RESEARCH ARTICLE

COVID-19 Signs in Tokyo and Kanagawa: Linguistic Landscaping for Whom?

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Abstract: COVID-19 has dramatically transformed Japan's linguistic landscape. This paper determines the types of COVID-19 store signs in Tokyo and Kanagawa and the extent to which they cater to the growing number of non-Japanese residents living in this highly populated urban region. Analysis of 293 COVID-19 signs shows that many are text-and-image monolingual Japanese signs that display multiple messages related to customer and staff policies. Although the stores predominantly prepare these signs, they are influenced by government policy, particularly those related to social distancing. Only a quarter of these signs is multilingual, and many contain Japanese and English only. Consequently, the majority of the foreign population from non-English-speaking countries who cannot read either language well may need to rely on the images contained in COVID-19 signs and the signs' positioning to decipher the meaning. However, this paper demonstrates that neither images nor the positioning of Japanese monolingual signs is an adequate substitute for the greater use of multilingual signs. The prevalence of monolingual Japanese COVID-19 signs suggests that non-Japanese residents in Japan potentially face a linguistic disadvantage in navigating a linguistic landscape altered by COVID-19.

Keywords: COVID-19, multilingual, store signs, linguistic landscape, Japan

Contemporary Japanese society is becoming increasingly multiethnic with a growing number of non-Japanese residents. Their numbers already exceed 2.8 million and make up more than 2% of the country's total population (Table 1-1, Immigration Services Agency of Japan, 2021). Most non-Japanese people in Japan come from Asia (84.3%) and South America (9.6%), with China, Vietnam, Korea, the Philippines, and Brazil as the top source countries. At the same time, the number of foreign tourists visiting Japan has increased five-fold since 2009 to more than 31 million in 2019 (Japan National Tourism Organization, 2021). Although the Japanese language is the dominant societal language used in all aspects of society, the growing number of foreign residents and visitors has led to more multilingual services, particularly in the public service, transportation, and tourism sectors. Multilingual signs in public spaces such as government offices, train stations, stores, and tourist attractions are indicators of Japan's nascent multilingualism. They are highly important for non-Japanese residents and visitors because not many may understand the complex Japanese writing system, which consists of four scripts. They include *kanji* (the Japanese adaptation of Chinese characters), *hiragana* (a syllabic script to represent functional words and morphemes), *katakana* (a syllabic

script used mainly for foreign loan words), and the 26 letters of the Roman alphabet.

Linguistic landscape research, that is, the study of language in public spaces, is a thriving sociolinguistic discipline that offers an accessible way to study multilingualism in Japan. Public signs are useful indicators of social change and transformation, even when changes happen at a highly rapid and immediate scale (Blommaert & Maly, 2014), as it is in the COVID-19 situation. Since early 2020, the pandemic has dramatically impacted social and economic activities worldwide, and Japan is no exception. Strict border controls led to a drastic decrease in foreign visitors, even when Tokyo hosted the 2020 Summer Olympics and Paralympics. The pandemic has also transformed Japan's linguistic landscape within a very short time. Signs compelling people to adhere to COVID-19 preventive measures appeared to have mushroomed almost overnight in public spaces. Due to the prolonged health crisis and the likelihood of a new normal in the post-pandemic future, these signs are probably not a temporary feature of Japan's linguistic landscape.

Linguistic landscaping for whom? This is a central question in linguistic landscape research (Backhaus, 2007, 2010) which is even more relevant in a pandemic. Although there may be fewer foreign visitors, foreign residents continue their day-to-day lives in Japan. In times of crisis, they are a vulnerable group. During the Great Eastern Japan Earthquake in 2011, marriage-migrant women had little access to tsunami warnings and evacuation information because of their lack of Japanese competency (Uekusa, 2019). Likewise, an inability to understand COVID-19-related messages on public signs has ramifications for the health and safety of foreign residents and the general public. Moreover, although pre-pandemic multilingual signs address both foreign residents and visitors alike, the lack of foreign tourists in Japan due to the health crisis may contribute to fewer multilingual signs, particularly those related to COVID-19. Consequently, an investigation of COVID-19 signs may reveal the specific and implicit language policies associated with Japan's linguistic minorities.

This paper determines the types of COVID-19 store signs in Tokyo and its neighboring prefecture, Kanagawa, and the extent to which they cater to non-Japanese residents living in the region. After giving brief accounts of Japanese and COVID-19 linguistic landscape research, I will introduce the scope of the present study and the method used to answer the research questions. Then I will analyze the findings from the data collected. Finally, I will reflect on the main findings and discuss their implications in the discussion section.

Literature Review

Linguistic Landscape in Japan

Linguistic landscape is a term coined by Landry and Bourhis (1997) in their seminal work on ethnolinguistic vitality and signage in Canada. Since it emerged as a new discipline in sociolinguistic research, the field has expanded tremendously with numerous studies conducted in various sites around the world. Linguistic landscape research offers a first-line sociolinguistic diagnosis of a given territory, that is, it can identify monolingual or multilingual sociolinguistic regimes that are in place (Blommaert & Maly, 2014). In other words, the visibility of a language or languages in public signs reveals the language policy of a locality (Shohamy, 2006). As "multilingualism's most visible harbinger" (Backhaus, 2010, p. 361), signs in public spaces also reveal information about language change in society due to globalization and migration. Many linguistic landscape studies in Japan follow this research strand, and Tokyo's multitudinous shop signs are a popular subject of investigation.

