

Verbalizing musical memories: influence of perceptual and verbal expertise.



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BACKGROUND

- Verbal descriptions of a non-verbal stimulus such as a face have been found to impair their later identification, a phenomenon known as the “verbal overshadowing effect (VOE)” (Schooler & Engstler-Schooler, 1990).
- In some studies, perceptual and verbal expertise has been shown to modulate the VOE (e.g. Ryan & Schooler, 1998; Melcher & Schooler, 2004). In particular, participants were especially vulnerable to VOE when their perceptual abilities exceed their verbal abilities.
- The present study examines the influence of expertise on the occurrence of VOE for musical memories in three groups of participants differing in term of perceptual and verbal abilities (non-musicians, novice musicians and expert musicians).

METHOD

PARTICIPANTS:

- Three groups of participants were recruited (N=204)
 - Non-musicians ($M=22.17$, $SD=0.35$, 45 ♀, n=81).
 - Novice musicians ($M=22.95$, $SD=2.87$, 19 ♀, n=43).
 - Expert musicians ($M=23.72$, $SD=3.52$, 40 ♀, n=80).

MATERIAL AND PROCEDURE:

- The participants were tested individually and presented with a short musical extract. They were instructed to pay attention to the tune and warned that they would be asked questions about what they had heard.
- After hearing the target tune, participants were randomly assigned either to the description condition (the participants were instructed to spend five minutes to verbally describing the previously heard tune from memory) or to the control condition (they were instructed to spend five minutes to giving as much names as possible of four-legged animals).
- Participants were then presented with a lineup in which 6 tunes were presented successively. Their task was to indicate, for each tune, whether or not it was the target previously heard. Participants were warned that the target tune might or might not be present in the lineup and that they could use a “don’t know” option.
- Musical perception ability was evaluated by a “same-different” discrimination task. Participants were presented with 60 pairs of tunes.

30 pairs “same” with two same tunes



10 pairs “different” with identical melodic contour



10 pairs “different” with modified melodic contour



10 pairs “different” with transposition



- Finally, participants completed a vocabulary task containing 25 questions about musical terms. For each term, participants had to choose the proposition which better defined it.

RESULTS

LINEUP PERFORMANCE:

A logit loglinear analysis was performed on the correct identification of the target tune.

- A main effect of the Type of participant [$\chi^2(2, N=204) = 8.51, p = .01$] was found.

Expert musicians (67.5%) > Non-musicians (49.4%) > Novice musicians (41.9%)

- No main effect of Condition [$\chi^2(1) = 0.29, p = .59$] was found.

Description condition \approx Control condition

- No main effect of Target presence [$\chi^2(1) = 0.20, p = .65$] was found.

TP \approx TA

- Analyses did not revealed any significant interaction.

MUSICAL PERCEPTION TEST

An ANOVA 4 (Type of participant) X 4 (Type of modification) with repeated measures on the last factor was run on the number of correct responses.

- A main effect of the Type of participant [$F(2, 190)=118.74, p < .001$] was found.

Expert musicians (93.2%) > Novice musicians (79.3%) > Non-musicians (68.8%)

- A main effect of the Type of modification [$F(3, 570)=92.27, p < .001$] was found.

Transposition (90.9%) > modified contour (87.1%) > identical contour (76.4%) > same (67.2%)

- A significant Type of participant X Type of modification [$F(6, 570)=10.52, p < .001$] was found.

	Non-musicians	Novice musicians	Expert musicians
Modified melodic contour	74.5%	88.1%	98.5%
Identical melodic contour	59%	74.6%	95.6%
Transposition	79%	95.1%	95.1%
Same	62.5%	58.2%	79.8%

VOCABULARY PERFORMANCE

An ANOVA 3 (Type of participant) on the percentage of correct responses revealed a main effect of Type of participant.

Expert musicians (88.7%) > Novice musicians (34.8%) > Non-musicians (16.1%)

Finally, Point-biserial correlations indicated that identification performance was not correlated neither with musical perception ability or vocabulary performance in non-musicians, novice musicians and expert musicians.

CONCLUSIONS

- As expected, expert musicians were more likely to correctly identify the target in the lineup compared to non-musicians and novice musicians. Moreover, expert musicians showed higher performance in term of verbal and perceptive ability related to music than the other groups. We also found differences in music processing among participants. Indeed, expert musicians seemed to locally process musical abstract, contrary to novice musicians and non-musicians who processed them in a more global manner which are prone to create a VOE (Ryan & Schooler, 1998; Melcher & Schooler, 2004).
- However, no VOE on musical memory was found. Moreover, musical expertise did not modulate the influence of description on identification performance. In this experiment, we can not be sure that the task was not too difficult for participants and thus not optimal for the VOE to be observed. Further studies are needed to closer inspect what happens when we describe a tune.

REFERENCES

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