

Perceptual Similarity in Flege's Speech Learning Model

Robert Fuchs and Romana Kopečková

According to the Speech Learning Model (SLM), perceptual similarity between L1 and L2 sounds predicts ease of acquisition of non-native sounds; L2 learners are expected to face no difficulties in acquiring L2 sounds that are identical to L1 sounds, to acquire with relative ease those non-native sounds that are very different from L1 sounds, but to be challenged in the acquisition of L2 sounds that are similar but not identical to L1 sounds. In the learning process, young L2 learners are further predicted to enjoy an advantage over adults because of the state of development of the L1 sound system at the time of L2 acquisition (Flege, 1995, 2007; Flege & MacKay, 2011). Since children's internal representations for L1 sounds evolve slowly until early adolescence (e.g. Hazan & Barrett, 2000), they are likely to exert a weaker influence on the formation of new sound categories than it is the case with an established L1 sound system of adults.

An important empirical issue arising in this regard is that of characterisation (and measurement) of the phonetic distance between L1 and L2 sounds, without which the SLM may lack predictive power and even run the risk of circularity. The few extant studies which have attempted to address this question relied on the use of formal comparisons and goodness ratings rather than acoustic measurements (cf. Baker et al. 2008, Kopečková, 2012). The present paper aims to add to this area of research by examining the perception of similarity between English and Polish high front vowels by a group of 40 Polish children and adults after about three years of residence in Ireland. Polish learners' perception of high front vowels is particularly suited for our research question because it appears to be a case where ratings of perceptual similarity do not confirm what might be expected from a comparison of the (Irish) English and Polish vowel inventories. Kopečková (2012) found that Polish learners rate both the English /i/ and /ɪ/ vowels as similar to the Polish /i/, although Polish also has a centralised high front vowel /i/ which would appear to be the perceptually closer match to English /i/. On this basis, we make suggestions for a measure of perceptual similarity that takes into account both vowel duration and vowel quality in order to increase the predictive power of the SLM.

References

- Baker, W., Trofimovich, P., Flege, J. E., Mack, M., & Halter, R. (2008). Child-adult differences in second language phonetic learning: The role of cross-language similarity. *Language and Speech, 51*(4), 317-342.
- Flege, J. E. (1995). Second-language speech learning: Theory, findings, and problems. In W. Strange (Ed.), *Speech Perception and Linguistic Experience: Issues in Cross-language Research* (pp. 229-273). Timonium, MD: York Press.
- Flege, J. E., & MacKay, I. R. A. (2011). What accounts for "age" effects on overall degree of foreign accent? In M. Wrembel, M. Kul & K. Dziubalska-Kolaczyk (Eds.), *Achievements and Perspectives in SLA of Speech: New Sounds 2010* (Vol. II, pp. 65-82). Frankfurt am Main: Peter Lang.
- Hazan, V., & Barrett, S. (2000). The development of phonemic categorization in children aged 6-12. *Journal of Phonetics, 28*(4), 377-396.
- Kopečková, R. (2012). Differences in L2 segmental perception: The effects of age and L2 experience. In C. Muñoz (Ed.), *Intensive Exposure Experiences in Second Language Learning* (pp. 234-255). Clevedon: Multilingual Matters.