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Decoding Urban Identity through Multimodal Linguistic Landscapes: A Dual-Layer Semiotic Analysis of Kagoshima's Tourism-Oriented Language Practices

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ABSTRACT

This study aims to explore how multimodal language landscapes construct the image of a city, taking the tourism core area of Kagoshima City, Japan as an example. Innovatively proposed the analytical framework of “code function layer - symbol and representation layer”. Through stratified systematic sampling, 120 language signs were collected. Combined with quantitative and qualitative methods for analysis, it was found that: (1) The functional layer of the code shows a gradient configuration. The higher the information necessity and risk cost, the stronger the multilingual coverage rate. (2) The symbolic layer is a strategic expression of cultural identity. The deeper the public nature and cultural attributes of the sign, the more prominent the symbolic meaning. Kagoshima has established a functional and symbolic synergy system through multilingual standardization and symbolic innovation (the in-depth dissemination of culture is still restricted by the choice of codes), and strategically transformed dialect signs and local symbols into “cultural decorations” to enhance tourists’ perception of regional characteristics (“Kagoshima”) and shape the city’s image. This study provides a new perspective for understanding language landscapes as the product of the interaction between instrumental rationality and identity politics, and offers practical inspirations for optimizing language services in small and medium-sized tourist cities and promoting the construction of urban images in the integration of culture and tourism. The limitation lies in the fact that the case is a single Japanese city, and the universality of the conclusion needs further verification.

Keywords: Linguistic Landscape; Urban Image; Multilingual Environment; Kagoshima

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1. Introduction: A New Perspective on Language Landscape and Urban Construction

1.1. Research Status

In recent years, with the advancement of cultural and tourism integration policies and the development of urban image construction, research on language landscapes based on urban ecology has been continuously enriched. Some scholars have conducted practical investigations in ethnic minority areas and characteristic tourist attractions in China, actively exploring the interactive relationship between language landscapes and urban cultural characteristics as well as urban image construction. Li and Xia took the ancient city area of Lijiang City, Yunnan Province as an example to investigate the language ecology in the language landscape of ethnic minority concentrated areas and found that multilingualism is the main feature of the local language landscape^[1]. Zhang and Zhang conducted a case study on the language landscape of Macao and found that the language landscape of Macao communities has a distinct nature of “internal and external differences”^[2]. Peng conducted a diachronic examination of the language landscape on Nanjing Road in Shanghai over more than a hundred years from the perspective of historical linguistics, demonstrating the historical changes of the language landscape and the influence of social factors such as political situations and economic systems on the changes of the language landscape^[3]. Liu explored the mapping relationship between language landscapes and urban development, pointing out that language landscapes are the reflection of urban humanistic ecology^[4]. It is not difficult to see that in the connection between urban space and function, the language landscape has acquired new features. The language landscape not only expresses the city but also actively participates in the construction of urban functions.

Japan, on the other hand, paid relatively early attention to the possibility of language landscapes as tourism resources. When conducting a survey on the tourism resources of the Ogasawara Islands, Daniero Logg (original in Japanese) pointed out that language is a kind of “visual tourism resource”^[5]. The signboards, signs, and directional signs set up in the Ogasawara islands using “ogasawara toba

toba” can reflect the unique sense of time and space and lifestyle of the small islands, convey the local charm through language and writing, and thereby drive cultural tourism. It is clear that while language landscapes serve as tourism resources, they also provide services for tourism. As a major tourist country, Japan has made many attempts in building city images and promoting multilingual services, and has achieved rich results^[6-8]. At present, the official signs in Tokyo, Japan, have basically achieved the “standardization” of being used in both Japanese and English, as well as in a combination of Japanese, English, Chinese and Korean.

Not only that, in terms of building urban images, Japan has integrated local cultural elements with urban landscape construction, driving the tourism form of “community-based tourism rhythm” (original term in Japanese: コミュニティリズム). Moreover, As pointed out by Okamoto, it has accelerated the chain development of Japan’s tourism, cultural, and animation industries through “pilgrimage to holy sites” based on anime filming locations, promoting regional revitalization^[9]. It can be said that in terms of language services and urban image construction, Japan, as a successful case, is worthy of study and reflection. A case study of Japan’s language landscape can provide certain inspiration for exploring urban image development strategies and multilingual service policies with Chinese characteristics.

1.2. Theoretical Framework

Overall, although recent studies have revealed the connection between language landscapes and urban development, there are two significant limitations: (1) The disconnection between function and symbol: Traditional language landscape studies either focus on the quantification of the functional layer, such as Backhaus’ statistics on the multilingual distribution in Tokyo, or focus on the power analysis of the symbolic layer, such as Scollon & Scollon’s interpretation of the power order of codes, but it is difficult to capture the complexity of the interweaving of the two. (2) Homogenization of case selection: Taking Japan as an example, the research subjects are mainly focused on core cities such as Tokyo and Kyoto, while neglecting how peripheral cities strategically construct differentiated identities through LL.

