

Research Article

Study on Linguistic Landscape of Macao in the perspective of CIS

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ABSTRACT

Macao is a city dominated by the tourism and gambling industry. But in addition to the distinctive city image of “gambling”, Macao is also a small town with a blend of Chinese and Western cultures. The special historical reasons, geographical location, economic life and political history have created Macao's complicated and unique language conditions, where various languages and dialects have coexisted for a long time. Linguistic landscape research is an emerging field of social linguistics. It explores the language dynamism, competition, development, policy and national identity by examining the characteristics and laws of written language use in a certain region. CIS is the abbreviation of Corporate Identity System, means to organize, design, disseminate and manage good corporate image. It consists of three parts: Mind Identity (MI), Behavior Identity (BI) and Visual Identity (VI). This paper uses CIS theory to analyze the linguistic landscapes and classify them through the study on linguistic landscape from Macao's new and old town areas, the cultural and educational areas. Through field investigation, the authors collect corpus by taking pictures, then further classify them based on CIS theory. The data statistics indicate that Chinese is the only dominant code, and the official linguistic landscape code combination is mainly in China and Portugal, the tri-language signs gradually appear in the area close to the mainland. The color design is mainly composed of two colors. The code combination of the non-official linguistic landscape is mainly Chinese and Portuguese, and the proportion of Chinese and English bilingual signs is relatively large. As for the impact on Macao city image, this paper summarizes that Macao's linguistic landscape helps to form an open, friendly and leisure city. But there is still a long way for government and agencies to further strengthen rectification and adjustment in linguistic landscape.

1. Introduction

1.1 Research background

Located on the southeast coast of mainland China, Macao is a special administrative region of China. In 1553, the Portuguese were allowed to stay on the island and began to live in China. As the only bridge between Europe and China at that time, Macao played a major role in the operation of the world economy (Zhang yuanyuan et al., 2016). The special historical reasons, geographical location, economic life and political history have created Macao's complicated and unique language conditions. Various languages and dialects have coexisted in Macao for a long time. Among several languages, Chinese, Portuguese and English are the most widely used, and have experienced a shift in the number of users and the scope of application. At present, there are few sociolinguistic studies on the language status of Macao, and there is no accurate data to confirm the current language situation in Macao.

In the past few years, “linguistic landscape” has been the hot issue in the fields of sociolinguistics and applied linguistics, and is attracting an increasing concern of the semiologists and the psychologists. The researchers abroad and at home, have spent much time and energy making studies on this newly appeared issue. About the study of CIS, which is the abbreviation of Corporate Identity System, means for companies to organize, design, disseminate and manage good corporate image. The significance lies in the use of visual design to visualize, standardize and systemize the company's philosophy and characteristics. For the content point of view, CIS consists of three parts: Mind Identity (MI), Behavior Identity (BI), and Visual Identity (VI).

1.2 Research aims

This paper analyzes the similarities and differences of linguistic landscapes among the old and new town areas, cultural and educational areas by collecting and analyzing corpus, attempts to classify them into “top-down signs” and “down-top signs”, and analyze the current situation of Macao’s linguistic landscape from the perspective of CIS theory. And then by analyzing the impacts from linguistic landscape to Macao city image, the authors hope that the result of research will provide a basis for the formulation of linguistic policy and language service management in Macao, and help to improve the city's urban landscape construction.

1.3 Research significance

The study of LL has some importantly practical significant. Firstly, it is an effective way to explore the language ecology of a district. Language signs have the informational function, which helps people know the geographic boundary and constitution of a certain language community as well as the features of the language used there. Secondly, the study of LL reflects the language power of a geographical area and the social identity and status of the ethnic group. Finally, the study of LL can provide some empirical data to the language policy makers (Li li, 2016).

This paper analyzes the characteristics of linguistic landscape in Macao by collecting and analyzing corpus, attempts to classify and analyze the current situation of Macao’s linguistic landscape from the perspective of CIS theory for there is relatively little attention and research on CIS theory in the field of linguistic landscape. The results of analysis is expected to provide a basis for the formulation of linguistic policy and language service management in Macao by analyzing the impacts from the linguistic landscape deeply, and helps improve the city's urban landscape construction from the perspective of language.

2. Literature Review

2.1 Previous study on linguistic landscape abroad

Gorter (2006: 1) stated that according to the dictionary, “landscape” as a noun has two basic meanings, the first one is the more literal meaning of the piece or expanse of scenery that can be seen at one time from one place, the second is a picture representing such a view of natural inland scenery, as distinguished from sea picture or a portrait. When it used as linguistic landscape, both of the meanings are included. That is, the literal study of languages as they are used in the signs and the representation of the languages. Itagi and Singh (2002: ix) claimed that the use of any written texts in a given public place is LL. Ben-Rafael et al (2006) stated that it is the linguistic objects representing the public places, but the most frequently quoted definition by many researchers is put forward by Landry and Bourhis (1997,p.25), which is:

The language of public road signs, advertising billboards, street name, place names, commercial shop signs, and public signs on government buildings combines to form the linguistic landscape of a given territory, region, or urban agglomeration.

The initial development period of foreign studies on linguistic landscape is about 1997-2008. Canadian scholars Landry and Bourhis proposed the “Linguistic Landscape” in 1997 and start to use this concept. It proposes two major functional types: information function and symbolic function of linguistic landscape. Later, the theoretical research related to linguistic landscape also entered the second stage of exploration: Scollon and Scollon (2003) proposed the “geosmiotics” theoretical framework for public place identification research, which consists of subsystems such as code preference, inscription and emplacement. It enriches the research theory of linguistics landscape. Code-oriented orientation is an analysis of the relationship between languages, which reflects the value recognition and judgment of a region in different languages. The word engraving is mainly to analyze the presentation of the sign language, including the material, the font, the accumulation of the sign characters and the change of the sign language. The theory of place semiotics provides a relatively complete and comprehensive framework for linguistic landscape analysis (Hu, 2018).

Backhaus (2006, 2007) clarified that the analysis unit of linguistic landscape research was the language entity of each language regardless of size; Huebner (2006) drew the linguistic landscape analysis from the eight elements of Heims speech activity SPEAKING model. In addition, for specific research on linguistic landscape, Hicks (2002) investigated the issues related to the Scottish Gaelic signage and the implementation of the language policy of the nation; Reh (2004) conducted a survey and did some relevant explorations of the language and information arrangement on the writing status of the Uzbekistan municipality's sign. In addition, the *International Journal of Multilingualism* was published in 2006 as the first linguistic landscape paper. The important result of this stage was to put forward the concept of linguistic landscape, and at the same time to make active and effective attempts to construct the theoretical system, such as analysis unit, two functions, analysis angles and models, etc., laying a theoretical foundation for later research. After 2008, linguistic landscape research entered a "fast development period". During this period, the number of achievements was numerous, the research methods and perspectives were increasingly diversified, the theory was further improved and diversified, and multidisciplinary intersections gradually became a major feature. Researchers in the fields of advertising, urban geography, semiotics, and education have flooded in. Ben-Rafael (2009) proposed the principle of linguistic landscape construction of "symbolic construction of public space"; Barni (2009) first used computer software Mapgeoling to assist the annotation of pictures, and tried to explore the annotation method of linguistic landscape. During this period, the status of linguistic landscape research was also greatly enhanced. The European sociolinguistic school represented by the Dutch scholar Jan Blommaert regarded linguistic landscape research as a branch of sociolinguistic research, extending the research to the space of language application (including physical space, social and cultural space and political space).

