

Izumi Takiguchi  
Sophia University/ JSPS Research Fellow

## Effects of pitch cues on the identification of vowel length in L2 Japanese

This study investigated the effects of pitch cues on the identification of word-final vowel length in Japanese, which is primarily cued by duration. Native speakers of Japanese (NJ), English (NE) and Chinese (NC) participated in the study.

Previous studies (e.g. Cebrian, 2006; Munro & Bohn, 2007) point out that native speakers (NS) and non-native speakers (NNS) differ in the use of cues when categorizing sounds. One question here is whether second language (L2) learners can utilize L2 cues which are not distinctive in their native language (L1). The feature (prominence) hypothesis (Flege, 1995; McAllister et al., 2002) and the desensitization hypothesis (Bohn, 1995) suggest that L2 cues are accessible to learners but it remains unclear whether the use of cues in learners' L2 relates to the role of the cues in their L1.

A total of 44 stimuli were created through the manipulation of final vowel duration and pitch contour of an original token (a nonsense word /mamama/ pronounced in HHH pitch pattern) with Praat. First, duration of the final vowel was edited and it ranged from 133 ms to 333 ms in 20 ms steps. After manipulating the vowel duration, the pitch pattern was manipulated for each token and there were four patterns; HLL, LHL, LHHL, LHH (duration of the underlined portions ranged from 133 ms to 333 ms). Participants listened to each stimulus 10 times and identified final vowel length as short or long. Probit analyses were performed on each listener's identification function to estimate the boundary location.

The present study shows the following points. First, listeners were more likely to identify a target vowel as a long vowel when its duration was longer, and NNS' boundary values were similar to that of NS's in general. Second, effects of pitch cues on the perception of vowel length varied with learners' L1; pitch cues affected NC's perception but not NE's perception. That is, NE attend to the durational cue without being affected by pitch, which is not distinctive, and they are sensitive to duration, which is not distinctive but prominent in their L1. NC, on the other hand, are sensitive to pitch, which is distinctive in their L1. These results suggest that NNS who do not use duration distinctively in their L1 can utilize it as a cue for length in the L2, it is possible for them to approximate boundary location to NS's, and the role of cues in NNS's L1 relates to the use of cues in their L2 perception.

## References

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