenger to the gods. Successive commentaries have cited the hemlock’s name “Yun Ri” and its similarity to the hornbill. Table 4 shows the Plenty of scholarly attention was devoted to determining what kind of bird it was.

Table 4: The kind of bird

	The kind of bird					
	Heron	Water Crane	Egretta gurzetta	Nipponippon	Anthracoceros albirostris	Crow
Hong (1974)	√					
Wen (1978)			√			
Pan (1980)		√				
Jiang (1982)				√		
Qi (1992,2006)				√		
Yi (1987)					√	
Zhan (2002)	√					
Bai (2003)						√
Yi (2005)	√		√	√		
Chi & Zhang (2006)	√					
Zhang (2020)		√		√		

*Second, what was the use of the boat on the bronze drum?* There were many motifs on the bronze drum; boat motif was one of them. A large number of scholars were concerned about what the purpose of the boat. Wen (1978), the famous Chinese bronze drum scholar, believed that it was a racing boat. Then Feng (1974), the Chinese ethnologist and archaeologist, agreed with Wen You. Because there is no horizontal wood between the sides of the ship, once the sea encounters a storm, it is straightforward to capsize. And there was no rudder, no mast, and only short oars, so it could not travel far. Shi (1981), however, argued that the boat was not used for racing and entertainment but for crossing the sea. Because, according to the information provided by history, geography, archaeology and ethnology, the Yue people, who settled on the southeast coast, have been good at sailing since ancient times. The Yue people, with their various ships,

traveled along the monsoonal wind belt, and to travel between the Pacific Ocean and even to the Americas. Ancient stone anchors from China have been found in the “shallow seas” of California, North America. Anchors are located on the Western Han Dynasty bronze drum ship pattern, which is a good indication that these ships were crossing sea ships. Still other scholars, like [Jusoh et al. \(2013\)](#) argued that both the racing and crossing the sea were purpose. The manifestation behind the boat motifs was the phenomenon of the life of the people of the late prehistoric period and its relationship with the activities of maritime and trade, elements of rituals and beliefs, regatta, creativity, intellect, and many others.

*Third, why the number of sun rays was twelve?* The sun was the most common pattern on the bronze drum, and most sun pattern have sun rays. On the early drums, the number of rays varies, but on the later ones, the number of rays becomes twelve. So, many scholars were determined to discuss why it should be 12 and no other number. [Li \(1983\)](#) believed that the number twelve might be related to the concept of twelve branches before and after the Eastern Han Dynasty. The twelve represent the twelve souls, which will cross twelve roads, twelve bridges, twelve villages, and twelve gates. [Liang \(1991\)](#), however, argued that the number twelve was just another name for pre-Qin Baiyue. The social structure of Baiyue in the early Qin Dynasty can be roughly expressed as follows: Baiyue→Twelve parts→Ou Luo an Ou, Ou can be regarded as the representative of the initial unification of Baiyue, twelve parts respectively lead Baiyue. Moreover, [Pan \(1980\)](#) and [Wang \(2019\)](#) believed that twelve means the twelve months of the year and the 12 earthly branches, which were heavily influenced by Han culture and implied the ideology of the transformation of yin and yang and the worship of the sun. All Chinese scholars did not deny the views of others, and they are also all agreed that twelve represented the importance of the ancient bronze drum nation. It needs further in-depth study.

### 3.2.5. Generation of the DPBD in China

How the DPBD Generation has been studied by many scholars who have a focus on the origins of motifs such as the sun, feather shape, and circle patterns. The earliest bronze drum decoration came from the Wanjiaba-type bronze drum and originally only had a simple sun pattern. [Lu \(1999\)](#) believed that the sun pattern was originally a trace formed by casting unconsciously, but just a guess without certification. When to in 1986, it was proven by the Metallurgical History Research Office of the Beijing Iron and Steel Research Institute, the Guangxi Zhuang Autonomous Region Museum, and the Yunnan Provincial Museum. [Su \(1999\)](#) believed that the feather shape patterns and circle patterns on the bronze drums were all observed by artisans to observe keep the characteristics of natural objects, using raw natural materials such as leaf veins, bird feathers, wooden sticks, pebbles, *etc.* created. However, some scholars believe that the circular pattern was transformed from a bird's eye. Although most Chinese scholars have a standard view on the sun pattern, other patterns that how to be created need further research and proof.

