

Production and perception of cross-linguistic phonological categories: Data from English-Polish heritage speaking children

Maximilian Topps

Lancaster University

m.topps1@lancaster.ac.uk

Models of bilingual language acquisition make contradictory predictions regarding how cross-linguistically similar sounds interact during learning. These arise from whether the model concerns phonetic detail or phonological contrast, and whether the model concerns separate phonologies for each language. For the L2 Language Perception model (L2LP, Escudero, 2005) and Perceptual Assimilation Model (PAM-L2, Best & Tyler, 2007), which concern phonological contrast, cross-linguistically similar sounds should be easy to acquire. The Speech Learning Model (SLM, Flege, 1995), which concerns phonetic detail, hypothesises that similar sounds are difficult to acquire. Uniquely, the L2LP model concerns language specific phonologies, minimising cross-linguistic influence beyond the initial L2 state.

In order to observe cross-linguistically similar sound acquisition, this study investigates vowel contrasts in English-Polish bilingual children. The high-front vowel space is occupied by the contrast /i/-/ɪ/ in English, and /i/-/i/ in Polish (Szypra-Kozłowska, 2003). Cross-linguistic influence is predicted to occur due to the acoustic and phonological similarity between these vowels. For example, Polish learners of English have shown difficulty contrasting in the temporal dimension for English /i/-/ɪ/ given that Polish does not use this as a contrastive vowel feature (Szypra-Kozłowska, 2003).

Pilot data were collected from 11 English-Polish bilingual children aged 6 to 9 years who attend Polish supplementary school. Production data were elicited via a picture-naming task that targeted the relevant vowel contrasts in both languages. The perception task was a lexical decision task in which listeners heard continua between English /i/-/ɪ/, Polish /i/-/i/, and cross-linguistic /ɪ/-/i/, which were analysed in order to determine listeners' perceptual boundaries. Acoustic measures of F1, F2, and duration were extracted from the production data for analysis. A follow-up study was performed with 18 children of the same demographic. The results suggest perceptual assimilation in corroboration with predictions made by the PAM-L2. However, the patterns of assimilation differ between production and perception. This is discussed in terms of the dynamics of child bilingual phonologies.

References

Best, C. T., & Tyler, M. D. (2007). Nonnative and second-language speech perception. Commonalities and complementarities. In M. J. Munro and O. S. Bohn (eds.), *Second language speech learning: The role of language experience in speech perception and production* (pp. 13-34). Amsterdam: John Benjamins.

Escudero, P. (2005). *Linguistic perception and second language acquisition: Explaining the attainment of optimal phonological categorization*. University of Utrecht doctoral dissertation. Utrecht: LOT.

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 233-277). Timonium, MD: York Press.

Szypra-Kozłowska, J. (2003). *Lingua Franca Core, Phonetic Universals and the Polish Context*. Poznao: Adam Mickiewicz University Press.