

# RESEARCH ON THE APPLICATION OF CULTURAL CONNOTATION INTO LINGUISTIC LANDSCAPE IN URBAN RENEWAL OF ZHOUKOU CITY

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## ABSTRACT

In the midst of cultural modernisation and urbanisation, the researchers conducted this study with the aim of unearthing the cultural connotations and the use of Linguistic landscape in Zhoukou City, Henan Province, China. The scope of the study covers residential areas, historical and cultural district, agricultural areas and areas rich in natural resources. A qualitative research method was used to assess the application of cultural connotations into Linguistic landscape in urban regeneration design through descriptive analysis. The results of the study summarise the cultural connotations of Zhoukou City, including ritual culture, Laozi culture, religious culture, etc., as well as regional folk culture with distinctive regional characteristics, which have important cultural values. The integration of culture has led to better cultural accumulation in urban renewal design, and these reflect the importance of cultural connotation and cultural integration into Linguistic landscape application in urban renewal design. At the same time, it explores how these cultural contents influence and inspire the design application of cultural inheritance and translation as well as visualisation of Linguistic landscape in historical and cultural district in the process of urban renewal.

**Keywords:** Cultural Heritage, Urban Renewal, Historic District, Linguistic Landscape, Cultural Inheritance, Zhoukou City

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## INTRODUCTION

In the context of accelerated urbanisation and the gradual erosion of traditional culture, numerous urban regeneration projects and landscape renovation designs for historical and cultural neighborhoods are confronted with the prospect of homogenisation or even the extinction of urban culture and Linguistic landscapes. The utilisation of multiple languages in public spaces has garnered the attention of numerous researchers examining the phenomenon of linguistic diversity. The field of Linguistic landscapes has seen a surge in interest from a range of academic disciplines, including but not limited to sociolinguistics, semiotics and economics. This growing focus has resulted in a significant influx of scholars who are conducting research in this area. The majority of traditional architectural ensembles, monuments and cultural heritage found in urban district are presented and externalised through distinctive visual linguistic landscapes. These landscapes serve to demonstrate the history, culture and values of the area. In order to protect and inherit the cultural heritage, it is of great value and significance to study the cultural connotation of the city, as well as the application of Linguistic landscapes in the urban renewal and landscape renovation design of historical and cultural district. Through in-depth excavation and research of urban cultural heritage, the connotation and value of regional culture can be better understood and stronger support can be provided for its protection and inheritance. Simultaneously, Linguistic landscapes represent a pivotal component of the urban cultural landscape, serving to more effectively showcase the regional cultural characteristics of the city through the medium of artistic design. The promotion of linguistic landscapes in urban district has been demonstrated to facilitate the exchange of local ethnic cultural diversity. Furthermore, this exchange has been shown to promote the prosperity and development of culture, and to assist in the construction of the local image of cities and historical and cultural district.

### Research Objectives

This study aims to explore the urban cultural connotation of Zhoukou City, including its history, culture, religion and other aspects, as well as its application in the design of urban renewal and renovation. The study provides insights for the protection and development of local cultural and linguistic landscapes in the application of urban renewal and landscape renovation design of historical and cultural districts.

## LITERATURE REVIEWS

### Zhoukou History and Culture

Zhang (2022) posits that there are more than 250 different interpretations of culture in the world. This concept refers to all things in the world, such as cosmic culture, religious culture, humanistic culture, natural culture and so on. At the meso level, according to geographic location, there is a difference between eastern and western culture. At the micro level, culture may be defined as encompassing a variety of cultural and artistic disciplines, including, but not limited to, literature, theatre, poetry, music, dance, painting and architecture, as well as design. Zhiyuan Ren (2012) posits that the city constitutes a physical space wherein human society has evolved to a particular stage, serving as a means for human beings to adapt to the environment. Urban culture is defined as the product of generation, development and evolution within an urban environment, reflecting the temporal, societal, systemic, economic, folkloric, scientific and technological, artistic, ethical and religious beliefs, and other such phenomena, of the society that is studied. It is the crystallisation of human practice, the memory of urban development, the spirit of the city's development, and the individuality of the city's development. Urban culture is defined as the historical and developmental record of a city, and as a reflection of the lives of its inhabitants. The construction of the city should not be confined to pure space planning and architectural design, but should integrate culture comprehensively, from the appearance to the image.

