

Optimization Strategies for Urban Language Landscape—A Case Study of Chenzhou City

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Abstract: Urban language landscapes are various language signs in the real urban environment, which are not only carriers of text, but also reflections of urban culture, history, social phenomena, and other aspects. The language landscape of Chenzhou City reflects to a certain extent the culture, history, and social phenomena of the region. But there is an irregular use of language in the city. Errors such as typos, grammar errors, and inaccurate foreign language translations often occur, leading to a decrease in language diversity and the disappearance of traditional language elements, which is also a major crisis. These issues have affected the city's image and also misled the language use of citizens. This article aims to deeply explore the current situation of language landscape in the urban area of Chenzhou, analyze the existing problems and their causes, and propose targeted optimization strategies. This article mainly uses on-site investigation and questionnaire survey methods to analyze the language landscape in the urban area of Chenzhou. The survey results show that the support rate for standardized language exceeds 80%. So, the primary consideration for optimization strategies is the most fundamental and important issue of character standardization.

1. Introduction

Urban language landscape refers to the scene composed of road signs, street signs, advertising boards, shop signs, posters, billboards, vehicle advertisements, and product packaging. With the acceleration of urbanization, urban language landscape, as an important component of urban culture, is increasingly receiving people's attention. These brands can be seen everywhere and will subtly influence people in all aspects. At present, the governance path of language landscape is not fully clear, the legislative logic is not clear enough, the overall coherence and operability of policies are not strong, and there are difficulties in its management and maintenance. Due to insufficient regulatory efforts, some non-standard language usage phenomena cannot be corrected in a timely manner. The language standardization awareness of signage production personnel and the public is relatively weak, which affects the quality of urban language landscape. This article focuses on the social linguistic reality reflected by the use of these signage languages, the extent to which language

is presented in public spaces, and the status of these representations in society.

As one of the important cities in Hunan Province, Chenzhou's language landscape has unique regional characteristics and cultural connotations. From a practical perspective, optimizing the urban language landscape helps to enhance the overall image and cultural charm of the city. Language is the carrier of culture, and the optimization of urban language landscape can not only showcase the unique charm of the city, but also enhance the sense of belonging and identity of citizens. Meanwhile, optimizing the urban language landscape also helps promote the development of urban tourism industry. Language is an important tool for tourism communication. Optimizing the urban language landscape can improve the tourism experience of tourists, attract more tourists to come for sightseeing and tourism, and thus promote the development of the urban economy. From a theoretical perspective, studying strategies for optimizing urban language landscapes can enrich and improve theoretical systems such as linguistics and urban culture. The optimization of urban language landscape also has important strategic significance. Language is the bridge of communication, and optimizing the urban language landscape can promote communication and integration between different cultures, enhance the international influence and competitiveness of the city. Therefore, studying the language landscape optimization strategies of Chenzhou City not only helps to enhance its cultural soft power, but also promotes its internationalization process.

This article first explains the urban language landscape, analyzes the impact of this type of landscape on the city, and proposes a research argument for Chenzhou City. Secondly, this article discusses the achievements and methods of multiple scholars on language landscape in the relevant work section, and proposes to use Chenzhou City as a specific city for analysis. In the third part, this article classifies language landscapes and uses a questionnaire survey to obtain the attitudes of people in Chenzhou towards language landscapes. In the fourth part, this article conducts on-site inspections of the city, obtains results, and discusses them. Finally, this article provides a summary of the entire text.

2. Related Works

The optimization of language landscape plays an indispensable role in improving urban quality and enhancing urban competitiveness. It is a long-term and complex process that requires the joint efforts of the government, all sectors of society, and citizens. Some scholars have conducted in-depth research on language landscapes. For example, Manuel F used active crowdsourcing landscape descriptions and sentence transformers to identify natural language related to the landscape, and processed and analyzed the landscape descriptions using natural language processing [1]. Ross S conducted interviews and questionnaires with participants using linguistic and cognitive science methods, exploring the conceptualization of landscapes by individuals with different native and professional knowledge backgrounds through language. He focused on terminology related to water bodies and revealed the impact of native and professional knowledge on the representation of landscape vocabulary [2]. Zhenggang Yan combined the Tokim decision analysis method and the Vico multi criteria decision-making method, using binary language neutral fuzzy numbers for calculation, effectively evaluating the quality of rural tourism landscape planning and design [3]. Wulandari B has launched an educational agricultural flower tourism village through language landscape and ecological customs. Through community participation and on-site investigations, he has increased the villagers' understanding of local culture and resources, and promoted the development of agricultural flower tourism [4]. To revive endangered languages, Sakhiyya Z conducted a sociosemiotic analysis of language landscapes in three cities in Indonesia. He used social semiotics methods to qualitatively and quantitatively analyze the language landscapes of three cities, revealing the important role of language landscapes in the revival of endangered