In 1972, geographer Yasuo Masai described the signs of Tokyo as *gengo keikan* [linguistic landscape]. However, it was not until the 2000s that the field greatly expanded. Studies in the 2000s generally focused on commercial signs in Tokyo. Someya's (2002) survey of store signs around the stations on the Odakyu Line indicates that many Japanese language signs adopt logographic *kanji* characters. *Kanji* is probably preferred because it can convey more information with limited text than the syllabic *katakana* or *hiragana*. However, Jiang (2009) observed that Tokyo's linguistic landscape is shifting towards multilingualism. Comparing her data on Tokyo's most commercial districts with Masai (1972) and Someya (2002), Jiang found fewer *kanji* characters and more Roman alphabet letters on shop signs.

English and Japanese-English bilingual signs are visible in stores in affluent Tokyo suburbs (MacGregor, 2003). However, the purpose of using English is to

enhance the stores' status and appeal to Japanese customers rather than to help English-speaking customers. Department store signs in trendy Ginza or Omotesando also include European languages, for example, French, for the same reasons (Jiang, 2009; Tanaka et al., 2007). In contrast, electronic and duty-free stores in Tokyo's Akihabara district tend to display Japanese-English-Chinese-Korean multilingual signs for their predominantly Asian clientele. Status-enhancing multilingual signs intended for Japanese readers may be identified by their non-duplicating information, that is, the English text typically complements the Japanese text (Backhaus, 2010). However, signs containing a full or partial translation very likely address people without Japanese reading proficiency.

Tanaka et al. (2007) found a progressive pattern in multilingual signs, that is, from monolingual Japanese to Japanese-English and subsequently Japanese-English-Chinese-Korean. Backhaus (2010) illustrated this diachronic change on garbage collection information boards in Tokyo. Initially only available in Japanese, these signs became Japanese-English bilingual signs and later included Chinese and Korean. Nevertheless, multilingual signs are still lacking in Japan, and they are inadequate in disseminating critical messages, that is, those related to disaster evacuation. In Tan and Ben-Said's (2015) survey of Miyagi Prefecture, which was severely hit by the Great Eastern Japan Earthquake in 2011, most post-disaster multilingual evacuation signs still contain only Japanese and English. Therefore, foreigners in Japan who are neither proficient in these two languages would face a huge linguistic disadvantage when disaster strikes again. Despite such a plight, policymakers' preference for Japanese-English bilingual signs seems unchanged, as evident in the 2020 Tokyo Olympic and Paralympic Games organizers' decision to use only Japanese, English, and pictograms in their signs (Inoue, 2016). Against this backdrop, the extent to which public signs adequately serve foreign residents in Japan remains an important subject that needs further investigation. In a pandemic, public signs related to signs related to health and safety deserve research attention.

Linguistic Landscape in the COVID-19 Situation

Since its onset, the pandemic has transformed the linguistic landscape of most parts of the world. In particular, the efforts of governments and businesses to reassure tourists and keep infections at bay contribute toward more COVID-19 signage in tourist destinations. Describing it as a "translation landscape," Lees (2021) studied COVID-19 notices in Thessaloniki, Greece, which were translated into English for foreign tourists. He identified two types of notices: those conveying official safety precautions that apply to the store and those informing customers on how business operations have changed since the pandemic. Lees (2021) suggested that the first type is neither a "top-down" sign typically issued by authorities nor a "bottom-up" sign put up by businesses. Instead, it represents a hybrid sign that disseminates government-approved guidelines in a way that the store sees fit. Given the sudden impact of COVID-19 on businesses, non-professional translators with varying levels of English proficiency have little choice but to draw from their linguistic resources to produce a translation. Mulyawan and Artawa (2021) investigated how a Balinese hotel adheres to the new normal protocols that the Indonesian Health Department has set for the tourism industry. In their qualitative study, they observed how strategically placed signs deliver a clear and firm order for guests to comply with these protocols, for example, by washing their hands before entering the hotel. Colorful images and choice of text make the signs more reader-friendly. The placing of English before Bahasa Indonesia on some signs suggests that the target readers are foreign hotel guests.

Although multilingual COVID-19 signs may be more visible in the linguistic landscape of tourist destinations, monolingualism is probably the norm in other places. Marshall (2021) observed that many COVID-19 signs were already added to existing signs in Vancouver's parks in the early months of 2020. These signs employ multimodality to help convey social distancing messages. However, they are mainly monolingual English signs. Kalocsányiová et al. (2021) reported similar findings in Hackney, London, where many signs are in English only. Although 20% of Hackney's residents do not use English as their main language, there is a lack of multilingual signs serving their linguistic needs. Kalocsányiová et al. also found that more deprived areas in Hackney have fewer and less prominent signs than less deprived areas. Although social distancing messages are prominent in both types of neighborhoods, there is a lack of signs in more deprived areas conveying other key measures,

including self-isolation, limiting non-essential travel, and mask-wearing.