2.2 Previous study on linguistic landscape at home

Zhang Baicheng (2015) believed that the related research on linguistic landscape in China began in the 1980s. Wan Yongkun and Yuan Yichuan (2016) pointed out that domestic linguistic landscape related research began in the 1990s. In China, Sun Li (2009) first quoted the concept of "linguistic landscape" proposed by Landry and Bourhis in the article "The Status of Linguistic Landscape Translation and Its Communicative Translation Strategy".

In the construction of theory and methodology, most of the domestic introductions involve the existing achievements abroad (Li Wei, Shang Guowen, Zhao Shouhui, Jin Yi). Li Wei (2012) gave a brief introduction and evaluation of Gorter's "Linguistic landscape: The New Path of Multilingual Research", focusing on the definition, sampling method and classification analysis method of linguistic landscape. Shang Guowen and Zhao Shouhui (2014a, 2014b) comprehensively examined the epistemological foundation, research background, research methods, research dimensions, theoretical construction, development prospects and challenges of linguistic landscape research, and elaborated Ben-Rafael's linguistic landscape construction principles in details. Spolsky's sign language selection theory, Trumper-Hecht's 3D theoretical model of landscape analysis, Huebner's SPEAKING model, and Scollon and Scollon's theory of place semiotics have been used by many researchers. Shang Guowen and Zhao Shouhui's comprehensive translation and analysis of foreign linguistic landscape research results have pointed out the direction for domestic research, and provided its ideas and significance. Since then, Jin Yi (2016, 2017) has also introduced the three theoretical frameworks of the field semiotics, linguistic landscape construction and analysis, including the SPEAKING model, language selection principles and language construction principles.

In terms of empirical investigation, the main research objects of domestic linguistic landscape are: (1) a certain type of language signage in urban linguistic landscape, mainly for the language use of shop signs and public signage. Xie Xiaomeng (2016) used the SPEAKING model to classify the store signs of Shangxiajiu Commercial Street in Guangzhou. (2) Language use in minority areas and tourist attractions (Xia Na, Li Li, Nie Peng, Zhu Yanqiu, Li Lisheng, Li Guanghui, Meng Linyi). (3) Language use of particular communities (Wu Xi Li, War Ju). Most of these subjects have the same characteristics, that is, there are multilingual phenomena in language use. Tian Feiyang and Zhang Weijia (2014) conducted a survey on the bilingual public sign language of Beijing Xueyuan Road with theory of globalization sociolinguistics, that is, globalization and localization, super-diversity, standardization, mobility and so on. At the beginning, it is pointed out that bilingual road signs are not only related to simple translation problems, but also to the social activities of the whole society. Su Jie (2017) has done research on the private signage of the Shanghai catering industry from the perspective of linguistics ecology. It is considered that the language selection in the private signage is the cultural attribute of the corresponding language, while the private linguistic landscape reflects the group status deviation; Zhang Yuanyuan (2016, 2017) studies on the language of Macao and Hong Kong, the multilingual situation of the linguistics landscape. Through a survey of a major commercial street in Macao and a back street of residents, it was found that the linguistic landscape in Macao was mainly bilingual and multilingual, and the number of Chinese, English and Portuguese was different. The investigation of speech community in Hong Kong found that the Hong Kong linguistic landscape has obvious "internal and external nature."

In addition, some literatures examine the linguistic landscape from the perspective of translation and language teaching. Sun Li (2009) pointed out many problems in the translation of Wenzhou linguistic landscape, and proposed the communication strategy of translation. In terms of practicality, Shang Guowen (2017) expounds the role of linguistic landscape in language teaching and second language teaching practice and illustrates the importance of linguistic landscape as a resource in combination with relevant learning theories.

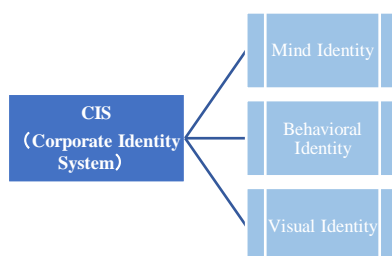
Generally speaking, the domestic study of linguistic landscape uses cross-disciplinary theories and methods, such as landscape science and urban geography to explore the interaction between linguistic landscape and social life. In the 21st century, the globalization and localization of linguistic landscape has become an important topic of current research.

2.3 Brief introduction to CIS theory

CIS is the abbreviation of Corporate Identity System. The more accurate Chinese translation is the “enterprise identification system”, which is the product of large-scale production, market, advanced technology and competition in the modern society. It has been introduced and matured in Europe, America, and Japan since the 1950s, and has developed rapidly around the world. As an effective means of image integration between enterprises and the public, it has been widely used by many companies around the world, creating good economic and social benefits.

CIS consists of three parts: MI (Mind Identity), BI (Behavior Identity), and VI (Visual Identity). MI (Mind Identity) is a value system formed by the company's long-term development process with unique personality; Behavior Identity (BI) is gradually cultivated under the guidance of corporate philosophy identification, it's the conscious work mode and behavior method of all employees of the enterprise. VI (Visual Identity) is a set of identification marks unique to enterprises, and it's also an external manifestation of concept recognition. (Table 1)

Table 1. The structure of CIS theory



In 1930, American scholars Leymont Novi and Paul Rondo presented the CIS theory (Corporate Identity System). In foreign countries, CIS theory has mostly been used in corporate personality image design. Therefore, CIS theory is also called enterprise CIS. In the 1960s, on the eve of the First World War, companies in Europe and the United States began to introduce CIS theory into their image building. According to the current main literature, the earliest successful story is the General Electric Company of Germany. By introducing the CIS theory, GM has designed the logo of the company as “AGE”. Through the establishment of a standardized identification system, the corporate image has been greatly improved to make them stand out in a fiercely competitive environment.² In recent years, the most successful case of CIS theory in the practice of foreign corporate image is the Coca-Cola Company in the United States. It changed its “Koca Cola” logo to the “Coca Cola” logo based on the theoretical perspective of CIS, and greatly improved it. The sales of its own products have developed into a world-famous beverage brand.³ As more and more companies have applied CIS theory to build their own image, some countries in the world have begun to use CIS in the image building of regions and cities. Some industrial districts in Singapore have developed their own development concepts with CIS theory, and have consolidated their position in the region through the promotion of regional flags⁴; the North Korea has built its own CIP system based on the CIS theoretical system⁵. Tokyo, Japan, absorbed the core of the CIS theory and once sought a new urban logo for the public, replacing the old turtle logo, and formed unified city image in the region⁶.

² Liao Liang. Thoughts on Introducing Corporate Image Design. Chinese and foreign entrepreneurs, 2007 (10) .

³ Yan Deming. Research on Organizational Identification of School Brand Personality. South China Normal University, 2006.