Zhoukou is located in the south-east of Henan Province. The region has a long history and is characterised by a rich cultural heritage. From the Xia and Shang Dynasties to the present day, the city of Zhoukou has undergone numerous historical phases and has accumulated a wealth of cultural connotations. Wang and Wu (2024) Zhoukou City was developed from Zhoujia Ferry, known as Little Wuhan because of its location at confluence of the Sha River, Ying River and Jialu River, and historically was a major transport town, one of the 'Four Famous Towns of Central Plains' during Ming and Qing Dynasties, with a large number of merchants and traders. Historically, it functioned as a prominent transportation hub and was recognised as one of the 'Four Famous Towns of the Central Plains' during the Ming and Qing Dynasties. The city boasted a substantial merchant and trading population.

The city's historical significance as a major hub of waterways and transportation networks is well-documented, and it was recognised as one of 'Four Great Towns of the Central Plains' during the Ming and Qing Dynasties. The city's commercial activity was notably robust, with a significant presence of merchants and traders. The thoroughfare was known by the name 'the thoroughfare of ten provinces'. The city in question was once part of the state of Chen, and it served as the former capital of Fuxi and the hometown of Laozi. The civilisation in this area has a history that spans 6,000 years, and it is considered one of the birthplaces of Chinese culture. An examination of historical records indicates that the primary focus of activities by ancient figures such as Fuxi and Nuwa was located in the Huaiyang area of Zhoukou. The Taihao Fuxi Mausoleum in Huaiyang is one of the oldest surviving emperor's tombs in China, indicating that Fuxi culture has been rooted in Zhoukou for a considerable time. Li Mingliang and Zhou Wei (2020) demonstrated that Zhoukou had human activities during the Neolithic period, and the sites of the Longshan and Yangshao cultures were widely distributed in the area, thus establishing it as one of cradles of ancient Central Plains culture.

### **Zhoukou Local Culture**

In the analysis of the current status of research on Zhoukou culture, Gao (2020) noted that the city has been recognised as 'the pioneer of China, the sacred site of the Nine States'. It possesses a rich and vibrant intangible cultural heritage, and its cultural research has been conducive to the inheritance and protection of cultural heritage. Ren Dong (2022) thesis posits that culture serves as the vital essence of a nation, representing the collective spiritual foundation of its populace. It is a repository of the nation's historical memory, encompassing the rich tapestry of ancient life and the living cultural genes that reflect the nation's profound wisdom and spirit. Cultural self-confidence can be defined as a country or nation's recognition and practice of its own cultural values, and a firm confidence in the vitality of its own culture. Li Jiong (2017) asserts that the city of Zhoukou possesses a rich historical tapestry and a profound cultural heritage, with a wealth of historical and cultural artefacts. It was once an important city in the ancient Central Plains. The rich ancestral culture and long humanistic relics highlight the prosperous history of ethnic life in the Zhoukou area.

Ren Dong (2022) has observed that the cultural history of FuXi painting hexagrams in China not only marks the inception of the Chinese culture of trigrams, but also the conclusion of the knot rope record and the termination of the Chinese text source. Furthermore, LaoZi is credited with authoring the 'TaoTeJing', a text regarded as both esoteric and profound. This work is widely acknowledged as the foundation of China's Taoist culture and has made significant contributions to the annals of philosophical history on a global scale. During the pre-Qin era, the inhabitants of Zhoukou demonstrated proficiency in vocal and choreographic arts, as evidenced by the extensive dissemination of the 'Classic of Poetry-Chen Feng' within the region. This text eloquently articulates an enduring quest for truth, virtue, and the aesthetic qualities of existence. The subject matter encompasses a wide range of themes, including the Fuxi family name, the practice of matchmaking, and the marital legal system of the Zhou Dynasty. It also draws upon the legacy of King Wu of the Zhou Dynasty, whose descendant,

Gui Man, is believed to have established his family in Zhoukou. Statistical analysis indicates that as many as 130 surnames are believed to have their origins in Zhoukou and its subsequent evolution into a county, which is estimated to encompass a population of over 400 million individuals. The city of Zhoukou is of particular significance in the context of Chinese family names, as it is considered to be the origin of these names. Furthermore, it is a popular destination for individuals seeking to trace their family history and pay homage to their ancestors. The inhabitants of Zhoukou have a strong affinity for life and a natural aptitude for artistic expression. The city is renowned for its rich musical heritage, notably the Yue tune and the Taoist sentiment, both of which have been recognised as part of the national intangible cultural heritage. In addition to its musical traditions, Zhoukou has also emerged as a significant agricultural city in Henan, a region that is characterised by the Central Plains farming culture, which exerts a considerable influence on the region. The influence of history and culture continues to this day, primarily manifesting in the cultural practices of rituals, religion and folklore, as well as numerous intangible cultural heritages.

