

Research on the Virtual Linguistic Landscape of Henan Museum's Official Website from the Perspective of Place Semiotics

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Abstract: Linguistic landscape, as a core issue in sociolinguistics, has witnessed continuous expansion of its research scope and increasing diversification of its research methods in recent years. Its research perspective has extended from public spaces to private spaces, and gradually from the physical world to the virtual world. This paper takes the official website of Henan Museum as the research object and, based on the theory of place semiotics, systematically analyzes the construction characteristics of its virtual linguistic landscape from four dimensions: code preference, inscription, emplacement, and multimodality. The linguistic landscape of the website exhibits typical characteristics such as multimodality, immediacy, and regionality, with the multimodal integration of VR/AR digital projects being particularly prominent. Drawing on the construction experience of well-known museum websites at home and abroad, this paper proposes targeted optimization suggestions, aiming to provide a new reference for research on virtual linguistic landscapes and to promote the digital dissemination and inheritance of Chinese culture.

Keywords: virtual linguistic landscape; Henan Museum; place semiotics; multimodality; cultural communication

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1 Introduction

The concept of “linguistic landscape” was first proposed by Landry and Bourhis in 1997, referring to the linguistic composition of public spaces formed by languages on public signs such as road signs, billboards, street names, and shop signs. The linguistic landscape not only carries an information transfer function but also profoundly reflects the language power relations, ethnic identity, and cultural value orientations of a specific region. With the rapid development of internet technology, research on linguistic landscapes has extended from physical spaces to virtual spaces, giving rise to the emerging field of the “virtual linguistic landscape.” The virtual linguistic landscape expands the research perspective to code selection, multimodal presentation, and meaning construction in web interfaces, providing a new analytical tool for understanding the mechanisms of cultural communication in the digital age.

As an important window for digital cultural communication, the virtual linguistic landscape construction of museum official websites is directly related to the effectiveness of cultural communication and the public's cultural experience. In 2021, multiple departments including the Publicity Department of the CPC Central Committee jointly issued the “Guiding Opinions on Promoting the Reform and Development of Museums,” requiring museums to further achieve high-quality development in educational services and international exchanges, and virtual linguistic landscape construction is an important part of promoting their quality improvement with distinctive features. Henan Museum, founded in 1927, is one of the earliest established museums in China. After the opening of its new building in 1998, the museum established the first international internet site in China's museum system, possessing a first-mover advantage in digital construction. In 2025, Henan Museum launched digital projects such as the “Invitation to the Han Dynasty: 3D Virtual Cloud Exhibition,” becoming a typical case of digital museum communication. However, the current state of its official website's linguistic landscape construction, and the characteristics it presents in terms of code selection, inscription design, and multimodal presentation, still await in-depth investigation.

This paper takes the official website of Henan Museum (<https://www.chnmus.net/>) as its research object. Based on Scollon and Scollon's theory of place semiotics, it systematically analyzes the construction characteristics of its virtual linguistic landscape from four dimensions: code preference, inscription characteristics, emplacement, and multimodality, and diagnoses existing problems while proposing optimization suggestions.

2 Theoretical Framework

Scollon and Scollon proposed “place semiotics” in their work *Discourses in Place: Language in the Material World*, aiming to examine how discourse expresses meaning in specific spatial environments by studying place-based discourse. This theory comprises three subsystems. Code preference studies the priority relations among languages on bilingual or multilingual signs, determining the dominant code through factors such as the order of codes, spatial positioning, and font size, reflecting the social status and power relations of different languages in a given field. Inscription studies the presentation modes of sign language, including font type, font size, color scheme, material texture, and state changes, reflecting the designer's aesthetic considerations and functional awareness. Emplacement studies the meaning activated by the placement of signs in specific locations, including three types: contextualized emplacement, decontextualized emplacement, and transgressive emplacement.

This paper integrates the above theories and conducts analysis across four dimensions: (1) Code selection and code preference, examining the setup of Chinese and English interfaces, code order, and dominant code identification; (2) Inscription characteristics, analyzing the syllable distribution, font types and sizes, color schemes, and state changes of navigation signs; (3) Emplacement and spatial layout, studying the layout of navigation bars, the spatial distribution of signs, and information hierarchy design; (4) Multimodality, examining the

collaborative presentation of multiple semiotic resources including images, text, colors, animation, and sound.

