

Individual differences in multilingual acquisition of phonology: Longitudinal study on young learners

Research on individual differences in language acquisition constitutes a separate area of inquiry in the field of studies on multilingual phonological. Until now, most researchers have tried to demonstrate the interaction between individual variables such as cognitive skills or language exposure and use, and the development of multilingual perception and production. Few studies, however, attempted to show individual differences in the acquisition of multilingual phonology by applying longitudinal framework, which involves a repetition of the testing session at the subsequent stages of linguistic development. The current research project will examine individual differences in the acquisition of multilingual phonology from a novel and broader perspective, integrating the measures of cognitive and environmental differences, perception and production tests within a longitudinal framework. The participants of the study will be 13-year-old students of the seventh grade of primary school, native speakers of Polish, acquiring English and starting to learn their third language (German or French).

The research project aims to answer the following research questions:

- (1) What is the trajectory of the development of third language in terms of phonological production and perception?
- (2) Is there a symmetry in the gain between the perception and production in third language over time? Is one of the capacities developing faster?
- (3) In what ways does the presence of the phonological systems of first and second language affect the emerging L3 system?
- (4) How do the outcomes of the perception and production tasks correlate with the measures of individual differences?

In order to capture the individual differences in the multilingual acquisition of phonology in adolescents, and provide answers to the research questions above, the author of the project will conduct three testing sessions (within 10 months of the school year). During these sessions, a battery of tests evaluating the perception and production of contrastive phonological features between the three languages will be implemented. The features will include the differences in the realisation of rhotics, final devoicing and differences between the vowels across three languages. The perceptual test will involve the identification of sequentially presented syllables containing selected contrastive sounds. Production tests will include picture naming task and a delayed repetition task, in which participants will pronounce contrasting sounds embedded in words in three languages. Perception and production will be evaluated in terms of its accuracy and reaction times to the presented material (in the perceptual task and picture naming task). Other tasks performed during the testing sessions will also include a measure of individual differences in the inhibitory capacity (i.e., ability to suppress the influence of currently unused languages on the language which is being used), namely, flanker task, which tests testing the response to a specific stimulus (arrow pointed to a particular direction) surrounded by distracting stimuli. In addition, another tests will also measure the capacity of phonological working memory (through a non-word repetition task). Language proficiency of the participants (in foreign languages) and current exposure to languages and their use will also be determined.

The author decided to explore the described research topic in order to fill the gap between the studies focused on demonstrating the interaction between selected measures of individual differences in process of multilingual phonology acquisition, and rarely conducted studies showing the progress in the acquisition of multilingual phonology in the longitudinal perspective. The proposed novel approach has the potential to demonstrate the complexity of the multilingual phonological acquisition in adolescent learners, and the degree to which the interaction of cognitive and environmental factors affect the mechanisms governing the processing and use of languages over time.