

Exploring the Virtual Linguistic Landscape of Chinese University Websites: A Focus on Internationalization and Multilingualism

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Abstract

This study explored the Virtual Linguistic Landscape (VLL) in Chinese higher education amidst a strong government focus on internationalization. A descriptive qualitative methodology was adopted to investigate the VLL of the top 100 Chinese university websites. The focus was on language code selection, language distribution, and informational functions of these websites. The data analysis involved the use of frequencies and percentages to explore both the quantity and types of language displayed on universities' homepages. Additionally, content analysis was employed to scrutinize the informational function of the content found on websites. The findings revealed that the majority (87%) of these websites were bilingual and used simplified/traditional Chinese and English. Additionally, 7% employed a multilingual approach, employing simplified Chinese, English, and other foreign languages. A minority of the participants (6%) adopted monolingualism. These websites disseminate various types of information, including general university details, admissions, academic units, research, campus life, international collaborations, academics, training, and talent recruitment. Notably, some websites feature information specific to the Chinese Communist Party and its cultural aspects. The prevalence of English content demonstrates top Chinese universities' efforts to engage with the global community and enhance their international reputations. These findings add to the understanding of multilingualism and the roles of English in cyberspace, such as websites.

Keywords: Chinese university websites, English as a global language, internationalization of higher education, multilingualism, virtual linguistic landscape

Introduction

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The notion of the linguistic landscape (LL) was first defined by Landry and Bourhis (1997) as ‘the language of public road signs, advertising billboards, street names, place names, commercial shop signs, and public signs on government buildings’ (p. 25). LL study originated from sociolinguistics, the study of language, and linguistic performance as influenced by social and cultural variables in daily life. With the expansion of research fields, it gradually intersects other disciplines and pays particular attention to the language landscape in a multilingual society (Zhang & Shang, 2020). With the development of the Internet, research on LL is no longer limited to signage in public areas, but has gradually turned to virtual cyberspace. This virtual phenomenon overcomes the limitations of time and space.

With the improvement of the country’s comprehensive national strength and the rapid development of higher education (HE), China has become increasingly popular as an educational destination for international students (Hu, Diao, & Li, 2022, p. 1). In addition, the government has issued a series of related policies to promote the global expansion of Chinese education, such as the ‘Overall Plan for Promoting the Construction of World-Class Universities and First-Class Disciplines’ and ‘Educational Action for Promoting the Construction of the Belt and Road’ (‘Silk Road Economic Belt’ and the ‘21st Century Maritime Silk Road’). These two policies are critical for raising China’s educational development level, boosting its core competitiveness, and setting the groundwork for long-term development.

According to Gu and Yi (2019, p. 46), to guide teachers and students in shaping the international education institution’s image, enhancing Chinese HE’s overseas communication strength, and better participating in international competitiveness, building a multilingual foreign language website has become a key strategy for China’s HE to ‘go global.’ Chinese universities have paid great attention to the critical role of websites in information dissemination, establishing an international image, and attracting international students. They form a unique VLL by providing different language choices and multilingual pages. Hence, the VLL on educational websites is worth investigating.

Literature Review

1. Linguistic Landscape (LL)

A number of scholars’ interest in language in public spaces has increased since the landmark work of Landry and Bourhis (1997) on ‘linguistic landscape’ and ‘the visibility and salience of languages on public and commercial signs in a certain territory or region.’ LL includes the language of public road signs, advertising billboards, street names, place names, commercial store signs, and public signs on government buildings, combined to produce the linguistic landscape of a certain territory, region, or urban agglomeration (p. 25). It encompasses a wide range of disciplines, including linguistics, geography, education, sociology, semiotics, architecture, and urban planning. On numerous levels, it provides rich and exciting texts. These LL texts shape the ecology in local, global, and international contexts and in multiple languages (Shohamy & Gorter, 2009). Language signs are the main research object in LL research, which aims to reveal the method of discourse construction among language users, language planning agencies, and signage readers (Zhang, 2020). In addition, according to Gorter (2006), when

there are multiple languages on signs, LL can reveal an area's social background as well as its multilingualism.

2. Functions of LL

LL has two primary functions: informational and symbolic (Landry & Bourhis, 1997, p. 25), which serve different purposes. The informational function of language on public signs provides information for communication and service, such as languages that are visible in public and private spaces in streets, schools, shopping malls, etc. (Lu et al., 2020; Zeng & Luo, 2019, p. 115). According to Zeng and Luo (2019, p. 115), information on public signs can inform, direct, guide, or warn the public.