### 3.2.6. Inherit and Develop the Culture of the DPBD in China

Among the literature reviewed, there are eight pieces of literature discussing the protection and inheritance of the DPBD in China. Contemporary design application research has gradually become the primary means of protecting and inheriting the DPBD ([Wu, 2019](#)). [Ding \(2018\)](#) believed that integrating the decorative art of bronze

drums into contemporary visual design, architectural space design, and landscape environment design helps enrich modern design themes and elements also contributes to the further development and continuity of bronze drum culture.

However, most people are ignorant about the bronze drum patterns in the landscape design. The identification of the bronze drum symbols remains in the general impression of the shape and pattern organization, and the understanding of the shape and meaning of the specific pattern units is blank (Zhang, 2021). Although it has a rich national cultural heritage in the southwest region of China, developing artistic and creative products has not shown improvement. To a certain extent, consuming products has led to a lag in applying of bronze drum cultural elements in artistic and creative products (Wu, 2021). Applying the three-dimensional spatial modeling and decorative patterns of Guangxi bronze drums in modern design is conducive to improving product cultural value, promoting the spread of Guangxi bronze drum culture, and inheriting it in daily applications (Peng & Zhu, 2022). However, according to SPSS data analysis, the average difficulty of combining Guangxi bronze drum decoration with non-traditional methods is 3.24, which means that people think that innovative bronze drum decoration design faces more severe challenges. The application of bronze drum decoration requires a new carrier to spread and attract young groups and break through the protection dilemma of bronze drum decoration (Wei & Lian, 2021).

The public's perception of the DPBD in the bronze drum landscape design is attached to some experiential and highly interactive landscapes with tourists. In contrast, some landscapes that are commemorative and ornamental, or landscapes with limited interaction, are accessible to dissatisfaction (Zhang, 2021). New media is a form of computing media that relies on computers and the Internet for redistribution. Some examples of new media are computer animation, video games, human-machine interfaces, interactive computer installations, websites, and virtual worlds (Manovich & Lev, 2003; Leinonen, 2010). From the perspective of new media, it will systematically and organically integrate scattered text, pictures, sounds, videos, and other information, which can be more conducive to further promoting the protection and inheritance of Guangxi bronze drum decorations (Zhang, 2021). Record the decorative patterns one by one through photography, video, audio recording, etc., and successively make them into CD-ROMs and edit them into books, preserve them well in the form of pictures and texts, and make them networked, inheriting the bronze drum culture. It will be more vivid, compelling, effective, and durable (Wan et al., 2022). The development of new media has a direct and vital influence on the application of bronze drum decoration language. In the era of rapid growth in the information society, further new media communication is the primary way to spread the art of bronze drum decoration effectively (Yang, 2020).

However, Wei and Lian (2021) argued that with the rapid development of new media technology, there are still many problems to be solved in researching unique new media bronze drum decoration. Because the media and videos of the Guangxi bronze drum are scattered they have not formed a new media with systematic diversification and organic whole. For example, the two-dimensional animation "Legend of the Bronze Drum" and the TV series "Bronze Drum Code," etc. did not effectively rely on digital media to achieve excellent bronze drum culture on the website, public account, Weibo, online APP, and video community client front. The space dimension of the inheritance and dissemination of bronze drums is narrow, and a systematic and effective new way of dissemination and inheritance of bronze drum culture has not yet been formed. Therefore, the inheritance of the spirit of bronze drum culture and bronze drum

decoration is not optimistic. It requires the joint efforts of people from all walks of life to inherit and develop bronze drum culture with the times (Yang, 2020). Therefore, the protection and inheritance of bronze drum decoration from the perspective of new media is a topic worthy of continued observation and research (Wei & Lian, 2021).

