

# Segmental and Suprasegmental Acquisition by Bulgarian Learners of Modern Greek

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## Abstract

Key features of the interlanguage phonology of Bulgarian learners of Modern Greek include the stopping of /θ, ð, ɣ/ and the realization of unstressed /o/ as [u]. Since Contemporary Standard Bulgarian (CSB) lacks /θ, ð, ɣ/, accurate production requires the formation of new phonetic categories. In CSB, unstressed /o/ undergoes phonological vowel reduction: its quality is neutralized, and it merges with /u/. In contrast, in Standard Modern Greek (SMG), unstressed /o/ undergoes phonetic reduction—namely, displacement in the vowel space while retaining its vowel quality. Accurate production of /o/ in unstressed syllables thus demands the acquisition of a new stressed – unstressed distinction that preserves the target vowel's quality. This study investigates the relative learning difficulty of these pronunciation targets through a pre-/post-test design.

The experimental group consisted of 10 beginner Bulgarian learners of Modern Greek (8 females, 2 males; Mage=19.6). Their productions of the target segments were recorded twice: once before receiving pronunciation instruction (pre-test/T1), and again after completing 15 pronunciation training sessions (post-test/T2). To provide baseline data, a control group of 12 native speakers of SMG (8 females, 4 males; Mage=25.3) was also recorded.

Production data were collected through a reading task. The fricative stimuli consisted of real words containing the target segments in initial and medial positions, across both stressed and unstressed syllables, and incorporating all five SMG vowels (/i e a o u/). For the vowel analysis, the stimuli were the symmetrical disyllables ['popo] and [po'po]. All elicitation words were embedded within a carrier phrase. The recordings were manually annotated and acoustically analyzed using Praat.

Phonetic learning was assessed by examining learners' T1 and T2 productions of the target sounds. The realisations of /θ, ð, ɣ/ and unstressed /o/ were evaluated using auditory cues and spectrographic analysis. In addition, learners' productions were analyzed acoustically. For the fricatives, the first spectral moment (M1) was measured; for the vowel, duration, F1, and F2 values were extracted. Learner productions were compared to those of native Modern Greek speakers to assess approximation to target norms. Statistical significance was evaluated using Chi-squared tests and mixed-design ANOVAs.

The results revealed significant improvement in the production of /θ, ð, ɣ/ at T2. Specifically, all target fricatives showed a marked decrease in substitution errors and an increase in accurate fricative realizations. Additionally, improvements in spectral properties were observed, with M1 values approximating those of the control group.

In contrast, no improvement was found for the target vowel. Both T1 and T2 productions of unstressed /o/ deviated significantly from the acoustic properties of the native norm, reflecting L1 phonological vowel reduction.

The present findings imply that establishing a new L2 phonetic category may be easier than suppressing an L1 phonological rule. The results point to differential learnability between L2 segmental and suprasegmental features. This aligns with previous evidence suggesting that the acquisition of L2 suprasegmentals typically takes longer than the mastery of L2 segmentals.