

## DISSERTATION ABSTRACT

**Name:** Mateusz Jekiel

**Title:** “Wpływ słuchu muzycznego na wymowę języka obcego u polskich uczniów z zaawansowaną znajomością języka angielskiego”

**Translation:** “The influence of musical hearing on foreign language pronunciation in Polish advanced learners of English”

**Abstract:**

Research in language and music is a broad field, ranging from interdisciplinary works in language and music evolution (Brown 2017) to neurolinguistics (Patel 2008). Over the years, studies exploring the interplay between the two domains have identified a number of shared attributes, including acoustic features and processing mechanisms (Slevc 2012). These relationships between music and speech led researchers to examine the influence of musical aptitude in language acquisition (Brandt et al. 2012), including foreign language speech (Chobert and Besson 2013). While the link between musical hearing and speech perception has been widely investigated (e.g. Marques et al. 2007; Nardo and Reiterer 2009), the relationship between musical skills and non-native speech production is still a young field with considerable potential (e.g. Cason et al. 2020; Coumel et al. 2019). Moreover, the sheer variability of methods leaves room for further research, as many former studies relied on self-reported foreign language proficiency, impressionistic assessment of speech, or self-reported musical training. Finally, there is still no longitudinal study that would measure the influence of specific musical skills on individual elements of foreign language pronunciation in a formal learning environment.

To address this research gap, the present PhD project aims to investigate the influence of musical hearing and musical experience on the acquisition of foreign language pronunciation in Polish advanced learners of English. To this end, a longitudinal phonetic study was conducted among 50 Polish undergraduate students of English attending a two-semester accent training, utilising acoustic speech analysis and musical hearing assessment. The results were reported across three Research articles investigating the influence of pre-existing musical hearing skills and former musical experience on L2 vowel quality (Jekiel and Malarski 2021), L2 vowel duration and reduction affecting language rhythm (Jekiel 2022), and L2 intonation patterns (Jekiel and Malarski 2023).

Research article 1 (Jekiel and Malarski 2021) reported a study investigating whether pre-existing musical hearing skills and former musical experience can predict successful acquisition of L2 vowels in a formal learning environment. Participants were recorded when reading aloud a series of monosyllabic words to elicit GB vowels before and after a two-semester accent training. To assess their musical hearing and musical experience, participants completed three musical hearing tests measuring their pitch perception, rhythmic memory, and melodic memory, followed by a questionnaire on their former musical experience. The results revealed that rhythmic memory can be a significant predictor of native-like production of L2 vowels before training, while years of musical experience can be a significant predictor of accurate L2 vowel production after training. While pre-existing rhythmic memory and former musical experience can have a positive influence on the successful acquisition of foreign language vowels, former pronunciation skills remained as the deciding factor in the acquisition of L2 speech in a formal learning environment.

Research article 2 (Jekiel 2022) investigated the influence of musical hearing and musical experience on native-like L2 rhythm production before and after a two-semester accent training. The findings reported a significant difference in the rhythm metric scores for vocalic intervals, demonstrating participants' higher variation in vowel duration and vowel reduction in controlled speech after training. The results confirmed that rhythm metrics can be successfully used to observe progress in L2 rhythm production in a formal learning environment. A weak correlation emerged between the rhythm metric scores and rhythmic memory test scores, suggesting a potential link between musical hearing and the acquisition of L2 rhythm among advanced learners of English.

Research article 3 (Jekiel and Malarski 2023) examined the influence of musical hearing and musical experience on native-like production of L2 intonation patterns after a two-semester accent training. The results revealed that accurate pitch perception can be a significant predictor of native-like L2 intonation after training. At the same time, musical experience was not found to be a significant factor in the acquisition of foreign language intonation. While higher pitch perception test scores were correlated with more correct production of L2 intonation patterns after the accent training, participants without superior musical hearing or previous musical experience also improved, indicating that L2 pronunciation training in a formal learning environment can lead to a significant progress in native-like production of L2 intonation.

Overall, the studies reported across the three Research articles (Jekiel and Malarski 2021; Jekiel 2022; Jekiel and Malarski 2023) and summarised in this PhD thesis provide new evidence and offer a novel insight into research on musical hearing and musical experience in foreign language pronunciation, suggesting that pitch perception and rhythmic memory can have an influence on the acquisition of non-native segments and prosody in a formal learning environment.