Factors influencing perceptual attainment of Japanese geminate consonants by Korean learners of Japanese

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Abstract

Two experiments were carried out to determine the perceptual mechanism which distinguishes geminate consonants of Japanese by Korean learners of Japanese. The first investigated the categorical perception of Japanese geminate consonants. In this experiment, we carried out a listening test to measure perceptual characteristics by Korean learners. The second was an interview of Korean learners on their learning strategies. The experimental results showed that some Korean learners concentrated on the overall rhythmic organization of geminate consonants, the same strategy as Japanese native speakers which had been denied in Min (1987, 2007).

Key words: geminate consonants, perception, learning strategies, Korean learners of Japanese

Introduction

This study investigated the perceptual mechanism of geminate consonants in the second language of Korean learners of Japanese. A large number of previous studies have investigated the perceptual mechanism of geminate consonants by Korean learners of Japanese (Min, 1987, 2007). These studies analyzed the perceptual distinction between geminate consonants and singleton stops. However, all Korean learners do not seem to use the same perceptual cues to distinguish geminate consonants. Accordingly, there is a necessity to determine what these cues are. Namely, we need to analyze the influence of acoustical features on perception. There is an additional necessity to determine the learners' psychological approaches to geminate stop discrimination. We carried out two types of experiments to get answers to the following questions.

First, what are the differences between Korean learners of Japanese and Japanese native speakers? In particular, are there any learners who utilize the same acoustic features to distinguish judgements as native speakers?

Second, what speech features do individual learners use to distinguish geminate consonants from singleton stops? In particular, do good learners of Japanese use the same features as native speakers?

Experiment for categorical perception characteristics

Participants

Eighteen native speakers of Japanese from Tokyo and forty-five Korean Japanese Learners participated in the study.

Stimuli and procedure of a perceptual test

The materials consisted of three pairs of 2 mora and 3 mora words which contrasted singleton and geminate stops (/aka/-/akka/,/saka/-/sakka/,/raka/-/rakka). Each item was produced both in isolation and embedded in a carrier sentence: for example, "*watasiwa ___to iimasita*" (I said ____). A female Japanese narrator uttered the sentences with an LH pitch accent at a normal speaking rate. A stimulus set for perceptual experiments was created from the materials by acoustically modifying the duration of the closure between the first and second mora of each word. The length of the stop was modified to provide samples varying by 20ms in length by removing part of the closure. Each subject heard each stimulus a single time and was asked to judge whether he or she heard had heard a 3-mora or 2-mora word.

Analysis

Categorical perception characteristics were represented by two measures. The first one was the boundary point of geminate and singleton stop perception. This was defined as the mid-point in milliseconds between the perception of singleton and geminate consonants. The other was the width of boundary interval where geminate and singleton stop perception co-occurred. As shown in Table 1, boundary points and boundary widths of the Korean learners were compared with Japanese participants.

Results and discussion

Table1 shows the results that both the boundary point and the boundary width were different between the Japanese native speakers and Korean learners on all test pairs. However, there are five Korean learners of Japanese who showed the same boundary point and the boundary width as Japanese native speakers. These results do not coincide with previous experimental results given by Min (1987, 2007).

Experiment for learning strategies

Participants

Forty-five Korean Japanese Learners participated in the study.

Stimuli and procedure for understanding learning strategies

One of the main aims of the experiment is to understand how to acquire Japanese geminate consonants by Korean learners from the psychological viewpoint (Oxford, R.1990). Stimulated recall methodology can be used to prompt participants to recall thoughts they had while performing a task or participating in an event (O'Malley et al.1990).Accordingly, stimulated recall could measure cognitive structure and mental representations and thus could be used for the understanding of learner's strategies in perception.

Analysis

The stimulated recall interviews were transcribed and analyzed qualitatively for commonalities in judgment strategies. Any commonalities were classified with reference to the KJ method developed by a Japanese ethnologist, Jiro Kawakita. The method of KJ utilized utterance cluster logically. The Procedure is as follows. First, the participant's interviews are recorded. Then, the utterances are clustered into related categories. Last, each utterance is placed into groups until there are none left over.

Result and discussion

There were five Korean learners who use the same perceptual characteristics as native speakers among the forty-five participants. The interview results revealed that one of these learners distinguished geminate consonants and singleton stop by perceiving rhythmic differences. This learner took more time to determine the nature of the consonants than the other participants.

On the other hand, the other Korean learners were conscious of the acoustical closure duration of geminate consonants only. These learners were unsure of their judgements and seemed to think that the accurate distinction between geminate consonant and singleton consonant stops was impossible.

These experimental results suggest that, it is important to inform Korean learners that geminate consonants decisions are carried out not merely by absolute closure duration of the geminate consonants but also by Japanese timing perception.

Table 1. Perceptual categorization by Korean learners of Japanese and Japanese native speaker (μ: mean, σ: standard deviation, N: number of listeners)

Test pairs	Korean learners of Japanese (N=45)				Japanese native speaker (N=18)			
	Boundary Point		Boundary Width		Boundary Point		Boundary Width	
	μ	σ	μ	σ	μ	σ	μ	σ
/aka/-/akka/	112.5	11.5	42.7	19.4	94.0	14.0	29.5	13.5
/saka/-/sakka/	92.8	11.8	40.5	15.2	82.3	12.2	28.3	9.5
/raka/-/rakka/	93.2	13.3	40.9	19.6	77.8	13.4	29.4	13.6

Summary

This study shows that all Korean learners of Japanese do not use the same perceptual cues as Japanese Native speakers. However, some Korean learners of Japanese showed the same perceptual characteristics as native speakers. Those learners tend to be conscious of not only closure duration of the geminate consonants but also Japanese timing perception.

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