The Current Study

The studies above highlight the prevalence of monolingual COVID-19-related signs in Canada and the United Kingdom. Only in tourist destinations are multilingual signs more visible. In a prolonged global health crisis, tourists are probably not as disadvantaged as minority groups who have to use their limited linguistic resources to navigate a daunting and uncertain environment every day. The current study adds to the small body of research on the altered linguistic landscape caused by the pandemic by exploring the situation in Japan. The country has one dominant societal language—Japanese. However, it is becoming a more linguistically diverse society due to the greater influx of foreign immigrants and visitors in recent decades. Specifically, Japan's tourism boom, which built up in the years leading to the 2020 Tokyo Olympics and Paralympics, has encouraged greater multilingualism, particularly in the tourism sector. However, the postponement of the 2020 Games to 2021 with a ban on spectators coupled with tight controls on international travel seems to have reversed Japan's move towards greater internationalization. Within this backdrop of a back-and-forth trend in internationalization, this study seeks to determine the COVID-19 signs that have changed Japan's urban public spaces and the extent to which they reflect the growing linguistic diversity within the country. The specific questions are:

1) What types of COVID-19 signs are displayed in public spaces?
2) To what extent do they cater to foreign residents?

Method

Data Collection

The site for the present study is Tokyo and its adjacent prefecture of Kanagawa. Together, they form the most densely populated region of Japan. Tokyo is the most populated city, followed by the two Kanagawa cities of Yokohama and Kawasaki, which are ranked second and seventh, respectively (Ministry of Internal Affairs and Communications, 2021). The site is part of the Greater Tokyo Area, which has the highest concentration of foreign residents in Japan (Table 7-A, Immigration Services Agency of Japan, 2021). The region is also popular with tourists and received a high number of foreign visitors prior to the pandemic.

A sample of 293 COVID-19 signs was collected from July to December 2021 by the researcher and 11 research assistants. Being based in Yokohama, the large research team could conduct fieldwork easily in the city, adjoining Kawasaki, and Tokyo, which is less than a 30-minute train ride away. Most of the data were collected in Tokyo (N=117, 39.9%), Yokohama (N=117, 39.9%), and Kawasaki (N=34, 11.6%). As this research aims to study COVID-19 signs in places where both Japanese and non-Japanese people live and work, sites known to have a high concentration of foreign tourists or a specific minority group were avoided. The research team took photographs of COVID-19 signs using their mobile devices. Most signs were sighted at the entrance or windows of stores (N=173, 59.0%) and food and beverage outlets (N=49, 16.7%). Some were located indoors on premises accessible to the public, such as elevator halls, lounges, and washrooms. Fewer signs were collected from other facilities such as hair salons, banks, office buildings, and movie theaters.

Data Coding and Analysis

Linguistic landscape research can take a more quantitative or qualitative approach. Most recent studies adopt a combination of both (e.g., Blackwood et al., 2016). A mixed approach is also taken in this study. Each sign was labeled and uploaded into a shared online folder by the research team. The date on which it was photographed, the type of establishment (e.g., shopping mall), and the location of the sign (e.g., entrance) were recorded in an Excel spreadsheet. These signs were analyzed based on the following categories:

i. Store policy

COVID-19 signs either display customer-related policy, staff-related policy, or both. A customer-related policy sign requests visitors to adhere to the COVID-19 preventive measures set by the store, for example, by limiting their time in the store and the number of accompanying persons. A staff-related policy informs visitors of the measures taken by the store employees

to reduce the risk of COVID-19 infection, for example, the use of partitions at the payment counter. Some signs include both policy types, for example, contactless payment. Customers are encouraged to use electronic forms of payment to reduce contact with the staff. At the same time, store employees give change using coin trays and not by hand.

ii. Authorship

The signs were also analyzed according to the authorship or source of the sign. Based on Ben-Rafael et al.'s (2006) categorization of signs, official signs issued by national and public bureaucracies were labeled as "top-down." The public authors are usually mentioned on the sign, for example, the Tokyo Metropolitan Government indicates its authorship at the bottom of Sign 4. Non-official signs created by businesses were categorized as "bottom-up" signs. The store's name usually appears at the bottom of the sign, for example, Signs 1, 3, and 5. However, there may not be a clear-cut distinction between top-down and bottom-up signs. COVID-19 signs are likely influenced by the successful campaigns of the Ministry of Health, the Tokyo Metropolitan Government, and other governmental bodies to avoid the "three Cs": closed spaces with poor ventilation, crowded places, and close contact settings (e.g., close-range conversations). Nevertheless, as it is with many of the other COVID-19 preventive measures introduced by local authorities and the central Japanese government, the display of COVID-19 signs and the requests contained in these signs (e.g., sanitizing one's hands upon entry into a store) are, for the most part, not legally binding. Given the discretion that business establishments can exercise as to the type of COVID-19 sign they display, an analysis of top-down and bottom-up signs is still necessary to understand their COVID-19 policies and whom the signs are made for.

iii. Modality

The signs were also coded as text-only, image-only, and text-and-image. Text-only signs are printed messages with no images. Image-only signs (e.g., Sign 3) contain minimal or no text and rely on symbols or pictures to convey a message (e.g., two human figures separated by a two-way arrow to depict social distancing). Text-and-image signs use symbols and images to enhance textual messages (e.g., a picture of a mask accompanying a mask-wearing message).

iv. Language

The signs were also grouped into monolingual signs and multilingual signs. Monolingual signs contain the Japanese language in either one of its four scripts, including the Roman alphabet. Signs containing at least one language in addition to Japanese or in place of Japanese were classified as multilingual signs (Backhaus, 2010). Therefore, signs in a single foreign language (e.g., English-only signs) were also categorized as multilingual signs for analytical purposes. The signs were analyzed according to the type of translation used by Reh (2004). Signs in two or more languages have a "duplicating" translation when the same information is provided in each language. They have a "fragmentary" translation when a partial translation of a more comprehensive message is given. Signs have a "complementary" translation when each language conveys separate messages.

v. Positioning

COVID-19 signs were also analyzed for their "emplacement" (Scollon & Scollon, 2003) because their situated positioning in shop entrances, elevator halls, and common areas also contribute to their visibility and saliency.