⁴ Huang Zhihua. Strategic Research on Introducing Urban CIS in Underdeveloped Areas. Packaging Engineering, 2009(12).

⁵ Wu Weishan, Chen Haiyan, Chen Ting. Planning and Design of CI. Shanghai: Shanghai People's Fine Arts Publishing House, 2005.

⁶ Zhang Hongyan. “CI Strategy” for Urban Construction. Urban Issues, 1995(03): 2-6.

The foreign experience in CIS theory fully proves that CIS theory has unique features for shaping the image of the organization, and also inspiring the image building of China's cities.

In China, CIS was also applied to corporate image design. What's more, after the analysis and research of Chinese scholars, CIS theory has been expanded, and it has been applied to all aspects of city image, urban landscape, urban living space, etc. Especially in the study of urban image, CIS theory is also called urban CIS or urban CI strategy in urban image application. Professor Zhang Hongyan (1995) put forward ten opinions on the overall introduction of CIS theory in urban image construction in "CI Strategy for Urban Construction", and addressed that the introduction of "CI" strategy in urban image construction is a very urgent issue. It concluded that the construction of the city should not adopt a bold and rough approach, and the city should be built with elaborate art processing.

Zhu Chengqi (2003) gave a detailed introduction to the urban image design based on CIS theory, and defined the urban CIS as the CIS theory, method and urban design in his paper "CIS CIS - Urban Image Creation Method". The combination of urban image creation methods to achieve the intersection of urban planning and art.

Liao Guang (2012) introduced urban CI into the construction of urban landscape features. At the same time, he focused on the application of urban CI in the construction of urban landscape features in his paper. He took Liling City as an example, the detailed method of urban CI in the construction of urban landscape features are expounded.

Liu Lingbo (2005) of Wuhan University in the "CI Strategy for Small and Medium-sized Cities Based on Historical and Cultural Protection" has integrated historical and cultural protection with urban CI strategy, and proposed the strategic requirements for urban CI implementation in small and medium-sized.

Dr. Lee Kuan Yew (2015) applied CIS theory to the process of creating urban landscape image features in his doctoral thesis "Study on the Creation of Urban Landscape Image Characteristics Based on CIS Theory", and correspondingly applied CIS theory in its application process. The expansion has formed the "five elements of urban landscape image recognition": Mind Identity, Geography Identity, Urban Identity, Urban Landscape Image, Human Identity and Visual Identity of Urban Landscape Image.

In Europe and the United States, CIS theory is mainly applied to the company's characteristic image design, in order to highlight the company's personality image and recognition through corporate image design, and enhance the competitiveness of enterprises. These theoretical practices enrich the theoretical system of CIS. It also proves the practicability and universality of CIS theory. After the introduction of CIS theory into China, it has been applied to all relevant parts of urban planning by Chinese urban planning scholars, especially in urban image design. These application practices have fully proved that CIS theory is of great applicability.

2.4 Research Gap

According to the literature review, the study of linguistic landscape mostly uses cross-disciplinary theories and methods, such as landscape science and urban geography, to explore the interaction between linguistic landscape and social life. And most of the research sites selected in the study is located in China, while there are fewer papers about the linguistic landscape of Hong Kong and Macao. As for CIS theory, most scholars apply this theory to the study of corporate culture construction, and few scholars use it in the study of linguistic landscape.

Based on these research gaps, this paper has two innovations. The first is to apply CIS theory to the analysis of linguistic landscape, which provides a new perspective for linguistic landscape research. The second is that most of relevant researches are still in the mainland, few involves the linguistic landscape around the Macao SAR . Hence, this paper selects new and old town areas and the cultural and educational areas of Macao as the sample sites, which is relatively novel in terms of corpus selection.

3. Research Methodology

This paper attempts to classify the corpus into "top-down" signs and "bottom-up" signs, and analyze the current situation of Macao's linguistic landscape from the perspective of CIS theory.

3.1 Data collection

This paper chooses to take digital pictures in most attracting tourist attractions, including new town areas, old town areas and cultural and educational areas. The collections of corpus come from Macao's new town areas (taking the Ruins of St. Paul's,

Guanye Street as the sample site) and the old town areas (taking the red market and other residential areas in the island as the sample site), the cultural and educational areas (taking the University of Macao, Macao University of Science and Technology, Macao City University, Macao Polytechnic Institute, Macao Tourism College as the sample site). Guanye Street and Ruins of St. Paul are famous tourist attractions, and there are a lot of tourists and locals gathered, therefore they can be regarded as the representative scenic spots of new town areas for their distinctive local features and rich folk culture. And the old town areas are further away from mainland, so the linguistic landscape there will be more local. The universities of Macao represent the internationalization trend of the linguistic landscape. That's because students there are from all over the world, the linguistic landscape there is more diversified and internationalized, and it will also exert a subtle influence on education. Therefore, several universities are selected as sample sites.

One thing has to be mentioned about is the unit of analysis. As we took pictures in the above-mentioned famous tourist attractions, they are guideposts, warning signs, shop names, and so on, and we took the same kind of sign as a unit, even it is an image or a number. For example, we take pictures for some advertising posters or billboards on the windows or the walls in one shop, we still treat these pictures taken in a same shop as one unit (Li li, 2018).

3.2 Research procedures

In order to investigate the linguistic landscape in Macao, the paper uses several different steps:

The first step is sampling. As we have mentioned in the part of data collection, we take some digital pictures in those places to support the proceeding of our study. At last, we collect 307 digital pictures in this research.

The second step is to classify these pictures and account the percentage of them according to "top-down" signs and "bottom-up" signs.

Then we present the findings with the form of tables. According to the statistical data, MI (Mind Identity) theory is used to analyze the ideas and cultural connotations in the signs. BI (Behavior Identity) theory divides the signs into road signs, warning signs and notice signs, analyzes the content characteristics of the linguistic landscape. The VI (Visual Identity) theory is used to analyze the visual effects of signs, combined with the inscription of semiotics to analyze the form characteristics of the Macao linguistic landscape.

Then, the CIS (Corporate Identity System) theory is extended to the CIS (City Identity System) theory. The impacts on Macao city image are analyzed from the perspectives of MI, BI and VI. The cultural connotation conveyed by the signs, the multilingual signs and the appearance of the signs will be analyzed for their impact on the Macao city image.

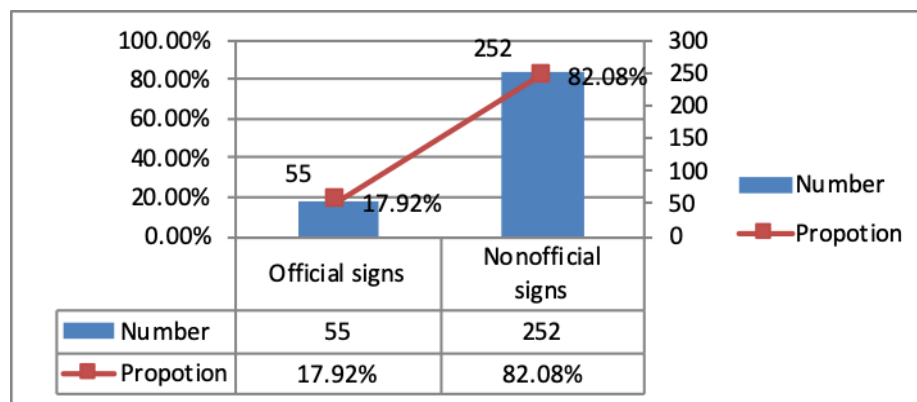
The last step is the conclusions from the main findings. What's more, the authors present some suggestions on what policy the city can make from the perspective of linguistic landscape to make the city better.