1) Ritual Culture: Zhou and Wang (2020) posit the view that Confucius held the opinion that the Chinese civilisation of etiquette had its origins in Emperor Yao. In this context, the term 'civilisation of the ceremonial system' is employed to denote the ceremonial system that has been inscribed in the form of 'writings'. The Zhou Dynasty is recognised as the period in which the traditional ritual system reached its zenith. Indeed, it is widely regarded as the orthodox and mainstream culture of traditional Chinese society. The Zhoukou area, as the inheritance centre of the ritual culture of the Central Plains, has historically adhered to the orthodox ritual culture, exerting a profound influence on the living environment of the populace. It is evident that the etiquette culture is reflected in the imperial examination system. The pursuit of farming and the undertaking of imperial examinations were regarded as the pinnacle of personal achievement. The architectural decorations in many places have themes related to farming and studying for merit. Secondly, the culture of etiquette is embodied in the difference between honour and inferiority. This phenomenon can be discerned by examining the spatial configuration of regional architecture. The Taihao Mausoleum is an ancient sacrificial building, and its architectural art and cultural connotation profoundly embodies the ritual culture. The architectural complex of Taihao Mausoleum is organised according to a specific layout and naming system that draws upon the imperial system and the philosophical concepts of the eight trigrams of Taihao Fuxi's ancestors. These concepts are arranged along a central axis, thereby reflecting the order of the central axis and the cultural connotations inherent in the architectural complex.

2) Religious culture: The religious culture of Zhoukou City is characterised by its richness and diversity, which are the result of a process of fusion and development involving multiple cultures. It is evident that a plethora of religions, including Buddhism, Taoism, Islam, and Christianity, have a profound cultural heritage in Zhoukou City. Concurrently, folk beliefs are abundant and diverse, as evidenced by the existence of the Guandi Temple and the Taihao Mausoleum, which represent a fusion of Taoism, Buddhism, Confucianism, and distinctive local traditional customs. These beliefs exert a profound influence on various aspects of local daily life, as well as on the character of festivals and rural society. An examination of the subject reveals that practices such as ancestor worship, dragon king worship, veneration of the land god, the god of wealth, and temple fairs are but a few examples of the ways in which the subject manifests itself. The folk beliefs under scrutiny constitute a rich and colourful religious and cultural atmosphere in Zhoukou City, profoundly influencing the spiritual life and social behaviour of the local people, and embodying the reverence for and reliance on nature, ancestors and gods.

3) Folk Culture: Zhou (2018) posits that folk culture functions as a pivotal conduit for group identity and cultural heritage. This cultural manifestation has evolved over the course of a

nation's or region's protracted social and historical evolution. It encompasses linguistic expressions, celebratory events, attire, folk beliefs, folk art, and an array of other dimensions. Folk art is the product of labour and life, and is formed in the long-term creation and practice of the majority of working people. With regard to the definition of folk culture, scholars have formed a variety of views. As posited by Zhong (1988), folk culture may be defined as a cultural phenomenon created, inherited and changed by human groups in the course of history. It is distinguished by its distinctiveness as a local, mass and inherited phenomenon. The role of folk culture in promoting local economic development has become increasingly prominent.