Results

Store Policy on COVID-19

Table 1 lists the 22 types of COVID-19 messages according to policy type. Ten message types relate to customer policy (No. 1 to 10), and eight relate to staff policy (No. 11 to 18). Masking, social distancing, body temperature check, and contactless payment (No. 19 to 22) are the four types of messages common to both policies (i.e., they are required of customers and practiced by the staff). Out of the 293 signs we surveyed, 217 (74.1%) contain customer-related policies, 50 (17.1%) staff-related policies,

and 26 (8.9%) both policy types. Masking (N=163, 55.6%), social distancing (N=142, 48.5%), and hand sanitization (N=128, 43.7%) are the top three most common messages. People are frequently reminded to wear masks, distance themselves from other shoppers, and sanitize their hands at the storefront. To a lesser extent, these signs also inform customers that the staff would wear masks and maintain social distance. Other common messages are body temperature check requirement (N=51, 17.4%), the restriction of people (N=43, 14.7%), and regular ventilation (N=40, 13.7%). Less common messages include requests to use personal protective equipment (e.g., disposable gloves when obtaining food from the buffet table) and bring home one's trash (e.g., disposable face covers when using the fitting room). These findings show that most of the signs relate to customer policy. Therefore, understanding these customer-related signs and compliance with store-wide preventive measures are important for people patronizing shops in a pandemic situation.

However, the signs' readability is affected by the type and number of messages. It is not unusual for multiple customer-related messages to be displayed;

Table 1

Types of COVID-19 Signs and Their Messages

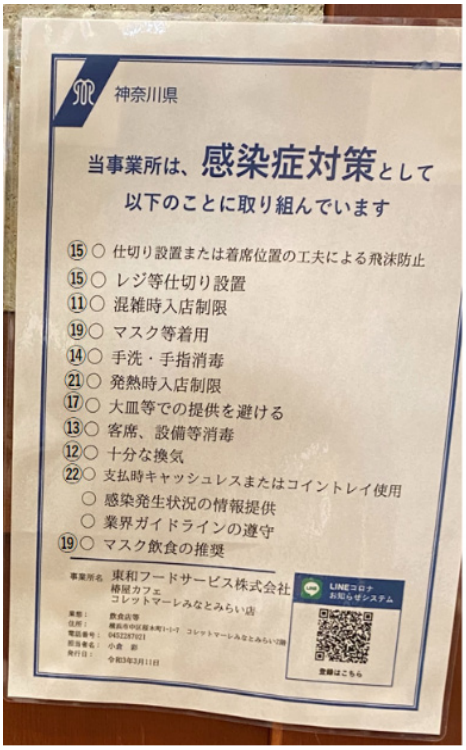
Policy type (no. of signs)	Type of message	No. of messages	%
Customer-related policy (N=217)	1. Sanitize hands	128	43.7%
	2. Stay home if unwell	30	10.2%
	3. Refrain from talking	29	9.9%
	4. Limit time on premises	16	5.5%
	5. Limit the number of accompanying persons	16	5.5%
	6. Refrain from eating on premises	9	3.1%
	7. Practice proper etiquette when coughing or sneezing	8	2.7%
	8. Register personal details on tracing apps	4	1.4%
	9. Use personal protective equipment (e.g., disposable gloves)	4	1.4%
	10. Bring home garbage	3	1.0%
Staff-related policy (N=50)	11. The number of people entering the premises is restricted	43	14.7%
	12. Premises are regularly ventilated	40	13.7%
	13. Objects on premises are regularly disinfected	32	10.9%
	14. Periodic washing of hands by staff	24	8.2%
	15. Partitions are used	16	5.5%
	16. Periodic gargling by staff	12	4.1%
	17. Service out of use (e.g., hand dryer)	12	4.1%
	18. Staff have been fully vaccinated	6	2.0%
Both (N=26)	19. Mask wearing	163	55.6%
	20. Social distancing	142	48.5%
	21. Body temperature check	51	17.4%
	22. Contactless payment (e.g., use of credit cards and coin trays)	15	5.1%

nine different customer-related requests have appeared in a single sign. Moreover, some signs combine customer-related and staff-related policies (e.g., Sign 1). The top half of Sign 1 conveys eight messages relating to customer policy, whereas the second half explains eight messages concerning staff policy. Each message is numbered according to the message type in Table 1. For example, the message at the bottom right corner of Sign 1 (No. 11) corresponds with the message type with the same number in Table 1 (i.e., the number of people entering the premises is restricted). Some messages are duplicated, for example, the masking message (No. 19) appears in the first and third rows because one relates to the store's customer-related policy and the other its staff-related policy). Other messages are not numbered because they are general requests unrelated to COVID-19. For instance, the message at the top left corner reminds customers to be considerate to each other. However, for people who cannot read the Japanese text, the heart-shaped image accompanying the message provides little clue as to its meaning. Therefore, despite the use of images to enhance readability, the extent to which Sign 1's multiple messages are read and understood by customers before entering the store is questionable.