Based on the current evidence, we conclude that most scholars believe that new media and application design can effectively promote the inheritance and development of the DPBD. However, there is not enough empirical research data to prove the effectiveness of new media and application design on it.

### 3.3. Research Methods of the DPBD

There are five main research methods (see Table 3): case study, descriptive study, multi-case study, application study and survey. The case study and multi-case study have twenty-two papers. These papers were primary from the perspective of archaeology, geography, ethnography, history, etc. It is qualitative, while there is very little quantitative research. There are eight papers on application design with the bronze drum decoration pattern. However, applied research based on theoretical design always uses multi-case studies and applied studies.

Moreover, half of these studies only improve strategies and suggestion. Descriptive study by the text analysis method is more common, accounting for 43.9%. It is noteworthy that there are very few quantitative studies, only one, and the empirical study of the validity of the bronze drum decorative pattern is a significant gap in the research methodology.

### 3.4. Research Trends of the DPBD in China

Summarizing all the research questions show trend from theoretical to applied research. Academic research is relatively affluent and still in-depth, from macro to micro. Among them, the cultural connotation of decoration is the object of continuous research. There are still many problems to be further verified in the thematic demonstration of decoration, especially for bird patterns. The things that have been studied are mainly focused on the cultural connotations of sun patterns, bird patterns, frog decoration, and clouds and thunder patterns. All of them have been studied in more depth specifically. Research on the cultural connotations of the sun motif has converged, with Chinese scholars suggesting that many ancient peoples of southern China worshipped the sun. In addition, rulers had a crucial ruling role. There are two main views on the cultural connotations of the flying bird motif. One idea is that the flying bird motif represents the concept of hierarchy, while the other view is that it indicates abundance and happiness. Two views still need to be studied through more empirical arguments. Although most scholars believe that the bird in the bird motif is a heron, there are still many controversies about what exactly a heron is, and further in-depth research is needed. Although the frog pattern is also controversial, whether it is a frog or a toad, its meaning is to pray for good wishes such as good winds and rain, and prosperity of children and grandchildren. In addition, the use of the boat pattern and the number of sun rays twelve are also issues that have yet to be further argued, and no unified opinion has been formed.

Among them, applied research is a research direction that has received more attention since 2010, especially design research, which has a wide range of market application

prospects. However, scope of research is mainly concentrated in the southwest and south of China, such as Guangxi. While the research methods of applied design are research mainly case studies and application-based research, empirical research methods are a massive gap in applied design research. This influence is not conducive to the wide recognition and dissemination of bronze drum decoration patterns. With the national requirements for the digital transformation of cultural and creative industries, the research of the DPBD in the field of digital (Wan et al., 2022) and new media will become a new hot spot in the future.

#### **4. Conclusion**

Based on the systematic review of the DPBD research in China, the shortcomings of the current research are summarized. First, the theoretical studies are not comprehensive enough. It is mainly in archaeology, ethnology, history, and geography, and less in semiotics, psychology, and social cognition. Secondly, the research methods are not sufficient. Qualitative studies such as case studies, descriptive studies, and applied strategy studies are the main ones, and quantitative studies such as questionnaire surveys and statistical data analysis are lacking. Although application research has gradually become the focus of scholars' attention, the lack of empirical research on application effects has led some application research results to remain in the concept and feasibility theory. Finally, theoretical research needs expand the research field, and the application of academic research methods need to be further improved.