This study proposes a two-layer interactive framework of “code function layer - symbolic layer”, rooted in the cross-disciplinary perspective of Social Semiotics and language

landscape research. Kress & Van Leeuwen emphasized that all symbolic resources (including language, images, space, etc.) are tools for the production of social meaning, and their selection and combination are subject to a specific social and cultural context and have a reverse effect on that context^[10]. This provides core support for this framework to understand the “duality” of the language landscape. The Linguistic Code Functional Layer focuses on the dimension of language as a practical information system, and its core is the “information Function” (Informational Function) defined by Landry & Bourhis^[11]. That is, by directly solving the problem of information accessibility through multi-language configuration, it meets the basic navigation, safety warning, service acquisition and other needs of tourists. Semiotic Symbolic Layer: Focusing on the dimension of language and symbols as carriers of cultural identity, its connotation corresponds to the “Symbolic Function” proposed by Ben-Rafeal et al.^[12], but further extends to non-linguistic modalities. The fundamental purpose lies in conveying the irreconcilable regional cultural genes and emotional values, and shaping the recognizable image of the city.

The breakthrough of this framework lies in revealing that the two layers are not isolated but form a dynamic and collaborative “meaning production cycle”. The functional layer is the foundation of the symbolic layer: Clear and accurate multilingual services are the prerequisite for tourists to feel a sense of security and trust. Only on this basis can the reception and recognition of cultural symbols become possible. The symbolic layer empowers the functional layer: Unique cultural symbols can transcend instrumental value, transforming cold signboards into narrators of “urban stories”, significantly enhancing the memorability and emotional arousal of functional information.

This research framework operationalizes, empirically and systematizes the “interaction mechanism” by analyzing the co-occurrence of code arrangement rules and local symbols in the same sign, making up for the disconnection between function and expression, tool and meaning, and providing a more explanatory framework for decoding the symbolic construction of urban identity.

1.3. Research Objectives and Core Issues

This study takes Kagoshima, Japan as a case study, aiming to break through the above limitations. As a typical

medium-sized tourist destination, this city holds two unique research values: (1) Practical demonstration: Kagoshima actively promotes the standardization of multilingual signs and the innovation of local symbols, serving as a typical sample of the “function-symbol” collaborative strategy; (2) Theoretical gap: Its non-core location can precisely reveal how marginal cities, through LL game instrumental rationality (information accessibility) and identity politics (cultural uniqueness), provide a reference for small and medium-sized tourist cities.

This study focuses on: How can medium-sized tourist cities achieve urban image construction by balancing instrumental rationality and identity politics through a two-tier interactive strategy of language landscapes? Try to specifically answer the following three questions: (1) How is the code function layer of Kagoshima LL configured in a gradient manner to meet the diverse information requirements? (2) How does its symbolic layer strategically transform local elements to enhance the “Kagoshima character”? (3) How does two-layer interaction serve the optimization of urban image in the integration of culture and tourism?

2. Case Investigation

2.1. Research Subjects

Kagoshima Prefecture is located in southern Kyushu Island, with Kagoshima City serving as its capital. According to the latest survey data on Japan’s 47 prefectures, Kagoshima covers a total area of 9,187 km² (ranking 10th nationally) and has a population of 1,648,000 (ranking 24th nationally)^[13]. Compared with the Tokyo metropolitan area and the Kansai region (centered on Kyoto-Osaka-Nara), it does not stand out in terms of population size, land area, or population density. Although Kagoshima is not an economically developed or transportationally convenient region, it boasts unique natural scenery and cultural history: its oceans, forests, volcanoes, and islands offer top-tier national natural resources, supporting robust agricultural, livestock, and fisheries industries. Yakushima, a UNESCO World Natural Heritage site, harbors abundant rare flora and fauna, showcasing typical vegetation landscapes from coastal to sub-alpine zones. As a gateway to southern Japan, Kagoshima has maintained frequent exchanges with China and other Asian countries since ancient times, serving as a conduit for

Western culture entering Japan in the 16th century. In the late 19th century, as Japan's isolationist policy collapsed, Kagoshima—among the first to embrace Western ideas and culture—actively introduced advanced technologies and dispatched students to Britain, emerging as a pivotal force in modern Japanese development and a key venue for the anti-shogunate movement that propelled Japan's modernization. These unique natural and historical endowments have made Kagoshima a renowned tourist destination, attracting numerous domestic and international visitors. According to the survey statistics of “Tourism Trends in Kagoshima Prefecture”^[14], in 2023, the number of foreign tourists staying in Kagoshima Prefecture increased by 849.7% compared to the previous year. In terms of the nationalities of the tourists, they are mainly from South Korea, China (including Hong Kong, Macao and Taiwan regions), the United States, Singapore, Germany, etc. According to the data, it can be considered that Kagoshima is a typical representative of medium-sized tourist cities in building their regional identity through natural and cultural resources. Compared with core cities like Tokyo and Osaka, Kagoshima's non-core location and tourism-driven economic characteristics make it an ideal case for studying how peripheral cities can balance “global readability” and “local uniqueness”. Examining its linguistic landscape not only allows observation of multilingual practices in non-metropolitan cities but also, as a tourist hub, illuminates how local linguistic landscape design serves tourism and constructs urban identity.

2.2. Research Methods

This study employs observation, photography, and background data review to collect and analyze language signage across multiple areas in Kagoshima. This field investigation was conducted in June 2022 and lasted for five days. Photographic data were primarily gathered from three locations, and the basis for material collection reflects the spatial functional gradient and the weight of tourist flow: Kagoshima Central Station, the iconic tourist site Sakurajima, and the niche destination Ibusuki, covering commuting, shopping and tourist gathering and distribution scenarios. Kagoshima Central Station, located in the central business district of Kagoshima City, serves as the prefecture's transportation and commercial hub. Sakurajima, a world-famous active volcano and symbol of Kagoshima, covering

nodes such as ferries, volcanic trails, and tourist centers, is a highly popular tourist attraction. Ibusuki, situated at the southern tip of Kagoshima Prefecture, features spectacular natural landscapes including Lake Ikeda, Nagasaki Hana, and Mount Kaimon, alongside unique sand bath hot springs formed by geothermal resources, drawing visitors seeking authentic local experiences. These three areas were selected as representative tourist zones embodying distinct regional characteristics for in-depth investigation.