The informational function indicates the boundaries of the territory in which language groups live and the availability of a particular language for communication within that territory (Landry & Bourhis, 1997). For instance, consistent use of a single language within the LL of the same territory can help establish clear linguistic boundaries between adjacent language groups within a given geographic area (p. 25). Furthermore, based on the language mainly used on a local language sign, people can conclude that language is the main language of the area, and the establishment of multilingual signs in a certain place shows the social phenomenon of multilingual coexistence in the region. The LL provides information about language conditions (Shang & Zhao, 2014). In other words, LL can also provide information about the sociolinguistic composition of language groups that inhabit the territory.

The symbolic function refers to the views of members of a language group on the worth and status of their language compared to other languages (Landry & Bourhis, 1997, pp. 27-29). As public signs can be monolingual, bilingual, or multilingual, the superiority of one language over other languages on public signs reflects the relative power and status of competing language groups. In addition, the linguistic diversity existing in the LL can be regarded as the specific expression of the linguistic and cultural diversity of ethnic linguistic groups living in a particular administrative territory or region (Landry & Bourhis, 1997, pp. 26-27; Mao & Zhu, 2018). LL contains an understanding of language values and the status of language group members. However, this study focuses on the informational function only.

3. Virtual Linguistic Landscape (VLL)

VLL, also known as the non-physical landscape, refers to the LL of cyberspace -- computer-mediated communication that takes place on the Web. VLL is a new dimension of language practice (Ivkovic & Lotherington, 2009; Carr, 2019; Shohamy & Gorter, 2009). In virtual space, multilingual choices and options are becoming increasingly frequent owing to the increasing spectrum of multilingual capabilities in digital interactions (Ivkovic & Lotherington, 2009). 17). Cyberspace can be considered an extension of physical space (Wang, 2020, p.3). VLL is used to describe language communities and mark language status in expressive power relations between language choices that coexist in cyber space. Languages in cyberspace have become an important force in promoting changes in global language ecology. Virtual environments can repackage and reposition language in innovative ways in a world of ever-

evolving interactive possibilities, resulting in a language ecosystem that is not representative of the physical world (Ivkovic & Lotherington, 2009). 19).

4. *Multilingualism*

Despite the belief of many monolinguals that speaking only one language is the norm, multilingualism is ubiquitous in communities worldwide (Wardhaugh & Fuller, 2015). 82). Multilingualism can be defined as ‘the ability of societies, institutions, groups, and individuals to engage, on a regular basis, with more than one language in their day-to-day lives’ (European Commission, 2007, p. 6).

LL can reveal the social background or multilingual situation of a region (Ngampramuan, 2010). According to Gorter (2006), LL refers to a social environment in which more than one language exists (p. 1). Numerous studies on multilingual LL have been published in recent years, including Backhaus (2006), Johnson (2017), and Lay (2015). LL reflects the strength and status of different languages and can show how policies to promote minority languages and multilingualism are developing (Goter & Cenoz, 2009, p.17). Hence, the study of LLs is useful for multilingualism studies because linguistic signs are indicators of the language employed in a particular context.

5. *English as a Global Language*

English, widely recognized as a global language, serves as a modern lingua franca for international relations, media, travel, science, and education. Its usage is not just functional but often reflects cultural appropriateness (Crystal, 2003; Graddol, 1997). English has a unique global status acknowledged in every country and is used worldwide for business, diplomacy, and global communication, driven by economic and cultural globalization (Crystal, 2003; Rao, 2019; Zhang, 2013). In the era of globalization, English is increasingly the preferred international medium, vital for knowledge across science, business, and education (Crystal, 2003; Lewis & Deterding, 2019).

English is spoken in 110 countries as a mother tongue, official language, or common second language, owing to historical factors and technological advances (Al-Dosari, 2011; NetEase, 2023). It is currently the world's most widely spoken language, with around 2.3 billion users, serving as a trade tool that attracts global investors and enhances economic power (British Council 2023). Since the 1960s, English has become the regular language of instruction in HE in many countries (Crystal, 2003, pp. 110-112), including China.

