

Perceptual Assimilation of Southern British English vowels by Punjabi-Urdu speakers

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We report on a perception experiment addressing the following questions within L2 learning: (1) How do Punjabi-Urdu listeners perceptually assimilate Southern British English (SBE) vowels? (2) What are the most difficult English vowels for them? (3) Does hearing the vowels in recognizable English words vs. non-English-like contexts affect perception? According to the Speech Learning Model (Flege et al. 1997), Punjabi-Urdu listeners should be able to distinguish short and long English vowels, and establish separate phonetic categories for diphthongs. According to the Perceptual Assimilation Model (Best & Tyler 2007), listeners should show Two-Category assimilation patterns.

Seventy listeners (46F, 24M, 18-24 y.o.) from Lahore, Pakistan with Punjabi and Urdu as their first two languages and good knowledge of Pakistani English took part. The experiment was conducted at the University of the Punjab in Lahore, where the participants were students. The stimuli were SBE vowels /i: ɪ e æ ɜ: ʌ ɑ: ɒ ɔ: ʊ u: ɪə eə ʊə eɪ aɪ ɔɪ əʊ aʊ/ produced by two native SBE talkers (1M, 1F), in two contexts: English minimal pairs (bVd), and nonce disyllabic words (hVba). Listeners had to choose from a set of 26 Urdu words (presented in writing) the word that best matched the vowel of each stimulus, and rate the match for goodness of fit on a 7-point scale. The data were investigated using multinomial log-linear models (Venables and Ripley 2002). A model was constructed incorporating all English vowels, with Urdu vowel as the response variable and English vowel, context and talker as predictors. Type-III ANOVA (Fox and Weisberg 2011) significance tests showed significant effects of stimulus [$\chi^2(324) = 21163, p < 0.001$] and context [$\chi^2(18) = 2101, p < 0.001$] which were confirmed by separate models constructed for each English vowel.

Listeners found SBE monophthongs /ɪ/ and /ɜ:/ difficult to assimilate into Urdu vowel categories, and confused them with Urdu /e:/ and /ɑ:/ respectively; /eɪ ɪə eə/ were confused with /e:/, and /əʊ/ was confused with /ɒ/; /ʊə/ was not consistently matched with any Urdu vowel. There were also clear differences across contexts: in the bVd context, /e ʌ æ/ were matched as predicted to /e: ʌ æ/ respectively; in the hVba context, however, they were matched to Urdu /æ/, /ɑʊ/ and /ɑ:/ instead. Listeners were able to differentiate between long and short vowels in the bVd context, but failed to do so in the hVba context. Overall, listeners performed as predicted for English words, but showed a diversity in their choices when they heard the same English vowels in an unfamiliar context. These findings support the Two and Single-Category, and Uncategorised-Categorised predictions of PAM; however Multiple-Category assimilation patterns shown in the results were not predicted. Neither SLM nor PAM predictions apply to the findings from the hVba context, indicating that recognition of the second language is a crucial factor for applicability of these models.

References

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