2.3. Reliability of the Research

To enhance the reliability and validity of the research findings, this study employed three types of evidence sources for triangulation. (1) On-site sign image collection: The system takes high-definition photos of public signs at Kagoshima Central Station, Sakurajima, and Ibusuki, fully documenting their language configuration and symbolic representation, providing an empirical basis for functional and symbolic layer analysis. When choosing signs, fixed signs should be selected as much as possible to reduce the influence of factors such as seasons and holidays. (2) Official policy text analysis: Based on the “Guidelines for Improving and Strengthening Multilingual Services to Achieve a Tourism-Driven Nation” issued by the Ministry of Land, Infrastructure, Transport and Tourism's Tourism Department and local supporting documents^[15], clarify the government's institutional framework for standardizing sign functions and innovating cultural symbols; (3) Authoritative tourist perception data: A special assessment was conducted by citing the “Tourism Consumption Survey and Marketing Analysis Report” of the Kagoshima Tourism Conference Association^[16], with a focus on the data in aspects such as “natural landscapes”, “transportation facilities”, “tourism guides”, and “multilingual services”, to provide support for specific analysis.

This study formulates a structured coding scheme based on a two-layer analysis framework: the functional layer marks the language combination mode, information types (orientation/warning/business), and visual priorities; The symbolic layer analyzes cultural representations such as local symbols (dialect characters, volcano/ocean ICONS). To ensure the objectivity of the coding, two researchers independently completed the double-blind labeling of 30% of the samples. The Krippendorff's α reliability test ($\alpha = 0.82 > \text{threshold } 0.80$)

showed good classification consistency. A few cases of disagreement were resolved through pre-established standards and consensus through consultation.

2.4. Survey Results

2.4.1. Data Collection of Kagoshima's Linguistic Signage

According to Backhaus' perspective^[17], this study adheres to two core statistical principles: 1) Individual Sign Unit Definition: Every linguistic entity—regardless of size—is counted as a single sign during data collection. 2) Duplicate Sign Merging: Signs of different sizes but identical content (e.g., same text, font, and design) issued by the same institution are categorized as one unit. A total of 565 linguistic signs were initially collected. Sign collection was carried out using a stratified system sampling method. In each area, all visible signs were photographed along the circulation line of main roads → core scenic spots → secondary paths → service facilities. For temporary signs such as electronic screens

and temporary event posters, the stable displayed content is counted, while the dynamic carousel content is based on the first screen. For the classification of multimodal signs, those with a relatively high proportion of images or symbols are categorized based on the function dominated by text. For instance, scenic spot guide maps are classified under the “Guidance Signage”, while the illustrated Sakurajima Volcano explanation board is classified under the “Descriptive Signage”. In terms of the determination of language boundaries, mixed codes are regarded as bilingual signs, while pure ICONS are not included. Given the research focus on multilingual landscape distribution and application, signs with uniform size, specifications, and layout from the same issuing authority were grouped into common categories. This process yielded 120 distinct types of signage. Based on content and functional characteristics, these were classified into five major categories: (1) Traffic Signage, (2) Descriptive Signage, (3) Guidance Signage, (4) Warning/Reminder Signage, (5) Advertising/Promotional Signage (Figures 1–5 are examples).



Figure 1. Sakurajima Traffic Signs (Japanese/English) + Volcano Icon (Photographed in June 2022).



Figure 2. Introduction to Sakurajima Landscape (Japanese/English/Korean/Chinese) + Landform Images (Taken in June 2022).



Figure 3. Scenic Spot Guidance (Japanese/English/Chinese/Korean) + Scenic Spot ICONS (Photographed in June 2022).



Figure 4. Safety Warning (Japanese/English/Chinese/Korean) + Warning Icon (Photographed in June 2022).



Figure 5. Welcome Slogan (Japanese/English) + City Flower icon + Landscape Picture (Taken in June 2022).

2.4.2. The Differences in Language Distribution among Various Regions

According to the results in Table 1, there are statistically significant differences in the distribution of language sign types among different regions ($p = 0.006 < 0.05$).

Among them, the language type distribution of the signs in the central Station area is relatively balanced, with two languages (34.43%) and four languages (34.43%) accounting for the highest proportion, indicating the diversity of its multilingual environment. In the Zhisu area, single-language

signs are dominant (51.85%), while the proportion of multi-language signs is relatively low, suggesting that its language environment is relatively simple. The Sakurajima area shows a distinct polarization. 61.54% of the signs use four languages, while the proportions of single-language (23.08%) and two-language (15.38%) are relatively low. This reflects the high demand for multilingual signs in the Sakurajima area and its strong international characteristics. Although the sample sizes in other regions were small, they also showed a multilingual tendency (50.00% spoke four languages).

Table 1. Chi-Square Analysis of Language Distribution in Different Regions.