### **Urban Renewal**

The concept of urban regeneration emerged in the mid-20th century, concurrent with the process of urbanisation in the West. Early studies concentrated on 'demolition-reconstruction' model, wherein large-scale urban renovation was employed to address the challenges posed by old urban areas, a prime example being the 'Urban Renewal Movement' in the United States. Successful urban regeneration programmes frequently prioritise the creation of inclusive, accessible and sustainable public spaces, which are essential for fostering community participation and improving the quality of urban life. A fundamental element of urban regeneration is the revitalisation of public spaces. Ullah, Shah, and Nazir (2022) posited that the attributes of public spaces should promote social interaction and community cohesion, which are pivotal for enhancing the urban environment. The revitalisation process should also consider the historical and cultural significance of these spaces, integrating heritage elements that resonate with local identity. A significant area of current research focuses on the preservation and transmission of local culture in the context of urban regeneration. A significant number of studies have concentrated on the reuse of historic districts, traditional crafts and cultural spaces. These studies have analysed how to maintain local cultural characteristics during regeneration, and explored the balance between culture and the needs of modernisation. This approach has been demonstrated to enhance urban landscapes, attract tourism, and stimulate the local economy.

### **Historical and cultural district**

At the beginning of the 20th century, the concept of 'historical and cultural district' was proposed. This term refers to district with high historical, cultural and artistic value, reflecting the characteristics of a particular historical period, society, nation or place. As a significant component of a city's tangible cultural heritage, it meticulously chronicles the urban development and distinctive features of the city, thereby serving as a vital conduit for the dissemination of its cultural heritage. During this period, the value of historical and cultural district was primarily attributed to the preservation of buildings within these areas. Consequently, the original regional characteristics and cultural spirit of these district received inadequate attention and protection. Subsequent documents, including the Venice Charter and the Nairobi Recommendations, have further refined this approach by emphasising the importance of the local community in the preservation of these areas. These developments have led to an increased awareness among scholars regarding the significance of historic and cultural district, emphasising the need to consider the value of these areas beyond the mere preservation of their physical structures. The 1964 Venice Charter saw the concept of historic buildings expanded further, with the definition being broadened to include 'buildings which bear witness to a civilisation, a meaningful development or an important cultural heritage'. The Charter of Venice of 1964 further expanded the concept of historic buildings to include 'urban or rural environments that bear witness to a civilisation, a meaningful development or a historical event', including not only great works of art, but also 'works of lesser significance in the past that have acquired cultural significance as a result of the passage of time'. The document under discussion emphasises that 'the conservation of a heritage building means the proper

conservation of an environment', which, according to Ruan (2000), also implies an emphasis on the holistic conservation of the traditional environment.

Historic and cultural districts have been shown to play an important role in preserving the heritage and character of cities (Wu et al., 2015). The conservation and management of historic and cultural districts of the hutongs of the inner city of Beijing with the support of a GIS was discussed by the authors, with the importance of using technology for the conservation of historic districts being highlighted. As demonstrated by Joo-Hwan (2013) and Long et al. (2013), colour is of pivotal significance in the perception of historic and cultural districts. The former analysed the colour status of streetscapes in historic and cultural districts, while the latter conducted a similar analysis. A study was conducted to ascertain the key colour attributes that affect the overall aesthetic of the Gulou Back Street historic and cultural district. The tourist experience and perception of historic and cultural districts has been the focus of several studies. Kun (2020) investigated the perceived image of historic and cultural districts based on rootedness theory, analysing the perceptions of tourists in Beijing's Dazhalan using online reviews. Moreover, the revitalisation and regeneration of historic and cultural districts have been the focus of research. Choi (2020) conducted a comparative study of revitalisation projects in recent historic and cultural districts, while Li et al. (2021) used the concept of micro-regeneration to study the sustainable development of the Old Street of Tunxi in Huangshan, to ensure the long-term viability of the district.

### **Linguistic Landscape**

Landry and Bourhis (1997) first proposed the concept of linguistic landscape, defining it as “a collection of linguistic symbols in public space set up by governmental agencies, private institutions and individuals”. The components of linguistic landscape include street signs, advertisements, public notices, store signs, etc. These linguistic symbols not only convey information, but also reflect the linguistic relations and power structures in society. The study of linguistic landscape originated in multilingual societies, aiming at exploring the distribution and use of different languages in public space and revealing the relationship between language and social power. In subsequent studies, the focus has gradually shifted from descriptive language distribution to the analysis of social, political and cultural meanings. Landry et al. (1997) found a correlation between linguistic landscape and in-group language use, especially in institutional settings, suggesting that linguistic landscape has a potential influence on linguistic behavior. Backhaus (2006) conducted a comparative study of the phenomenon of urban multilingualism in Tokyo, while Huebner (2006) examined linguistic landscapes in Bangkok neighborhoods that emphasized language contact, mixing, and dominance. Leeman and Modan (2009) focuses on the commodified language of Chinatown, arguing for a contextualized view of linguistic landscapes. Stroud and Mpendukana (2009) explores the material ethnography of linguistic landscapes in a South African township, highlighting the importance of space and mobility in multilingual environments. Shohamy, Rafael, and Barni (Eds.). (2010) examined linguistic landscapes in cities, further enriching the literature on this topic. Overall, these studies demonstrate the diversity of approaches and perspectives taken by researchers in exploring linguistic landscapes and their impact on language use and identity in different contexts.