3 Analysis of the Virtual Linguistic Landscape of Henan Museum's Official Website

3.1 Code Selection and Code Preference

Henan Museum's official website provides two language interfaces, Chinese and English, with the Chinese interface as the default. Language switching options are provided at the top of the page, including buttons for "Traditional Chinese" and "EN," allowing users to switch to the Traditional Chinese version or the English version. The English website homepage was launched in 2006, and after several revisions, by 2012 it had basically formed a website pattern that emphasized both Chinese and English equally.

In terms of code combination, the first-level navigation bar of the Chinese version has 12 sections: "Home," "Party Building," "Services," "News," "Exhibitions," "Collection," "Social Education," "Ancient Music," "Cultural Creativity," "Research," "About," and "Special Columns," each with rich second-level subsections. The English version has sections such as "About," "Visit," "Exhibitions," "Research," "Collection," and "Events." The number of first-level sections is reduced compared to the Chinese version, and the level of detail in some second-level pages is not as substantial as that of the Chinese version. The news update frequency on the English website is relatively low, while the Chinese version is updated more frequently. This difference in information volume reflects a focus in language service design: the Chinese interface carries the main function of museum cultural communication, while the English interface plays a supporting role in terms of information depth and update frequency.

From the perspective of code preference, the dominant code can be determined through a comprehensive assessment of code order and font size. In the website logo, the Chinese characters are positioned above the English "Henan Museum," and the Chinese font size is significantly larger than the English font size. On the various bilingual signs on the Chinese homepage, Chinese is consistently placed above or to the left of English, with bolded and more prominent coloration. Based on this, it can be determined that Chinese is the dominant code, while English serves as an auxiliary code. This code preference reflects the website's positioning as primarily serving domestic audiences, complying with the provisions of the Law of the People's Republic of China on the Standard Spoken and Written Chinese Language.

3.2 Linguistic Form and Inscription Characteristics

3.2.1 Syllable Characteristics

The navigation title signs on the Chinese interface of Henan Museum's official website are predominantly disyllabic and quadrisyllabic. The first-level navigation bar uses disyllabic signs, such as those corresponding to "Home," "Services," "Exhibitions," and "Collection." The disyllabic structure is concise and clear, facilitating quick user recognition and memory. Among the second-level title signs, quadrisyllabic signs account for a relatively high proportion, with typical examples including the equivalents of "Opening Hours," "Reservation and Ticketing," "Visit Information," and "Traffic Routes." Quadrisyllabic phrases possess a natural rhythmic balance in Chinese, with a neat structure that is dignified and elegant, aligning with the linguistic style orientation of a museum as a cultural institution. The number of odd-syllable signs is relatively small. The widespread use of even-numbered syllables, especially quadrisyllabic ones, reflects the designer's conscious pursuit of the aesthetics of the Chinese language and also enhances the clarity and readability of information transmission.

3.2.2 Visual Inscription

Visual inscription focuses on the static presentation attributes of signs. The first-level navigation bar at the top of the Chinese version page, as well as the Traditional Chinese interface, has a consistent navigation bar structure, with white text. The English version navigation bar also uses white text, with sections titled "Home," "About," "Visit," "Exhibitions," "Collections," "Research," and "Events." Regarding informational signs, in the carousel promotional image area in the middle of the homepage, title text is overlaid on the images in a large font, with some images using colored overlays to ensure readability. In the "Collection" section, artifact names are presented in white text against a reddish-brown circular background, coordinating with the overall color scheme. Regarding auxiliary functions, buttons for "Traditional Chinese," "EN," and "Senior Mode" are provided at the top of the page. Clicking "Senior Mode" brings up an auxiliary toolbar offering options such as sound toggle, speech rate adjustment, zoom in and out, cursor style switching, large captions, and read-aloud functionality, allowing users to flexibly adjust their browsing parameters (Figure 1). The English interface does not have this "Senior Mode" function.