6. *A Review of Previous Studies on VLL*

Studying VLL in HE is vital for understanding the interplay between language, technology, and academic changes. Greenall (2012) studied how the Norwegian University of Science and Technology attracted international students by utilizing bilingual information on its website. The researcher contrasted the introductory web pages directed at Norwegian students with those of their English-language counterparts targeted at international, non-Scandinavian-

speaking students. The researcher found that the English homepage builds the international image of the university, but at the same time, the cultural information -- that is, culture-specific items relevant to the Norwegian university, such as recruitment and international master's programs -- was downplayed in the English version, which results in the suppression of local culture in cyberspace. Another study that explored the bilingual website of a university was conducted by Keles, Yazan, and Giles (2019), who applied comparative content analysis to investigate bilingual (Turkish and English) content in the VLL of a university in Turkey to scrutinize exclusionary *de facto* language policies. They found three main issues on the website: the unavailability and inaccessibility of information, inconsistency in content, and difficulty in comprehending English content on the English homepage. Hence, the researchers pointed out that as HE institutions increasingly become part of international student and faculty exchange programs, universities should build a more linguistically inclusive VLL in their website construction to improve the outcomes of international exchange programs.

In a more extensive study, Callahan and Herring (2012) analyzed the websites of 1,140 universities in 57 countries using the content analysis method. They studied the extent to which universities in different countries provide foreign language websites and the languages used as primary and secondary languages on these foreign websites. They found that university websites do not implement multilingualism but take the official language, Turkish, as the center and English as the first additional language. Other trilingual modes of second languages are targeted at special groups. The researchers concluded that English continues to spread as the global language of HE on university websites, while the use of the national language remained stable, and the inclusion of other languages grew faster than English, resulting in an overall net increase in multilingualism. In this case, it could make universities look welcoming to speakers of these languages and provide international students with more extensive experience.

Gu and Yi (2019) discussed the current situation and problems in the construction of multilingual websites of Shanghai International Studies University in China using content analysis. They pointed out that universities should formulate a website construction approach and translation scheme that meets the needs of the audience and language service industry standards. In particular, universities should gradually carry out the construction of multilingual websites by strengthening the construction of English websites (Pei, 2013, as cited in Gu & Yi, 2019, p. 48), guiding teachers and students to jointly shape the image of an international university, and enhancing the overseas dissemination of Chinese HE. Furthermore, Zhou (2022) extended the discourse by taking the official websites of ten famous Minzu universities in China. A Minzu university or ethnic university is a broad term that usually refers to HE institutions in China, which focus on research, education, and promotion of the culture, language, history, traditions, and national characteristics of various ethnic groups in China. The researcher adopted a mixed research method to examine language code selection, presentation methods, and topic distribution. The findings indicated a multilingual pattern where Chinese predominates over English, non-*lingua franca* languages, and minority languages on the website, which reflects the characteristics of uneven language power. The distribution of themes highlighted ideological discourses such as 'party and government construction, epidemic prevention and control, and the construction of a national community.' Zhou

remarked that the findings had implications for broadening the scope of LL investigation and enriching the content of LL research.

In a recent study, Wen (2023) examined nine official websites of language universities in China to explore the characteristics of the VLL on official university websites in terms of language code selection and distribution and the characteristics of its presentation. Wen used a combination of qualitative and quantitative research methods and concluded that Chinese language universities took Chinese as the preferred language on their official websites, and Chinese characters as the preferred symbols constitute the entire content of their VLL. As the official language of China, Chinese has dominant language power in public spaces. Second, the official websites of language universities, without exception, use English as the second language in addition to Chinese. This suggests that in terms of linguistic vitality and language information dissemination, English holds distinct advantages. Third, compared with the status of Chinese and English, the language status of non-common languages (e.g., French, Russian, Arabic, Spanish, German, Japanese, Indonesian, etc.) is relatively marginal. This is because uncommon languages have a wide distribution area. They had some representativeness and symbolism, and their role was mainly to disseminate language information to overseas audiences. Finally, the virtual cultural landscape (the cultural and social environment formed in the virtual world) displayed on the university's official website mainly focused on 'Party and government construction, and league education construction and cultural community construction,' which is an ideological and political task that the Chinese government has always attached importance to.

Wang (2020) studied the VLL of Chinese university websites from another perspective. The researcher explored the language display mode, ideology, and power of cyberspace on Chinese university websites. The researcher utilized multimodal, quantitative, and qualitative analyses to investigate the VLL of six first-class universities in China, Japan, and England. From the perspective of language display mode, the researcher found that only English was provided on the websites of universities in English-speaking countries. However, the websites of universities in non-English-speaking countries generally used the model of 'official language and English' or 'official language, English, and other languages.' Regarding the language ideology behind the VLL, the researcher discovered that universities in English-speaking countries pursued a monolingual language ideology and made full use of the hypercentral language status of English to achieve international communication, thus marginalizing other language resources. Universities in non-English-speaking countries emphasize superlingualism, making full use of language resources, and building an international image, whereas other universities adopt linguistic pragmatism, mainly relying on English for international communication. The researcher explained that official languages hold the highest power in informational functions, but English has a limited role in virtual spaces.