## **RESEARCH METHODOLOGY**

### **Qualitative research method**

Qualitative research aims to study the inheritance of regional culture and the composition of cultural elements, focusing on the cultural and social connotations of linguistic symbols. Further research includes quantitative statistics of linguistic symbols, frequency analysis of linguistic usage, and qualitative interpretation of symbol content. By combining the perspective of linguistic landscape application, the influence of different carrier forms, material elements

such as text types and colors, social and cultural elements, and behavioral perception elements of linguistic landscape application in the process of urban renewal on the formation of urban space renewal is revealed. Combined with visual elements such as images, colors, and fonts, they are interpreted together with linguistic symbols to reveal complex social and cultural meanings. When non-material elements are connected together, what are their carriers in terms of spatial expression and non-material connotation?. Based on this, the current status of urban space image elements is understood, and spatial elements are used as a medium to explore an innovative spatial renewal design method, which is applied to the reconstruction of urban block space, and a new linguistic landscape visualization image design for urban renewal and historical and cultural block renovation design is carried out, thereby improving the overall spatial image of the city and the quality of the human living environment space, and better protecting and developing urban renewal. The research and analysis steps are as follows:

1) Extraction of elements of the image of historical and cultural district.

First, based on field research and interviews, sort out the types of elements that constitute the image of historical district (material elements, social and cultural elements, and behavioral perception elements). Combined with the collection of historical materials, historical documents and field surveys of urban historical and cultural district, in-depth extraction of the constituent elements of historical and cultural district.

2) Discover and investigate the problems in the image of historical and cultural district.

By analyzing the multiple value orientations of contemporary historical and cultural district, investigating the evolution and decline of the image elements of historical and cultural district, investigating the existing renewal model of historical and cultural district, and combining field research and interview results, obtain the problems that need to be solved in the image of historical and cultural district.

3) Analyze the "space-connotation" relationship of the spatial carrier of the image of historical and cultural district.

Combining the extracted image elements with the spatial carrier, analyzing the combined spatial expression and the corresponding non-material connotation, obtaining the "space-connotation" relationship of different carriers, and analyzing the overall composition of the image of historical and cultural district.

### **Literature research method**

The literature research method used in the study includes two aspects: archival data collection and literature information collection. Archival records include: urban development maps and charts of Zhoukou City in different periods, existing design texts of historical and cultural district at all levels, and first-hand information when applying for national and provincial historical and cultural district. Literature information includes: theoretical works, academic papers, professional journals, historical records, network information and other text and image materials related to Zhoukou City's historical and cultural district, theoretical works related to linguistic landscape and urban renewal, and historical and cultural district construction. Provide theoretical support and valuable design ideas and methods for current research, and provide background information for interpreting research results and solving certain research problems.

### **Phenomenological method**

This research plan uses Norberg Schulz's existential phenomenological perspective to study the application of linguistic landscape in the renewal of historical and cultural district. This method attempts to explore the artistic characteristics of linguistic landscape in space based on documentary materials, video materials and physical materials, and summarize the commonalities and differences of culture, trying to discover the cultural value hidden behind the rich linguistic landscape, and explore the materialized impact of linguistic landscape on the spatial artistic characteristics of urban renewal.