Figure 1 Senior mode

3.2.3 State Changes

State changes focus on the dynamic interaction attributes of signs. The website's navigation signs employ a design strategy that combines explicit and implicit elements. First-level navigation titles are explicit signs, visible to users as soon as they open the homepage. When hovering over a Chinese navigation title, the text color changes from white to golden yellow. The hover effect on the Traditional Chinese interface is consistent with that on the simplified version. On the English interface, however, hovering over a first-level navigation title does not change the text color, while second-level titles change from black to reddish-brown. Meanwhile, hovering over a first-level

navigation title causes a drop-down menu to appear, forming a clear hierarchical relationship between parent and child navigation items. Some images or cards, such as those in the collection display area, exhibit dynamic expansion effects on hover (for example, a slight enlargement), thereby enhancing the visual feedback of interaction. With regard to informational signs, the carousel promotional images in the middle of the homepage use dynamic scrolling. Users can click the left or right arrows or the bottom navigation links to switch manually, or they may wait for automatic scrolling. When hovering over a news title in the “Exhibition News” section, the scrolling stops and the title becomes clickable, allowing users to view the details. This design method, which combines explicit and implicit as well as static and dynamic elements, accommodates richer information content within a limited page space, while also improving visual appeal and user experience.

3.3 Emplacement and Spatial Layout

The official website of Henan Museum fully follows users’ top-to-bottom, left-to-right browsing habits. On the Chinese interface, the top of the page consists of the logo area and the first-level navigation bar. The museum logo is located at the top-left corner of the page, and the navigation bar is horizontally arranged to the right of the logo, covering the website’s core content sections. The English interface is different: the museum logo is positioned in the center of the top of the page, and the first-level navigation bar is symmetrically distributed on both sides of the logo. The middle of the page, from top to bottom, consists of the carousel promotional image area, core section entry area, latest news area, and featured recommendations area. Regarding the page footer, the Chinese interface contains auxiliary content such as friendly links, contact information, copyright statements, and filing information. The English interface footer includes a “Links” section, gathering website links to several internationally renowned museums such as the Cleveland Museum of Art, the Palace Museum, the Louvre Museum, and the British Museum, as well as “Contact Us” information, social media entry points, and a smart guide service. The structure is more concise, focusing on the navigation needs of international users and connectivity among cultural institutions.

From the perspective of emplacement types, the website’s signs are predominantly contextualized. The navigation bar is placed at the top of the page, consistent with users’ conventional expectations of website information architecture. The carousel is positioned in the visual center, effectively attracting user attention. Informational signs are arranged from top to bottom according to information importance and update frequency, with the latest news placed at the top, reflecting consideration for users’ information retrieval efficiency. Logo and museum name signs adopt decontextualized emplacement, appearing in a fixed form and position regardless of which page the user browses, reinforcing the uniformity and recognizability of the museum’s brand image.

An AI assistant named “Maomaoying” is located at the bottom left corner of the website, presented as a cartoon eagle figure (Figure 2). Users can click on it for question-and-answer interaction. From the perspective of place semiotics, this floating window covers the page’s main content and thus belongs to the category of “transgressive emplacement.” It should be noted that “Maomaoying” appears only on the Chinese interface and is not present on the English interface. Its cartoonish design and floating position break the order of the conventional page, attracting user attention in an atypical way, aiming to provide instant interactive services and shape a youthful, approachable museum image. This transgressive emplacement strategy reflects the museum’s innovative exploration of user service experience in digital space.



Figure 2 The “Maomaoying” AI assistant

3.4 Multimodality

The official website of Henan Museum comprehensively utilizes various semiotic resources including images, colors, sound, animation, and VR/AR, forming a virtual linguistic landscape with notable multimodal characteristics. In terms of the image mode, the homepage carousel features exhibition promotional images such as the “Henan Ancient Seal Exhibition” with prominent titles. The “Collection” section displays high-definition images of artifacts, supporting click-to-enlarge and detail viewing. The digital artifact interface allows 360-degree rotation for viewing artifacts, and for the museum’s most treasured artifacts, there are even detailed video explanations. This combination of text and images reinforces cultural memory. In terms of the color mode, the page uses off-white, reddish-brown, and golden yellow as its main colors. The navigation bar uses a dark background with white text, creating high contrast to ensure readability. The sound mode is concentrated in the “Cloud Ancient Music Hall” section, which includes subsections such as “Fingertip Ancient Music Band,” and “Ancient Music Gramophone,” providing audio content of restorations performed by the Henan Museum Huaxia Ancient Music Troupe. The “Invitation to the Han Dynasty” virtual exhibition is accompanied by background music in the Han Dynasty style. In terms of the animation mode, the homepage carousel uses dynamic scrolling, allowing users to click arrows or bottom navigation to switch manually. Text color changes when hovering over navigation titles or news headlines, creating dynamic feedback and enhancing the interactive experience. The VR/AR mode is the most distinctive part of the website. The “Invitation to the Han Dynasty: 3D Virtual Cloud Exhibition,” based on Han Dynasty pottery manor artifacts from the Central Plains region, constructs a three-dimensional virtual exhibition space, integrating over 200 related artifacts across five thematic scenes: paying respects, feasting with music and dance, kitchen labor, farming, and immortal dwelling.