In the context of Chinese university websites, although few studies have touched upon this topic, a significant absence of extensive research examining Chinese university websites is apparent.

Research Objectives

The objectives of this study were as follows:

1. To investigate the language code selection and distribution on the top 100 Chinese university websites; and
2. To investigate the informational functions of the VLL on the studied Chinese university websites.

Methodology

1. Research Design

This research was conducted as a descriptive qualitative study. Descriptive research describes the characteristics of a subject. Usually, descriptive qualitative research questions are more open-ended and tend to address ‘what’ and ‘how’ questions and require a descriptive answer (Blaikie, 2007, pp. 6-7; Onwuegbuzie & Leech, 2006, p. 488). A qualitative descriptive study is a method of choice when straight descriptions of phenomena are desired (Sandelowski, 2000). Therefore, it was suitable for this study, which sought to investigate the multilingual phenomenon of VLL. Before collecting the data, ethical approval was obtained from the Research and Innovation Administration Division of Burapha University (IRB4-176/2565).

2. Data Sources

The data for this study were extracted from the textual content exhibited on specific Chinese university websites. These websites were sourced from the top 100 universities in China and ranked by the Network of Science and Education Evaluation in China website (<http://www.nseac.com/eva/CUcompallE.php>). The data collection process took place from 2021 to 2022.

3. Data Collection Procedure

First, the researchers divided the top 100 universities in China into seven categories according to their type characteristics: agriculture and forestry, grammar, finance and economics, medicine, normal, science and technology, and comprehensive universities.

Second, the researchers visited the homepage of these top 100 universities’ web pages, downloaded them as full web pages, and captured screenshots for the analysis process. The researchers then used Microsoft Word and Microsoft Excel to collect and sort the data. To ensure the trustworthiness of this study, the research design and data collection methods were reviewed by experts in Applied Linguistics and Sociolinguistics. Additionally, the authors presented preliminary findings at two conferences to validate the accuracy of their interpretations and conclusions.

The researchers then identified the default language and other language settings of the homepage and clicked on the language option provided by the homepage to enter the page of the specific language to check if the page exists. This is to confirm whether a page exists, confirm its language types (monolingual, bilingual, and multilingual), and infer its language functions.

Finally, to further determine the informational function, the researchers counted the amount of information (such as information related to admission, campus culture, campus life, etc.) provided in the navigation menus and recorded this information in Microsoft Excel. The researchers then compared the content presented on the Chinese and English versions of the webpages.

4. Data Analysis

To answer the language code selection and distribution question (RQ1), the researchers counted the number and type of languages displayed on each university's homepage. In this process, the researchers used frequencies and percentages to present the data.

To answer RQ2, the researchers used content analysis to analyze the informational function of VLL embodied on websites. The researchers focused on the type information of the navigation menu and language emphasis patterns in the navigation menus on the website, while other elements such as the submenu of the navigation tabs, footer, header, logo, and multi-modal forms (pictures, colors, animations, and videos) were excluded from the analysis. Moreover, the researchers compared the information presented in the Chinese and English versions to examine whether both versions offered comparable content.

Results

1. The Language Code Selection and Distribution on the Top 100 Chinese University Websites

The languages of the studied 100 Chinese university websites can be divided into four main groups: 1) monolingual (i.e., simplified Chinese); 2) bilingual 1 (i.e., simplified Chinese and English); 3) bilingual 2 (i.e., simplified Chinese, traditional Chinese, and English); and 4) multilingual (i.e., simplified or traditional Chinese, English, and other foreign languages). Simplified Chinese is part of mainland China's communist reform system, which was widely promoted in the early 1950s to increase literacy among China's vast population. Simplified Chinese is simplified from traditional Chinese, and writing is simpler and easier, with relatively fewer strokes. Traditional Chinese was the Chinese writing system before China's reform and is currently used in Hong Kong, Macau, and Taiwan.

