Author (1): Albandary Aldossari (MA Student)
Affiliation: Western University
Author (2): Yasaman Rafat (Assistant Professor)
Affiliation: Western University

Geminate Stops Production: A Comparison of Japanese-Speaking and English-Speaking Learners of Standard Arabic

Previous studies have shown that geminates (long sounds) are difficult sounds to acquire for both second language (L2) learners (Han, 1992; Sorianello, 2014; Hayes-Harb and Masuda, 2008; and Flege, 1995) and heritage speakers (Rafat, Mohaghegh & Stevenson, 2017). The purpose of the current study is to determine whether Japanese-speaking learners will outperform their English-speaking counter-parts in the production of geminate stops. Whereas gemination is phonological contrast and results in minimal pairs in both Arabic (e.g., /kɑsːɑrɑ/ 'he smashed' - /kɑsɑrɑ/ 'he broke') and Japanese (e.g., /oto/ 'sound' - /otːo/ 'husband'), it is phonetic in English (e.g., Ladefoged, 1999; Roach, 2000; Wolfram & Schilling-Estes, 1998). Phonetic lengthening has been reported to take place in English when identical segments are realized at the morpheme or word boundary (concatenated geminates; e.g., Bailey, 1983; Delattre, 1968; Kay, 2005). Examples of concatenated gemination are *night time* and *makes sense*.

It was predicted that Arabic geminates would be difficult for both groups (Sorianello, 2014), although Japanese-speaking learners would outperform their English-speaking counterparts because the singleton-geminate contrast is phonological in Japanese.

The participants consisted of two groups: (a) 5 English-speaking learners Arabic as a second language, who were studying in the USA; and (b) 5 Japanese L2 speaker of Arabic living in Japan. Their ages ranged between 18-34 years old and started to learn Arabic between the ages of 13-15. The English L2 speakers are University students studying at the Arabic Flagship Program at Indiana University in USA, and the Japanese L2 speakers are L2 learners at the Arabic Islamic Institute in Tokyo. Four tasks were conducted. First, the participants completed a language background questionnaire. Second, they performed a delayed repetition task, adapted from Bassetti (2017), in which they listened to a complete sentence 3 times containing the target word (containing the geminate). After listening the sentence, they counted backward from 7-1 and repeated the heard sentence. Then they listened to the same sentence, with the target word. They were then asked to say the following sentence three times: (*the missing word is ...*). There were also two different types of reading tasks involved. This study reports on the delayed imitation task.

The results indicate that there was a significant difference *(p = 0.05)* between the production of the two groups of learners, where the Japanese-speaking learners outperformed the English-speaking learners with respect to accurate geminate stop length production. The mean geminate stop duration for the Japanese-speaking learners was 244ms, but it was 226ms for the English-speaking learners. Furthermore, the Japanese-speaking learners' mean duration value was closer to its Arabic counter-part (284ms) previously reported in the literature. Consonant ratios will also be reported.

This study is important because it contributes to the field of L2 speech acquisition by comparing the effect of L1 phonological and phonetic status of a feature on its production in the L2 context. Furthermore, it makes an empirical contribution to the field because of the novel Japanese-Arabic language pairing.

Author (1): Albandary Aldossari (MA Student)
Affiliation: Western University
Author (2): Yasaman Rafat (Assistant Professor)
Affiliation: Western University

References

Han, M. S. (1992). The timing control of geminate and single stop consonants in Japanese: A challenge for nonnative speakers. Phonetica.

Sorianello, P. (2014). Italian Geminate Consonants in L2 Acquisition. Consonant Gemination in First and Second Language Acquisition, Pisa: Pacini, 25-46.

Hayes-Harb, R., & Masuda, K. (2008). Development of the ability to lexically encode novel second language phonemic contrasts. Second Language Research, 24(1), 5-33.

Flege, J. E. 1995. Second language speech learning: Theory, findings, and problems. *Speech perception and linguistics experience: Issues in cross-linguistics research*, ed. by Winifred Strange, 233–277. Timunium, MD: York Press.

Ladefoged, P. (1999). American English. In Editors Names (eds.), Handbook of the International Phonetic Association (pp. 41–44). Cambridge: Cambridge University Press.

Roach, P. (2000). English Phonetics and Phonology. Cambridge: Cambridge University Press.

Wolfram, W. & Schilling-Estes, N. (1998). American English: Dialects and variation. Malden, MA: Basil Blackwell.

Bailey, C.-J N. (1983). he patterning of sonorant gemination in English lects. In Fasold, R. W. (ed.), Variation in the Form and Use of Language: a Sociolinguistics Reader (pp. 175–185). Washington DC: Georgetown University Press.

Delattre, P. (1968). Consonant gemination in four languages: an acoustic, perceptual and radiographic study. he General Phonetic Characteristics of Languages: Final Report. Available at: https://archive. org/details/ERIC_ED034994.

Kaye, A. (2005). Gemination in English. English Today, 21, 43–55.

Rafat, Y., Mohaghegh, M., & Stevenson, R. (2017). Geminate attrition across three generations of Farsi-English Bilinguals living in Canada: An Acoustic Study. *Ilha do Desterro*, *70*(3), 151-168.

Bassetti, B. (2017). Orthography affects second language speech: Double letters and geminate production in English. *Journal of Experimental Psychology: Learning, Memory, and Cognition*, *43*(11), 1835.