Sign 1: A sign with multiple messages conveying customer-related and staff-related policies.

Authorship

Almost all of the signs in our sample (N=272, 92.8%) are bottom-up signs. The stores' names usually appear at the bottom. The preponderance of bottom-up signs indicates the active role of local businesses in promoting health and safety. Their initiative is probably motivated by commercial reasons; these signs aim to reassure customers that it is safe to patronize their stores. Only 21 signs (7.2%) are top-down signs issued by various local and central government bodies. These signs are not commonly seen in public spaces. Moreover, multilingual top-down signs are rare; only five of the 21 top-down signs contain other languages. Some of them are English-only or Chinese-only signs displayed next to the original Japanese version.



Sign 2: A top-down sign conveying staff-related COVID-19 policy.

Several Japanese top-down signs are government-issued notices that certify an establishment's adherence to specific COVID-19 preventive measures. Sign 2 is a top-down sign that the Kanagawa Prefectural Government issued for a café in Yokohama. This type of text-only notice is usually displayed in front of a business establishment to inform customers of its preventive measures. Sign 2 contains 10 staff-related policies numbered according to the message

types listed in Table 1. The two unnumbered items concern the business' adherence to industry guidelines and disclosure of COVID-19 infection. The highly textual content suggests that the primary purpose of Sign 2 is to confirm that adequate measures are in place; customers are not expected to give more than a glance at it. Also, the preventive measures listed in these signs vary from one establishment to another. Sign 2 contains 12 preventive measures, but the same kind of government-issued sign at other places may contain different types of items. Also, given that we could not find similar signs in front of every store we surveyed, a storefront display may not be mandatory. The differences in the display and content of these top-down signs reflect the largely non-mandatory nature of COVID-19 policy in Japan.

Modality

Many signs (N=246, 84%) are text-and-image signs. They include images and symbols to make text messages more salient to readers. For example, a picture of a thermometer signals that a body temperature check is required. The prolonged pandemic may make COVID-19 symbols as common as the standardized information symbols widely used in Japan since the 2002 Japan-Korea World Cup. Some signs rely almost completely on images. Sign 3 uses pictograms to convey multiple COVID-19 preventive measures (i.e., masking, hand sanitization, body temperature check, social distancing, periodic disinfection and ventilation, and self-isolation). The number inserted on each pictogram corresponds to the message type in Table 1. The text at the top of the sign only mentions that it is intended for customers and asks for their understanding and cooperation. The pictograms in Sign 3 appear straightforward, but they could be either part of a customer-related or staff-related policy. It is uncertain whether the thermometer picture signals a temperature check requirement for employees or customers. Likewise, the bottom left-hand pictogram related to ventilation and disinfection is probably a staff-related preventive measure. Still, some customers may wonder if it is a requirement; some Japanese supermarkets and trains request customers to disinfect shopping baskets and open train carriage windows. Unlike multimodal signs with textual explanation and clear segregation of customer-related and staff-related policies (e.g., Sign 1), the lack of textual explanations and the mix of customer-related and staff-related policies make Sign 3 potentially hard to understand.

Sign 3: A sign using pictograms to convey COVID-19 preventive measures.

Although multimodality enhances the saliency of a COVID-19-related sign, the choice of images and symbols may not be necessarily clear to non-Japanese people. For instance, Sign 4 is a top-down sign created by the Tokyo Metropolitan Government to remind people to keep social distance. The pictograms used in this sign are a creative take on the *kanji* character 人, which means "person" in English. Two of these characters depict people. Between these two *kanji* characters is another *kanji* character, 間, which means "gap" or "space in-between" in English. Although readers who can read *kanji* characters will understand the social distancing message, those who are not familiar will not know what it is supposed to mean.

In addition, 16% (N = 47) are text-only signs. Although they represent a minority, the lack of symbols and images makes it harder to decipher their meaning. Even Japanese customers would probably not read the lengthy text in Sign 2 before entering a store. Text-only Japanese signs are challenging for people who cannot read Japanese well (i.e., children and foreign

residents). One way to address reading difficulties is to use *Yasashii Nihon-go*, or Easy Japanese, a simplified variant that is easier to understand. It emerged after the 1995 Great Hanshin Earthquake in Kobe, where critical disaster-related information did not reach non-Japanese people with difficulty understanding Japanese. Easy Japanese features include basic vocabulary, short sentences, and *furigana* (syllabic *katakana* or *hiragana* glosses) above difficult *kanji* characters to indicate their pronunciation (Ito & Tokarev, 2021).

Sign 4: A text-and-image social distancing sign using *kanji* characters as images.

In our sample, there is one COVID-19 sign that contains *furigana*. However, it does not include other Easy Japanese improvisations, such as avoiding ambiguous or complex expressions. Special training is needed to rephrase difficult expressions in Easy Japanese (Nagano & Ito, 2015). However, stores may not have the skills to prepare Easy Japanese signs or be willing to display them in addition to or as a substitute for the original Japanese one. Therefore, apart from the one *furigana* sign we sighted, there is a complete lack of Japanese monolingual COVID-19 signs that display Easy Japanese features for readers with limited Japanese ability. Without any symbols, images, or even *furigana*, readers who lack Japanese reading proficiency will have to rely solely on the positioning of Japanese text-only signs to guess their meaning (to be discussed below).