4. Results and Discussion

4.1 Classification of linguistic landscape of Macao in terms of official and nonofficial

The linguistic landscape can be divided into top-down signs and bottom-up signs among different sign makers. This is a widely used classification method in linguistic landscape research. The former is established by a government agency and it is also called an official signage. The latter is produced by private individuals and enterprises, also known as private/nonofficial signage, and the use of language is relatively free (Hujiazhen, 2018). Differences in language usage between official and nonofficial signs help us understand the relationship between language practice and policy in a region. So we use this method to classify the corpus.

Table 2. The number of official and nonofficial signs



As shown in Table 2, This paper collected 307 signs in Macao, including 55 official signs and 252 nonofficial signs. We will use the framework of CIS theory to analyze official and nonofficial signs from the aspects of the concept, behavioral guidance and visual identity.

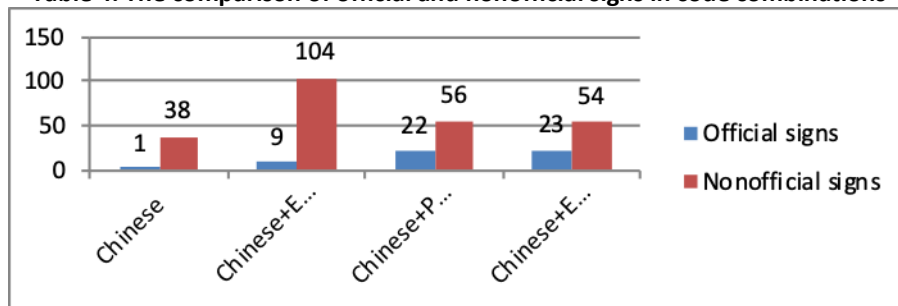
At present, there are two main criteria for judging bilingual/multilingual linguistic landscapes in the world: 1. In monolingual countries, signs with languages other than the mother tongue are considered as bilingual/multilingual signs, even on this logo only one language appeared (Backhaus, 1997). 2. People traditionally judge monolingual, bilingual/multilingual signs according to the number of languages appearing on the signs. Signs that only in one language are treated as monolingual signs, signs in two languages are considered bilingual signs, and signs in three or more languages are considered as multilingual signs (Lai, 2013). This study follows the latter one, the monolingual and bilingual/multilingual signage in the traditional sense.

Table 3. The classification of code types and combinations

Code types	Code combination	Number	Proportion
Monolingual	Chinese	39	12.70%
Bilingual	Chinese+English	113	36.81%
	Chinese+Portuguese	78	25.41%
Multilingual	Chinese+English+ Portuguese	77	25.08%

The above table is a monolingual, bilingual and multilingual classification of all samples. According to the results of collection, among the official signs, only one sign is a Chinese monolingual sign. In the official bilingual signage, the proportion of Chinese and English signs is smaller than that of Chinese and Portuguese signs. The proportion of multilingual signs (Chinese, English and Portuguese) is almost the same as that of bilingual signs (Chinese, Portuguese). Among the three languages (Chinese, English, Portuguese) used in official signage, Chinese accounts for 100%, followed by Portuguese and finally English.

Table 4. The comparison of official and nonofficial signs in code combinations



About the nonofficial signs, bilingual signs account for the largest proportion of all signs, and the number of Chinese-English signs is almost twice than the number of Chinese-Portuguese signs. Chinese monolingual sign account for 15%. The proportion of multilingual signs (Chinese, English and Portuguese) is almost the same as that of bilingual signs (Chinese, Portuguese), which is similar to official signs. Among the nonofficial signs, Chinese is still a dominant language, but English is second and Portuguese is the least.

The similarity between official signs and nonofficial signs is that the proportion of monolingual signs is small, bilingual and multilingual signs account for a large part. What's more, Chinese accounts for 100% of the total, and there are no English monolingual or Portuguese monolingual signs in the selected locations. The differences are, first of all, in terms of code selection, except for Chinese, the most popular official signs' code is Portuguese, and the most popular nonofficial signs' code is English. In terms of code combination, nonofficial signs use more Chinese and English bilingual signs, while official signs use more Chinese and Portuguese bilingual signs, and the proportion of multilingual signs is higher in official signs. This reflects the difference between the use of folk languages and government language policies. Unlike the language policy that is used in official languages, the use of folk languages pays more attention to the economics of language use.

4.2 Characteristics' Analysis of linguistic landscape of Macao

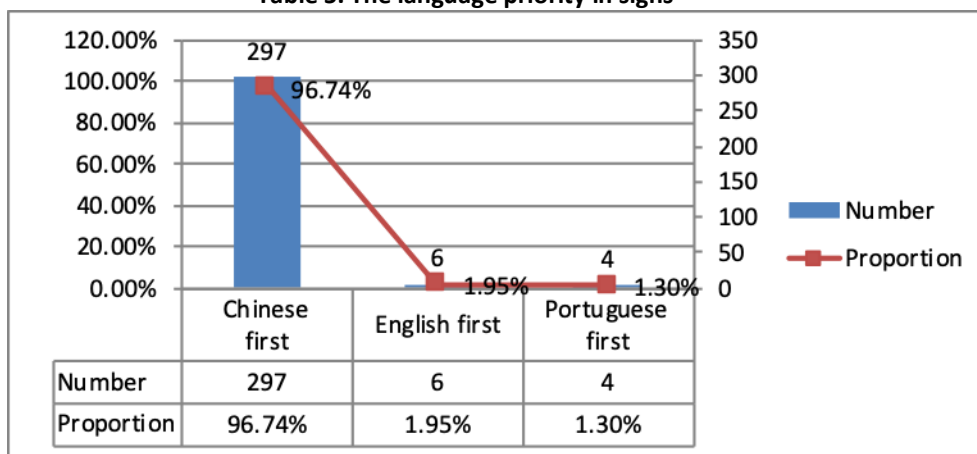
This part will present the results of statistical data, analyze the characteristics in content and forms of the linguistic landscape in Macao based on these figures and proportions, and then discuss the differences between official and nonofficial signs, finally summary will be given.

4.2.1 Linguistic characteristics of linguistic landscape of Macao in terms of Mind Identity

The Mind Identity occupies a unified position in the CIS system and is the driving force for the formation of the characteristics of the organization's image. As an organization, it is different from the mental form and set of other similar groups. It is regarded as the brain and soul in the organization. It is the basis for the construction of Behavioral Identity and Visual Identity. Before the return of Macao, Portuguese was the only official language of Macao, and it was used in the fields of administration, legislation, justice and civil servants. After the reunification, the Basic Law of the Macao Special Administrative Region of the People's Republic of China lists both Chinese and Portuguese as official languages. So the proportion of Chinese and Portuguese languages used in government affairs has changed significantly.

