

Does a learner's native language influence their acquisition of rhoticity in English? An auditory and acoustic analysis of /r/ productions in advanced French and German learners

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One of the most striking ways in which English varieties differ is their rhoticity. In rhotic accents, e.g., General American (GA), /r/ is pronounced in all phonetic contexts, while it is only pronounced pre-vocalically in non-rhotic ones, e.g., Received Pronunciation (RP). For non-native speakers, rhoticity is arguably easier to acquire than non-rhoticity as all orthographic <r>s are systematically pronounced. However, the treatment of <r> in a learner's first language may play a role. We thus compared the acquisition of rhoticity in learners with different L1s varying in their treatment of <r>. German is variably rhotic in non-prevocalic positions with a tendency for r-vocalisation (e.g., Nord: [nɔ̃ʁt], [nɔ̃ʁt]), while most orthographic <r>s are pronounced in French (e.g., nord: [nɔ̃ʁ]). We therefore hypothesised that French learners would exhibit more rhoticity than Germans regardless of English variety, non-rhotic RP or rhotic GA.

34 French and 34 German undergraduate students of English aged 18-25 were recorded reading 10 sentences which included features that differ in RP vs. GA. The presence of [ɹ] was auditorily and acoustically assessed in 24 non-prevocalic /r/ tokens per participant. [ɹ] typically presents low F3 values, near F2. F3, and F3 minus F2 were therefore extracted at 90% of each /Vr/ segment. Based on typical values in native speakers, pronunciations were acoustically classified as rhotic when F3 was less than 2000 Hz or when F3 minus F2 was less than 950 Hz. 86% of the dataset had identical auditory and acoustic classifications of rhoticity; the degree of agreement was thus substantial ($\kappa=0.709$). Only the data where both classifications agreed were analysed. Additionally, the realisations of three other pronunciation features which differ in RP and GA (bath vowel, <-ary/-ory> suffix, intervocalic /t/) were auditorily assessed to calculate a mean accent score for each participant, indicating their tendency towards RP (1), GA (-1), or neither (0).

Within the RP speakers, 59.5% of the French and 87.2% of the German /r/ productions were non-rhotic. Within the GA speakers, 44.8% of French and 54.2% of German productions were non-rhotic (Figure 1). A binomial GLMM model confirmed that native language and English accent indeed significantly impact rhoticity. The predicted probability that German RP speakers used non-rhoticity was high (0.974). Their productions were significantly more non-rhotic than in any other group. Interestingly, no significant difference was observed between German GA and French GA speakers, confirming that Germans can produce a rhotic accent with the same degree of rhoticity as French learners. German GA speakers were also more rhotic than German RP speakers, indicating phonological awareness of English rhoticity in German learners more generally, possibly due to similar patterns in their L1. In contrast, there was no significant difference in the degree of rhoticity between French RP and French GA speakers. We therefore conclude that German learners are at an advantage when it comes to acquiring a nonrhotic accent. These findings have implications concerning which variety of English we suggest learners acquire, should they wish to speak with a consistent native-like accent, especially regarding rhoticity.

FIGURE 1. Rhoticity proportions based on native language and mean English accent score.

