

Effects of Music and Language Expertise on the Implicit Learning of Musical and Linguistic Structures?

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QUESTIONS

What we know

Music and language training both improve executive functions,¹ which are involved even in implicit learning tasks.²

What we recently observed³

Music experts > Language experts in implicit learning of linguistic structure.

1. Performances as a function of type of language training: formal late vs. informal early training?
2. Formal training in music = informal training in language?
3. What about double expertise?

METHODS

Participants

4 types of experts selected on the basis of detailed biographical questionnaires

- 14 music experts
- 14 bi- or multi-linguals
- 8 dual experts (bi- or multi-linguals also experts in music)
- 14 speech-therapists

Material



Material created by Schön et al. (2008)⁴:

- a) correspondence syllable/pitch
- b) 6 trisyllabic nonsense “words” sung on 6 three-tone melodies.

Procedure

Listening task^{3,4}

Listening attentively to 7’30 of the continuous stream of “sung words”

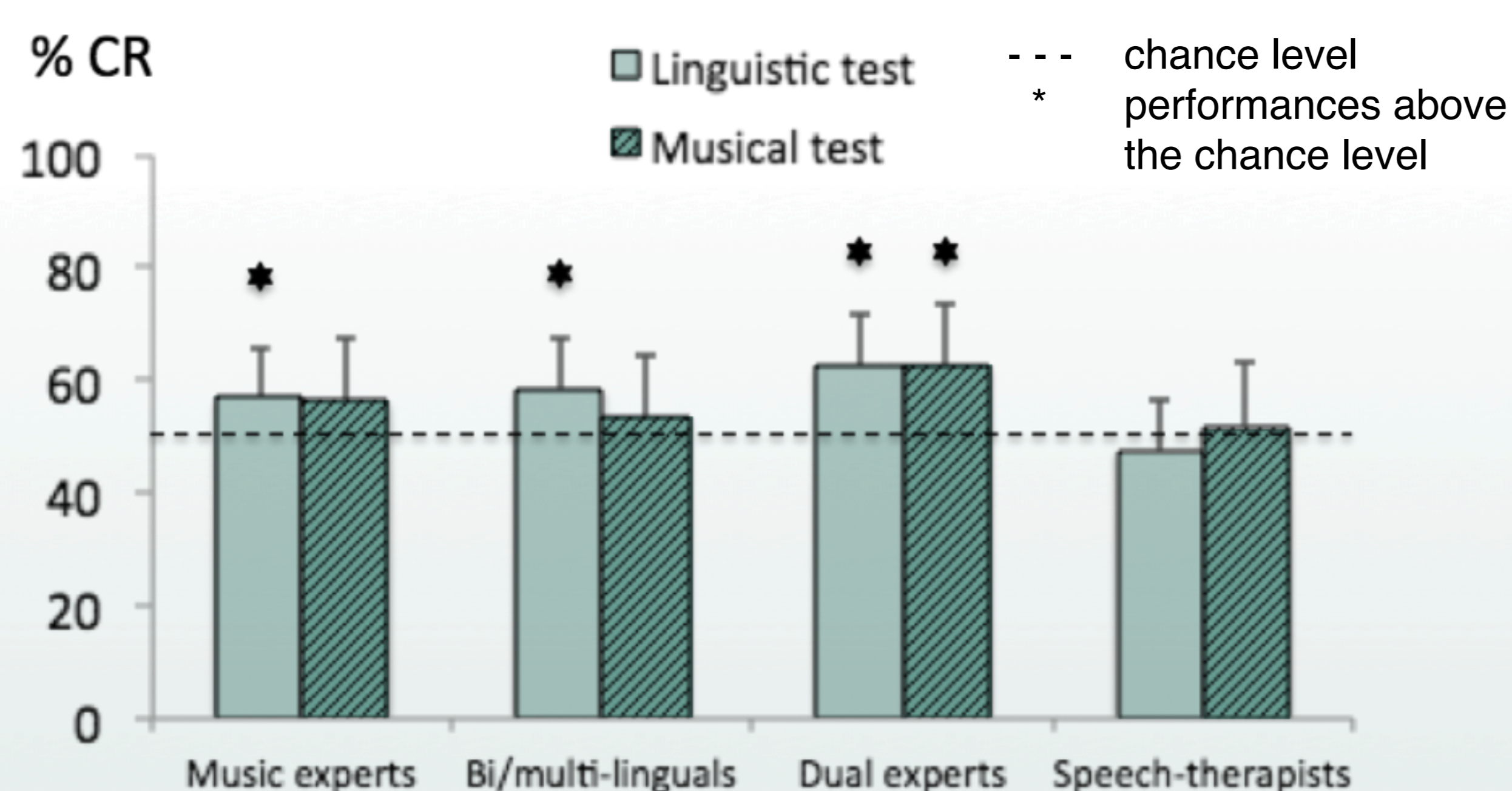
Linguistic test^{3,4}

- 36 pairs: two-alternative forced-choice task
- Part-words constructed with the same syllable set as words

Musical test

- 36 pairs: two-alternative forced-choice task
- Part-“melodies” constructed with the same tones set as melodies

RESULTS



Average percentages of correct responses (in %; SD) at the linguistic and musical tests, for the four types of experts.

- **Linguistic test** → Expertise effect $F(3, 49) = 5.92, p = .002, \eta^2 = 0.28$
Only speech-therapists differed from the other groups
- **Musical test** → No expertise effect ($p = .25$)

CONCLUSIONS

1. Performances as a function of type of language training:

→ YES

No benefit of formal language expertise on implicit learning of linguistic (or musical) structure.

2. Formal training in music = informal training in language:

→ YES

Informal language training and music expertise lead to similar abilities to implicitly learn linguistic – but not musical – structure.

3. What about double expertise?

→ PARTICULAR PROFILE

Only group to simultaneously learn the musical and linguistic structures of sung material

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