Although we did not find a very obvious slogan about "one country, two systems" in this field trip, we can find that the Chinese code is given priority in all code orientations from the statistics. The table below shows the proportion of code orientation.

Table 5. The language priority in signs



From the table we can see that the Chinese code priority orientation has an absolute advantage in these three languages. And the English-first signs mainly appeared in some universities, like University of Macao. Macao's cultural and educational districts are mainly home to students from all over the world, and they need an international language environment more than other parts of Macao. Therefore, English is the language of priority consideration.

According to the survey of the Macao Administration and Public Service Bureau from 1999 to 2003, the number of Portuguese-speaking civil servants in civil service dropped from 11.29% at the time of return to 8.8%. The number of Chinese-speaking people increased from 87.62% to 90.3% by the time of return (Huang Wei, 2007: 106). But Portuguese is still a very important language in Macao society. Most legal documents are still drafted in Portuguese. Everything needs to be attended by legal persons who understand Portuguese.

English has been used in Macao for more than one hundred years, but its use has been limited. After the 1980s, with the frequent international economic exchanges in Macao, English began to be widely used. Although English is not an official language in Macao, it is a common language in the fields of financial commerce, modern science and technology, and higher education. It is also a prerequisite for Macao people to obtain higher education and good development opportunities. English courses are generally offered in primary and secondary schools in Macao, and it is also used as a medium of instruction in higher education institutions.

From the perspective of Mind Identity, we can find that with the increasing use of English, especially on the private signs, Macao gradually shows the powerful development after returning to the motherland. Portuguese has changed from the local language to the second or even third language on the signs. The Chinese on the signs has also gradually changed from traditional to simplified, in order to cater to the needs of more mainland tourists. We can see that the linguistic landscape of Macao reflects both the Western style of the SAR and the unique culture of Portugal, as well as the outstanding achievements

of “one country, two systems”. We can expect that with the increasingly close relationship between Macao and the mainland, the linguistic landscape of Macao will more clearly reflect the meaning of the national value and policy of China.

4.2.2 Linguistic characteristics of linguistic landscape of Macao in terms of Behaviour Identity

In previous studies, most scholars' research methods were to construct a dynamic behavioral recognition system (BI) aimed at presenting a static organizational concept (MI) through a series of behavioral activities. This part applies BI to study the behavioral guidelines of the linguistic landscape. From the perspective of Behavioral Identity, we divide the signs into three categories: warning signs, guide signs and information signs. Among the collected corpora, the signs that have an impact on behavior are mainly divided into these three types. Warning signs remind people of the dangers when doing something. That is, people are not allow to do something. Guide signs play the most basic role of road guidance, providing people with road information and directions. It means to help people do something. While information signs cover a wide range of content, such as shop advertisements, special tips and so on. It actually offers some options for people to do something. Therefore, people's behavior is affected by the linguistic landscape.

Warning signs are used to alert prohibited behavior. For example, the danger warnings and non-smoking signs shown below. (Figure 1)



Figure 1 Warning signs

Warning signs are mainly composed of warning signs and words. However, unlike the mainland, due to the complexity of the language environment, most of the warning signs in Macao are composed of Chinese, English and Portuguese. Therefore, the content is rather lengthy, and the text portion is relatively large. In terms of color combination, there are no more than two colors, so it is very simple and accessible. This also conforms to the basic principle of warning signs, helping readers to recognize the warning content and prohibition behavior at a glance. However, because there are three kinds of languages, it is time-consuming to read, and it is difficult for readers to capture the core content. Although the size of font can reflect the importance of the information, the text information on the page is too much and the image sometime is too small. It may cause the failure in prompt understanding.

The street sign is mainly a sign indicating the name and direction of the road. (Figure 2)



Figure 2 the street signs

The code combination of the road signs is mainly divided into two types: the first is Chinese and Portuguese, and the second is Chinese, Portuguese and English. In tourist attractions and crowded places, most of the signs select Chinese, Portuguese and English to better guide global visitors. In the remaining residential areas and areas with fewer tourists, most of the signs are bilingual (Chinese and Portuguese).

In terms of color selection, the street signs are two-color combinations, which are very conspicuous. In terms of style design, the road signs on the road are similar to those in the mainland, and are made of square aluminum plywood. The street signs at the tourist locations have more Portuguese style; there are also many more details in the design. These road signs are also available for enjoying while guiding.

Information signs include billboards and public information signs, like the pictures below, rental and restaurant information.(Figure 3)



Figure 3 Information signs

The information signs we collect can be divided into official and nonofficial signs. The official information signs are mainly shown in the figure, which are some public information tips. In terms of language selection, the official information signs are mainly in Chinese and Portuguese, and there is a small amount of Chinese and English bilingual. The colors of signs are mainly black and white color to convey the information more obviously. The information of nonofficial signs is presented in many ways, and the color selection is more abundant. When visitors and readers read the information signs, they will get the information of the store products through the style and design of the signs. However, some messages presented by private information signs is very confusing, and there are also problems in the design of colors and fonts.

4.2.3 Linguistic characteristics of linguistic landscape of Macao in terms of Visual Identity

Scollon and Scollon (2003) proposed the “geosmiotics” theoretical framework for public place identification research, which consists of subsystems such as code preference, inscription and emplacement. The inscription is mainly to analyze the presentation of the sign language, including the material of the signs, the font, the accumulation of the sign characters and the change of the sign. Material is the carrier of the sign language. Materials of different textures can produce different meanings, including permanent, continuous, temporary, recent, quality and so on. The font refers to the way of writing, including the style, size, color and so on. Accumulation is the attachment of a word as an additive component to another word, indicating recent and temporary. State means that the sign marks the business status by changes in the lighting background. It is partly a silent language too. When the light is on, it means to operate, vice versa. Some signs attract customers by conveying friendly information when the store is in a business, such as “Welcome” written on the doors and windows of the store. When the text matches the lighting in the store or the signboard, the correct information can be conveyed in a timely manner.

The difference in font design between different types of signboards is affected by the function of the signage. The role of language signage is to convey information to sign readers, such as store business scope, business characteristics, business hours, tips, etc. Meanwhile, the signage can also be used as a means of modifying the characteristics of the store. The sign designer creates a unique style by material selection and font design.

