The influence of expertise on multisensory wine imagery

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Background

- Taste and smell are hard to imagine, and people differ in this ability, similar to the variation found in visual imagery [1, 2, 3].
- Experts are better at imagery but it is unclear whether this is because they select professions where their abilities are rewarded, or whether they learn to be better at imagery through their profession.
- We test this in wine experts. We test multimodal imagery for the color (vision), smell, and taste of wine.

Methods

To investigate multisensory imagery for wine, we set up two studies and employed the *Vividness of Wine Imagery Questionnaire* (VWIQ [4]), a questionnaire measuring imagery for the color, smell, and taste of the same wine.

Example VWIQ item (statements are rated on a 5-point Likert scale):

You are in a bistro. You are having a light lunch, and you have selected a wine to pair with it.
1. The color of the wine when the waiter pours you some to try
2. The smell of the wine when the waiter asks you to check it
3. The taste of the wine when you have your first sip

Methods study 1

- 66 wine experts (20 female, age *M* = 48.7, 21–70) and 66 yoked novices (20 female, age *M* = 49.0, 24–70) completed the VWIQ and vividness of imagery for common odors (VOIQ, [5]).
- Experts and novices were selected based on previously determined criteria [6], and tested on their wine knowledge [see 6/supp. materials].

Methods study 2

- 20 vinology students (9 female, age *M* = 45.5, 27-63), and 45 control participants (30 female, age *M* = 40.4, 25-65) completed VWIQ twice: students completed it before and after 6 months of the vinology course, and control participants 6 months apart. Participants also completed the VOIQ on both occasions.

Wine experts report more vivid **multisensory wine imagery** than **novices**. **Wine students** report more vivid wine imagery **after training than before**.

Experts **are better** at multisensory imagery **through training**, not because they were born that way.

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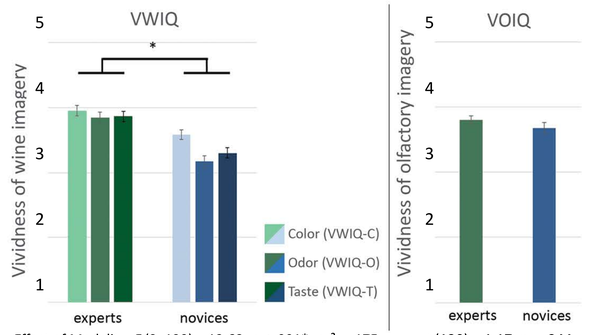
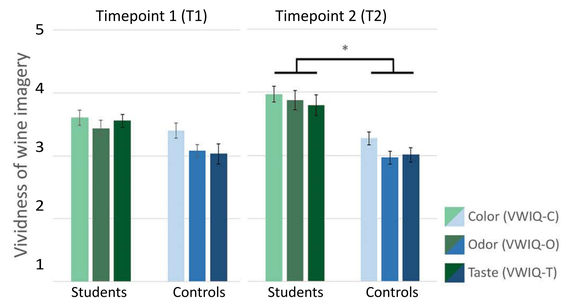
Results study 1



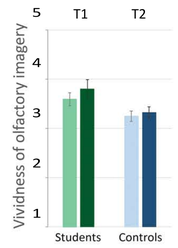
Effect of Modality: F (2, 129) = 13.68, p < .001*, η_p^2 = .175
Effect of Group: F (1, 130) = 28.97, p < .001*, η_p^2 = .182
Interaction: F (2, 129) = 5.13, p = .007*, η_p^2 = .074

t (130) = 1.17, p = .244

Results study 2



Effect of Modality: F (2, 110) = 5.78, p = .004*, η_p^2 = .095
Effect of Group: F (1, 55) = 12.08, p = .001*, η_p^2 = .180
Effect of Time: F (1, 55) = 3.18, p = .080, η_p^2 = .055
Interaction Time* Group: F (1, 50) = 8.35, p = .006*, η_p^2 = .132
None of the other interactions were significant (with α = .05)



Effect of Modality: F (1, 55) = 2.92, p = .093, η_p^2 = .050
Effect of Group: F (1, 55) = 3.82, p = .056, η_p^2 = .065
Interaction: F (1, 55) = .82, p = .368, η_p^2 = .015

References:

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[3] Weinberg, R. (2008). Does imagery work? Effects on performance and mental skills. Journal of Imagery *Research in Sport and Physical Activity,* 3(1).
[4] Croijmans, I., Speed, L. J., Arshamian, A., & Majid, A. (2019). Measuring Multisensory Imagery of Wine: the Vividness of Wine Imagery Questionnaire. *Multisensory Research*, 1(aop), 1-17.
[5] Gilbert, A. N., Crouch, M., & Kemp, S. E. (1998). Olfactory and visual mental imagery. *Journal of Mental Imagery.*
[6] Croijmans, I., & Majid, A. (2016). Not all flavor expertise is equal: The language of wine and coffee experts. *PLoS One*, 11(6), e0155845.