Language Governance of International Cities in Artificial Intelligent Technology Age

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Abstract. Technological advances, especially the development of mobile Internet and artificial intelligence are playing a more important role on urban language life. Thus, exploring the new phenomena and new challenges that language life in international cities may face, especially the role that intelligent technology can play in multilingual communication has important theoretical and practical significance for the governance of urban language life. This study takes the international metropolitan cities as the research scope in order to analyze the language governance in the international metropolitan cities based on AI technologies. It hopes that the results of this study could provide some implications and insights to enhance people’s ability of using AI technologies and mobile apps to solve communication problems.

1. Introduction
Linguistic super-diversity generated by the more frequent transnational flows of population provides every country with much more diverse language resources, but also brings us new challenges on how to coordinate more complex language relations and how to deal with multilingual environments. Technological advances, especially the development of mobile Internet and artificial intelligence are also playing a more important role on urban language life.

In this context, exploring the new phenomena and new challenges that language life in international cities may face, especially the role that intelligent technology can play in multilingual communication has important theoretical and practical significance for the governance of urban language life. This study takes the international metropolitan cities as the research scope, and proposes the following three research questions:

1. How language resources are configured and appropriated in the international metropolitan cities everyday life?
2. How the technologies and products of mobile internet and machine intelligence participate in language life?
3. What opportunities and challenges AI technologies can provide for language governance in the international metropolitan cities?

Exploring the urban language life under the dual influence of globalization and intelligence not only has practical significance for the creation and improvement of the national language and the urban international environment in the new era, but also may make the progress to the relevant research on sociolinguistics on language diversity and multilingual communication.

2. Language Resources in Cyberspace
We regard the application of Internet technology and artificial intelligence as a continuous continuum. Therefore, the intelligent technology discussed here is broad, including three aspects: traditional
Internet, mobile Internet and intelligent technologies such as speech recognition and machine translation.

2.1. Language Resources in Traditional Internet
By searching for language resources on the Internet, the author selected "Online platform for Government Affairs of Exit-Entry Administration Bureau of Shanghai Public Security Bureau " as a case for analysis. We tried to find the correct entrance by entering "Shanghai Exit and Entry Administration" through the Baidu search.. The entered homepage is displayed in bilingual, as shown in Figure 1.

![Figure 1. Government Affairs of Exit-Entry Administration Bureau Bilingual Website](image)

As shown in the figure, all sections on the homepage of the website are displayed in Chinese and English, and the English font is smaller than the Chinese font. There is no option to switch to another language.

When the mouse is placed on the icons of "Online Certificate Application" and "Inquiry", the icon will automatically change the information, showing the two options of "Chinese citizens" and "foreigners". The icon "foreigner" is still displayed in Chinese and English. Click on the "Permanent Residence" and "Transit Visa Free" sections, and you will see a Chinese monolingual page, but there is an option to switch English in the upper right corner. The information on the pages of "Guide and Policy", "Information", "Unit Pre-application", "Notice", "Download date" are all displayed in Chinese, and there is no English option. What caught our attention was the section "Social Immersing Services", and the page displayed is still full Chinese, and there is no option for other languages. There are 18 related organizations listed on the page. If you place the mouse under the title of each organization to display several links, and the names of all links are still in Chinese.

2.2. Language Resources in the Mobile Internet
The mobile Internet still has the ability to break through the limitations of time and space, but it pays more attention to connect people with local services and resources. In this section, we selected the commonly used "WeChat" as a case to explore the language resources of cities in mobile applications.
WeChat currently supports 20 language variants, and according to the default settings of the application, the language displayed on the interface is consistent with the language selection of the mobile phone system. As shown in Figure 2, all function interfaces will be displayed in English after setting WeChat to English. However, WeChat also opened up interfaces with other applications. These external applications include both Tencent’s internal research and development and other third-party organizations. Even if the language of WeChat is set to another language while clicking on these interfaces, the new page will still be displayed in Chinese. Because the content of these pages actually comes from other institutions, but it is still part of the WeChat product, and the interface is generally provided in the form of an applet or public account. However, we noticed that some products independently support multilingual applications among the functions connected to WeChat, but the pages jumped in WeChat are still displayed in Chinese, and cannot be switched to other languages in the WeChat environment.

2.3. Language Resources in Intelligent Technology

There is an online consultation platform for foreigners called Anyhelper in “Online platform for Government Affairs of Exit-Entry Administration Bureau of Shanghai Public Security Bureau”, which we have mentioned in Section 2.1 of this chapter. The login of this platform is premised on the use of WeChat, which leads us from the web end of this product to the mobile end. Using the public platform functions and language processing technology provided by WeChat, the product’s functions have expanded from information consultation to machine translation.
As shown in Figure 3, Anyhelper's public account interface is in English. You can switch to translation mode through the function keys below the public account. At this time, you can directly send a message to it. The public account will automatically reply and carry out the message sent by the user. Translation, in addition to supporting Chinese and English translation, will also provide pinyin of Chinese information. Even if the user sends English to the official account, the official account will be translated into Chinese and attached with pinyin. However, the corresponding phonetic symbols will not be provided for English information. It can be seen that this is a function specifically for foreigners. However, the translation of more than 100 words needs to join the paid VIP according to the introduction of the public account.