### Combination of regional research and case study method

An important innovation of the study is to study the spatial image of urban historical and cultural district from the perspective of linguistic landscape application, and to interpret historical and cultural district from the macro perspective of urban renewal. A basic theoretical view is that the image of historical and cultural district can be divided into macro, meso and micro spaces, and the corresponding spatial carriers of historical and cultural district can also be divided into macro space, meso space and micro space. Macro space refers to the distribution and aggregation distribution relationship of historical and cultural district monomers formed by the connection of geographical units and regional cultural circles, meso space refers to the spatial relationship between district and the environment, and micro space refers to the "layout-route-building" spatial relationship within the district. The study must use a comprehensive research method of the whole and the part, the macro and the micro. At the same time, case studies are very important. A typical urban renewal case study can draw conclusions of universal significance, reflecting the characteristics of types and groups and the cultural motivations behind them. Select relevant actual cases that represent the development experience of urban renewal construction, such as Suzhou, Hangzhou and other cities where urban renewal is relatively good. Master the relevant research techniques, make sufficient on-site investigations, and discuss and demonstrate the specific content of the paper research.

## RESEARCH RESULTS

The present study investigates and researches related contents of urban renewal, historical and cultural district, and linguistic landscape application. These are based on Zhoukou's history, local culture and other cultural dimensions. The study explores how these cultural contents influence and inspire the design and application of cultural inheritance and translation in the process of urban renewal, as well as the visualisation of linguistic landscape in historical and cultural district. The results of the related data collection and analysis are shown in the following table (Table 1).

**Table 1** Zhoukou City Cultural Elements Composition

Element composition	Meaning
 Zhoukou City Historical Development Map (history and culture, canal culture)	Zhoukou City was developed from Zhoujia Ferry, known as Little Wuhan because of its location at the confluence of the Sha, Ying and Jialu Rivers. Historically, Zhoukou has been a major transport town, and was one of the 'Four Famous Towns of the Central Plains' during the Ming and Qing Dynasties, where merchants and traders gathered.
 Taihao Mausoleum (ritual culture, religious culture, folk culture)	The layout and naming of the architectural complex of the Tahoe Mausoleum are based on the emperor's rules and the philosophy of the eight trigrams of the first heaven of Taihao Fuxi's, which are divided in the central axis, reflecting the order of the central axis and cultural connotations in the architectural complex.

Element composition	Meaning
 <p>Zhoukou Guandi Temple (ritual culture, folk culture)</p>	<p>Zhoukou Guandi Temple complex looks like a palace, the layout is rigorous, richly decorated, exquisite craftsmanship. Its architectural complex of the central axis of the building roof decoration is different from the Qing Dynasty Beijing official building practices, reflecting the local characteristics, avoiding the official building of the same, rigid and stagnant flow of the evils.</p>
 <p>Zhoujiakou Nanzhai Historical and Cultural Quarter Old View (habitat culture)</p>	<p>Nanzhai Historical and Cultural district has preserved the urban pattern of Zhoukou which emerged in the early years due to trade, and some of the residential compounds have a clear layout and are well preserved, which are typical of the Ming and Qing residential architectural styles in the eastern part of Henan Province, and have strong regional cultural characteristics. These buildings reflect the style characteristics of Zhoukou's commercial buildings during the period of prosperous development of the trade economy, and carry the important memories of modern social development of Zhoukou city.</p>
 <p>Taiqing Palace in Luyi, the hometown of Laozi (religious culture)</p>	<p>Taiqing Palace is an important holy place of Taoist culture and a national key cultural relics protection unit. Taoist culture is not only embodied in religious places, but also profoundly influences the daily life of Zhoukou people. People often guide their behaviour with Taoist thoughts in their lives, focusing on the concepts of cultivating one's body, conforming to nature, and accumulating virtues and performing good deeds.</p>
 <p>Yue tune (folk culture)</p>	<p>Yue tune, a national intangible cultural heritage, vividly reflects the social life in the Central Plains and has important value in the study of social history and art history.</p>
 <p>Huaiyang Mud Dogs (folk culture)</p>	<p>Huaiyang mud dogs were created in the age of Fuxi, and they were firstly worshipped by people for sacrifices, and then gradually developed into a kind of artwork. It is the physical form of Fuxi culture and Huaiyang folklore, with high artistic and archaeological value, and has been called by many experts and scholars as 'original art', 'mother's art' and 'living fossil' by many experts and scholars as 'native art', 'mother's art' and 'living fossil'.</p>

Zhoukou City is rich in cultural connotations and cultural activities, and these cultures and activities not only display the traditional culture of Zhoukou, but also enrich the cultural life of the citizens. Relying on the rich historical and cultural heritage and natural landscapes, urban renewal construction is also constantly facing challenges, and urban cultural communication is also facing diversified forms of transformation. Urban image construction as an important presentation of visualisation is also deeply influenced by these cultures. The integration of

culture into linguistic landscape design in the process of urban regeneration has become more important.

