

# The effects of computer-assisted perceptual training on the learning of English vowels

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The present study investigated the effects of a computer-assisted perceptual training on the learning of three English contrasts (/i/-/ɪ/; /ɛ/-/æ/; /u/-/ʊ/) by a group of 34 EFL (English as a Foreign Language) learners. This set of vowel contrasts was selected due to reported difficulties native speakers of European Portuguese have in perceiving and producing them (Flege 1995; Rato et al. 2012). The English phonemic categories /ɪ/, /æ/ and /ʊ/ tend to be assimilated to the Portuguese vowel sounds /i/, /ɛ/ and /u/, respectively, and no distinction between the two vowels of each pair is made, due to their acoustic and articulatory proximity. This study investigated (i) whether a high variability perceptual training with immediate feedback, which included stimuli with different phonemic contexts produced by multiple native talkers, had a positive effect on the perception of the English target segments; (ii) if transfer of improvement to production was observed; (iii) whether perceptual learning would generalize to identification of new words produced by novel talkers; and (iv) if long-term training effects would remain. The perception of the participants was assessed three times with an identification test designed with natural stimuli: (1) before the auditory training – *pretest*; (2) immediately after the training was over – *posttest*; and (3) two months later – *delayed posttest*. The computer-assisted pronunciation training consisted of five 50-minute sessions divided into two blocks, which included discrimination tasks and identification sequences followed by immediate feedback administered with TP (Rauber, Rato, Kluge, & Santos, 2012), a free application software for perceptual training. Production was tested simultaneously in the three phases by means of a sentence-reading task with the target vowel segments. The results show that the Portuguese learners' performance in the identification of the English vowels improved significantly, and perceptual gains were retained two months after completion of the training sessions. Moreover, the results of the generalization test indicate that there was robust learning of the two front vowel pairs. Acoustic analyses of spoken data revealed that phonological learning transferred to production. In sum, these results support the claim that computer-assisted perceptual learning can occur in the L2/FL classroom within a short period of time and corroborate previous findings on the malleability of adult learners' perceptual systems.

## References

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