languages [5]. Guo Y intended to conduct an in-depth analysis of the language landscape construction of the newly built ancient city. He took the ancient city of Yizhou as the object and proposes strategies and suggestions for the language landscape construction of the newly built ancient city [6]. Halim S W studied the (invisibility) of Toraja language in the language landscape of South Sulawesi Province, Indonesia, and found that Toraja language was marginalized in the language landscape [7]. "Love" plays a major role in constructing emotional world language landscapes, and Mamurkhanovna D B explored the expression of "love" in emotional world landscapes [8]. Hannum K L analyzed the relationship between identity, language, and landscape in the Galicia (Spain) region [9]. Zhang M summarized the current development status and trends of digital multimedia creation in the second language environment of post-secondary education, and reviewed and evaluated the empirical research landscape [10]. In terms of language diversity and inclusivity, Hopkyns S used qualitative and quantitative analysis methods to analyze the language landscape of Abu Dhabi during COVID-19 [11]. Yuldashevich O E believes that Arabic vocabulary changes related to Islam in Turkish have a high position in the language landscape [12]. The expression of language in public spaces, namely language landscape, Otkirovna A L explored the situation of language being displayed and used in public spaces [13]. Jenjekwa V studied language visibility in public spaces in the Masingo area, discussing the types of languages used in the area, the frequency and distribution of language use, and the impact of these factors on community language practice and language identity [14]. Da Câmara C L analyzed the interactions and influences between different languages in Tete Province, Mozambique, and found that multilingualism had a significant impact on society, culture, and economy [15]. This article explores the language landscape of Chenzhou City, which can be said to be both a reflection of previous research and a concrete analysis.

3. Urban Language Landscape Survey

3.1 Urban Language Landscape

Urban language landscape refers to the visual and auditory environment constructed by various language elements in the city [16-17]. It is rich in connotation, is the intuitive display of the city image, but also an important embodiment of the soft power of the city culture. It is also a tool for public communication and a medium for urban information transmission. It has many types, including official, commercial, and community language landscape [18-19]. The official mainly shows in the city's public signs, government documents, announcements and other aspects, is the key elements to shape the image of the city. Business is common in stores, advertisements, publicity materials and other commercial activities, which can reflect the city's commercial atmosphere and characteristic [20]. The community is more reflected in the daily communication of the residents. In Chenzhou city, public signs and government documents are widely used in standard and accurate Mandarin. Stores and advertisements are a language that combines local dialects with Mandarin. The use of dialects by residents in daily communication enhances the cohesion of the community. The signs, billboards, store names, and other elements on the streets provide navigation and information acquisition functions for citizens and tourists. Through their design, content, and language style, they convey the reputation of Chenzhou as a city of forests and leisure, showcasing the city's unique cuisine and highlighting its red culture. The landscape in this category serves as a showcase for the city's image, a carrier of cultural diversity, a bridge for social exchange, and a driving force for economic development.

3.2 Questionnaire Survey

In order to first understand the current situation of language landscape in Chenzhou, this article uses a questionnaire survey method to collect the attitudes of local people towards the language landscape of the city. The purpose of this survey is to investigate the level of support for the urban language landscape in Chenzhou (including language usage in public signs, advertisements, media, etc.), understand the sense of identification, satisfaction, and expectations of citizens towards the local language landscape, and hope to obtain a comprehensive report on the level of support for the urban language landscape in Chenzhou, providing data support for urban language planning and cultural inheritance. In this questionnaire, we first introduce the purpose and significance of the survey, explain the precautions and confidentiality principles for filling out the questionnaire. The questionnaire raised the following main questions: overall impression of Chenzhou's urban language landscape (Q1); the language landscape of Chenzhou city affects people's daily life (Q2); does it support the use of Chenzhou local language in public signage and advertising (Q3). This survey was evaluated using the Likert scale, assuming that 1 is very positive and 5 is very negative. The formula for the Likert scale is as follows:

$$(a + b + c + d + e) / 5 \quad (1)$$

a, b, c, d, and e respectively represent the five level evaluation scores for a certain problem. Let X be the function of the scale used in the original questionnaire. The minimum value of the original scale is m, and the maximum value is n. One of the values is lowercase x, which is:

$$X = (x - m) / (n - m) \quad (2)$$

Let Y represent the function of the transformed scale, with a minimum value of A and a maximum value of B for the transformed scale:

$$Y = (B - A) * X + A \quad (3)$$

This article first selects 40 respondents for pre testing, collects feedback, checks the validity of the questionnaire, and revises and improves the questionnaire. Factors such as age, gender, and occupation and education level are involved in this study. In order to ensure the diversity and representativeness of samples, this paper adopts stratified random sampling method to divide Chenzhou citizens into four layers according to their age, gender and occupation. 150 samples are randomly selected from each layer. The questionnaire uses online mode for data collection, which is convenient and efficient. At the same time, paper questionnaires were prepared for respondents who could not use electronic devices. Questionnaires are distributed by mail, social media, face to face, etc., to ensure the validity and accuracy of data collection, and to address incomplete or obviously wrong answers. A total of 600 people were sampled to fill out the questionnaire. This survey protects the privacy and information of the respondents and does not disclose any personal information. Clearly informing the respondents in the questionnaire that their data will only be used for academic research, and remove personally identifiable information from the data analysis.

As shown in Table 1, it can be found that more than half of the respondents hold a positive attitude towards problem 1, of which 286 are very positive and have a good overall impression of Chenzhou. 86 people are positive and 105 people have an average attitude. In question 2, 177 people have a very positive attitude, 149 people have a positive attitude, and 99 people have an average attitude. The influence of language landscape on daily life is visible to a certain extent. 205 people in question 3 strongly support using the local language of Chenzhou in public signage and advertising, while 124 people maintain a general attitude. There are still 85 people who strongly do not support the use of local languages because they believe that local languages are not conducive

to the development of internationalization.

Table 1: Likert measurement results

Score	Q1(Num)	Q2(Num)	Q3(Num)
1	286	177	205
2	86	149	96
3	105	99	124
4	73	86	90
5	50	89	85

4. Results and Discussion

4.1 Field Investigation

In order to understand the language diversity and usage habits of Chenzhou City, and to study the relationship between language landscape and urban culture, this article conducts an in-depth investigation of the language usage situation in Chenzhou City. The location chosen for this article is the commercial district. During this process, carefully observing the public signs, billboards, road signs, and shop signs of Chenzhou City, record the types, frequency, and standardization of language used, observe their layout, and analyze the influencing factors of the overall image and cultural atmosphere of the city. This article also conducts in-depth exchanges with local residents and businesses to understand their views on the local language landscape through interviews. This article records and organizes the interview content, extracting valuable information. The signs and advertisements of various shops often use Chinese, and some merchants may add English or other foreign languages to their signs to attract customers. In addition, some signs of ethnic minority characters were also discovered.

According to the survey results, this article finds that the language landscape in Chenzhou has the following shortcomings: non-standard language use, single content, lack of cultural characteristics and diversity, and inadequate display methods, which affect the overall visual effect.

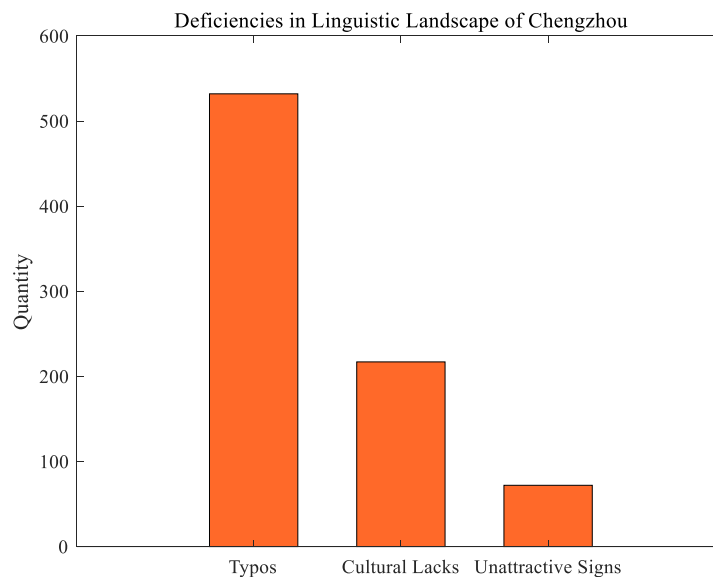


Figure 1: Issues with the language landscape in Chenzhou

Language irregularities include typographical errors, grammatical errors, and improper use of

words. Content is singular and lacks cultural characteristics and diversity. Display methods include signs, billboards, and promotional boards. As shown in Figure 1, there are over 500 landscapes with typographical errors, grammatical errors, and non-standard wording, over 200 landscapes with insufficient cultural characteristics and diversity, and over 50 unsightly signs, billboards, and promotional boards.