Table 1

The Frequency and Percentage of the Language Code Selection on the Top 100 Chinese University Websites

The Language Code Selection	Frequency and Percentage of Occurrences
Monolingual simplified Chinese	6
Bilingual 1 simplified Chinese + English	85
Bilingual 2 simplified Chinese + English + traditional Chinese	2
Multilingual simplified Chinese + English + other foreign languages	7
Total	100

As shown in Table 1, the 100 top university websites in China are bilingual, monolingual, and multilingual. The majority (87%) were bilingual, incorporating two languages. These websites predominantly employ 1) simplified Chinese and English, and 2) simplified Chinese and/or traditional Chinese and English. It is worthwhile to note that nine out of the top 10 universities in China follow a bilingual format, except Zhejiang University, which has a multilingual website. Only a handful (6%) of the websites were monolingual, using Mandarin Chinese. They are East China Normal University, Nanjing University of Aeronautics and Astronautics, Hefei University of Technology, Capital Medical University, Peking Union Medical College, and Xi'an University of Architecture and Technology. These universities are ranked in various positions among the top 100 Chinese universities: 25th, 37th, 55th, 85th, 91st, and 97th.

Multilingual websites, accounting for 7%, have incorporated a diverse range of languages beyond Chinese and English, including Russian, German, French, Japanese, Korean, and Spanish. They are Zhejiang University, Harbin Institute of Technology, Tongji University, Tianjin University, Jiangnan University, Harbin Engineering University, and China University of Petroleum (East China). These universities were ranked 3rd, 13th, 19th, 26th, 56th, 63rd, and 90th, respectively. While website ranking might not necessarily correlate with language display, it is noteworthy that the top ten websites exhibit a combination of bilingual and multilingual formats.

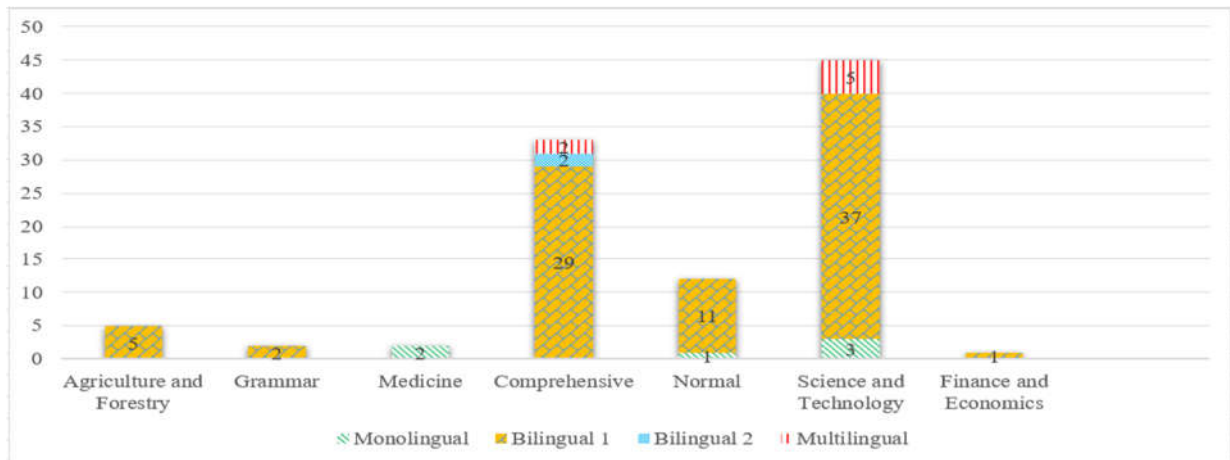
Figure 1*The Language Distribution by Each University Type*

Figure 1 depicts the language format of each university type. The majority of the top 100 universities were science and technology (45%) and comprehensive universities (33%). Most of these websites are bilingual. 37 out of 45 science and technology university websites are bilingual, while 29 out of 33 comprehensive universities are bilingual using simplified Chinese and English. Agriculture and forestry, grammar, and finance and economics university websites are all bilingual, using simplified Chinese and English. Two out of the 33 comprehensive universities are bilingual, using simplified or traditional Chinese and English. For monolingual websites, two out of the two medicine university websites were monolingual, using only simplified Chinese. One out of 12 normal universities and three out of 45 science and technology universities were monolingual. Five out of the 45 science and technology universities and two out of 33 comprehensive university websites follow the multilingual format, that is, employing simplified Chinese, English, and other foreign languages.

