Production of Estonian vowels by Finnish speakers

Einar Meister and Lya Meister

Tallinn University of Technology

According to L2 theoretical models such as the Speech Learning Model (SLM) (Flege 1995) and the extension of the Perceptual Assimilation Model (PAM-L2) (Best & Tyler 2007) the ability to acquire L2 sounds in perception and production depends on the phonetic distance between similar segments in L1 and L2. L2 sounds which are acoustically and perceptually close to those of L1 will assimilate with their L1 counterparts, and for those L2 sounds that are dissimilar to the closest L1 sounds, new categories will be created. In the case of closely related languages, like Estonian and Finnish, eight vowel phonemes (transcribed as /i y e ø æ a o u/) are shared, while Estonian has an additional vowel – the mid back unrounded /ɤ/. In orthography, /i e ø æ a o u/ are represented similarly in both languages, i.e. by <i e ö ä a o u>, respectively, /y/ is represented by <y> in Finnish and by <ü> in Estonian, and Estonian /ɤ/ is represented by <õ>.

In this paper, we study the acoustic characteristics of Estonian vowels produced by L2 subjects of Estonian with Finnish language background. We hypothesize that the L2 speakers (1) apply their native vowel categories in the production of the Estonian counterparts – due to phonetic similarity of the shared vowels in the two languages, the L2 vowels assimilate well with their L1 categories; (2) have deviant production of Estonian /ɤ/ as the formation of the new vowel category might be difficult.

In the study, the recordings of 30 L2 speakers (10 male, 20 female) from the Estonian Foreign Accent Corpus (Meister & Meister 2012) were used. The L2 subjects (age 19-62, median 28) were born in monolingual Finnish speaking families in Finland. Most of them started to learn Estonian at different universities in Finland at the age of 18-47 (median 22.5) as the students of Finno-Ugric languages. In self-assessment, they rated their proficiency in Estonian as “elementary” (10 subjects), “intermediate” (15 subjects), “advanced” (3 subjects) or “proficient” (2 subjects).

A Praat script was used to measure formant frequencies F1-F4 in the middle of vowels in primary-stressed syllables. The L2 formant values were compared to the corresponding data of native Estonian speakers. The results confirm our hypothesis – the L2 vowels /i y e ø æ a o u/ were produced to closely resemble native Estonian vowels, and main deviations were found in the production of Estonian /ɤ/. Surprisingly, the L2 production of /ɤ/ features main deviations in F3 (lip-rounding), but not in F2 and F1 (tongue position).

References