3. Application of Intelligent Technology in Language Life

According to the study on the Internet ethnography research, it suggests that the role of intelligent technology in language life is mainly reflected in three ways: Breaking through the time and space restrictions of communication, transforming communicative demands, and transforming communicative modalities.

3.1. Breaking Through the Time and Space Restrictions of Communication

Breaking through the time and space restrictions of communication mainly means that people who are not on the scene can also keep in face-to-face communication scenarios with the help of smart devices and mobile networks. Smartphones make remote video calling possible. The benefit of video is not only the substitution of remote participants into the scene of on-site communication, but also the substitution of people on the scene into the environment of the other party. The following case comes from a conversation between the researcher and a foreign friend.

Mark: My first Chinese tutor is my colleague in Suzhou. I am her first student, she never taught people Chinese before. She helps me a lot. She is good at this.

The researcher: You keep contact now?

Mark: Yeah, I have quite a few Chinese friend back in Suzhou. We are still very close; we talk through Wechat all the time.

The researcher: That sounds great, you talk in Chinese or in English.

Mark: Half and half, they are very nice, they know I need to practice Chinese, so we send these voice messages in Chinese. I know they want to practice English, so sometimes we will send messages in English.

The researcher: So I guess Wechat is quite helpful for your Chinese learning

Mark: Haha, yeah, we make phone calls either. But Wechat is more flexible, we all got work to do, voice message is better.

Mark's interaction with his friends in Suzhou through WeChat not only strengthened their friendship, but also made him continue to practice spoken foreign languages with the other party by sending voice messages through WeChat. Compared to making a phone call, Mark recognized that sending voice messages is more flexible, but it can also achieve the purpose of practicing spoken language.

3.2. Transforming Communicative Needs

Converting communication needs means that people do not necessarily complete the service process through human-human communication in the service field due to the rich mobile applications on smart devices, and part of the communication content is converted into human-machine communication. This is particularly prominent in the field of life services and leisure services. The following is the scene observed in a supermarket. The cashier is a young Chinese woman, and the customer is a man who looks like an Indian. The only word the whole customer said was "Thank you" in Chinese.

Cashier: You can pay here (hands up)

Custom: (Go up and put the goods on the counter without speaking)

Cashier: (Scan goods with a barcode scanner) Do you need a bag?

Custom: (nodded and took out the phone, still not talking)

Cashier: A big bag of 5 Mao (Continue to scan with a barcode scanner)
Custom: (Take a few points with your phone, hold the phone in your right hand, the screen of the phone faces the cashier, there is no check Bank member's response)
Cashier: A total of 129 yuan (the left hand points upward at the display of the cash register), how do you pay?
Custom: (Pushing the phone screen to the cashier, no speech)
Cashier: (without waiting for the customer's answer, the customer's mobile phone screen was scanned with a barcode scanner) successful payment.
Custom: Thank you (as you say, you have turned around and left with a good thing.)

The above is a typical case of using the mobile payment function in the mobile phone application to convert part of the information that originally required language communication in the transaction into human-machine communication between the cashier and the cash register and the mobile phone, and the customer and the mobile phone. At the end of the communication, the customer said “Thank you” in Chinese, which finally made the interaction a truly verbal conversation, rather than a monologue that the cashier said to himself. It is precisely the participation of mobile applications on the phone in this scenario that has largely replaced the communication needs of human-human interaction. Self-service cash registers have become more common, and many places have even begun piloting unmanned convenience stores. Mobile phones and mobile applications transform the language communication needs in the “transaction” scene.

3.3. Conversion of Communicative Modalities
Changing communicative modalities means that voice communication was the main form in face-to-face communication. However, with the help of smart devices, people can freely switch between spoken and written language when they are in multilingual communication. Some information that is more difficult to communicate on voice may become more understandable and accurate after being converted into a text form through modal conversion.

Kevin: My colleagues are from many other countries, not just English speaking countries. Like Olga, she is from Croatia......
The researcher: Sorry, where, I didn’t get it, she is from which country?
Kevin: Croatia.
The researcher: Which one is Klaudia? Is that it?
Kevin: Croatia, it’s in southeast of Europe, Yugoslavia, you know?
The researcher: How to spell (Take out the phone, ready to check the word)
Kevin: I will show you (Take out the phone and type), here, this one, Croatia.
The researcher: Oh Croatia. Who is Olga, have I met her?
Kevin: Were you there at the Blue Frog last week? She was there.
The researcher: Oh, then I didn’t meet here, I didn’t join you last week.
Kevin: She is also looking for a Chinese teacher, I don’t know if she has found one.
The researcher: Really? You could recommend me; I could help her with that.
Kevin: Sure, I will talk to here, and if she is interested, I will give her your wechat.
The researcher: Great, what’s her name again? Send it to me on wechat.