Based on the photo samples we collected, we can find some features of the signs. The official signs are mainly used in no more than two colors. The font is basically a combination of traditional Chinese and Portuguese, especially in many tourist destinations, such as the St. Paul's, Chinese. The road signs all use aluminum plywood, while the signs on the tourist sites use the iron-colored road signs with green patent leather. The fonts are yellow and more eye-catching, which are also full of Portuguese style. The road name signs are made of ceramic and stone materials. The white ceramic is used as the background

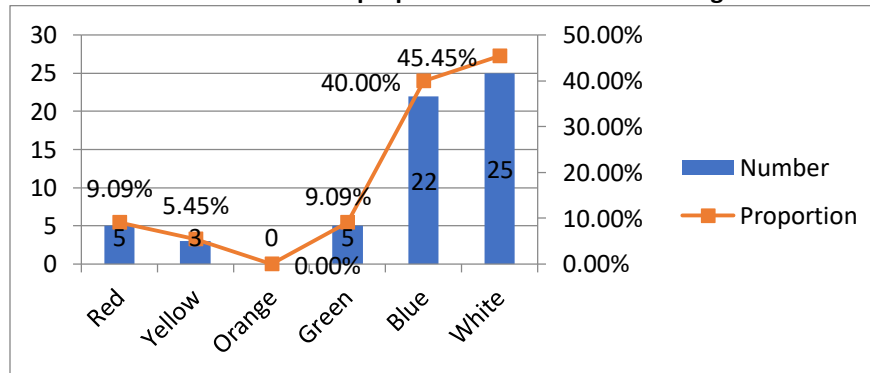
and the font is blue. In terms of language selection, road signs select to use traditional Chinese and Portuguese, which are normative on the whole. What's more, unlike the ordinary aluminum plywood road signs, the ceramic and stone materials are full of sense of design and Portuguese style.



Figure 4. official signs

Table 6 shows the statistics of the color used in official signs. It can be seen that blue and white are used in a large proportion, while bright colors such as red, orange and yellow are used in a small proportion, and red and yellow are mostly used for warning signs.

Table 6. The number and proportion of colors in official signs



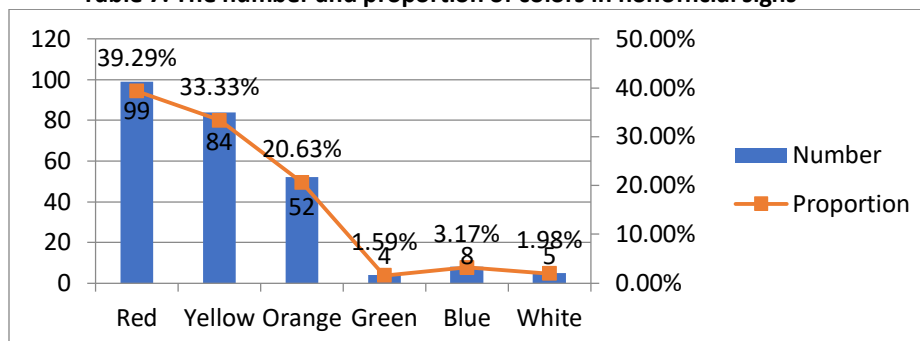
About the nonofficial signs, most of them use adhesive tape, the color is almost red or yellow, which attracts tourists. Table 7 shows the statistics of the color used by private signs. It can be seen that the blue color is used in a small proportion, while the bright colors such as red, orange and yellow are used in a large proportion, especially in the tourist area.



Figure 5. Nonofficial signs

In order to attract tourists, most merchants choose to use red and yellow as the color of the sign. What's more, bright colors make it easier to increase appetite and excitement, thus enhancing the shopping experience of tourists. Some merchants use incandescent lamps to illuminate. Some merchants choose neon lights to directly embed fonts. Traditional Chinese characters are used to carry shop signs with relatively little specific information and strong symbolic meaning, rather than posters and billboards with more information and more practicality. There are a large number of luminous characters in the signboards of the enterprises in the private signage, so as to mark the business status at night and attract customers.

Table 7. The number and proportion of colors in nonofficial signs



In short, compared with private signage, the official signage presents a simple and intuitive feature and a uniform orientation in the selection of materials and the specific settings of the fonts. The diversity is mainly reflected in different regions and occasions. While private signage is more personalized, and there are differences and commonalities between the signs of different functional categories and the signs of different stores. The signage materials of store enterprises are more diverse. The font settings for posters and billboards are the liveliest of all the types of signs. The establishment, supervision and maintenance of official signs are the responsibility of government agencies. The basic purpose of signage is to provide information to the public. Therefore, the signage requires durability and material selection, and the font specifications are clear, authoritative and serious. But you can still feel the unique Portuguese style in it, with different combinations and color schemes in different public places and tourist destinations. Private signage is regulated by the government and set up by the private sector. Therefore, the choice of materials and fonts is more free, showing different styles.

4.3 Summary

The Macao linguistic landscape is dominated by bilingual / multilingual styles. In terms of language usage, Chinese, English and Portuguese, these three languages are far more common than other languages, both in terms of quantity and significance. In terms of the type of usage, the official and nonofficial linguistic landscapes in Macao are consistent in the use of dominant language, monolingual and multilingual samples, while the language types of bilingual samples are inconsistent. Nonofficial linguistic landscape is mainly Chinese and English. The residential areas are mainly based on bilingual signs in Chinese and Portuguese, and there are fewer English signs. There is a very wide use of English in international business areas.

In general, the most obvious feature of the Macao linguistic landscape is multilingualism. Most of the Chinese characters are in simplified Chinese characters, reflecting the achievements of one country and two systems. The language and design of the signage reflect the Portuguese culture, which is also an attraction to tourists. However, the presentation of private signage is confusing and lacks unified management, especially in tourist attractions.

5. The Role of Linguistic Landscape on Macao City Image Construction

The word "city image" was firstly proposed by American urban scientist Kevin Lynch in "The Image of the City". He believes that any city has a public impression, which is the superposition of many personal impressions.

The city image is a perception of the city, including the impression of objective physical forms such as urban architecture, layout, roads and environmental sanitation, as well as subjective factors such as citizen behavior, legal systems, urban civilization and the image of the city government etc. The CIS (City Identify System) is evolved and developed by the CIS (Corporate Identify System). Although the city and the corporate are two concepts belonging to different levels and systems, the CIS (City Identify System) is based on the analysis of the principle of the CIS (Corporate Identify System), reconstructing the city, architectural design, and landscape design. This part will analysis the impact brought by the linguistic landscape on Macao city image from the three aspects of CIS (City Identify System) theory.

Macao is a city dominated by the tourism and gambling sectors. It is characterized by the harmonious compatibility of Chinese traditional culture and European style. As a place where European culture, especially Portuguese and Chinese culture, have merged for more than 400 years, Macao has always preserved the cultural landscape, leisure life rhythm and atmosphere of a small tourism city, which is the greatest charm of Macao, and also distinguish Macao from the other tourism cities around the world.

The authors believe that the Macao linguistic landscape has the following impacts on the city image.

5.1 Linguistic landscape helps to construct an open city

The Mind Identity of city image is the leader of urban renewal, improvement and establishment of its own unique city image. It is the concentrated expression of urban spirit and character, and is the soul of urban systemic existence. The city image concept recognition system includes the following elements: urban management concept, urban planning development concept, urban service concept, slogan of urban internal and external publicity, urban lifestyle and citizen regulation. The recognition of city concept directly affects the quality of city image construction, and plays a key role in shaping a unique and connotative city image.

The mind orientation of the city image reflects the development direction and development goals of the city, and is the overall embodiment of the city. The influence of Macao's linguistic landscape on the image of the city is subtle. The concept of linguistic landscape is closely positioned around the image of the city, and the open concept is conveyed through the diversity of linguistic landscape. This will enable local residents and visitors of different regions and ages to generate new insights into the image of the city.