Classification	Types of Language Signs			
	One Language	Two Languages	Three Languages	Four Languages
Central Station Area	14(22.95)	21(34.43)	5(8.20)	21(34.43)
Ibusuki	14(51.85)	7(25.93)	2(7.41)	4(14.81)
Sakurajima	6(23.08)	4(15.38)	0(0.00)	16(61.54)
Others	2(33.33)	0(0.00)	1(16.67)	3(50.00)
χ^2 (Chi-square) Value	20.595			
p -value	0.006			

Overall, spatial contrast reveals core-edge differences. For instance, in the Central Station area, four-language signs are mainly used for traffic guidance, while bilingual signs are more commonly seen for introducing scenic spots. In other commercial facilities, single-language signs are dominant, reflecting the weight of tourist flow. In the Sakurajima area, the signs inside the ferry cabins are covered in three or more languages, but the ecological interpretation signs on the volcanic hiking trails are only in both Japanese and English or in Japanese alone. As the scenic area deepens, the number of multilingual landscapes significantly decreases. In the Ibusuki area, the public road signs leading to the well-known Sunamushi Kaikan (Sand Bath Hall) are multilingual. The multilingual introduction and services at “Sunamushi

Kaikan” are also relatively complete. However, the instructions, promotions and introductions in the local shopping street are still mainly in the single language of Japanese, indicating that the ability of private small and micro entities to provide multilingual services is relatively weak.

In conclusion, regional factors significantly influence the diverse configuration of language signs, and the use of language signs has certain regional characteristics.

2.4.3. Analysis of the Impact of Sign Categories on the Proportion of Multilingual Users

The results in **Table 2** show that there are significant differences in the single-language and multi-language usage of different types of signs ($p = 0.004 < 0.05$).

Table 2. Chi-Square Analysis of Sign Categories and Language Types.

Sign Category	Language Type	
	Monolingual	Multilingual
Public Road Signs	5(41.67)	7(58.33)
Descriptive Signage	14(26.92)	38(73.08)
Guidance Signage	3(10.34)	26(89.66)
Warning/Reminder Signage	5(38.46)	8(61.54)
Advertising/Promotional Signage	9(64.29)	5(35.71)
χ^2 (Chi-square) Value	14.526	
p -value	0.004	

Among them, the in-case guidance signs show the strongest multilingual tendency, with 89.66% adopting multilingual forms, significantly higher than other categories. This is highly consistent with their guiding function for international tourists. Explanatory signs also show a significant multilingual preference (73.08%), reflecting the characteristic that public service information needs to reach a wider audience. Advertising and promotional signs show the opposite trend, with 64.29% adopting a single-language form, which may be limited by the specific target audience or the uniformity requirements of brand communication. Although the public road sign category (58.33% multilingual) and the warning and reminder category (61.54% multilingual) are generally multilingual, the proportion is relatively balanced, which may reflect their dual needs of local residents and international users.

As can be seen from the logistic regression analysis results in **Table 3**, there are significant differences in the influence of different sign categories on the adoption of multiple languages (compared with single languages) (overall model $p < 0.05$). Among them:

Compared with the reference group (introduction and explanation type), the probability of using multiple languages for advertising and promotional signs was significantly lower ($OR = 0.205$, $p = 0.013 < 0.05$). This result was statistically significant, indicating that the possibility of using multiple languages for advertising signs was only 20.5% of that in the reference group.

The in-case guidance signs show a positive trend of multilingual adoption ($OR = 3.193$), that is, the probability of their multilingual use is 3.2 times that of the reference group (introduction and explanation type). Although this result has a significant margin ($p = 0.090$), it still has practical significance and may reflect their strong demand for serving international tourists.

The public road sign type ($OR = 0.516$, $p = 0.319$) and the warning and reminder type ($OR = 0.589$, $p = 0.416$) did not show statistically significant differences compared with the reference group (introduction and explanation type), but their OR values were both less than 1, suggesting that these two types of signs might be more inclined to use a single language than the reference group.

Table 3. Logistic Regression Analysis of Sign Categories and Language Types.

		B	Standard Error	Wald	Degree of Freedom	Significance	Exp(B)	The 95% Confidence Interval of EXP(B)	
								Lower Limit	Upper Limit
Steps 1a	D1_Public Road Signs	−0.662	0.664	0.995	1	0.319	0.516	0.140	1.894
	D2_Guidance Signage	1.161	0.685	2.871	1	0.090	3.193	0.834	12.231
	D3_Warning/Reminder Signage	−0.529	0.650	0.661	1	0.416	0.589	0.165	2.108
	D4_Advertising/Promotional Signage	−1.586	0.639	6.155	1	0.013	0.205	0.058	0.717
	Constants	0.999	0.313	10.201	1	0.001	2.714		

Variables entered in Step 1: D1_Public Road Signs, D2_Guidance Signage, D3_Warning/Reminder Signage, D4_Advertising/Promotional Signage.

In conclusion, different sign categories have significant differences in the adoption of multiple languages (compared to single languages), and these differences emphasize the importance of the purpose and function of signs in determining their language strategies.