2.1 Types of Information

A basic element of the website architecture is the navigation menu, which determines the number, level, and layout of the web pages. The navigation menus of the studied universities cover the information involved in HE services (Gu & Yi, 2029, p. 50), as summarized in Table 2.

Table 2*The Navigation Menu Categories on the Chinese University Websites*

Sections	Descriptions
1. About	An overview of the university. It often includes information about the university's history, mission, vision, values, leadership, achievements, and any special recognitions.

2. Admissions	Details about the admission process, requirements, application deadlines, entrance exams, and any specific admission criteria for various programs.
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Table 2 (Continued)

Sections	Descriptions
3. Schools and Departments	Information about the different academic units within the university. It provides details about various schools, colleges, and departments, including faculty members, academic programs offered, research areas, and contact information.
4. Research	The university's research initiatives, ongoing projects, research centers, publications, collaborations, and breakthroughs in various fields.
5. News	Updates, press releases, announcements, and articles related to the university's activities, achievements, events, faculty, and student accomplishments.
6. Events	Upcoming and past events hosted by the university, including academic conferences, seminars, workshops, cultural events, and other campus-related activities.
7. Podcasts	Recorded audio or video content such as interviews, discussions, lectures, and presentations related to academic, cultural, or other relevant topics.
8. Campus Life and Campus Culture	Insights into the overall university experience, including student life, extracurricular activities, clubs, sports, facilities, student services, and the university's cultural environment.
9. International Collaboration and Exchange	International partnerships, exchange programs, study abroad opportunities, collaborative research projects, and global engagement efforts.
10. Academics	The Academics category elaborates on the various academic programs offered by the university, including information about undergraduate, graduate, and doctoral programs, majors, minors, course descriptions, and academic regulations.
11. Talent's Training and Talent Recruitment	Career development services offered to students, such as internships, job placement, resume workshops, and networking events. It may also feature information for potential employers looking to recruit graduates.
12. Chinese Communist Party and Government Building Culture	Insights into the university's adherence to political ideologies, the role of the Communist Party, government initiatives on campus, and any cultural aspects aligned with these themes.

These 12 navigation menu categories offered a comprehensive view of the university's academic provisions, research pursuits, campus life, collaborations, and roles within larger social and political contexts. In addition, the emergence of party and government information was, to a certain extent, the positive response and powerful promotion of the party and the country's major political policies in different periods, and it also highlighted the distinctive characteristics of Chinese universities advancing with the times.

2.2 Language emphasis patterns in navigation menus

Three distinct language emphasis patterns were discerned: 1) Chinese navigation predominated over English (71%), 2) equivalent menus (14%), and 3) English navigation menus predominated over Chinese (6%), as shown in Table 3. Note that three university websites could not be accessed, and the other six universities were monolingual.

Table 3

Language Emphasis Patterns in Navigation Menus

Language Emphasis Patterns	Percentage
1. Chinese navigation predominated over English	71%
2. Equivalent menus	14%
3. English navigation menu predominated over Chinese	6%
Total	91%

The first pattern occurred when the navigation menus of the Chinese code exceeded those of English. In the second pattern, the menus were equivalent. The third pattern occurred when the navigation menus of the English code exceeded those of Chinese.

Discussion

1. Language Code Selection and Distribution on the Top 100 Chinese University Websites

1.1 Bilingual Websites

The findings of this study revealed the largest proportion of bilingualism (simplified or traditional Chinese and English). Chinese holds primary linguistic authority in public spaces as the official language, reflecting the identity and national identity of the Chinese people. English is a secondary language on Chinese university websites alongside Chinese, which possesses significant advantages owing to its linguistic vitality and convenience for information dissemination (Wen, 2023). This finding is not surprising, as most countries where English is not the national language use both their national language(s) and English on their university websites market to different audiences and for different purposes (Callahan & Herring, 2012). The roles of English are further discussed in the following subsection.

These universities' predominant use of Chinese may indicate their intention to underscore their connections with Chinese culture and values. They may perceive their websites as platforms

for promoting Chinese linguistic and cultural identities. Additionally, this preference may signify a strong dedication to preserving and championing the Chinese language, particularly as it holds the status of the official language of China — a symbol of national sovereignty and dignity—as well as a vital link between national and ethnic identities (Zhou, 2022).

Furthermore, on these bilingual websites, two universities out of 100 use traditional Chinese on their websites, suggesting that these universities aim to attract students not only from mainland China and abroad, but also from Taiwan, Macao, and Hong Kong (Chai & Jia, 2018).