Before the return of Macao, the degree of trilingual circulation in Macao was arranged in the order of China, Portugal and Britain. Cheng Xianghui (2002) once predicted: "After the return of Macao, their order is changing. Without too much time, English will surpass Portuguese and form a pattern of Chinese, English and Portuguese.

In terms of political competitiveness, after the return of Macao, both Chinese and Portuguese are the official languages of Macao with equal status and rights. In terms of culture, Chinese traditional culture and customs have been well preserved in Macao. In terms of economy, Macao's current economic development is mainly based on tourism. In the proportion of the national economy, the related service industry accounts for 61.4%, of which the gambling industry accounts for the largest proportion, with 45.9%; The hotel industry and the catering, wholesale and retail sectors accounted for 7.8% and 7.7% of the GDP respectively. These are the major industries that promote Macao's economic growth. Among the visitors to Macao during the peak of the 2013, the people from mainland China, Hong Kong and Taiwan accounted for 90% of the total, and the number of inbound tourists and the level of consumption of mainland tourists far exceeded the other two regions.⁷

In February of this year, the Central Committee of the Communist Party of China and the State Council issued the "Guangdong-Hong Kong-Macao Greater Bay Area Development Plan", marking the new development stage of the Guangdong-Hong Kong-Macao Greater Bay Area construction strategy. In the context of "one country, two systems, three customs zones, and four core cities", in order to achieve the goal of building the Guangdong-Hong Kong-Macao Greater Bay Area, it is not only necessary to connect the economy and the market, but also to deepen the level of value identification and cultural integration. Only based on a common traditional culture, especially the Chinese traditional culture with strong vitality, can we all work together towards a prosperous future.⁸ In line with this trend, Macao's linguistic landscape and city image will be affected. What's more, the opening of the Hong Kong-Zhu hai-Macao Bridge has promoted the close economic ties between Macao and the urban agglomerations of the Guangdong-Hong Kong-Macao greater bay area. Before the opening of the Hong Kong-Zhuhai-Macao Bridge, the flow of production factors such as people and logistics flow were limited to a certain extent, and the economic connection between Macao and the cities around the Pearl River was weak. For example, Macao could not enjoy the port and aviation resources of Hong Kong in the past, which limited Macao's development in ports and other aspects.⁹ And one of the difficulties in tourism resource cooperation between Macao and cities on the east coast of the Pearl River is the high commuting cost. By solving the problem of transportation, Macao has become increasingly connected with the mainland. Macao can take it as an opportunity to cooperate with Hong Kong, Shenzhen and other cities in scientific and technological innovation to promote industrial diversification.

⁷ Macao Statistics and Census Bureau 2012 Macao National Economic Statistics 1~4 pages. <http://www.dsec.gov.mo/Statistic.aspx?NodeGuid=74901f28-78df-4f28-9f16-6a8fb95e76a7>

⁸ Yuan Huiqin, Guangdong, Hong Kong and Macau Dawan District: From a common tradition to a common future, China Art News, 2019-002 edition.

⁹ Zhao Weiwei, Analysis of the Impact of the Opening of the Hong Kong-Zhuhai-Macao Bridge on the Regional Development Pattern of Macao—Based on the Analysis of Urban Agglomeration Development in Guangdong, Hong Kong and Macao, Hong Kong and Macao Research, 2018-04.

With the deepening of this connection and cooperation, in the future, Macao's linguistic landscape is bound to take the form of convergence with the mainland to meet the needs of the society. As the most basic application in daily life, the linguistic landscape can most visibly reflect the subtle changes of the city image. This change reflects the attitude of Macao to actively integrate into the construction of the Guangdong-Hong Kong-Macao greater bay area to be an open city.

The linguistic landscape of Macao and the image of the city influence each other. With the increasingly close ties between Macao with the mainland and the world, Macao's linguistic landscape is becoming more international. The changes and styles of the linguistic landscape are also affecting the image of the city of Macao and the perception of the city's concept in people's minds.

5.2 Linguistic landscape helps to construct a friendly city

When the city Mind Identity system is determined, the city concept needs to be transmitted through the carrier, and the Behavior Identity system is a good dynamic medium for its dissemination.¹⁰ The city Behavior Identity organizes the city's internal publicity, management, system, education, construction and other activities around the city concept. It uses various urban facility as a carrier to spread the city idea and gradually establish a unique urban image. (Donghaiyan, 2018) Linguistic landscape, as a means read by people everyday, will convey the message of hospitality to all the visitors. So this part divides the main body of city behavior into two categories: local government and residents, while tourists are the audience.

First of all, the government's behavior is mainly reflected from the design of official signs. It can be found that the official signage design of Macao is very uniform. In terms of language selection, the proportion of official signs used in English is lower than that of private signs. Because official users strictly abide by the Macao Basic Law on the official language of Macao. Most bilingual samples are mainly Chinese and Portuguese. However, private users are more concerned with economic factors, so the bilingual sample is mainly Chinese and English. From the perspective of communicative function, Chinese, English and Portuguese have been able to meet the communication needs of Macao society. From the perspective of internal and external language, Chinese is a communication tool for Macao residents, while English is a tool for the outside world. As for the field of usage, Chinese is the language of daily communication, broadcasting media, primary and secondary education in Macao society. Portuguese is an administrative, legislative, and judicial language. English is a language spoken in the fields of finance, commerce, higher education, and high technology. (Zhangyuan, 2018) English, as an international language, has the highest acceptance, so the popularity of English reflects the internationalization of a region. With the rising proportion of English in the official linguistic landscape, it can promote the internationalization of the city image to welcome visitors all over the world.

The linguistic landscape has a more direct impact on visitors. Chinese priority code orientation is more attractive to mainland tourists, especially simplified characters.



Figure 7. Nonofficial signs in new-town area

(Figure 7) Since nonofficial signs are more personalized, they can more intuitively reflect the behavior of local residents. From the choice of color, font and code, it can be seen that nonofficial sign is more inclined to attract domestic and foreign tourists, and seek resonance by words. The linguistic landscape of nonofficial signs is also affecting the behavior of tourists, and their

¹⁰ Xu Yanni. The design of urban brand image recognition system is based on the example of Benxi, the capital of China's maple leaf. Shenyang: Master's thesis of Shenyang Jianzhu University, 2012.

impression to Macao. The linguistic landscape pay more attention to mainland tourists so as to affect their consumption and general. Before their visiting, they prefer to choose the areas with more Chinese guidance because they think it's familiar. In the tourist sightseeing process, the standardized linguistic landscape help tourists complete their tourism routes and plans easily. Innovative and unique signage also has the potential to attract tourists to enjoy taking photos and share them on the Internet, such as special tourist sites, landmarks, road signs, etc., or to share photos of delicious foods or other products from private shops with public signs. In this process, the linguistic landscape of Macao is imperceptibly publicized through the observation and sharing of tourists. Tourists can appreciate the language and culture of Macao through the most basic contact, sharing something they think is worth sharing, and the linguistic landscape is involved. All these behaviors will have a positive impact on the publicity of the city, and people's impression of Macao will accumulate and finally form the city image of Macao. Meanwhile, for foreign tourists, multilingual environment, especially the environment with high English popularization, is very convenient for them to visit. In Macao linguistic landscape, a large portion of the signs are Chinese-Portuguese but lack of English, which will cause a lot inconvenience for non-Chinese tourists and even limit their tourism activities, resulting in a poor impression of Macao. Therefore, imperfect construction of multilingual environment will lead to negative impression of tourists.