4.2 Investigation of Optimization Strategies

In order to further enhance the quality and cultural connotation of the landscape, it is recommended that the government strengthen the standardization and supervision of language and writing usage, and improve the language and cultural literacy of citizens. On the basis of maintaining the dominant position of Chinese language, the government should appropriately introduce foreign language elements, encourage and support the development of multiculturalism, organize various language and cultural activities, build multicultural exhibition areas, promote communication and understanding between different cultures, and protect and inherit the red cultural heritage of the city. Relevant departments should strengthen language supervision in public places, set up slogans and introductions showcasing the history, culture, scenery, and other aspects of Chenzhou in public places, so that citizens and tourists can better understand Chenzhou, adopt more beautiful and generous fonts and layout methods, and make the language landscape more beautiful and generous. At the same time, it is necessary to combine the local architectural style and red culture, design more distinctive display methods, strengthen the promotion and guidance of language landscape optimization work through various channels and media, encourage citizens and tourists to actively participate in this work, and jointly create a beautiful urban environment.

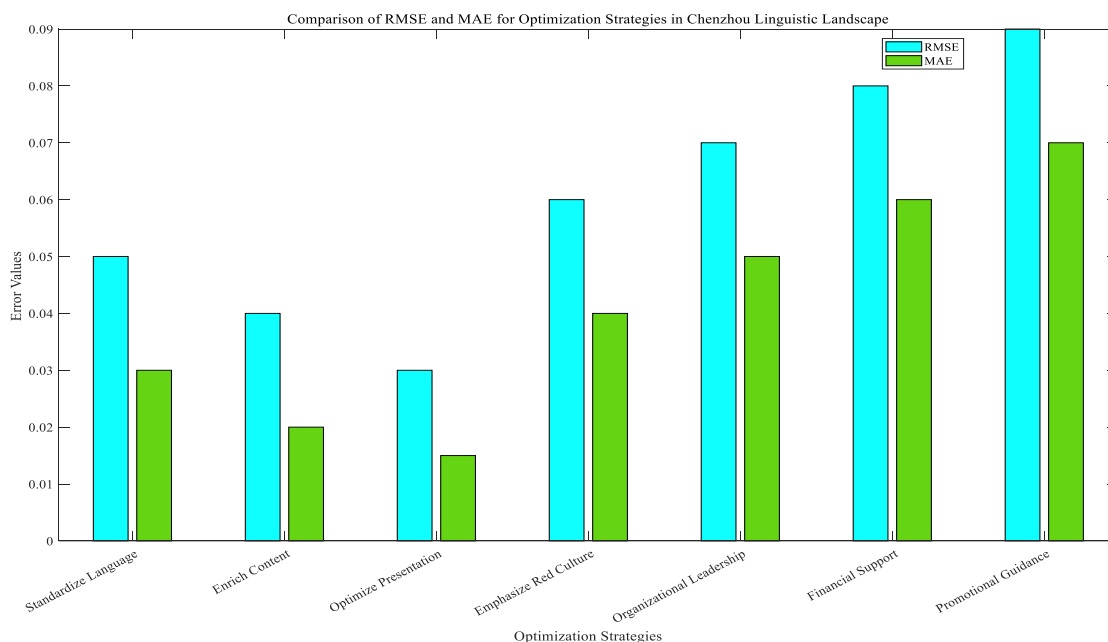


Figure 2: RMSE and MAE values of Chenzhou language landscape optimization strategy

The optimization strategy for the language landscape in Chenzhou can consider strengthening aspects such as standardizing language use (S1), enriching language content (S2), optimizing language presentation methods (S3), emphasizing red culture and organizational leadership (S4), ensuring funding (S5), and promoting guidance (S6). As shown in Figure 2, it can be observed that the RMSE (root mean square error) and MAE (mean absolute error) values in terms of promotional guidance are the highest, while the results of optimizing language presentation are the lowest.