Studying the DPBD in China was not the first to begin in the world. Still, after the 1970s, the study of the DPBD gradually received the attention of Chinese scholars along with the study of bronze drum culture. The research on the DPBD in China is relatively extensive, but it mainly focuses on the relationship between sun, bird, frog, cloud and thunder, boat, etc. and ancient society, life, economy and cultural connotation, the change of decorative pattern, classification, origin, and the kind of objects represented by the decorative pattern and their uses. There are also some other issues, such as the problem of the categorization of decorative patterns and the problem of the transmission path, which some scholars have studied. Still, they are not fleshed out and systematic enough. The research content and methodology were not supported by principles and theories. The biggest problem facing the conservation and transmission of the DPBD in China is the age gap of the inheritors, and the need to adopt more effective transmission methods for younger audiences. The study of applied design in the DPBD is gradually becoming a hot spot for scholars, especially in the field of digital and new media. Still, the empirical study of the effectiveness of design results is a huge gap in the study of the conservation and transmission of bronze drum decorative pattern. Therefore, it is necessary to conduct future research to bridge the knowledge gap so that the bronze drum motifs can be effectively inherited and developed.

#### **Acknowledgement**

This research would not have been possible without the support of my supervisor, Dr. Julina.

#### **Funding**

No funding.

## Conflict of Interests

The authors reported no conflicts of interest for this work and declare that there is no potential conflict of interest with respect to the research, authorship, or publication of this article.

## References

- Bai, T.M. (2003). A brief talk on the origin of bronze drum and the sun decorative pattern. *Journal of Wenshan Teachers' College*, 4, 255-256. DOI: CNKI: SUN: WSSZ. 0. 2003-04-003
- Chen, G.B. (2019). Types and Features of Ancient Dian People's Bronze Drum Dance. *Journal of Beijing Dance Academy*, 02, 92–102. CNKI:SUN:BJWD.0.2019-02-015
- Chen, Y., & Kim, J. (2021). The visual expression of bronze drum decoration from the perspective of Chinese Zhuang Nationality's creation culture. *The Journal of Humanities and Social sciences*, 21. <http://dx.doi.org/10.22143/HSS21.12.4.42>
- Cheng, N.Y. (1984). Sichuan Miao embroidery pattern and bronze drum. *Guizhou Ethnic Studies*, (04):162-170. DOI: CNKI:SUN:GZNY.0.1984-04-021
- Chi, W.Y. & Zhang, R. (2006). The relationship between the decorative patterns of ancient bronze drums and social life. *Movie Review*, 16, 82. DOI: CNKI:SUN:DYPJ.0.2006-16-043
- Ding, J. (2018). Application of bronze drum pattern design elements in modern tea packaging design. *Fujian Tea*, 40(11),143. Doi: CNKI: SUN: YSTS. 0.2010-04-014 DOI: 10.3923/sscience.2013.290.294
- Feng, H.J. (1974). *A Study of Bronze Drums Unearthed in Jinning of Yunnan Province*. Cultural Relics, Competing.
- Guo, L.L. & Hu, S.K. (2021). Baise University; Jiangxi College of Construction. *The value reappearance of Guangxi traditional culture in the context of contemporary design*. *Packaging Engineering*, 42 (8), 248-254. DOI: 10.19554/j.cnki.1001-3563.2021.08.033
- Han, X.R. (1998). The present echoes of the ancient bronze drum : nationalism and archeology in modern Vietnam and China. *A Journal of the Southeast Asian Studies Student Association*, 2(2). <http://www.hawaii.edu/cseas/pubs/explore/han.html>
- Hee, H.E. & 홍지예 (Hong Z.R.) (2014). Art pattern and rituals analysis of symvolic structure of bronze drum. *The society of China Culture in Korea*, 41, 237-258. Doi: <http://www.kci.go.kr>
- Hong, S. (1974). Studies on the ancient bronze drums of Kwangsi. *The Chinese Journal of Archaeology*, 1, 45-90, 188-191. DOI:CNKI:SUN:KGXB.0.1974-01-002
- Huang, J. & Shi, Y.Z. (2018). The rheology of bronze drum decoration art and the reappearance of modern design. *Social Scientists*, 3, 156-160. DOI: CNKI:SUN:SHKJ.0.2018-03-025
- Jia, C.H. (2011). Aesthetic study of bronze drum and its application in industrial product design. *Packaging Engineering*, 32 (20): 53-56. DOI:CNKI:SUN:BZGC.0.2011-20-014
- Jiang, T. Y. (1982). *The history of bronze drum*. Heritage Press
- Jiang, T.Y. (1999). Xu Songshi and bronze drum research. *Communication of Ancient Chinese Bronze Drum Research*, 15, 47-49
- Jusoh, A., Sauman, Y., Abdul, R. & Nik, H. S. N. (2013) The significance of the boat motifs on bronze drums and its relationship with the socio-culture of the people of the late prehistoric period. *Social Sciences (Pakistan)*, 8(4), 319-326.