Users can participate in virtual activities through clicking and dragging, achieving an experiential upgrade from “viewing” to “participation.” The systematic integration of multimodal semiotic resources endows the website’s linguistic landscape with characteristics of multimodality, immediacy, and regionality. With Central Plains culture as its core narrative thread, the website constructs a virtual linguistic landscape with strong regional identity.

4 Existing Problems and Optimization Suggestions

First, the construction of the foreign language interface is weak, limiting the effectiveness of international communication. Although the English version of the website has first-level sections roughly corresponding to the Chinese version, the level of detail in some second-level pages is not as substantial as that of the Chinese version, and the information update frequency is significantly lower. Furthermore, the “Maomaoying” AI assistant is only available on the Chinese interface. The English interface lacks this function, meaning overseas users cannot enjoy the same level of smart assistant service. In response to the above problems, several suggestions are proposed. These include enriching the information content of the second-level pages of the English version to ensure the complete transmission of core information, establishing a regular mechanism for updating English content to ensure timeliness, and extending the “Maomaoying” AI assistant function to the English interface or adding an English version FAQ page to provide convenient consulting services for overseas users. In addition, to expand multilingual services and increase international user coverage, it is advisable to incorporate other language versions such as Japanese and Korean into the website development plan, following the multilingual configuration of offline audio guides, so as to meet the actual needs of Henan’s inbound tourism market.

Second, there is no dedicated section for young people, resulting in insufficient fulfillment of the museum’s educational function. Although the Henan Museum website has a “Social Education” section, its content primarily consists of lecture information and academic activities aimed at adults. It lacks an interface design specifically for young people. The language style is no different from the adult version, lacking playfulness and interactivity, making it difficult to effectively attract the attention of young users. As an “extracurricular classroom,” the museum should leverage its website construction to play an important role in youth education in the digital age. To this end, it is recommended to develop a dedicated section for young people. A “Youth Version” interface should be added, using playful language, cartoon images, and gamified interaction elements to create a dedicated interface that aligns with the cognitive characteristics of young people. Characteristic content should be transformed into interactive game formats to stimulate young people’s interest in learning, thus fully utilizing the museum’s online educational function.

Third, accessibility services need further optimization. The website currently provides a “Senior Mode” auxiliary function toolbar, including options for zoom in and out, speech rate adjustment, cursor style switching, large captions, and read-aloud functionality, which is commendable. However, it is currently mainly aimed at elderly users, with insufficient coverage of special groups such as the visually impaired. It is suggested to further implement the concept of inclusive design by providing a more comprehensive voice navigation version for the visually impaired, ensuring that all groups can equally share cultural resources.

5 Conclusion

Based on the theory of place semiotics, this paper has conducted a systematic analysis of the virtual linguistic landscape of the official website of Henan Museum from four dimensions: code preference, inscription characteristics, emplacement, and multimodality. The findings are as follows. In terms of code preference, Chinese is the dominant code, while the English interface is relatively weak in information depth and update frequency. In terms of inscription characteristics, the signs, through a hierarchical design of font size, color, background color, and state changes, form a clear information guidance system. The Traditional Chinese switching function and the Senior Mode auxiliary functions reflect humanistic care for diverse user groups. In terms of emplacement, the “Maomaoying” AI assistant floating window, as a transgressive emplacement element, enhances the website’s interactivity and approachability, but it is limited to the Chinese interface. In terms of multimodality, the website deeply integrates images, colors, sound, animation, and VR/AR technology. Digital projects such as “Invitation to the Han Dynasty” demonstrate the exemplary significance of the systematic integration of multimodal semiotic resources. Overall, the virtual linguistic landscape construction of the Henan Museum official website has achieved remarkable results in reflecting the profound cultural heritage of the Central Plains and exploring digital communication. However, there is still room for improvement in areas such as the refinement of the foreign language interface and the development of a dedicated section for young people. In the future, Henan Museum can further strengthen its multilingual services, develop a dedicated youth section, and optimize accessibility support functions to better fulfill its role as a window for cultural communication and promote the digital dissemination and inheritance of Central Plains culture.

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