

The Melody of Spatial Memory

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Background

- **Research Question:** Does music of varying valences have an effect on spatial memory task performance?
- **Mode:** Major mode is generally defined by the Ionian mode (C major scale) and associated with positive valence and feelings of happiness. Minor mode is generally defined by the Locrian and Aeolian mode (lowering of specific scale tones) and is associated with negative valence and feelings of sadness (Trochidis & Bigand, 2013).
- **Emotional Bias:** Narme and colleagues found that there is an emotional bias caused by music in implicit memory, such that positive music is better remembered than negative music (Narme et al., 2016).
- **Visuospatial Tasks and Music:** Palmiero and colleagues found that participants scored higher in a positive music group than a negative or neutral music while completing spatial tasks (Palmiero et al., 2016).

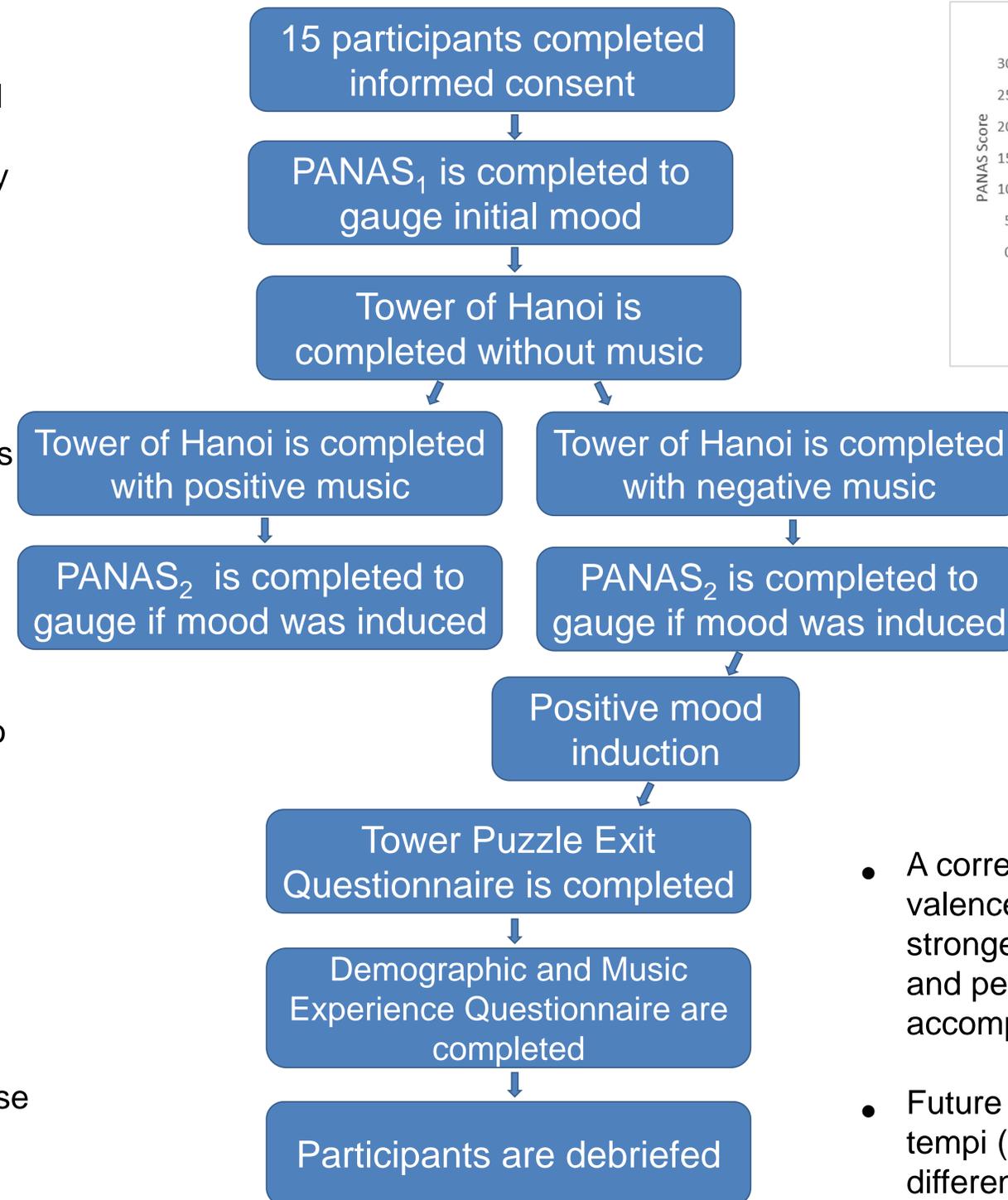
Hypothesis

- Participants in a positive-valence music group will perform better on a spatial memory task (i.e. take less time) than those in a negative-valence music group.

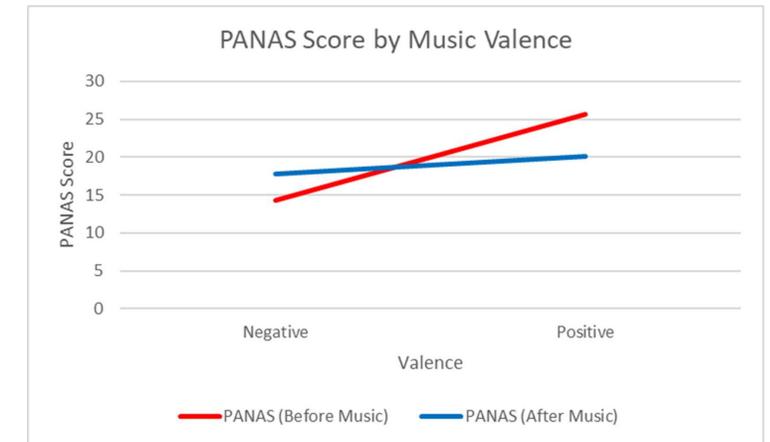
References:

- Narme, P., Peretz, I., Strub, M-L., & Ergis, A-M. (2016). Emotion effects on implicit and explicit musical memory in normal aging. *Psychology and Aging, 31*, 902-913.
- Palmiero, M., Nori, R., Rogolino, C., D'amico, S., & Piccardi, L. (2016). Sex differences in visuospatial and navigational working memory: The role of mood induced by background music. *Experimental Brain Research, 234*, 2381-2389.
- Trochidis, K., & Bigand, E. (2013). Investigation of the effect of mode and tempo on emotional responses to music using EEG power asymmetry. *Journal of Psychophysiology, 27*, 142-147.

Methods



Results and Conclusions



- A 2 x 2 factorial ANOVA was conducted to look at completion time as a function of the valence of the music heard. No significant data were found.
- A 2 x 2 factorial ANOVA was conducted to examine PANAS score as a function of the valence of music heard. While no analyses produced statistical significance, mood always decreased.
- A correlation analysis was done to look at music valence and mood by completion time. A stronger correlation was found between mood and performance when the positive music accompanied performance on the spatial task.
- Future research should consider how differing tempi (Trochidis & Bigand, 2013) or gender differences (Palmiero et al., 2016) affect spatial memory task performance in relation to music.

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