- Jusoh, A., Sauman, Y., Abdul, R. & Nik, H. S. N. (2014) Cosmology element in the decorative motifs of bronze drums and its relationship with the socio-culture of the people of the Late Prehistoric period in Southeast Asia. *Social Sciences (Pakistan)*, 9(6), 460-466. DOI: 10.3923/sscience.2014.460.46
- Kitchenham, B., Breretonand O. & Budgen.D. (2017) *Protocol for extending an existing tertiary study of systematic literature reviews in software engineering*. Keele University.
- Kong, H.X. & Wu, D.N. (2015). The southern ancient bronze drum dance decorations and religious culture. *Journal of Beijing Dance Academy*, 1, 79-82. DOI: CNKI:SUN:BJWD.0.2015-01-016
- Kong, Y.L. & Zheng, M.Y. (2013). The Cultural Connotation of Three Large-shaped Bronze Drums in the Lingnan Region. *Musicology in China*, 02, 50-55. DOI:10.14113/j.cnki.cn11-1316/j.2013.02.019
- Lan, F. (1983). Bronze drum unearthed in Yibin, Sichuan. *Archaeology*, 12, 1112-1121, 1158. DOI:CNKI:SUN:KAGU.0.1983-12-008
- Leinonen, T. (2010). *Designing learning tools. Methodological insights*. Aalto University.
- Li, K.S. & Huang, D.R. (2007). Restudy of Wanjiaba-style bronze drums. *Acta Archaeologica Sinica*, 2, 207-232.
- Li, W. (1985). A bronze drum decorated with a three-dimensional frog. *Guangxi Ethnic Studies*, 04, 100-102. DOI:CNKI:SUN:MZYA.0.1995-04-013
- Li, W.Q. (1979). Classification and dating of bronze drums in southern China. *Archaeology*, 1, 66-78, 106. DOI:CNKI:SUN:KAGU.0.1979-01-013
- Li, W.Q. (1983). On bronze drum art. *Art Research*, 1, 61-72, 60. DOI:CNKI:SUN:MUSE.0.1983-01-020
- Li, W.Q. (1991). Figurative Patterns on Ancient Bronze Drums. Ancient Chinese Bronze Drum Research Society. (eds.) *New Explorations in Bronze Drums and Bronze Culture - Proceedings of the Second International Symposium on Ancient Bronze Drums and Bronze Culture in Southern China and Southeast Asia* (pp. 114-126). Guangxi Ethnic Publishing House.
- Li, Y.Q. (2010). Historical roots and cultural connotations of the pattern of sun on ancient. *Arts Exploration*, 24(4), 35-36+142. DOI:10.13574/j.cnki.artsexp.2010.04.059
- Liang, T.W. (1985). The ornamentation, shape and cosmology of the Zhuang ancestors of the bronze drum. *Journal of Minzu University of China (Philosophy and Social Sciences Edition)*, 2, 59-63. DOI:10.15970/j.cnki.1005-8575.1985.02.013
- Liang, T.W. (1989). A comparative study on the modeling and decoration of bronze drums of Zhuang and Southeast Asia. *Journal of the Central University for Nationalities*, 5, 50-55. DOI:CNKI:SUN:ZYMD.0.1989-05-011
- Liang, T.W. (1991). The relationship between "12" and the Zhuang-Dong language groups. *Journal of the Central Academy of Nationalities*, 02, 41-44. DOI: 10.15970/j.cnki.1005-8575.1991.02.009
- Lizhan, J. X. (2017). Application of Guangxi bronze drum's ornamentation to modern jewelry design. *Packaging Engineering*, 38(6), 42-47. DOI:CNKI:SUN:BZGC.0.2017-06-013
- Long, C.N. (1996). The evolution of the bronze drum body decoration and its symbolic meaning. Ancient Chinese Bronze Drum Research Society. (eds.) *Re-exploration of bronze drums and bronze culture - Proceedings of the Third International Symposium on Ancient Bronze Drums and Bronze Culture in Southern China and Southeast Asia* (pp. 70-78). Journal of Ethnic Arts.
- Long, F. (2005). The historic culture intention of Zhuangs' bronze drums. *Journal of Wenshan Teachers' College*, 1, 17-22. DOI: CNKI: SUN: WSSZ.0.2005-01-004

