A great deal of recent research has focused on the ability of adults to learn to produce and perceive the phonetic segments of a second language (L2). The foreign accent that arises from errors in producing L2 vowels and consonants has often been attributed to inaccurate perception. A number of theorists have proposed that the perception of L2 phonetic segments will be inaccurate following attunement to the L1 phonetic system because L2 input is warped due to the use of L1-tuned filter weights, or because L2 phonetic dimensions that are non-contrastive in the L1 are filtered out (Trubetzkoy, 1939/1958; Sebastián-Gallés and Soto-Faraco, 1999; Kuhl, 2000; Iverson et al., 2001). According to the Speech Learning Model, on the other hand, adult learners of an L2 can in time accurately perceive the phonetic properties of L2 speech sounds (Flege, 1999, 2002, 2003). However, relatively little is known at present concerning adults’ ability to detect cross-language phonetic differences and the time course of changes in the perception of L1-L2 phonetic differences.

This study evaluated the ability of 15 native Spanish (NS) adults to perceptually distinguish English and Spanish vowels. The aims of the study were to determine if the NS participants perceived a difference between English vowels and neighboring Spanish vowels, and whether perceived English-Spanish differences would increase as the NS participants gained experience in English.

The NS participants were learning English as an L2 in the United States (U.S.). They had a mean age of 34 years, had arrived in the U.S. at an average age of 29 years, and had lived in the U.S. for an average of 3.8 years when tested the first time (Time 1). The perceptual stimuli consisted of 5 Spanish and 11 English vowels that had been spoken in a /b_b/ context by 5 native speakers of each language. The vowel stimuli were presented to the NS participants on 6 occasions, each separated by 1 year.

The Spanish and English vowel stimuli were randomly presented for classification as one of the 5 vowels of Spanish. Goodness of fit ratings were also obtained for each token (5 = good instance of a Spanish vowel, 1 = poor instance, 0 = not a Spanish vowel). The dependent variables were the percentage of times that the 5 tokens of each vowel category were classified as “not Spanish” and the goodness of fit ratings obtained for the remaining tokens.

The NS participants were unable to distinguish the English /i/ tokens from the Spanish /i/ tokens. The five English /i/ tokens were rarely identified as “not Spanish” and received goodness ratings that were virtually indistinguishable from the ratings obtained for Spanish /i/, even at the end of the 5-year study. The NS adults also failed to distinguish the low central Spanish vowel /a/ from the two low vowels of English. However, the NS participants were able to distinguish the remaining English vowels of interest from neighboring Spanish vowels (i.e., the vowels in “bet” and “bait” from Spanish /e/; the vowel in “boat” from Spanish /o/; the vowel in “boot” from Spanish /u/).

The NS participants’ ability to perceive Spanish-English vowel differences was related closely to the magnitude of acoustic differences between the five tokens of the various Spanish and English vowel categories. There was little change in the magnitude of perceived Spanish-English differences over the 5-year test interval. The one exception was English /u/. The NS
participants judged the English and Spanish /u/ tokens to be equally good instances of the Spanish /u/ category at Time 1, but gave significantly lower ratings to the fronted English /u/ than to Spanish /u/ one year later (Time 2) and in all subsequent sessions. Taken together, the results suggested that adult learners of an L2 perceive all but the smallest cross-language vowel differences, but that certain differences may not be noted immediately.

References