From the perspective of the code function layer, the four-language usage rate of the in-case guidance type is the highest, indicating that the essential information in the tourist movement line needs to be efficiently transmitted through standardized multilingual means to eliminate language barriers to the greatest extent and has a strong functional orientation. Secondly, the multilingualization of warning and reminder types is mainly in four languages. Especially when it comes to safety or rules, it is necessary to ensure that key information is widely understood. Multilingual coverage reflects the emphasis on the undifferentiated transmission of high-risk information and has a risk-avoidance orientation. The introduction and explanation category is mainly in both Japanese and English. The basic information is presented in multiple languages, but the in-depth cultural content tends to be in Japanese, reflecting the limited compromise on the efficiency of cultural information transmission and demonstrating a stratified service strategy. Traffic signs are characterized by Japanese monolingual and Japanese-English bilingual versions. While meeting the basic orientation of international tourists, they retain Japanese monolingual signs, emphasizing local administrative authority and spatial sovereignty, and reflecting the balance between basic functions and sovereignty. The advertising and promotion category mainly uses Japanese as a single language, indicating that commercial information is not a necessity for tourists' survival, and the choice of codes is more dependent on the subjective strategies of merchants.

From the perspective of the symbolic level, the four-language signs of the in-case guidance type are highly standardized, reflecting the feature of de-locality. The mechanical four-language templates weaken the regional characteristics and have become the universal symbols of the global tourism assembly line. Among the warning and reminder categories, the existence of Chinese monolingual warning signs can be seen. This kind of native language warning for Chinese tourists symbolizes specific behavioral issues as group labels, which may imply cultural biases. In the introduction and explanation category, the cultural depth content tends to be in the single language of Japanese, suggesting that the right to interpret local knowledge belongs to the local community, and the foreign language only serves surface information. In the category of traffic signs, Japanese monolingual and Japanese-English bilingual signs are given equal importance. Japanese monolingual signs serve as physical markers of territorial discourse power, while bilingual signs reflect an international governance stance. In the advertising and promotion category, Japanese is the main language, emphasizing the imagination of "local Japanese experience", serving the production of cultural consumption symbols, which is a manifestation of the commercialization of local characteristics.

From the perspective of the two-level interactive relationship, the in-case guidance type and the warning and reminder type are function-oriented. The functional level demands override the symbolic level expressions, giving rise to standardized multilingual templates, sacrificing cultural uniqueness, and reinforcing stereotypes. Advertising and promotional types are symbolically dominant, highlighting sovereign authority or local consumption symbols through code selection. Functionality takes a back seat, and the cost

for non-Japanese language tourists to obtain information increases. Traffic sign type and introduction and explanation type are of the negotiated balance type. According to the visitor flow of the place, a stratified strategy is adopted to achieve a dynamic compromise between function and symbol within the limited layout, but the depth of cultural dissemination is

limited. It is evident that the choice of codes is the outcome of a game between urban managers and merchants between information efficiency and identity politics. The Kagoshima case shows that high-traffic tourism scenarios tend to prioritize the functional layer, while cultural identity scenarios are dominated by the symbolic layer (see **Figure 6**).

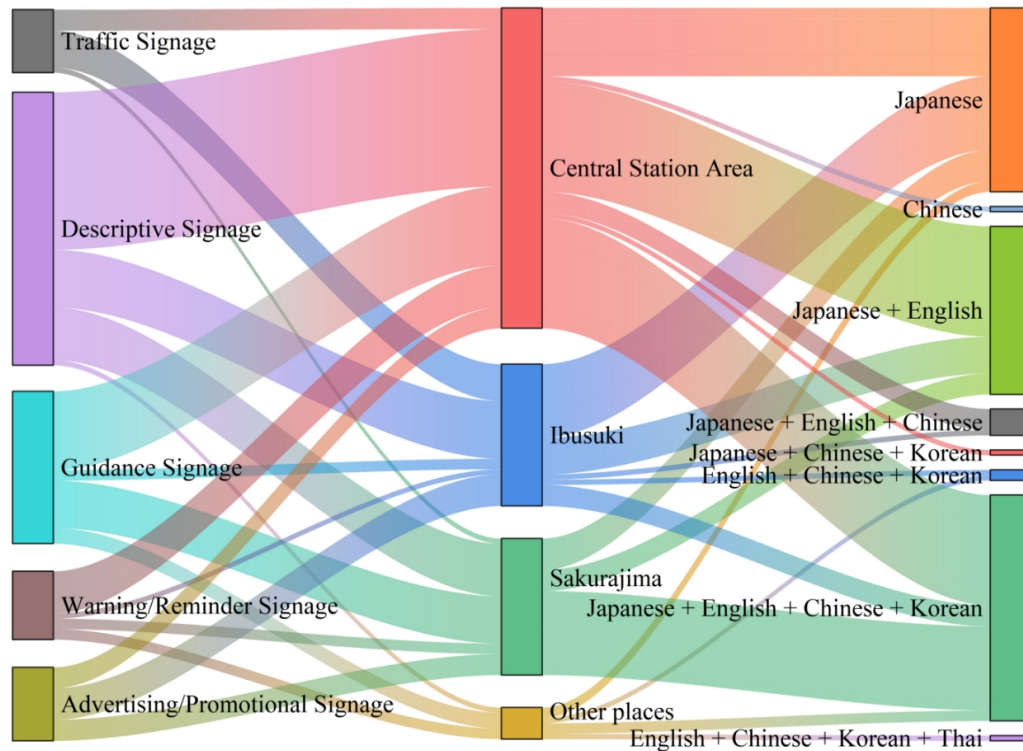


Figure 6. The Flow Map of Language Landscapes in Different Regions and Languages of Kagoshima.