- Lu, G.T. (1999). *Guangnan Zhuang and bronze drums*. *Ethnic Art Research*, 4, 23-31. DOI: 10.14003/j.cnki.mzysyj. 1999.04.002
- Manovich, Lev. (2003) "New Media from Borges to HTML". The New Media Reader. Ed. Noah Wardrip-Fruin & Nick Montfort. Cambridge, Massachusetts, 13–25.
- Moher, D., Liberati, A., Tetzlaff, J., Altman, D. G., Altman, D., Antes, G., ... & Tugwell, P. (2009). Preferred reporting items for systematic reviews and meta-analyses: the PRISMA statement (Chinese edition). *Journal of Chinese Integrative Medicine*, 7(9), 889-896. <https://doi.org/10.1016/j.ijsu.2010.02.007>
- Niaojun, L.C. & Huang, C.G. (1997). About a bronze drum I brought home. *Guizhou Ethnic Studies*, 69(01), 142–149. DOI:CNKI:SUN:GZNY.0.1997-01-023
- Pan, S.X. (1980). The significance of Guangxi bronze drum decoration. *Proceedings of the Ancient Bronze Drum Symposium: Heritage Press*, 1, 190-195.
- Peng, R., Lei, L., & Zhu, X.B. (2022). Research on Design Deconstruction and Application of Cultural and Creative Elements of Bronze Drums in Guangxi. *Packaging Engineering*, 43(6), 297–306. DOI:10.19554/j.cnki.1001-3563.2022.06.039
- Qi, Q.F. (1992). Early bronze drum bird patterns and the nipponippon. *Guangxi Ethnic Studies*, 2, 59-62
- Qi, Q.F. (2006). Cultural interpretation of nipponippon patterns on bronze drums in Shizhai Mountain, Jinning. *National Art*, 3, 38-48. DOI:CNKI:SUN:MZYS.0.2006-03-006
- Schardt, C., Adams, M. B., Owens, T., Keitz, S., & Fontelo, P. (2007). Utilization of the PICO framework to improve searching PubMed for clinical questions. *BMC medical informatics and decision making*, 7(1), 1-6. <https://doi.org/10.1186/1472-6947-7-16>
- Shi, Z. J. (1981) Is the boat on the bronze drum a cross-sea boat? *Guizhou Social Sciences*, 6, 69-78.
- Su, H.P. (2005). On the bronze drum art of minorities in Southern my country. *Journal of Northwest University for Nationalities (Philosophy and Social Sciences Edition)*, 6, 65-68. DOI:CNKI:SUN:XBMZ.0.2005-06-011
- Su, X.L. (1999). The value and significance of bronze drum art. *Arts*, 11, 80-82. DOI: 10.13864/j.cnki.cn11-1311/j.1999.11.013
- Su, X.L. (1999). The value and significance of bronze drum art. *Art Magazine*, 11, 80-82. DOI:10.13864/j.cnki.cn11-1311/j.1999.11.013
- Sun, G.G., He, L. & Jiang, Y. et al. (2001). The decoration of bronze drums in the Palace Museum. *Journal of the Palace Museum*, 3, 42-51, 96. DOI: 10.16319/j.cnki.0452-7402.2001.03.007
- Wan, F.B. & Wei, D.F. (2015). On the cultural circle of bronze drums. *Guangxi Ethnic Studies*, 1, 109-115. Doi: CNKI: SUN: MZYA. 0. 2015-01-015
- Wan, F.B., Jiang, T.Y., Wei, D.F., Liao M.J., Jiang Y., & Wu W.F. (2013). *Research on the Development, Inheritance and Protection of Bronze Drum Culture of Daqi Bronze Drum*. Beijing: China Science and Technology Press.
- Wan, F.B., Wei, D.F. Xin, X. & Lu W.H. (2022). *Research on the Protection and Inheritance of Bronze Drum Culture in China and Southeast Asia*. Beijing: China Science and Technology Press.
- Wang, C.H. (2019). On the 'bronze drum with sailboat pattern' collected in Tianjin M. *Sichuan Cultural Relics*, 2, 64-68.
- Wang, W.G. & Zhai, G.Q. (2004). Bronze drum and bronze drum decorative Art. *Studies In National Art*, 4, 19-24, 29. DOI: CNKI: SUN:MYSY.0.2004-04-003
- Wei, J. & Lian, G. (2021). Research on the visual language application of Guangxi bronze drum decorations based on SPSS analysis, *2021 2nd International Conference on*