The existing rich and colourful intangible cultural heritage (Table 2) is a powerful witness to evolution of Zhoukou's historical development and an important carrier of national culture.

**Table 2** Zhoukou Intangible Cultural Heritage

<b>Class</b>	<b>Specific projects (level)</b>	<b>Distribution Area</b>
Folk Art	Huaiyang Mud Dog (national level), Shenqiu Gujia Bun (provincial level)	Huaiyang County, Shenqiu County
Folk Music	Xiangcheng Management Committee gong (national level)	Xiangcheng City
Folk Dance	Shenqiu Hui Cultural Lion Dance, Xiangcheng Hui Dance (national level); Shenqiu County Butterfly Dance, Xiangcheng City Elbow Song (provincial level)	Shenqiu County, Xiangcheng City
Opera,Song and Drama	Zhoukou Yuediao and Taikang Daoqing Opera (national level); Zhoukou Puppet Theater (provincial level)	Zhoukou City, Taikang County
Folklore	Taihao Fuxi Festival (National level)	Huaiyang County
Traditional Skills	Luyi County Songhe Wine Traditional Brewing Technique (Provincial Level), Xiangcheng City Brush Making Technique (Provincial Level), Xihua County Easy Hu Spicy Soup Making Technique (Provincial Level), Shangshui County Dengcheng Ye's Pig's Trotter Technique (Provincial Level)	Luyi County, Xiangcheng City, Xihua County, Shangshui County
Traditional Sports	Xiangcheng City Yu Family Acrobatics (provincial level), Shangshui County Shengmen Lotus Boxing (provincial level), Shenqiu County Liangyi Boxing (provincial level), Chuanhui District and Shenqiu County's Six Great Square Earth Chess (provincial level)	Xiangcheng City, Shangshui County, Shenqiu County, Chuanhui County

Through the change of Zhoukou's historical development and various cultural excavation research, as well as field research and analysis can be found:

1) Diversity of cultural connotations: Zhoukou City has rich and colorful cultural connotations, including ritual culture (such as the central axis layout of Taihao Mausoleum), Laozi culture, religious culture (coexistence of Buddhism, Taoism, and folk beliefs) and folk culture with obvious regional characteristics (mud dogs, etc.). These cultures are presented in different material carriers through urban construction, local architecture, residents' lives, etc., reflecting the unique local cultural attributes. Ritual culture is not only reflected in the rigorous layout and decoration of ancient sacrificial buildings and palace-style buildings, but also in the style and function of residential and commercial buildings. The coexistence of multiple religious cultures has formed a situation of mutual tolerance and harmonious coexistence. Although different religions have their own beliefs and rituals, they respect each other in daily life and promote understanding and cooperation between religions through festivals, cultural exchanges and other activities. This diversified religious and cultural integration has made Zhoukou a region with rich cultural diversity and jointly promoted the cultural development and moral construction of local society. The development of religious culture also has a subtle influence on urban renewal and the use of different languages. Zhoukou City has a flat terrain and the natural geographical features of three rivers converging, which provide good living conditions for the local people. Its folk culture is rich and colorful, with a profound historical heritage and

regional characteristics. However, the application of culture in the process of urban renewal is insufficient.

2) The current situation of linguistic landscape application: The types of linguistic landscape carriers in urban construction are mainly plaques, interpretation boards, stone carvings, couplets, calligraphy and painting, door flags, light box spray painting, etc., supplemented by walls and floors. The setting of linguistic landscape is mostly concentrated in the areas around buildings and their portals, and the spatial location is relatively simple; in areas where linguistic and culture are closely related and have a long history and culture, the number and types of linguistic landscapes are relatively rich. Traditional linguistic landscapes occupy a dominant position in urban construction, and modern linguistic landscapes are relatively rare. The frequency of this phenomenon is decreasing from the prosperous urban center to the outside. Although there are some innovative forms of linguistic landscape in form, the overall number is small; most linguistic landscapes use flat text forms, and the use of positive, negative and three-dimensional characters is relatively limited. The current linguistic landscape expression form is relatively simple, mainly text and pictures, and there are relatively few linguistic landscapes that highlight local characteristics and local history and culture. For example, the Nanzhai Historical and Cultural Block restored the dock landscape based on the principle of "repairing the old as it is", but the language sign system has not yet fully integrated the canal dialect and trade symbols, so the inheritance and translation of urban culture is not very ideal.