Based on the above survey data, it can be seen that in the language landscape of Kagoshima, the multilingual advantage of bilingualism and above is very obvious. Multilingual signs are widely used for guiding directions such as scenic spot introductions and facility locations. Among them, Chinese, as the second most common foreign language code after English, is also extensively covered in road signs, guidance signs, warning signs, and introduction language signs, demonstrating the increasingly important international influence of Chinese. Multilingual signs have greatly exerted the introduction and indication functions of language landscapes, which helps to solve the language barriers of foreign tourists, improve local multilingual services, and promote the construction and development of international tourist cities.

3. Application of Linguistic Landscapes in Urban Identity Construction

Drawing on the dual-layer interactive framework of code-functional and symbolic-semiotic dimensions, this study reveals the dual mechanism by which linguistic landscapes shape urban identities: 1) Code-Functional Layer: Through the practical configuration of multilingual signage, this layer directly addresses tourists' language barriers, enhancing urban service efficiency via information accessibility. 2) Symbolic-Semiotic Layer: This layer conveys unique urban cultural identities through the decorative use of dialectal signage and metaphorical expressions of visual symbols.

These two layers form a dynamic interplay: functional

codes ensure the accuracy of basic information dissemination, while symbolic semiotics endow urban identities with differentiated cultural recognition, collectively constructing a synergistic system of “pragmatic tools—cultural representation.”

3.1. Dynamic Adaptation of Code Arrangement

Huebner applied the SPEAKING model to micro-analyses of multilingual signage^[18], where “A” denotes “Act sequence,” reflecting the close correlation between linguistic forms and social realities. Signage-issuing institutions deliberately regulate textual content, layout, and font size to achieve communicative purposes (e.g., promotion, reminder, guidance) through visual presentation. Kress and Van Leeuwen’s analysis of signage composition patterns from a visual design perspective posits that linguistic arrangement is inherently linked to meaning, with upper, left, and central positions symbolically prioritized over lower, right, or marginal areas. Scollon & Scollon (2003) further note that when multiple codes coexist on a sign, the most visually prominent code assumes a dominant position^[19].

Findings show that in multilingual signage issued by Kagoshima’s official institutions, the most common layout follows the hierarchy Japanese > English > Simplified Chi-

nese/Traditional Chinese/Korean, where “>” indicates font size hierarchy; “/” denotes equal font size, with order reflecting positional priority. This aligns with guidelines issued by Japan’s Ministry of Land, Infrastructure, Transport and Tourism (MLIT) in 2014 to strengthen multilingual services under its “Tourism Nation” policy, which stipulates Japanese-English bilingualism as the basic standard for prohibitory, guiding, and explanatory signs, with Chinese, Korean, and other languages added for facilities requiring special guidance for foreign tourists. This demonstrates that Kagoshima has achieved substantial standardization in multilingual service infrastructure, providing comprehensive linguistic support for visitors. Notably, in welcoming signage, a reverse hierarchy English > Simplified Chinese/Traditional Chinese/Korean > Japanese occasionally appears, with “Welcome to KAGOSHIMA” prominently displayed in large fonts at the top and Japanese relegated to the bottom. This intentional design positions English as the dominant code to signal openness and hospitality, actively shaping an internationalized image of a welcoming city (Figure 7). Furthermore, this strategy of putting the Japanese language at the end also implies an attitude of “language humility” and “service first”, which is inseparable from the overall Japanese culture of “おもてなし” (meaning reception, hospitality, and hospitality for guests).



Figure 7. Distribution of Linguistic Codes in Welcoming Linguistic Landscapes (Photographed in June 2022).

In the “Investigation Report on the Main Measures and Achievements” released by the Kagoshima Tourism, Culture and Sports Department in 2022^[20], it was mentioned that “Kagoshima has been comprehensively promoting the construction of a tourist destination to improve its local tourist reception system by making full use of local resources to create vibrant Spaces and experience venues, implementing landscape improvement along roads, and setting up clear and understandable directional signs.” And as a result of its construction, “By building and improving facilities such as multilingual tourism guidance signs, precise guidance for tourists to various scenic spots has been achieved.” It is not difficult to see that Kagoshima’s language landscape policy provides support for the construction of multilingual signs and effectively serves local tourism.

In terms of linguistic representation in private signage, diverse configurations such as Japanese > English > Traditional Chinese/Korean and Chinese > Japanese > English were observed, reflecting significant flexibility in language selection and arrangement. These choices are closely tied to businesses’ marketing strategies, target customer demographics, and commercial philosophies. For instance, in a certain supermarket in the Central Station area, the sections for different types of goods show a feature of Japanese > Chinese > English/Korean (**Figure 8**). It can be guessed that the target audience of this supermarket is not only local residents and tourists, but also overseas tourists. The purpose of its sign setting is to help customers find the items they want to purchase more quickly. Chinese tourists may indicate at the beginning that they are an important part of their customers. The study also found that when Chinese monolingual signs or Chinese-dominant multilingual signs appear, their content predominantly relates to warnings, regulations, advertisements, and promotions. This indicates that Chinese tourists have become a critical target group for local tourism, though cultural differences in lifestyle and customs may occasionally give rise to inappropriate tourist behaviors.

While the widespread use of multilingualism in official signage has significantly enhanced urban service quality and facilitated internationalized urban image construction, private commercial signage, despite its greater flexibility in language choice and design, faces issues of non-standard usage, such as mixed use of simplified and traditional Chinese characters and linguistic errors. These inconsistencies may

negatively impact tourist experiences to some extent.