All in all, the behavior of the sign creators directly affects the change of the linguistic landscape, and the linguistic landscape will guide the visitors' behavior, indirectly affecting the image of city in people's minds, showing the positive image of the city and the passion of citizens, that is, you are welcome to Macao.

5.3 Linguistic landscape helps to construct a leisure city

Visual recognition is based on the external representation of the entire city image. It can not only display the external visual image of the city, but also shape the spiritual connotation, temperament and style of the city. The visual identity of the city image is concrete that the city shows to the world, and it also presents urban spiritual concept, culture and civilization. The city image vision system is embodied from various parts of the city, such as urban landmarks, urban standard colors, outdoor billboards and billboards, linguistic landscape etc.

The positioning of Macao's urban image has undergone the following three stages of development: In the first stage, since the legalization of the Macao gaming industry in 1847, the gaming industry has gradually become a pillar of Macao, making a great contribution to Macao's economic growth. Macao is known as 'Oriental Monte Carlo'. Macao has become a world-wide 'gambling city' (Chenzhangxi, Quchudong, 2009). In the second stage, after the return of Macao, due to the implementation of the "free travel" policy and the opening of gambling rights, Macao's gaming industry has entered a phase of rapid development, and gaming revenue has increased substantially. During this period, the Macao SAR government and all sectors of society have positioned the new goal of Macao's development as "Asia's Las Vegas". The image of Macao's "gambling city" is more deeply rooted in many people's mind. In the third stage, the development of the gaming industry in the countries and regions around Macao has played a certain impact on the gaming industry in Macao. The Macao government has proposed a moderate and diversified development of the economy (Fengbangyan, Huangjiajia, 2003). Until today, the linguistic landscape of Macao is still full of casino style. (Figure 6)

In Taipa, many road signs in the casinos are used in both Chinese and English because of the gamblers from all over the world. In the evening, the casinos in the Macao Peninsula, such as Lisboa and Wynn, are lit up with neon lights, and the linguistic landscape is rich in color, which is combined with the lights to highlight the casino.



Figure 8. The signs of casinos

In 2008, the State Council proposed the development plan for building Macao into a "world tourism and leisure center" in the approval of the "Planning and Development Plan for the Pearl River Delta Region (2008-2020)". "This plan provides a new

direction for the development of Macao's urban image.” (Dianchenglin, 2009). The positioning of Macao's urban image has shifted from the original “gambling city” to the “world tourism and leisure center”.

Macao is an open tourism city, which can also be regarded as a model of implementing the regional tourism and leisure city. With rich tourism resources and developed catering industry, Macao has laid a foundation for the development of regional tourism. At present, Macao government tourist office has launched 8 walking routes, covering the Macao peninsula, Taipa and Luhuan, which allow tourists to travel in different communities and experience the beauty of Macao. There are 2,284 restaurants in Macao's 30.5 square kilometer area, providing tourists with a wide range of food choices. Macao government tourist office is applying to UNESCO for the title of "The city of Tasty Food"(Longjianhui,2018). Therefore, Macao's tourism should also consider how to combine tourism with culture, linguistic landscape, education and other aspects to make the concept of tourism broader.

From a visual point of view, Macao's linguistic landscape is full of Portuguese style, reflecting the characteristics of the casino, and is gradually transforming into leisure tourism. In the process of city image construction, the unique design of signs enables tourists to feel the charm of multilingual culture most directly through visual contact. For example, in airports, railway stations and other transportation hubs, a large number of trilingual signs not only help tourists from all over the world, but also reflect the international context and the open image of the city. Private signs, through a variety of designs, flexible use of colors and styles, make people feel and know about Portuguese and European customs. The unique designs of some private signs show a colorful city image. However, the development of the gambling industry in Macao has driven the growth of the real estate industry. Modern buildings have emerged rapidly. They have gradually eroded the Portuguese architecture and destroyed the original harmonious visual space. As a result, there are some contradictions between the tradition and modern in Macao. The cultural landscape and leisurely rhythm of the southern European town, which Macao was originally proud of, began to fade. Moreover, the popularity of English is still not high enough. From the inconsistency of the linguistic landscape code orientation, it can be seen that the current tourism services in Macao still cannot keep up with the development of tourism.

6. Conclusion

This paper uses CIS theory to analyze the similarities and differences of linguistic landscapes in different areas and classify them through the collection and analysis of corpus from Macao's new and old town areas and the cultural and educational areas.

Through sample collection and data statistics, this paper analyzes the characteristics of official and private signage: Chinese is the only dominant language, the official linguistic landscape combination is mainly in China and Portugal, and the tri-language signs gradually appear in the area close to the mainland. The color design is mainly composed of two colors. The code combination of the non-official linguistic landscape is mainly Chinese and Portuguese, and the proportion of Chinese and English bilingual signs is relatively large. The color is mainly composed of bright colors such as red orange and yellow, and the simplified characters appear frequently. This phenomenon is due to the return of Macao to the motherland, the support of national policies to promote the transformation of the city image and the internationalization of the linguistic landscape.

With extension from Corporate Identity System to City Identity System, this paper analyzes the influence of linguistic landscape on city image from three aspects: MI (Mind Identity), BI (Behavior Identity) and VI (Visual Identity). This paper argues that, linguistic landscape helps to construct an open, friendly and leisure city image of Macao. From the perspective of MI, multi-lingual environment defines urban theme concept and cultural spirit identity. The changes and styles of the linguistic landscape also affect the image of Macao and the people's perception of the city's concept. From the perspective of BI, the behavior of the sign creators directly affects the change of the linguistic landscape, and it will promote the city's behavior. And from the point of VI, Macao's linguistic landscape is full of Portuguese style, reflecting the characteristics of the casino, and is gradually transforming into leisure tourism. The unique designs of some private signs especially reflect a colorful city image.

However, Macao's linguistic landscape needs to be improved. For example, the language of official signage has a small proportion of English and cannot meet the needs of international tourists. This has a negative impact on the image of the city. Private signage is a bit confusing in terms of code selection, which is not accessible for sign readers. These require government departments and agencies to further strengthen rectification and adjustment. Based on the previous research results, this paper uses the existing research methods to classify, analyze and analyze the linguistic landscape of Macao and its impact on the city image under the guidance of CIS theory. However, this paper mainly has the following shortcomings: Firstly, due to

time constraints, fewer samples are collected. Secondly, the explanation and utilization of CIS theory needs more on-the-spot interviews to make a more objective databank. For future research, we'll conduct more sample collection and necessary interviews so as to obtain holistic information and enhance the study's reliability. Besides, we hope to have the study more logically ordered and achieve a breakthrough in the field.

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