1.2 Multilingual Websites

The VLL of the studied websites reflects the development trend of multilingual culture in Chinese universities, and on the other hand, it reflects the background of the era in which Chinese universities pursue the development of international education. Although website rankings may not directly correspond to language presentation, it is important to highlight that the top ten websites utilize a mix of bilingual and multilingual formats. When a university offers information, resources, and communication channels in various languages, it demonstrates a commitment to inclusivity and global engagement. The views are also similar to Greenall (2012), Keles, Yazan, and Giles (2019), who proposed that universities should build more linguistically inclusive VLL in their website construction to improve the outcomes of international exchange programs. In turn, this can enhance a university's reputation as an institution that values diversity, promotes internationalization, and strives to accommodate a wide range of students, scholars, and stakeholders. In addition, the visibility and importance of different languages in public spaces (physical or virtual space) vary greatly because of various political, economic, social, cultural, and geographical factors (Zhou, 2022). In other words, the language setting of each university website is determined by a combination of factors, such as geographic location, university policy, internationalization efforts, and target audience. For example, in addition to simplified Chinese and English, the Harbin Engineering University (HEU) website also includes Russian because Harbin is located in Heilongjiang Province and its long border connects with Russia. In addition, the university has a Sino-Russian 'Belt and Road' joint laboratory with St. Petersburg State Marine Technical University in Russia.

On these multilingual websites, English is the second most commonly used language after Chinese, indicating a high regard for the international significance of the English language by Chinese universities. This also shows that Chinese universities attach great importance to multilingual development. English is increasingly being employed as an internationally preferred medium of communication in the era of globalization and the modern era's lingua franca (Crystal, 2003; Deterding, 2019; Graddol, 1997). Furthermore, the continued spread of English as the global language of HE across university websites can make universities appear welcoming to speakers of these languages and provide international students with broader experience (Callahan & Herring, 2012).

2. Monolingual Websites

The analysis revealed the lowest proportion of monolingualism, possibly due to these factors. The target audience of these universities might be primarily domestic. Second, these universities may have resource constraints that limit their ability to maintain multilingual websites. Creating and maintaining content in multiple languages can be resource-intensive, and smaller or less-funded institutions may opt for a monolingual approach. Mao and Ren (2018) pointed out that a shortage of language service personnel and inadequate financial investments can lead to limitations in the creation and maintenance of LL information. These universities might face technical challenges in implementing multilingual websites, as Chinese universities are still in the early stages of constructing multilingual websites, and the content development of these websites lags behind the internationalization demands of HE (Gu & Yi, 2019). It is noteworthy that both medical universities exclusively utilize simplified Chinese on their web pages. This choice aligns with the typical focus of medical institutions, which primarily serves a local or domestic audience consisting of students, faculty, and healthcare professionals. Given that simplified Chinese is the predominant script in mainland China, this decision may be considered adequate for effectively reaching their target audience.

3. The Informational Functions of the VLL of the Studied Chinese University's Websites

3.1 The Types of Information on Chinese and English Websites

The analysis of university websites clearly indicates that their VLL serves informational functions. The university's navigation menu categories provide a comprehensive view covering academic provisions, research pursuits, campus life, collaborations, and the university's role in wider social and political contexts. Second, it can be inferred that universities tailor their messages to different audiences in different languages. For instance, information such as 'International Collaboration' and 'International Exchange' under the navigation menus demonstrates that Chinese universities focus on catering to international students and global audiences. It is also reflected that Chinese universities actively responded to the national 'Overall Plan for Promoting the Construction of World-Class Universities and First-Class Disciplines' 'Educational Action for Promoting the Construction of the Belt and Road' policies. In particular, it encouraged Chinese HE sustainable development by providing bilingual and multilingual language emphasis patterns in the navigation menus. This view is aligned with Gu and Yi (2019), who found that multilingual language websites serve as a crucial platform for the development of 'Double First-Class' initiatives in foreign language disciplines at Chinese universities and play a pivotal role in China's HE strategy for internationalization. Essentially, the informational function of the LL provides the public with information on communication and services (Lu et al., 2020; Zeng & Luo, 2019, p. 115), so the researchers considered that the presence or absence of specific content in the Chinese and English menus reflects the university's strategic decision to different language audiences and specific information emphasized by its internationalization goals. In addition, as a form of media in the public virtual space, official websites offer various information services to users. They engage in interactive communication and create a multifunctional service platform, all of which contribute to the advancement of public relations and communication (Zhao 2021).