It can be seen from the above dialogue that the researcher is not familiar with the spelling and pronunciation of English names and place names mentioned by Kevin. The researcher don't know how to record this information. But through WeChat, Kevin sent researcher the names of places and people directly in text. researcher can accurately check pronunciation and corresponding Chinese in Youdao dictionary.

4. Factors Influencing the Application of Intelligent Technology in Language Life
There are many factors that would affect the application of intelligent technology in language life, such as smooth network service, and the stability of hardware or software. But this section mainly wants to discuss the human subjective factors in this process.
4.1. Lack of Consciousness
The consciousness here mainly refers to whether the participants of the communication can realize the function of smart devices to assist multilingual communication, and whether the participants can realize that multilingual communication is not necessarily completed only by linguistic means, but can be accomplished by using the auxiliary tools of smart devices.

Researcher: I would like to consult. I have a Russian customer who wants to stay here next week. He can't speak Chinese, can you communicate with him?
Hotel reception: No problem, sir, we have good command of English here.
Researcher: He is Russian, he cannot speak English, only Russian.
Hotel reception: Can't speak English? Not at all?
Researcher: No, he only speaks Russian.
Hotel front desk: Um... I'm afraid it won't work anymore; we can’t speak Russian.
Researcher: So what do you do when you encounter this kind of language barrier?
Hotel front desk: This is generally not the case. will he speak a little English, he will not?
Researcher: Have you never met a guest who does not speak English?
Hotel front desk: That must be accompanied by someone who will bring an interpreter. Will you not come with him?
Researcher: I may be inconvenient, could you deal with such kind of situation?
Hotel reception: let him call you if you don’t want to, and you can help him translate by phone.
Researcher: Do you have Russian materials or manuals here?
Hotel front desk: There is no such thing. In fact, there is no need to translate anything at check-in.
If he has anything else, he can only ask you for help.

This interview is an excerpt from a field survey conducted by researchers in a five-star hotel in Shanghai in July 2017. In this investigation, the hotel receptionist still did not expect to use mobile phones to assist communication after repeated inquiries and prompts by researchers. Perhaps it is because the use of tools will make the employee's language ability insufficient, which will lower the customer's evaluation of the hotel service. Perhaps it is because the employee did not encounter the situation of using English and unable to communicate in the previous work experience. These possible factors make them lack the awareness of using tools to participate in multilingual communication. The communicator's awareness of using tools to assist communication is the prerequisite for intelligent technology to participate in language life. Otherwise, the communicative participants will not know how to use appropriate resources and tools.

4.2. Lack of Related Knowledge
Knowledge here refers to specific information related to the use of smart devices, such as knowing which specific application or applications can assist in communication? How to find and install such an application? What specific functions are included in these apps? How are they used? The next case is an interview between the researcher and a foreign teacher.

Researcher: Have you tried to use apps to help you when you find it’s difficult to make yourself understood? Like a translation app.
George: Yeah, sometimes, I use Pleco to type in words and show it to people.
Researcher: What is it called?
George: I can show you, this one.....
Researcher: So it’s a dictionary, it’s not a translation app.
George: Yeah, but you can type in some words and it can show you the Chinese characters.
Researcher: But you can’t use it to translation a sentence, and it doesn’t have that translation function.
George: I know, like Google translator, but I can’t use Google now.
Researcher: Why? You can use Google translator in China, I use that.
George: I know, but it needs VPN, mine is not working and I just don’t use it, I don’t need it now.
Researcher: You don’t need VPN to use Google translator.
George: Really?
Researcher: I can show you.
This shows that Pleco used by foreigners is essentially an electronic dictionary and Chinese learning software. Translation is actually not its function. From the interview, we know that George is not familiar with these local mobile applications in China, so he did not use it. He knows that Google Translate has powerful functions, but he mistakenly believes that Google Translate is the same as Google Search Engine. In China, you must use a VPN to use it. But in fact, Google Translate is the only application of Google's services that can be used without a VPN.

5. Urban Language Life Governance Based on Globalization and Intelligence

Smart technology provides richer language resources for international cities to deal with the problem of language diversity and multilingual communication in language life, and has advantages over other forms of language resources in terms of resource accessibility. However, the development and popularization of intelligent technologies have also brought new challenges to the urban language life governance.

On the one hand, in the current urban language life, the application of intelligent technology by communicators is mostly based on the hyperactivity of personal initiative and creativity. Different communicators obtain different effects of applying intelligent technology due to differences in language concepts, related knowledge and experience. From the perspective of language policy, the governance of language life in international cities needs policy guidance and language education to help communicators build and develop awareness and ability to use intelligent technologies and tools to assist multilingual communication.

On the other hand, the language technology and products developed by technology companies have a significant impact on the language resources available to communicators and the way they use language resources. These language technologies and language products have become the language policy which exert influence on language practice and language concept. Therefore, in the era of intelligence, the language policies of technology companies will play an increasingly important role in urban language life governance.

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