Introduction

Transfer of Knowledge: For over a century it has been questioned whether the knowledge gained through studying particular topics might transfer to the acquisition of knowledge in other domains. NEW QUESTION: Does early and maintained childhood music training benefit adults learning a second language (L2)?

METHOD

Participants

Students enrolled in an introductory university Spanish or Italian class (mean age 18.6 years). Developmental age of 7.

Methods

PARTICIPANTS

Students enrolled in an introductory university Spanish or Italian class (mean age 18.6 years).

- Not exposed to any language other than English prior to the important developmental age of 7 vs.
- Not proficient in any other language but English at time of testing
- Only rare usage of another language; none were in/from bilingual contexts

BACKGROUND

Widely reported research asserts that music exposure leads to general cognitive advantages across a broad range of cognitive domains. Research examining this view is controversial (the Mozart Effect), and good studies are scarce.

TASKS

1. Language Proficiency – L1 (English) and L2 (Spanish or Italian)

Task: Watch 1.5s silent cartoon and describe what happened in the cartoon. Evaluates language competence/expresive proficiency.

2. Attention - Stimulus Response Compatibility

Incongruent

Incongruent

Concurrent

Concurrent

Task: DIRECTION Arrow Pointing or POSITION of Arrow on the Screen. Evaluates attentional abilities when faced with interference (congruency) and task switching (direction/position).

RESULTS

1. Language Proficiency – L2 (Spanish or Italian)

Musicians showed overall greater achievement in their L2 than Non-musicians p < .05

2. Attention - Stimulus Response Compatibility

No accuracy difference between groups p > .05

Self-Evaluation - All participants reported an equal level of enjoyment, effort and performance in language classes.

Discussion

Musicians with early and maintained training show cognitive benefits

- Musicians’ L2 language proficiency improved more than Non-musicians

- Similar global measure of ACADEMIC performance (SAT), COGNITIVE performance (SRC task) and LANGUAGE competence in L1 (L1 proficiency task) suggest that participants were comparable in intelligence.

Conclusions

Extensive training in the Arts may afford long-term advantages to other higher cognitive abilities

Why?

Cognition & Music: Difference in SRC predicted across groups, but no difference found

Language & Music: Difference in L2 language achievement predicted, and FOUND

Suggests

Aspects of the computational demands and/or systematic patterning shared by language and music may also show neural mechanisms.

These findings of cognitive benefits from extensive training in the Arts have implications for designers of educational curricula.

References


8. Kovelman, I., Baker, N. & Petitto (accepted w/ revisions) Age of first bilingual language exposure as a new window on bilingual reading development, JBLC.


10. JCL, 28: 453-496

CORRESPONDING AUTHOR
Laura-Ann.Petitto@Dartmouth.Edu
http://www.dartmouth.edu/~lpetitto/lab
Association for Psychological Science 2007

Melody S. Berens1, Ioulia Kovelman2, *Laura-Ann Petitto1,2

1Department of Education, 2Department of Psychological & Brain Sciences, Dartmouth College, Hanover, NH

Petitto (PI) Funding: Dana Foundation Research Grant; NIH 5R01HD45822 Research Grant, NIH R21HD050558 Research Grant

Self-Evaluation - All participants reported an equal level of enjoyment, effort and performance in language classes.

Corresponding Author
Laura-Ann.Petitto@Dartmouth.Edu
http://www.dartmouth.edu/~lpetitto/lab
Association for Psychological Science 2007