Information regarding the Chinese Communist Party and government shows that universities have actively responded to and promoted the major political policies of the party and the country in different periods. This demonstrates the important role of universities in China's social and political system and their mission to support national policies and social progress. At the same time, this also emphasizes the contemporary nature and flexibility of Chinese universities. They can continuously adapt and evolve as the political environment changes, which is a distinctive feature of China's HE system. This finding aligns with the notion that fostering a strong connection between the Party and the government has consistently been a central theme in China's ideological and political efforts, reflecting the prevailing characteristics of the era (Wen, 2023; Zhou, 2022).

3.2 Language Emphasis Patterns in Navigation Menus

This finding indicates that Chinese occupies a dominant position in the VLL of Chinese university websites. This is clearly because Chinese is China's official language. Official languages hold the highest power in informational functions, and the readers of the landscape determine the dominant role of Chinese in the LL of official university websites (Wang, 2020; Wen, 2023). When the main audience of the universities is Chinese users, the universities might want to attract and meet the needs of local or regional students and parents in terms of admission information, campus activities, and campus life (Wen, 2023).

The fact that Chinese and English websites provide equal information suggests that these universities value a consistent user experience across languages, which may be a sign of internationalization efforts aimed at catering to diverse student populations and global audiences. It can be seen that universities focus on effective bilingual communication, and ensuring consistent messaging for all stakeholders is very important. Hence, it can be further deduced that these universities aim to create a unified global identity, attract diverse students, promote international collaboration and research, and uniformly provide information to researchers and scholars around the world.

Lastly, the finding of the situation in which there were fewer menus in Chinese than in English suggests that Chinese websites provide less information than English websites. This may be because some information is more accessible or relevant to English-speaking audiences. The reduction in Chinese menus may be due to specific strategies to attract and support international students. As the second-preferred language in the VLL, English is not as dominant as Chinese in the local communication context, but its language vitality gene and information dissemination advantages as the world's lingua franca are undeniable (Zhou, 2022). This suggests that these universities might be more focused on providing information to English-speaking prospective students.

Conclusion

The examination of the VLL on Chinese university websites illuminates several key aspects of language use and priorities in the country's HE sectors. First, it is evident that Chinese universities place a strong emphasis on bilingual and multilingual communication. This shows

the bright vision of Chinese universities' international engagement and communication. In addition, English is widely used on both bilingual and multilingual websites. This reflects universities' recognition of the global importance of English as a lingua franca for academic and international discourse. The dominance of English, followed by Chinese, underscores its significant role in reaching global audiences. This role indicates a high regard for the international significance of English by Chinese universities. English websites are strategic tools for Chinese universities to build international reputations, attract outstanding students and scholars, promote international cooperation, and provide centralized sources of information for researchers worldwide. Third, the findings related to the informational functions of these websites reveal Chinese universities' dedication to offering a wide range of academic opportunities. This emphasis extends to areas such as knowledge advancement, innovation, student well-being, and partnerships with institutions, both within and outside China. Notably, each language code selection particularly targets different groups of audiences, and the content of the websites varies according to the purposes of the university. Finally, the alignment of these findings with national policies underscores the crucial role of Chinese universities in promoting and supporting government initiatives.

Recommendations

1. Implications

These findings offer significant implications for HE institutions, policymakers, and stakeholders. First, Chinese universities' emphasis on bilingual and multilingual communication highlights the importance of multilingualism in online communication. Therefore, to be 'international' and engage international audiences, universities should consider using bilingual and multilingual websites. Second, the dominant role of English as a global lingua franca underscores the need for universities to cultivate English language proficiency among both staff and students. English proficiency is essential for effective internationalization efforts and participation in the global academic community. Hence, universities need to promote English language proficiency among both faculty and students. Finally, variations in content between the Chinese and English navigation menus underscore the necessity of tailoring information to specific language audiences. To effectively engage diverse user segments, institutions should recognize the importance of tailoring content to specific language audiences. These insights will be invaluable to education leaders, policymakers, and university administrators as they navigate the evolving landscape of modern HE.

2. Further Studies

Looking forward, first, further study should explore the most informational and symbolic functions of VLL to comprehensively understand the current LL in context. Second, further studies may consider a comparison of websites of two HE contexts, such as China and Thailand, to gain further perspectives on the issue. Finally, further studies can explore the multimodal forms of VLL to broaden the diversity of the field of VLL research.

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