

## **The effect of instructed second language learning on the acoustic properties of first language speech**

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Research demonstrates that second language (L2) learning can affect first language (L1) speech production. This has been shown for proficient long-term second language learners in immigration settings [2] as well as novice learners in the study abroad setting [1]. Moreover, recent studies suggest that immersion situation is not a necessary condition for second language-induced phonetic changes in L1, which can occur under typical instructed L2 learning conditions, whereby learners remain in their first language environment [3, 4]. This evidence suggests that such phonetic changes in L1 may occur in any settings when exposure to and/or use of L2 takes place. It is still not clear however whether some factors may increase or decrease the probability of L2 phonetic influence on L1 speech.

The present paper reports on the results of two production studies exploring the possibility of L1 phonetic drift in the direction of L2 norms in a typical L2 classroom settings in a major Midwestern University. Two groups of American students enrolled in intermediate-level Russian (N=18) and French (N=24) language courses were recorded reading a list of Russian and English or French and English words, respectively. The word lists were designed to investigate the acoustic realization of word-initial (French and Russian students) or word-final stop (Russian students only) voicing. Several acoustic correlates of initial and final voicing were measured (VOT, onset f<sub>0</sub>, preceding vowel duration, closure duration, duration of glottal pulsing during closure, burst duration) and compared to data from two control groups of monolingual speakers of American English (N=18 and N=30) from the same geographic region. Results demonstrated that realization of both initial and final voicing in English of Russian learners were affected by exposure to Russian. In the majority of measures, the drift occurred in the direction of convergence with the norms characteristic of Russian voicing (e.g. Figure 1). Divergence from Russian was detected only in the use of negative VOT for initial voiced stops. No evidence of phonetic drift either towards or away from French norms was detected in the English speech of French learners.

Thus, the results of the studies confirm that L2-triggered phonetic changes in L1 are a possible but not an inevitable outcome of exposure to L2 under the typical conditions of instructed L2 learning. The markedly different results obtained in two experiments conducted in largely equivalent settings, with comparable methodologies and the same population from which the participants were sampled, raise interesting questions about the source of the difference and the underlying causes of the observed L1 phonetic drift. While a definitive answer is not possible without additional research, several possible explanations can be offered.

One possibility is that the differences in the attitudinal, motivational, and cognitive characteristics of the two learner groups can account for the observed divergence in the results. Russian is generally perceived as a more complex target for second language learning than French, thus conceivably attracting more motivated learners who are genuinely interested in the country, its culture, and language.

Another possibility is that the likelihood of L1 phonetic drift is determined by the type of L2 (and possibly L1) input learners receive in the classroom. In the present study, all of the Russian instructors, but not French ones, were native speakers of the target language. Therefore, learners of Russian, but not French, were exposed to native L2 as well as L2-accented English. This suggests that exposure to native L2, rather than the use of L2 per se, is a necessary condition for the phonetic influence of L2 on L1.

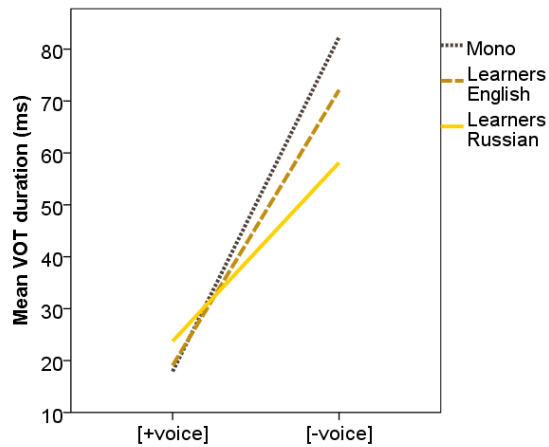


Figure 1. *Voiced and voiceless word-initial stops produced with positive VOT by native monolingual speakers of English (dotted line), learners of Russian speaking English (dashed line), and learners of Russian speaking Russian (solid line).*

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