

Congruence in Mandarin and Spanish ESL learners' knowledge of English onset cluster phonotactics

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Abstract

This study investigated how Mandarin and Spanish ESL learners compared to each other and to native English speakers in their implementation of English phonotactic knowledge regarding onset consonant clusters. How are adult ESL learners influenced by language-specific phonotactics of their L1 and L2 versus language-universal sonority patterns when judging a nonce word's acceptability in their L2? This experiment probed ESL learners' ability to act on their knowledge of English's consonant cluster phonotactics, where participants judged the acceptability of nonce words containing an onset cluster as English words. Spanish and Mandarin were chosen because both have more restrictive phonotactics: Mandarin doesn't allow any clusters, Spanish only allows onset clusters that feature a sonority rise, and English has onset clusters that have rising sonority (e.g., /fl/) and sonority plateaus (e.g., /st/), the latter of which defies the general phonological principle prescribing the ideal syllable to have onset rising sonority. It was hypothesized that the different restrictions on clusters in Mandarin and Spanish would impact their English acceptability judgements. The ESL groups were expected to be more sensitive to sonority than the native English speakers. Further, Spanish ESL learners were expected to be more forgiving than Mandarin ESL learners regarding sonority-plateau English clusters, due to Spanish featuring many words containing these English clusters word-medially (e.g., 'estado'). A total of 75 people participated in this online study: 27 Mandarin ESL learners, 34 Spanish ESL learners, and 14 native English controls. All ESL learners began learning English as an adult (after age 18). Participants heard and rated 100 nonce words' acceptability as English words on a scale of 1 to 5, normalized to zero within participants. Nonce words began with a consonant cluster composed of an English voiceless fricative /f, θ, s/ followed by a liquid /l, l/ or voiceless stop /p, t, k/. Contrary to the hypotheses, results showed that the ESL learners did not differ in their ratings: nonce words containing an English cluster with either a sonority rise or plateau and non-English cluster combinations with a sonority rise were rated as equally acceptable English words (average normalized rating = 0.218) and nonce words with a non-English cluster with a sonority plateau were rated as unacceptable English words (average rating = -0.562). The native English participants had similar but more extreme ratings (0.385 vs. -0.996 for the same cluster groups), aligning with their more intense native intuitions. This study therefore found that an ESL learner's L1 did not affect their English acceptability judgements. Language-specific English phonotactics had the greatest influence on the ratings while language-universal sonority patterns only affected ratings for non-English clusters. Thus, ESL learners were adept at inhibiting their L1 in favor of their L2 and resorted to universal patterns of sonority with non-English stimuli. These findings suggest that ESL teaching needn't be partitioned by the learner's L1 and further that these learners demonstrated a highly productive acquisition and implementation of English phonotactic knowledge.