

Perceptual and Ultrasound Articulatory Training Effects on English L2 Vowels Production by Italian Learners

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Abstract : The American English contrast /ɑ-/ (cop-cup) is difficult to be produced by Italian learners since they realize L2-/ɑ-/ as L1-/ɔ-a/ respectively, due to differences in phonetic-phonological systems and also in grapheme-to-phoneme conversion rules. In this paper, we try to answer the following research questions: Can a short training improve the production of English /ɑ-/ by Italian learners? Is a perceptual training better than an articulatory (ultrasound - US) training? Thus, we compare a perceptual training with an US articulatory one to observe: 1) the effects of short trainings on L2-/ɑ-/ productions; 2) if the US articulatory training improves the pronunciation better than the perceptual training. In this pilot study, 9 Salento-Italian monolingual adults participated: 3 subjects performed a 1-hour perceptual training (ES-P); 3 subjects performed a 1-hour US training (ES-US); and 3 control subjects did not receive any training (CS). Verbal instructions about the phonetic properties of L2-/ɑ-/ and L1-/ɔ-a/ and their differences (representation on F1-F2 plane) were provided during both trainings. After these instructions, the ES-P group performed an identification training based on the High Variability Phonetic Training procedure, while the ES-US group performed the articulatory training, by means of US video of tongue gestures in L2-/ɑ-/ production and dynamic view of their own tongue movements and position using a probe under their chin. The acoustic data were analyzed and the first three formants were calculated. Independent t-tests were run to compare: 1) /ɑ-/ in pre- vs. post-test respectively; /ɑ-/ in pre- and post-test vs. L1-/a-ɔ/ respectively. Results show that in the pre-test all speakers realize L2-/ɑ-/ as L1-/ɔ-a/ respectively. Contrary to CS and ES-P groups, the ES-US group in the post-test differentiates the L2 vowels from those produced in the pre-test as well as from the L1 vowels, although only one ES-US subject produces both L2 vowels accurately. The articulatory training seems more effective than the perceptual one since it favors the production of vowels in the correct direction of L2 vowels and differently from the similar L1 vowels.

Keywords : L2 vowel production, perceptual training, articulatory training, ultrasound

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