Language

Previous research indicates that monolingual Japanese signs pervade the linguistic landscape in Japan. This study demonstrates that the situation is no different in a pandemic. As Table 2 shows, monolingual Japanese (J) signs are the majority of the sample (N=217, 74.1%). The results also concur with studies in other countries that show that COVID-19-related signs are usually displayed in the dominant societal language (Kalocsányiová et al., 2021; Marshall, 2021). Only a quarter of the signs (N=76) are multilingual signs. Most of them (N=63) are Japanese-English bilingual signs. This is followed by six English-only signs. Japanese-English-Chinese and Japanese-English-Chinese-Korean signs each make up 1% or less of all signs in the sample. There is only one Chinese-only sign and one Japanese-English-Chinese-Korean-Spanish sign. These results reveal a pattern in language use: the more languages added to the sign, the less common it is in the public space. The only exception is English-only signs, which are slightly more common than Japanese-English-Chinese or Japanese-English-Chinese-Korean signs.

These results are not unlike previous research on general public signs in Japan (e.g., Backhaus, 2010), which established that multilingual signs tend to be bilingual in Japanese and English. The presence of only a few Japanese-English-Chinese-Korean signs shows that not enough attention is given to the languages spoken by the majority of foreign residents who come from Asian or Latin American countries. Japanese-English-Chinese-Korean signs are probably more common in Tokyo districts like Akihabara, where Asian tourists commonly shop for electronic goods and other duty-free items (Jiang, 2009), or Shin-Okubo, where many Korean people live or work (Backhaus, 2007). However, it is uncertain if multilingual COVID-19 signs are more visible in popular tourist spots, given Japan's tight border restrictions since early 2020.

Signs containing two or more languages were analyzed into translation types. A duplicating translation is a complete reproduction of a Japanese text. A sign with fragmentary translation only has part of its message translated. Table 2 shows that many of

Table 2

Languages Used in COVID-19 Signs

	Monolingual	Duplicating translation	Fragmentary translation	Complementary translation	Total
Japanese only	217	–	–	–	217
Japanese-English	–	38	23	2	63
Japanese-English-Chinese	–	2	–	–	2
Japanese-English-Chinese-Korean	–	3	–	–	3
Japanese-English-Chinese-Korean-Spanish	–	0	1	–	1
English only	6	–	–	–	6
Chinese only	1	–	–	–	1
Total	224	43	24	2	293

these signs provide duplicating content in two or more languages (N=43, 62.3% of the 69 signs containing two or more languages). However, 24 (34.8%) signs provide only a fragmentary translation. Without a full translation, a non-Japanese reader would understand only part of the message, so we performed a qualitative analysis to understand the characteristics of these signs.

A closer look at signs with fragmentary translation reveals several features, including the tendency to provide an English translation only for the most important preventive measure. In Sign 5, masking (message type No. 19 in Table 1) occupies the most space at the top of the sign and has an English translation. However, other messages, for example, sanitizing hands (No. 1) and social distancing (No. 20), are in Japanese only. The partial translation suggests that mask-wearing is considered the primary COVID-19 preventive measure by the store management. It is critical enough that non-Japanese readers must abide by it even when they may not follow other precautions for the lack of an English explanation.

Sign 5: A Japanese-English bilingual sign with fragmentary English translation.

Polite requests in Japanese are also usually not translated into English. These requests typically appear at the top or bottom of the sign. The title at the top of Sign 5 translates as "a request for customers' cooperation." The last line at the bottom of the sign means, "while inconveniences arise, we ask for your understanding." There are no translations of these polite requests, possibly because they are perceived as less important. Moreover, although the literal translation of the Japanese message is "please wear a mask," the English message is written slightly differently. By asking customers to "please cover your mouth and nose properly with the mask," the English message is explicit about its expected standard of mask-wearing. The English text also contains a grammatical mistake; instead of "your mask," the message reads as "the mask." It is unlikely that a non-Japanese person would think that a specific mask should be worn. However, such an error indicates the stores' reliance on lay translation for their COVID-19 signs, an observation also shared by Lees (2021). The intention for non-

Japanese readers to understand and adhere to key preventive measures is also evident in some signs where customer-related policies were translated into English, but staff-related practices were not.

There are two multilingual signs that provide complementary translation (i.e., the English text conveys a different content from the Japanese text). Backhaus (2010) pointed out that such complementary Japanese-English bilingual signs are likely intended for Japanese readers. Likewise, in this study, an all-capped "SOCIAL DISTANCE" English text inserted into an otherwise Japanese sign is probably intended for Japanese readers. Similarly, English-only signs on the shop floor which read "PLEASE STAND HERE" likely serve Japanese customers. Although previous research showed that English is usually directed at Japanese readers for status-enhancing purposes (e.g., MacGregor, 2003), this is probably not the reason for the use of English in COVID-19 signs. The English term "social distance" is used in COVID-19 signs likely because the *katakana* equivalent, that is, ソーシャルディスタンス (*sosharu deisutansu*), was adapted from English and popularized in Japan at the start of the pandemic. Given that the English term "social distance" is also synonymous with COVID-19 globally, there is probably an assumption that Japanese readers would recognize it too.

