The acquisition of non-rhoticity in musical and non-musical advanced Polish students of English

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About the project

- musical hearing in the acquisition of EFL pronunciation
- 2015 – 2017
- Polish advanced learners of English
- National Science Centre, Poland
Project roadmap

1st year

Recording session #1
Oct – Nov 2015

Data analysis #1
Jul – Dec 2016

Data analysis #2
Jul – Dec 2017

2nd year

Recording session #2
May – Jun 2016

Recording session #3
May – Jun 2017
Background

- music and language evolution (Brown 2001, Mithen 2005)
- music and neurolinguistics (Patel 2008, Fadiga et al. 2009)
- music and L1 acquisition (Carlton 2000, Strait et al. 2012)
- music and L2 acquisition (Pastuszek-Lipińska 2008)
- music in didactics and pedagogy (Franklin et al. 2008)
- popular science
Issues to address

- difficult to measure and define
- difficult to control and assess
- scarcity of empirical data for musical hearing
- scarcity of longitudinal studies
- general language proficiency vs specific aspects of pronunciation
- general musical aptitude vs specific aspects of musical hearing
Research questions

● What is the influence of musical hearing on the acquisition of EFL pronunciation?

● To what extent are pitch perception, melodic memory and musical rhythm correlated with the acquisition of rhoticity, English vowels, intonation, and language rhythm?

● To what extent do musical experience and musical education influence the process of second language acquisition?
Participants

- 38 Polish advanced learners of English (31 F, 7 M)
- 1BA English studies programme
- 19-22 years old
- General British pronunciation model
- Intensive two-year pronunciation course
- Extensive one-year phonetics and phonology course
Recording sessions

- spontaneous speech (warm-up)
- reading passage (*Please Call Stella*)
- dialogues (four dialogues eliciting rhoticity/non-rhoticity)
- wordlist (vowels START and NORTH before non-prevocalic /r/)
Musical hearing tests (Mandell 2009)

- pitch perception (Hz)
- melodic memory (%)
- musical rhythm (%)


Online survey

- musical experience
  - music school
  - private music tutoring
  - playing a musical instrument
  - playing in a band
  - singing
Acoustic analysis
Data analysis – musical hearing tests

Pitch perception (F Avg. = 16.56, M Avg. = 7.89)
Data analysis – musical hearing tests

Melodic memory (F and M Avg. = ~67.5)
Data analysis – musical hearing tests

Musical rhythm (F Avg. = 70.06, M Avg. = 72.00)
Data analysis – pitch perception vs rhoticity

Reading passage
Data analysis – pitch perception vs rhoticity

Dialogues
Data analysis – melodic memory vs rhoticity

Reading passage
Data analysis – melodic memory vs rhoticity

Dialogues
Data analysis – musical rhythm vs rhoticity

Reading passage
Data analysis – musical rhythm vs rhoticity

Dialogues

![Bar chart showing comparison of musical rhythm vs rhoticity before and after in percentages for > 80%, > 70%, and > 60% categories.](chart.png)
Data analysis – musical experience vs rhoticity

Reading passage

![Bar chart showing % rhoticity for Musical and Non-musical before and after.]
Data analysis – musical experience vs rhoticity

Dialogues

![Graph showing % rhoticity comparison between Musical and Non-musical groups before and after an intervention. The graph indicates a higher % rhoticity in the Musical group compared to the Non-musical group after the intervention.]
Conclusions

- some correspondence for musical hearing – non-rhoticity
- stronger effect of accent training on the acquisition of non-rhoticity
- pitch perception can play a role in acquiring salient phonetic features
- no effect for melodic memory and musical rhythm perception
- musical experience can have a positive effect
Discussion

- weak statistical power of the correlations
- initial scores for rhoticity possibly due to lack of awareness
- lexical incidence
- differences between reading tasks and spontaneous speech
- one more year until end of project
References