Figure 8. Zoning Guidance Signs of a Certain Supermarket (Photographed in June 2022).

3.2. Dialectal Participation in Regional Identity Construction

As symbolic markers of regional identity, dialects serve as critical vectors for transmitting local images. Satō Kazuyuki and Yoneda Masato conducted an impression survey of dialects and standard Japanese across 14 Japanese regions, finding that Kyoto dialect was perceived as “polite, composed, and expressive,” while dialects from Hiroshima, Kochi, and Kagoshima were labeled “vulgar”—perceptions deeply intertwined with each region’s historical and cultural context^[21]. This suggests that dialects function more as cultural symbols of a city or region than mere tools for communication.

In Kagoshima’s linguistic landscape, dialects actively contribute to semiotic construction, primarily through private signage. Around tourist areas, signs like Kagoshima-ben Kentei (Kagoshima Dialect Proficiency Test) aimed at Japanese visitors use Japanese to introduce local dialect phrases, such as Oman na nosatta (translated as “You are very lucky”). For international visitors, bilingual dialect introduction signs like yukusa ojaimosita (translated as thank you for coming), Yōkoso Nagasaki-bana e (translated as welcome to nagasakibana) employ a hybrid of kana, romaji, Japanese kanji, English, and Chinese to showcase linguistic uniqueness. Whether used in city-wide promotional campaigns or as commercial lures in tourist zones, dialects are deliberately integrated into linguistic landscapes as cultural emblems (**Figure 9**).



Figure 9. Introduction to Kagoshima Dialect in Linguistic Landscape (Photographed in June 2022).

As representatives of a region's linguistic identity, dialects with their unique local flavors quickly establish a sense of hometown identity and belonging. While perceptions of dialects vary from positive to negative across regions, they share common attributes for local communities: "user-friendliness," "a sense of emotional familiarity," and "distinctive cultural charm." For tourists, regional dialects, distinct from standard languages and their own native tongues, spark curiosity and novelty. Visitors unfamiliar with local dialects, especially foreign tourists, perceive regional cultural uniqueness through linguistic expressions that differ from standard language norms. From an informational function perspective, dialects may pose comprehension challenges compared to standard language, sometimes even hindering accurate message delivery. However, the purpose of dialectal linguistic landscapes in tourist areas lies not in information transmission but in serving as "cultural ornaments" of regional identity. By emphasizing dialects' unique cultural characteristics, these landscapes deepen the distinctiveness of urban images, creating memorable semiotic markers for

visitors.

3.3. Cultural Connotation Transmission through Visual-Semantic Symbols

Early linguistic landscape research focused on static, context-specific language signs. However, with the proliferation of virtual linguistic landscapes (e.g., websites, web pages) and atypical forms (e.g., street graffiti, vehicle advertisements, voice broadcasts)^[22], scholars have recognized that linguistic landscapes extend beyond written language, incorporating symbols, sounds, and images in meaning-making. Shang & Zhao and Zhou further advocate expanding linguistic landscape research from textual analysis to examine multimodal linguistic symbols^[23,24].

Non-linguistic symbols are increasingly prominent in linguistic landscapes, with researchers shifting focus from "linguistic signs" to "non-linguistic signs." Like linguistic signs, these non-linguistic elements possess promotional, informational, and symbolic functions, playing a vital role in

urban identity construction.

Since Japan implemented its “Tourism Nation” policy, regionally distinctive symbolic markers have been widely adopted as cultural promotion tools. Leveraging its abundant agricultural, forestry, and geothermal resources, Kagoshima has crafted a nature-friendly urban image through mascots

like “Guribū,” a cartoon character designed with floral and plant motifs, which appears in tourist shopping areas to convey the city’s philosophy of harmonious coexistence with nature. Additionally, public space signage frequently incorporates volcanic, radish, and hot spring motifs, ubiquitously showcasing the city’s environmental uniqueness (Figure 10).



Figure 10. Linguistic Landscape Using Kagoshima’s Mascot “Guribū” (Photographed in June 2022).

Regarding visual-semantic symbols in linguistic landscapes, Isono notes that they “principally convey meaning to those who do not understand the local language, though some examples still require cultural knowledge for comprehension” (author’s translation)^[25]. Some symbols carry profound cultural meanings presented metaphorically through artistic processing, making them less accessible than written language to those lacking relevant cultural context. However, the uniqueness of these non-linguistic symbols lies precisely

in their embedded cultural cores, which enable tourists to engage in “immersive” cultural experiences. By repeatedly reinforcing local characteristics, such symbols sharpen and concretize urban identities.

The values transmitted through iconic symbols form a critical foundation for constructing core cultural semiotic systems. Just as cities across Japan leverage symbolic landscapes to create cultural brand identities, cultural contexts are materialized through linguistic landscapes, serving as reflec-

tions of urban cultural identities. Kagoshima exemplifies this by using non-linguistic symbols to comprehensively showcase its unique elements, thereby enhancing the construction and dissemination of its urban image.