Positioning

The majority of COVID-19 signs are located at the entrance to stores and restaurants. Other areas include payment counters, escalator landings, elevator halls, and lounges within these facilities. The placement of a COVID-19 sign can help the reader to guess the meaning of its message even when he or she cannot read the Japanese text. A social distancing sign on a chair indicates that no one should sit on it. Likewise, a sign stuck to a hand dryer in a washroom suggests that it is out of use. However, positioning by itself can be misleading at times. Sign 6 is pasted above a storefront automatic hand sanitizer. Without reading the text, one may assume that the sign reminds people to use hand sanitizer upon entering the store. However, the message actually informs customers that a hand sanitizer with a high amount of alcohol is used, and it may discolor their bags and clothing. This finding suggests that readers may be able to guess the meaning of conventional messages, but less common ones would be impossible to decipher based on the sign's positioning alone.

Sign 6: A text-only monolingual Japanese sign placed on top of a hand sanitizer dispenser.

Discussion

COVID-19 has drastically changed Japan's linguistic landscape. As the pandemic prolongs, COVID-19 signs seem to be an almost permanent addition to the country's public spaces. This study shows that COVID-19 signs convey various messages, with masking, social distancing, and hand sanitizing messages the most common. Although the majority of COVID-19 signs request customers to take precautions, stores also display staff-related policies to reassure customers that preventive measures are in place. Most of the signs are bottom-up signs prepared by the stores. Top-down signs prepared by governmental bodies are only a minority in our sample. Although businesses drive the change in the linguistic landscape of Tokyo and Kanagawa, the COVID-19 signs they prepared are nevertheless influenced by the government's COVID-19 campaign (i.e., avoiding the three Cs). Social distancing messages, the second most common message in our sample (cf. Table 1), are very likely the stores' response to the government's call for

people to avoid closed spaces, crowded places, and close-contact settings. Frequently-occurring requests for customers to limit their time on the premises and the number of accompanying persons and the store's common policy to restrict the number of customers and regularly ventilate their premises also indicate their voluntary compliance to the three Cs.

However, these messages are presented differently in COVID-19 signs, depending on the store (c.f. image-only Sign 3 and Japanese-English bilingual Sign 5) or even the governmental body (c.f. text-and-image Sign 4). These variations arise because of the need to respond quickly to the rapid change brought by the pandemic and the largely non-mandatory nature of Japan's public health policy. However, given the influence of the government's public health policy, there is probably no clear distinction between top-down and bottom-up COVID-19 signs. Many of these signs can perhaps be described as hybrid notices as in Lees (2021), that is, they convey government COVID-19 policy in a way that fits the stores' operations. However, a difference between Lees' hybrid signs in Greece and ours is that they disseminate government-imposed safety rules of which a breach would lead to a fine, whereas ours tend to be guidelines and pleas for compliance. It is uncertain whether the diversity of these signs would remain in a post-COVID era or whether their standardization would occur in a new normal (e.g., the use of standardized symbols for masking or hand sanitization). The changes in COVID-9 signs over time would be a topic for investigation in future research.

Our results also show that many COVID-19 signs contain Japanese only, concurring with previous Japanese linguistic landscape research on the dominance of Japanese monolingual signs. The lack of foreign tourists during the pandemic probably contributes to their prevalence. These findings concur with the multimodality and monolingualism of COVID-19 signs elsewhere, for example, Canada (Marshall, 2021). Only about a quarter of the signs in our sample display a foreign language. Like earlier research on public signs in Tokyo (e.g., Backhaus, 2007), we found that multilingual COVID-19 signs are mainly Japanese-English bilingual signs. The prevalence of Japanese-English bilingual signs suggests an underlying assumption that foreigners who cannot read Japanese would be able to read English. Filipinos, who make up the fourth-largest minority group in Japan in 2021 (Table 1-1, Immigration Services Agency of Japan, 2021), may find English and Japanese-English signs useful. However, Chinese, Vietnamese, or Korean people, who make up the first, second, and third largest groups of foreigners in 2021, may have difficulty understanding them. Long-term Chinese and Korean residents who have lived in Japan for generations would be able to read Japanese well. However, this is probably not the case for the many work and student visa holders who have recently arrived from China, Vietnam, Korea, and other non-English speaking countries. They probably have trouble reading English signs and have not yet developed a functional use of the Japanese language.

Some local authorities provide guidelines for multilingual signs. For instance, Tokyo's Chiyoda Ward (2022) considered the use of Japanese-English bilingual signs to be desirable and further recommended Chinese, Korean, or other languages to be added for specific types of facilities. However, private authors can still opt to display monolingual Japanese signs should too many multilingual explanations affect the sign's overall readability. Businesses may not follow these guidelines in a pandemic because Japanese monolingual signs are their easiest and quickest option. Consequently, we find a lack of multilingual signs, which potentially makes many non-Japanese residents linguistically disadvantaged when navigating a linguistic landscape transformed by COVID-19. Multilingual COVID-19 signs are likely to be even fewer in less urban areas, so monolingual Japanese signs may pose a greater challenge for foreign residents living there.

