Very early L2 learning: Perception and Production of Greek by English Speakers

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Overview: This paper investigates the relationship between perception and production in the very early stages of second language acquisition, focusing specifically on Greek consonants that are foreign to English speakers. The SLM-r [1] posits that L2 sounds that are proximal to an L1 sound are ultimately more difficult to acquire due to reduced perceptual salience and easy miscategorization to an L1 phoneme. This may, however, be an advantage in the early stages before new categories are to be established. Based on the literature [1–3], we predicted that (1) contrasts where one segment is proximal to an English sound would be easier to perceive than contrasts where neither segment is present in English and (2) participants with higher scores in a perception task would be more native-like in their productions.

Stimuli: 70 Greek words with palatal [c], [ç], [ɟ] and velar [k], [x], [ɣ] in stressed wordinitial position served as the stimuli. Words were selected to form minimal pairs for [c]-[ç], [c]-[ɟ], [ç]-[ɟ], [k]-[x], [k]-[ɣ], and [x]-[ɣ] contrasts (Table 1). The target words were recorded by three native Greek speakers (2 F) in the carrier phrase, Θα πω __ τώρα [θa ˈpɔ …ˈtɔɾa] "I will say … now", to ensure natural pronunciation. Acoustic measurements of the Greek speakers' productions were consistent with the literature [4, 5]. Their productions of Greek [k] and [ɟ] were proximal to their English [k] and [ɟ], but not identical.

Procedure: Twenty adult English speakers with no prior exposure to Greek (11 F) completed the experiment with two AXB perception practice blocks using [p]-[b] initial words, two AXB perception test blocks using the palatal and velar stimuli (70 trials total), and one production block. Each token in a perception trial was produced by a different Greek speaker so that each of A, X, and B were acoustically distinct (Table 2). Only the test blocks were analyzed. The production block involved elicited repetition; participants listened to the stimuli once and repeated the words to the best of their ability.

Perception results: As expected, contrasts containing a proximal segment [k] or [ɟ] were easier to perceive for our participants (Figure 1). Average accuracy for the [k]-[x] contrast was significantly higher than for the most difficult contrast [x]-[ɣ] (β = 1.5135, S.E. = 0.4408, $p < .001$). The [ɟ]-[c] contrast also had significantly higher average accuracy scores than [x]-[ɣ] (β = 1.1594, S.E. = 0.4042, p = 0.004).

Production results: Formant transition values, stop VOT, fricative duration and fricative centre of gravity were measured for each participant and the results were compared to our three model Greek speakers. We found no support for the second hypothesis that those who perform better in a perception task will show more native-like productions. Participants from both ends of the perception scores were mixed in their ability to produce the segments in a native-like manner (Figure 2, high overall perception scores in blue).

Implications: The results of this study support the idea of Flege & Bohn [1] that L1 sound categories influence the perception of an L2, and possibly interfere with acquisition. We found, however, that in the very initial stages of L2 acquisition the effect is facilitative for the perception of contrasts that include proximal sounds – e.g., [k]-[x]. Notably, this effect does not extend to production. Proximal sounds were not produced in a more native-like fashion, and participants' perception and production scores were unrelated. These results highlight the importance of examining the very early stages of acquisition and of considering both perception and production when examining the acquisition of L2 sound categories.

Table 1. Example word pairs

Front Vowels	Back Vowels
Κίνα, χήνα [ˈcina, ˈçina]	κάνω, χάνω [ˈkano, ˈxano]
χι, γη [çi, ʝi]	χάμω, γάμο [ˈxamo, ˈɣamo]

Table 2. Example AXB trials

A	X	B
[cino]_NG3	[çino]_NG2	[çino]_NG1

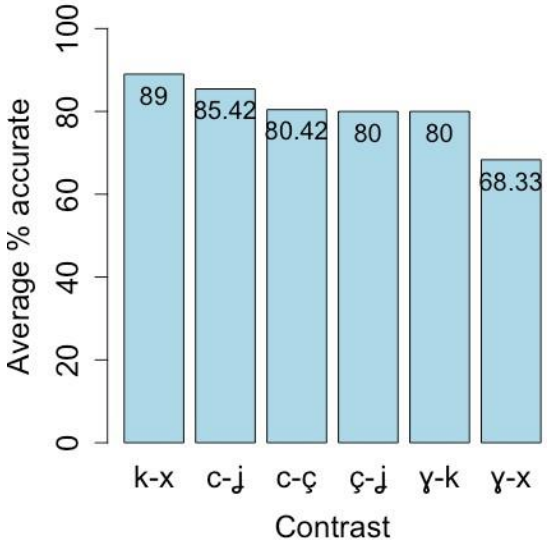

Fig. 1. Accuracy per Contrast Pair

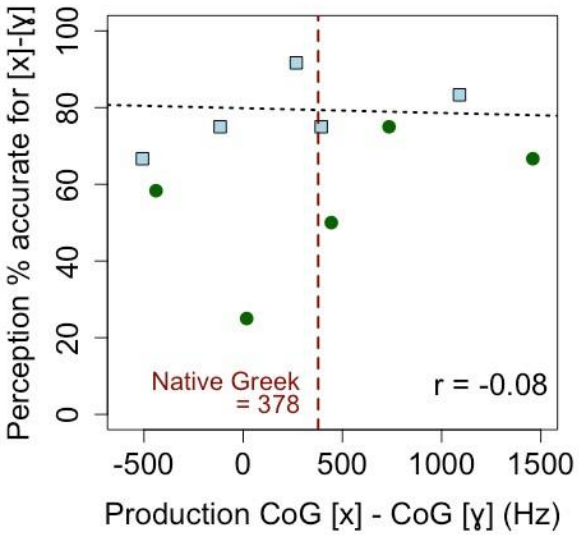

Fig. 2. Contrast [x]-[ɣ]: Accuracy vs. CoG

References

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