Developmental acquisition of stops by multilingual speakers

The acquisition of stops by multilingual learners has been gaining a lot of attention for some time now. To date, L3 literature has focused largely on the voiceless series of stops (e.g., Sypiańska 2013, Wrembel 2015, Llama & Lopez-Morelos 2016, Amengual 2021), yet more recent investigations also include voiced counterparts (e.g., Gabriel et al. 2018, Geiss et al. 2021). However, the area that remains largely unexplored concerns the developmental aspects of the acquisition of stops by multilingual learners over time, especially assuming a holistic perspective that looks into interactions between all three languages. This study aims to fill this gap by analysing the production of plosives by L1 Polish – L2 English – L3 Norwegian speakers at the early stages of learning their L3 throughout three testing times. The main objective is to investigate whether early-stage multilingual learners keep their categories apart while they advance in their L3 proficiency and to trace the development of VOT acquisition in all three languages in both series of stops (/p,t,k/ and /b,d,g/).

The current contribution is part of a larger scale longitudinal study and reports on the data collected from the first testing time (T1). Further data collection is planned to take place after 3 and 6 months. Participants included 23 speakers of L1 Polish, L2 English, L3 Norwegian, aged 21, who were first year students of Norwegian Studies at two Polish universities. At T1, the participants had been learning L3 Norwegian intensively for eight weeks. The speakers performed a reading task of three word lists separately for each language including stop tokens in stressed onset positions controlled for the vocalic context. The participants were presented with stimuli on a computer screen in language blocks on separate days. The obtained sound files were force-aligned using WebMAUS (Kisler et al. 2017), and the VOT boundaries were manually corrected in Praat (Boersma & Weenink 2021). The VOT durations were then extracted with the use of Praat script (Lennes 2002). The participants were asked to complete the Language History Questionnaire (Li et al. 2006) and proficiency tests in L2 and L3.

A factorial ANOVA was run to investigate the differences in VOT durations, with language, place of articulation (PoA) and voicing as fixed factors as well as interaction effects between the factors. Statistically significant main effects were found for language (F=19.887, p<.001), PoA (F=113.101, p<.001) and voicing (F=15129.211, p=.000), as well as for interaction between PoA*Voicing (F=7.074, p<.001). A Borferroni post hoc test revealed significant differences between all three PoA and languages. These results indicate that the trilingual learners show unique VOT patterns for each of their languages and PoA, which suggests that they keep their L1/L2/L3 systems apart. The results show that VOT durations for L3 Norwegian stops are in-between those produced in Polish and English for voiceless series while they approximate Polish values for voiced stops. Ongoing investigation with comparison to T2 and T3 will allow to track the development of VOT acquisition patterns in L3 learners.

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