## DISCUSSION & CONCLUSION

### Summary of Major Research Findings

Give full play to the regional cultural advantages and highlight the regional characteristics of urban renewal. Inherit excellent traditions and innovate linguistic landscape. The historical development and changes of Zhoukou City reflect the changes in the pattern of urban development and renewal, and also accumulate profound cultural heritage. Architecture, religion, folk activities, etc. all reflect unique cultural symbols and cultural connotations. The presentation of cultural value is not only through a certain part of the content and material carrier form, but also has implicit cultural implications. These provide multi-level inspiration and specific design paths for the design application of linguistic landscape in urban renewal. Architecture and the ritual culture of architecture can be applied to urban renewal design to form a unique urban renewal design style. The carrier type, text form, and selection of different materials of linguistic landscape all bring different visual image changes to urban renewal construction. Integrate cultural elements into the visual linguistic landscape to create a new urban visual image, add cultural connotations, and enhance the cultural charm of the city. At the same time, it can also inherit and innovate the relevant cultural content of the city.

### Recommendations and Design Strategies

1) Constructing the three-element model of "cultural translation-spatial carrier-perceptual experience"

First, cultural translation of symbol extraction is carried out, and Zhoukou cultural elements are transformed into visual design languages (graphics, patterns, and color systems). Through the "historical scene reproduction" of the Caoyun Wharf scene and the "modern function superposition" of the AR interactive device, a dynamic cultural narrative chain is constructed to reconstruct the narrative; Second, the functional demand division of the spatial level is matched from the spatial carrier, and cultural symbols of different scales are matched according to the three-level spatial carriers of macro (city axis), meso (block interface), and micro (building components). At the macro level, the functional positioning of cultural identity identification is realized by means of large-scale landmark sculptures (such as Fuxi statues) and multilingual guide signs (Chinese, English + dialect pinyin). At the meso level, the functional positioning of historical narrative communication is realized by means of wall

paintings (caoyun scenes), facade decorations (such as mud dogs reliefs), and interactive QR codes (scan the code to listen to historical stories). At the micro level, composite carriers such as floor paving (such as floor tiles with Bagua patterns and wheat ear patterns symbolizing farming culture), door and window carvings (Bagua patterns, etc.), and street furniture (such as Fuxi cultural street lamps) are used to achieve the functions of cultural detail penetration and cultural information transmission; Thirdly, the perceptual experience is enhanced, combining vision (cultural symbols), hearing (Yue tune background sound, etc.), and touch (material texture, etc.) to create an immersive experience of multi-sensory activation. Participatory design is carried out to collect residents' interpretation preferences for cultural symbols through field surveys to enhance the city's cultural identity.

2) From "implicit culture" to "explicit symbols", visual transformation and application of cultural elements to visualize cultural genes

From the perspective of ritual culture, the central axis layout of the Taihao Mausoleum's architectural layout, such as the symmetrical axis + node square design of the main street, is translated into a block space sequence; Traditional crafts such as Gujia steamed buns and mud dogs, as well as folk cultural elements such as folk activities, are used as the core carriers of linguistic landscape design, and are transformed into signs, public art, etc. through modern design techniques to enhance the readability of urban regional culture. For example, the black-bottom painted style of clay dogs (main colors of red, yellow, and green) is extracted for use in sign systems and public art. At the same time, through technical means, a "Zhoukou Cultural Symbol Database" is established to mark the cultural meanings and applicable scenarios of symbols.

In summary, by using these cultural elements in the process of urban renewal in Zhoukou City, while retaining the regional cultural characteristics, modern design concepts are integrated, and suitable material carriers with local characteristics are created for the linguistic landscape, creating an urban renewal design plan that can reflect the profound cultural heritage, artistic beauty and is more suitable for human habitation. It can also better carry out urban image construction and urban cultural dissemination, promote the development of cultural tourism, and improve the living environment.

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**Data Availability Statement:** The raw data supporting the conclusions of this article will be made available by the authors, without undue reservation.

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