

### **Phonetic Training of Spanish /u/ in L2 Spanish Learners with L1 Canadian English**

Spanish and English differ greatly in their vowel inventory, with multiple English vowels corresponding to each of the five Spanish vowels: /a/, /e/, /i/, /o/, /u/. Spanish vowels, including /u/, are shorter in duration than English. In addition, depending on the vowel, they may be lower (higher F1) or higher (lower F1, as is the case for /u/) than English, and they may be more fronted (higher F2) or more back (lower F2, as is the case for /u/) than English (Colantoni et al., 2015; Hualde, 2014; Hualde et al., 2010; Menke & Face, 2010; Schwegler et al., 2010).

Following Flege's Speech Learning Model (1995), L2 Spanish learners with L1 English may have relatively great difficulty perceiving and producing differences between Spanish /u/ and the similar English /u/. Previous studies (ex. Morrison, 2003) have provided evidence that L1 Canadian English/L2 Spanish learners may perceive Spanish /u/ as English /u/ or /ʊ/. Also, L1 English/L2 Spanish learners may produce Spanish /u/ as English /u/, although F1 and F2 may become more native-like as proficiency increases (Cobb & Simonet, 2015; Menke & Face, 2010; Morrison, 2003). Phonetic training (perception and/or production training) may be effective for improving perception and production of a variety of L2 segments in many L1 groups (Bradlow et al., 1997, 1999; Herd et al., 2013; Kartushina et al., 2015; Sakai, 2016; see also Logan & Pruitt, 1995; Sakai & Moorman, 2017).

This pilot study addressed the following research question: With phonetic (perception and production) training, do low-proficiency L2 Spanish learners with L1 Canadian English achieve more native-like perception and production of Spanish /u/? It was hypothesized that with training, learners would perceive Spanish /u/ and English /u/ and /ʊ/ more often as different vowels, and would produce Spanish /u/ with more native-like (decreased) duration, F1 and F2.

At pre- and post-test, experimental and control participants ( $n = 2$ , 1 per group) completed an AX discrimination task (36 stimuli pairs, 18 different, Spanish-English, 18 same, Spanish-Spanish), and an elicited production task (36 Spanish real word stimuli, read out loud in a carrier phrase). During the two-week interval between testing times, the experimental participant completed an identification training task (36 Spanish and 36 English stimuli with /u/, /ʊ/ and /ʌ/, one session, 5 days after pre-test) and an elicited production (imitation) training task (36 Spanish real word stimuli with /u/, one session, 9 days after pre-test).

Results showed that: (1) For perception pre- to post-test improvements, mean accuracy improved both with and without training. Total accuracy improved for different stimuli pairs with training, while it improved for same stimuli pairs without training. (2) For production improvements, native speaker targets were rarely reached or approximated in either participant group. However: (A) Duration of unstressed and stressed /u/ improved after a dorsal consonant, with training, and after a labial and dorsal consonant, without training. (B) F1 (for unstressed and stressed /u/) improved after a labial consonant, with training, and after a labial consonant (unstressed /u/ only) and dorsal consonant (unstressed and stressed /u/), without training. (C) F2 improved after a coronal consonant (unstressed and stressed /u/) and labial and dorsal consonant (unstressed /u/ only) with training, and after a labial and coronal consonant (unstressed and stressed /u/) and dorsal consonant (unstressed /u/ only), without training.

This pilot study provides some evidence that phonetic training and informal pronunciation learning programs (which the control participant was pursuing at the time of the experiment) may yield similar improvements in perception and production of Spanish /u/ in low-proficiency L2 learners with L1 Canadian English. An important implication of this study for L2 Spanish learning is that L2 Spanish phonology can be developed and improved in multiple ways.

## **References for Abstract:**

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