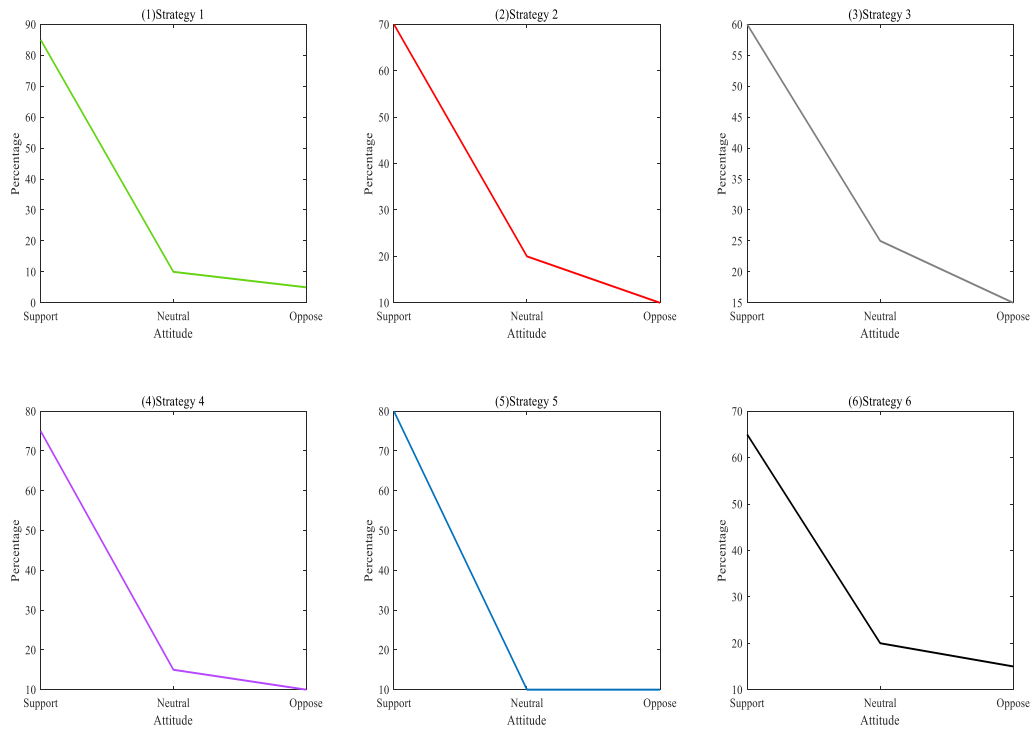


Figure 3: People's attitudes towards the six main strategies

This article compares people's attitudes towards the six main strategies mentioned above, divided into three types: support, neutrality, and non support. As shown in Figure 3, it can be observed that the support rate for Figures 3 (1) - (6) is still relatively high, with neutral attitudes ranking second and opposing attitudes having the smallest value. Among them, the support rate of Figure 3 (1) exceeds 80%, the support rate of Figure 3 (2) is 70%, the support rate of Figure 3 (3) is only 60%, the support rate of Figure 3 (4) exceeds 70%, the support rate of Figure 3 (5) is 80%, and the support rate of Figure 3 (6) is over 60%. The ranking from highest to lowest is: S1>S5>S4>S2>S6>S3. So, the first and foremost aspect of language landscape optimization is to standardize language usage, and financial support needs to be in place during this process.

4.3 Discussion

Chenzhou is located in southern Hunan, and its dialect has significant differences from Mandarin. In terms of pronunciation, vocabulary, and grammar, Chenzhou dialect has its unique features. This dialect characteristic occupies an important position in the language landscape of Chenzhou. The fusion of dialects and Mandarin has formed a unique language landscape. Dialects carry many traditional cultures and historical memories, and are an indispensable part of the daily lives of local people. The language and culture of Chenzhou are also reflected in local literature, opera, folk art, and other aspects. Therefore, this article believes that language landscape optimization can add dynamic and interactive elements to the display, achieve all-round visual effects, set up electronic displays in public places, update urban information, cultural promotion and other content in real time, make publicity subtle, and introduce advanced technologies such as big data analysis and artificial intelligence to improve the pertinence and effectiveness of landscape design.

5. Conclusion

In this practical exploration, this article delves into the urban area of Chenzhou and provides a detailed analysis of the current situation of language landscape through on-site observation and questionnaire survey. Although the language landscape in this area reflects the cultural characteristics and historical heritage of the city to a certain extent, there are also common problems that hinder the effective transmission of information. In this survey, qualitative and quantitative methods were used to collect a large amount of survey data and statistically analyze the support for optimization strategies. This article emphasizes the coexistence and harmony of multiple languages, proposes standardized language identification, and improves the accuracy and appropriateness of language use. The language landscape also needs to emphasize sustainability and maintainability, so in the future, environmentally friendly materials and energy-saving technologies can be adopted from the perspective of environmental protection and resource utilization.

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