

The acquisition of non-native contrasts at first exposure

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While numerous models have been proposed in the study of the acquisition of second language (L2) phonology, the focus of these models has primarily been on the classification of native and non-native contrasts (e.g., Flege, 1995). Far less focus has been placed on the time course of adult phonological acquisition. The current study tackles this issue by examining the perception of non-native contrasts at first exposure, offering a unique opportunity to examine the development of perceptual sensitivity in adult learners in the very first hours of exposure to the L2 sound system.

The Polish language boasts an unusually rich inventory of fricatives and affricates and therefore provides an excellent testing ground for the acquisition of non-native phonemic contrasts. In this study, 36 native speakers of French took part in a 10-day Polish course and received a total of 14 hours of oral Polish input from a native-speaking instructor. None of the participants had previously been exposed to Polish or another Slavic language and the input included no explicit phonological instruction. Participants were tested on their ability to distinguish the three-way place distinction in Polish sibilants (alveolar /s, z/, alveo-palatal /ɕ, ʑ/, and retroflex /ʂ, ʐ/). French, in contrast, distinguishes only two places of articulation in sibilants (alveolar /s, z/ and palato-alveolar /ʃ, ʒ/).

Participants completed an AX discrimination task at three time intervals throughout the course: prior to any exposure to Polish (T1: 0 hours of input), after 4.5 hours of input (T2) and after 10.5 hours of input (T3). The test stimuli consisted of pairs of CV non-words including six fricatives from the Polish phonemic inventory: /sa/, /za/, /ɕa/, /ʑa/, /ʂa/, /ʐa/. The experiment consisted of 240 trials; in each trial, one of the six CV syllables was paired with either one of the other CV syllables or with a different version of the same CV syllable.

Discrimination of the non-native phonemes only (/ɕa/, /ʑa/, /ʂa/ and /ʐa/) showed a main effect of Test (T1, T2, T3) in a repeated-measures ANOVA: $F(2, 35) = 8.202$, $p = .0006$, indicating that participants' discrimination of the unfamiliar sibilants improved significantly as a function of input. Post-hoc analyses showed, however, that there was no significant difference between T1 and T2, suggesting that 4.5 hours of input was not sufficient for participants to begin to establish new phonemic categories. Significant differences in performance were observed between T1 and T3 ($p = .0009$) and between T2 and T3 ($p = .0261$). The current results therefore show a rapid and significant increase in the ability of participants to discriminate non-native sounds after just 10.5 hours of input in the target language, shedding light on the developmental course of adult phonological acquisition. Our results will be discussed in light of current theories of implicit language learning.

References

Flege, J. (1995). Second-language speech learning: Theory, findings, and problems. In W. Strange (Ed.), *Speech perception and linguistic experience: Theoretical and methodological issues* (pp. 233-273). Timonium, MD: York Press.