The effects of input, native-language phonology, and individual differences on the lexical encoding of Spanish rhotics by second language learners

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Previous research on the lexical encoding of novel L2 contrasts has shown that accurate perception is likely necessary but not sufficient for accurate lexical representations. Even when learners are able to perceptually distinguish L2 sounds, they often struggle with encoding these sounds contrastively in lexical representations, and perception ability has been found to account for only some of the variance in lexical encoding accuracy. The proposed dissertation will investigate the ability of learners to encode novel words containing the Spanish tap and trill, a contrast that has been shown to be easily discriminable for English-speaking learners and even naïve English listeners, yet difficult for learners to encode accurately in lexical representations. By investigating an easily perceptible contrast, this study will focus on other factors that may explain lexical encoding difficulty beyond perception – unreliable L2 input, the L1 phonological grammar, and learners’ individual differences in cognitive abilities and vocabulary size.

In terms of input, it is possible that the distribution of the tap and trill in Spanish and the phonetic variation they exhibit do not provide reliable evidence for learners that they need to encode this contrast. However, it is also possible that the lack of a rhotic contrast in learners’ L1 English makes them unable to retain this distinction at the lexical level, since it is not important for distinguishing words in their native language. If this is the case, then the impact of the L1 phonological system may differ based on each learner’s individual ability to inhibit their L1 phonology (inhibitory skill), focus their attention on relevant acoustic dimensions (attention control), and create a robust L2 phonological system (L2 vocabulary size).

The proposed dissertation will examine lexical encoding through the use of a word-learning study in which participants learn novel words containing the canonical pronunciations of the tap and the trill. If participants are able to accurately encode the tap and trill in words for which the tap-trill contrast is salient and controlled, this would suggest that their difficulty with this contrast in real words stems from the lack of reliable input in Spanish. If participants are not able to accurately encode the tap and trill despite clear evidence for a contrast, this would point to a difficulty due to the L1 phonological grammar. It would also be likely that those learners that are better able to overcome the restrictions imposed by their L1 phonology, i.e. those learners that have higher inhibitory skill (as measured with a retrieval-induced inhibition task), better attention control (as measured with a flanker task), and a larger L2 vocabulary size (as measured with the Spanish X-Lex vocabulary test), would be more accurate at lexical encoding.

In order to test the suitability of a word-learning task for the dissertation, a pilot study was conducted with 45 intermediate learners of Spanish. Results showed that while participants could all accurately reject an unrelated word, on average they accepted the minimal pair mismatch for /ɾ-/r/ words about half the time, suggesting it was difficult for them to encode this contrast despite the consistent evidence provided to them. There was also no significant difference in the accuracy on words that were learned as a part of a minimal pair and those that were not. Furthermore, participants were not significantly more accurate with the control contrast /n-/ɲ/ which may indicate that this contrast was too difficult for learners as well, or that the task was difficult overall. A closer look at individual variation revealed a wide range of accuracy scores between participants, suggesting that while as a group learners have persistent difficulty encoding a contrast between the tap and trill even with strong minimal pair evidence, it is not categorically impossible for learners. Rather, some individuals are able to represent this contrast in lexical representations, while others cannot, and others perhaps inconsistently so, warranting an investigation of individual differences for the dissertation.