

# **A Longitudinal Study of Farsi L1 attrition and English L2 Acquisition: A Focus on Manner of Articulation of Rhotics and Stress Pattern**

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This research is a longitudinal study examining first language (L1) phonetic attrition, and second language (L2) phonetic acquisition of a 9 years old Farsi-English bilingual child within a year. The participant's age of arrival to Anglophone Canada was 8 years old. An acoustic analysis has been done in order to investigate the alternations of both L1 and L2 in terms of manner of articulation (MOA) of rhotics and two stress pattern (SP) correlates, including F0 peak and syllable duration. This research is a continuation of a similarly structured study including a picture-naming task. The previous study consisted of 2 first sessions which took place one year prior to this study. The current study consists of the third and fourth sessions; and three more monthly sessions have yet to be recorded. The third session was recorded 14 months after the arrival of the participant to Anglophone Canada. The fourth session was conducted one month after the third session. Each session included two sections, including Farsi and English tasks. The participant was audio-recorded as she was naming the pictures by the audio-recorder, Audacity-macosx-ub-2.1.0. After the audio-recording, a total of 480 tokens were extracted, labeled and transferred to PRAAT for the acoustic analysis. The present study, discusses the preliminary results.

As mentioned one of the factors under study is MOA of rhotics in Farsi L1 and English L2 of a bilingual child. Rhotics occur in both Farsi and Canadian English. However, in Farsi, rhotics have a number of different allophonic realizations, such as fricatives, taps and trills (Rafat, 2008), whereas in Canadian English approximants are the most frequent types of rhotics (McMahon, 2002). Thus, it was predicted that further exposure of the bilingual child to the English L2 environment, would produce an increase in the number of approximant rhotics in both L1 and L2, the former causes L1 attrition and the latter leads to L2 acquisition.

Regarding SP, in English in bi-syllabic nouns, stress is on the first syllable whereas in Farsi it is on the second syllable (Kreidler, 1987). Thus, it was hypothesized that sustained contact with

L2, alters syllable duration and F0 peak to fall in line with English SP, in both L1 and L2. The acoustic measurement of rhotics in Farsi revealed that the total rate of occurrence of approximants was 70%, which was more than the other types of rhotics. A higher rate of English like rhotics was evidence that phonological attrition was in progress, in the speech of the bilingual child. The results of analyzing the duration of syllables in Farsi showed that, on average, in 75% of Farsi tokens the final syllable was longer. This is a marked decrease from the results of the previous year with 89%. In the current study, on average in 62% of Farsi tokens the F0 peak moved to the first syllable, suggesting that L1 attrition is taking place. The measurement of rhotics in English showed that the average number of approximants was 58%, in the first two sessions as well as in the two latest sessions. Hence, as this allophone occurred more than other types of rhotics, it is considered as evidence for L2 acquisition. The average number of English tokens with correct longer first syllables and the F0 peak on the nucleus of the first syllable was 85% and 78% respectively. It was concluded that the child has exhibited improvement in the L2 acquisition of approximant rhotics and the two studied correlates of SP. Taken together, the results suggest that L2 acquisition fostered L1 attrition.

### **Resources**

- Kreidler, W. (1987). Stress Differentiation in sets of English words. *WORD*, 38:2, 99-125.
- McMahon, A. (2002), *An Introduction to English Phonology*. Oxford University Press.
- Rafat, Y. (2008). A socio-phonetic investigation of rhotics in Farsi. 7th Biennial Conference on Iranian Studies, University of Toronto, Toronto, ON.