The difficulty non-Japanese people potentially face in deciphering monolingual Japanese signs can be analyzed at several levels. Symbols and images in a Japanese sign arguably offer the most clues about its meaning. Fortunately, many of the signs in our sample are multimodal, which enhances their intelligibility to non-readers of Japanese. Positioning also offers useful clues, but this only applies to signs placed near actual objects such as a hand sanitizer, a bench, or a thermal scanner. However, the meaning of decontextualized messages (e.g., stay home if unwell) cannot be inferred from where a sign is placed. Giving less assistance than multimodality and positioning is the use of Easy Japanese because basic Japanese reading ability is still needed. Without either multimodality, positioning, or even Easy Japanese, a monolingual Japanese sign (e.g., Sign 2) is incomprehensible to people who cannot read

the language. In addition, a single COVID-19 sign can carry multiple customer-related and staff-related messages, which makes it harder for a non-Japanese person to understand the preventive measures that need to be followed when entering a store (cf. Sign 1). The inability to read COVID-19 signs can lead to misunderstanding and potentially affects the health and safety of the individual and society. At the very least, a non-Japanese person may be baffled when he or she is refused service at a half-empty restaurant or told not to touch the store's merchandise. Interviews with non-Japanese residents about their understanding and interpretation of COVID-19 signs would be a new direction in this research.

Although multimodality and positioning may make it easier to guess the meaning of a monolingual Japanese COVID-19 sign, we cannot rely on them entirely to decipher the sign's message. Sign 4 includes logographic *kanji* characters in its images, so one needs some Japanese reading ability to understand it. Sign 7 is positioned right above a hand sanitizer. However, the message is not a request for hand sanitization but a warning about how one's clothing might be stained. Therefore, as much as multimodality and positioning may help foreigners to interpret the meaning of COVID-19 signs, they are by no means an adequate substitute for a multilingual sign.

From the store's perspective, displaying multilingual signs may be difficult because these signs generally take up more space at their entrances and on their windows. Already, many signs carry multiple messages in the Japanese language alone (cf. Sign 1). Adding full translations in multiple languages would reduce the readability of a sign. Sign 5 contains a fragmentary translation, possibly because of this concern. Moreover, English-Japanese bilingual signs are probably the most common multilingual signs because store employees can prepare them. Japanese people know English because it is the de facto foreign language taught in Japanese schools. However, many Japanese people probably do not know other foreign languages well enough to write them. Such practical limitations need to be overcome for multilingual signs to become more common in Japan's linguistic landscape. Further research involving interviews with private authors is necessary to gain deeper insights into the lack of multilingual COVID-19 signs.

Many multilingual signs provide duplicating information in two languages, indicating that they are also intended for non-Japanese readers. Signs partially translated into English are meant for foreign readers too. These partial English translations seem to have been provided selectively and strategically for the COVID-19 preventive measure deemed most important. The English message in Sign 5, which reads "please cover your mouth and nose properly with the mask," is more explicit than the Japanese message "please wear a mask." The longer English text with its more stringent mask-wearing standards indicates a cautious approach that does not assume that non-Japanese readers are on the same page as Japanese readers as far as mask-wearing is concerned. In giving a slightly different translation, the way the English text interacts with the non-Japanese reader differs from how the Japanese text interacts with the Japanese reader. The polite and subtle appeal for customers' cooperation and understanding in the Japanese text reflects Japanese socio-cultural norms. However, the mask-wearing instruction embedded in the English request may even offend some non-Japanese readers of the sign. The difference in the discursive function of English and Japanese messages was previously noted by Saruhashi (2016) in her study of bilingual signs in Tokyo's Meiji Shrine. She observed that English explanations are intended for one-off foreign visitors, whereas Japanese messages invite Japanese visitors to revisit the shrine for christenings, weddings, and other ceremonies.

Conclusion

Although this study is limited in terms of its sample, it provides insights into how COVID-19 has transformed the linguistic landscape of Tokyo and Kanagawa. It answers the first research question on the types of COVID-19 signs in public spaces by finding that they tend to display multiple messages related to customer-related and staff-related policies. The stores generally prepare these signs, but the government's COVID-19 policy influences their messages. In answer to the second question about the extent to which COVID-19 signs cater to foreign residents, the results show that most signs are in Japanese only. Only a quarter of the signs are multilingual, and most multilingual signs contain Japanese and English only. Therefore, COVID-19 signs are intended for Japanese and non-Japanese people who can read either Japanese or English. However, the majority of the

foreign population are not English speakers and have varying levels of Japanese reading ability, so even the limited number of Japanese-English bilingual signs may not help them navigate a linguistic landscape altered by COVID-19. They may need to rely on the symbols/images and positioning of monolingual Japanese COVID-19 signs to decipher their meanings, but neither is an adequate substitute for signage in a familiar language. Even if most non-Japanese residents can understand monolingual Japanese COVID-19 signs, multilingual signs are still necessary because they have other positive effects, including building trust and increasing adherence (Piller et al., 2020). The display of multilingual signs is not only for communication but also for social inclusion. Greater visibility of multilingual signs to promote social inclusivity would be an important consideration for Japan as its society continues to diversify.

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This research article is my original work.

Conflict of interest

None.

Ethical clearance

My research institution does not require ethics committee approval because this study is observational and does not involve human participation.

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