4. Conclusions

Through the above analysis, we can observe that Kagoshima has achieved code gradient configuration through a risk-cost-information necessity classification strategy. The number of languages is significantly correlated with the type of information. The proportion of four-language signs for in-case guidance is relatively high, confirming that the functional layer follows the gradient logic of “the higher the necessity, the stronger the multi-language coverage”. There are more single-language signs for advertising and promotion. It reflects the principle of “local service priority”. Meanwhile, the ecology of its language landscape shows a gradient differentiation of “core-periphery”. The Chuo Station area, which is densely populated with tourists, and Sakurajima, where tourism development is relatively mature, have obvious characteristics of standardized multilingual dominance, while the more peripheral Ibusuki area has more prominent monolingual features. For core regions, multilingual signage can accelerate international development, but it also poses the risk of cultural homogenization. For peripheral areas, the popularity of multilingual signs may not be as high as that in core areas, but their cultural characteristics can be better preserved. From the perspective of the symbolic level, local elements are transformed into cultural symbols through both instrumental and metaphorical paths. For instance, the decorative transformation of dialects and the cultural metaphor of pictographic symbols can both enhance the “Kagoshima-like” character. Its essence is to transform dialects and symbols into “cultural ornaments” with low information content and high emotional arousal, avoiding comprehension barriers while enhancing regional recognition. Through symbol appropriation (dialect decoration) and functional classification (multilingual risk matching), Kagoshima has achieved the symbiosis of “service efficiency” and “cultural individuality”, providing a model for small and medium-sized tourist cities to break through the predicament of “internationalization = homogenization”.

From the perspective of urban identity symbols, this

study explores the applications and values of linguistic landscapes in language service development and urban image communication. The two-layer interactive framework of “code function layer - symbolic layer” constructed in this research has demonstrated strong explanatory power in decoding the identity construction of small and medium-sized tourist cities like Kagoshima. Its uniqueness lies in revealing that functions and symbols achieve symbiosis through dynamic synergy: standardized multilingualism ensures service efficiency, while dialects and local symbols act as carriers of cultural genes to activate regional identity. This two-layer interaction mechanism provides a key theoretical support for resolving the paradox of internationalization and homogenization in small and medium-sized cities. This study draws the following conclusions through literature review and case analysis: 1) Unlike natural landscapes, linguistic landscapes serve as interactive media within social contexts, possessing informational, promotional, and symbolic functions that actively contribute to urban identity construction and dissemination. 2) The development of multilingual services is closely intertwined with urban development. While reflecting local language use patterns, the standardization and improvement of multilingual services positively impact urban tourism, cultural communication, and image-building. 3) Linguistic landscapes are characterized by diversity and multimodality. Beyond written language, elements such as dialects, visual-semantic symbols, and symbolic markers convey cultural values through visual expressions, enriching the semiotic layers of urban identity.

However, we also need to be aware that although this framework is explanatory, we still need to be vigilant about the impact of three types of limitations on validity. (1) Limitation of data representativeness: Sampling at a single time point, without capturing the variations of festival signs, may underestimate the seasonal expression intensity of cultural symbols; (2) Lack of pragmatic analysis: Mainly relying on the static features of signs, without integrating tourists’ gaze behavior or interviews with local residents, it is difficult to fully decode the real context of symbol reception. (3) Modal interaction simplification: Insufficient analysis of collaborative narrative among text, images, and materials, for instance, the impact of color saturation on cultural emotion arousal has not been quantified. These limitations may diminish the depth of interpretation of the two-layer interaction model. In

future research, the following approaches can be attempted to break through the limitations of the study: (1) Longitudinal comparative design: For instance, tracking the evolution of Kagoshima signs from 2025 to 2030 to examine the long-term shaping of the two-layer interactive model by cultural and tourism policies; (2) Perceptual experiment expansion: By using an eye tracker and semantic difference method, the cognitive load and cultural identity of tourists towards “dialect decorative signs” and pure four-language signs are measured. (3) Urban typology comparison: Conduct a comparative study of Kagoshima (a medium-sized tourist city) with Tokyo (a metropolis), Kanazawa (a small city with cultural heritage), and other types of cities to further explore the two-layer interaction model of language and landscape among different types of cities.

The visual narrative of language landscapes comprehensively conveys the core values of regional culture to the audience. It can be said that the visual expression of language landscapes has a direct effect on the perception of the image of cities and regions. The promotion and improvement of multilingual services have greatly enhanced the information function of the language landscape, providing tourists with higher-quality language services and improving their travel experience. The promotional and symbolic functions of the language landscape under multimodal construction can reveal the social language ecology of a city, showcase the local urban culture and development concepts, and participate in the construction of the city’s image.

From a theoretical perspective, this study empirically verifies the dynamic interconstruction model of “functional layer - symbolic layer”, breaking through the traditional dichotomy of function/symbol in language landscape research. From a practical perspective, the Kagoshima case demonstrates that standardized multilingualism (enhancing service efficiency) and dialect symbol decoration (strengthening cultural recognition) can coexist in harmony, providing a practical model for the principle that “internationalization does not equal homogenization”. Research reveals that high-risk and demand-oriented signs need to be multilingual, while commercial signs should adopt flexible strategies to provide a basis for precise optimization of language services. Overall, this study provides a replicable analytical framework and strategic toolkit for small and medium-sized tourist cities to balance service efficiency and cultural sovereignty.

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Data Availability Statement

Source: The data supporting the results reported in this paper are based on original photographs obtained by the authors through field research.

Nature of Data: The data are qualitative image files, from which our research metrics were derived.

Availability: The original image files are not publicly available due to privacy and ethical restrictions.

Contact: For further inquiries regarding the data, please contact the corresponding author.

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Conflicts of Interest

The author declares no conflict of interest.

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