The role of musical rhythm perception in language rhythm acquisition among Polish advanced learners of English

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Both linguists and musicologists agree that the correlation between language and music can be observed on many levels: both are specific to human beings; share resources at certain neural levels; have tone, melody, and rhythm (Patel 2008, Fadiga et al. 2009). The influence of musical hearing on language acquisition has been a particular point of interest for many researchers: according to Brandt et al. (2012), language can be regarded as a substrate of music in early language acquisition, especially on the level of tonicity, melody and rhythm; Zatorre and Baum (2012) argue that there is a set of shared cognitive processes of tonal perception for both linguistic and musical aptitude. These studies suggest that musical hearing can influence the acquisition of second language pronunciation, including its rhythm.

The focus of this project is then to measure the impact of musical rhythm perception on the acquisition of English rhythm by Polish advanced learners of English. The research was conducted among 45 first-year BA students of English studies at the Faculty of English at Adam Mickiewicz University in Poznań. The participants took part in recording sessions consisting of three parts: 1) a sociolinguistic interview comprising of a wordlist, a reading passage, and spontaneous speech in English and Polish; 2) a perceptual test verifying musical hearing, including tonal perception, melodic memory and rhythmic memory (Mandell 2009); and 3) an online survey collecting subjects' demographic data, language competencies and information about their musical experience and education. Subsequently, acoustic analysis was conducted in *Praat* (Boersma and Weenink 2014), during which participants' linguistic rhythm in Polish and English was calculated using the *normalised Pairwise Variability Index*, henceforth nPVI (Grabe and Low 2002). The nPVI is a measure of

temporal patterning in speech used for comparing languages by means of calculating the degree of durational contrast between successive elements in a sequence. This method was originally used to analyse the rhythm of stress-timed and syllable-timed languages, revealing that English, considered as a stress-timed language, receives higher nPVI results due to high variation of consonant clusters and vowel reductions, while Polish, often labelled as syllable-timed or mixed-type, obtains lower nPVI values due to the absence of such features and relatively stable vowel durations (Ramus 2002). We expect that the participants with better scores in the musical test should also have acquired English rhythm more successfully and have higher nPVI scores, similar to English, as opposed to low ones, typical for Polish. The results of the project will help to prioritize and review the impact of musical hearing on the process of second language acquisition, specifically on language rhythm. *430 words*

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