- Information Science and Education (ICISE-IE)*, 2021, pp. 601-604. DOI: 10.1109/ICISE-IE53922.2021.00142.
- Wen, Y. (1978). A trial interpretation of several patterns on the bronze drum. *Thinking*, 6, 41-45. DOI: CNKI:SUN: SXZX.0.1978-06-009
- Wu, D.Q. (2019). Functional innovation and structural "Transplantation": A study on the creative transformation of the bronze drum culture of the Zhuang. *Guangxi Ethnic Studies*, 5, 154-160. DOI:CNKI:SUN:MZYA.0.2019-05-019
- Wu, X. H. (2021). *Research on the use of bronze drum cultural elements in Chinese cultural and creative products* [Unpublished master's thesis]. Guangxi University for Nationalities.
- Xie, C.A. (2016). The influence of ancient Dian Dynasty bronze drums on the shape and decoration of Luoyue bronze drums. *National Art*, 6, 62-68. DOI:10.16564/j.cnki.1003-2568.2016.06.009
- Yang, M.X. (2020). On the development of the emblazonry of bronze drums in Guangxi from the perspective of New Media communication. *Journal of Hezhou University*, 36(3), 127-130. DOI:CNKI:SUN:YSPJ.0.2020-12-082
- Yi, J.X. (2005). Artistic exploration of decorative patterns on folk bronze drums in Southwest China. *Journal of Guangxi University for Nationalities (Philosophy and Social Science Edition)*, 5, 95-99. DOI:CNKI:SUN:GXZS.0.2005-05-016
- Yi, X.Z. (1987). A new interpretation of the image of "Four Flying Birds" on the drum face of the bronze drum. *Archaeology*, 6, 551-554. DOI:CNKI:SUN:KAGU.0.1987-06-009
- Zhan, Q.Y. (2002). Aesthetic implications in Yunnan bronze patterns. *National Art Research*, 5, 25-29. DOI:10.14003/j.cnki.mzysyj.2002.05.004
- Zhang, J.H. (2021). Investigation and analysis of public opinion on landscape bronze drum patterns. *Commercial Culture*, 15, 102-103. DOI: CNKI:SUN:SYWH.0.2021-15-051
- Zhang, W. (2020). Cultural interpretation of Shizhaishan type bronze drums and their ornaments from the dimension of pluralistic integration. *Journal of Guangxi University for Nationalities (Philosophy and Social Science Edition)*, 42(1), 157-166. DOI:CNKI:SUN:GXZS.0.2020-01-026