

Title	音声による顧客への商品情報の気づき支援に関する研究 ～訪日外国人を対象とした～
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修士論文

音声による顧客への商品情報の気づき支援に関する研究

～訪日外国人を対象とした～

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# Abstract

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The next Olympic Games Tokyo was decided in September 2013. After that, so many tourists who are Western developed countries, as well as emerging economies, have visited Japan in recent years. The number of tourists from neighboring countries, particularly China increases rapidly. Chinese tourists prefer shopping because Japanese products have a distinguished reputation among them. The shopping is one of the purposes of visiting Japan.

In recent years, to meet the demands of foreigners, the two-dimensional code and automatic identification technology were utilized to build a multi-language shopping environment. There are not many opportunities for negotiations between customers and clerks in large shopping malls like drugstore or hypermarket because the malls are too spacious and store a wide variety of commodities. On the other hand, the most all of information about commodities provided to Chinese tourists is one concerning commodities which are popular in China. Chinese tourists, who are not familiar with Japanese commodities, may not notice similar commodities. One of the issues about shopping in Japan is less ability to speak Japanese and lack of awareness of Japanese commodities' information. Foreigners with less ability to speak Japanese have difficulty in utilizing customer services of shopping in the mall. Moreover, foreigners who have lack of the awareness have a lot of trouble with collecting information that they want from a large amount of commodity information. As a result, Chinese tourists tend to buy the same goods in large quantities many times. A lot of specific commodities in Japanese stores should be in short supply.

To solve the above problems, we suggest the auxiliary shopping technology based on commodities' location, which can timely remind customers by using voice and provide accurate commodities information. In this study, the auxiliary shopping service aims at Chinese tourists who go to the drugstore or hypermarket for shopping. Its purpose of using this system is to provide tourists with accurate voice prompts of relevant commodities, allowing visitors to know the commodities' information of which they want

to buy in real time. It can also create opportunities for customers to meet new commodities and make it easier for customers to shop.

In this study, timely remind customers by using voice and provide accurate commodities information. First, we should figure out what kind of product information the customer needs. To this end, we conducted a survey of Chinese tourists. Depending on the survey, we know that most Chinese tourists want to get the commodity information from the store when they shopping in Japan. They hope that Japanese stores can provide them with "bestseller information," "promotion commodity information," "related to commodity information," and another commodity information. Next, we need to find out what quality of the voice can raise people's awareness. To get the right sound, we did a sound listening experiment, with a total of 23 experimenters. Through experimentation, we confirmed that changing the pitch of the voice can achieve the effect of raising human consciousness. When the sound pressure is constant, whether male or female voice, the pitch of the sound increases or decreases within a certain range, we can feel that the sound more likely to draw their attention. Through experimentation, we get the threshold of easy-to-notice sounds. From this experimental data, we can see that when the sound pressure level is "50dB ~ 60dB". When male's pitch is reduced by 25% or increased by 40%, people are most likely to be attracted by this voice. When female's pitch is reduced by 25% or by 30%, people are most likely to be attracted by this voice. When the sound pressure level is "60 dB to 68 dB ". When male's pitch is reduced by 15% or increased by 30%, people are most likely to be attracted by this voice. When female's pitch is reduced by 20% or by 20%, people are most likely to be attracted by this voice. Finally, we performed an evaluation experiment using the easy-to-notice voice from sound listening experiment and the product information from the questionnaire. In the experiment, we used the eye tracker to observe the experimenter's eye track to confirm whether they noticed the voice prompt product information. When we broadcast the commodity information to the experimenter in easy-to- notice voice, they noticed commodity information more than usual. When using general sounds to provide experimenters with product information, everyone noticed an average of 4.58 messages. When using an easy-to-notice sound to provide experimenters with product information, everyone noticed an average of 7.33 messages. Through experiments, we know that the sound after the pitch change is more likely to attract people's attention, and even enhance people's interest in things. It can be

inferred that the stores use easy-to-notice voice provides the Chinese tourists information, Chinese tourists' awareness of Japanese goods will raise. According to AIDMA and AISAS, we know that the people's decision to purchase a product starts with noticing the product. Therefore, raising Chinese tourists' awareness of Japanese goods is liable to prompt them to purchase goods. According to the importance of product information, the function of selecting the corresponding tone is not perfect. The study found that when experimenters have different preferences for product information and sound, the system has different effects on experimenters. Providing people of all ages with what they perceive as easy-to-notice voice is an important topic of the future.

In this study, we didn't show out the feasibility that the study could be used in actual stores, but we hope we can see it in actual stores in the future and look forward to providing shopping support for foreign tourists at the 2020 Tokyo Olympics. In our opinion, this function of using voice to notice the information timely, which is not easily noticeable, can be widely applied in various fields. For example, at medical care facilities, Care staff improve interest in the health condition of the patient; at the elderly watching system, make the elderly aware of dangerous things; at agriculture, make the administrator aware of the growing situation of agricultural commodities and so on.