Popular Music & Self-Reported Emotion Valence

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DEVELOPMENTAL AFFECTIVE NEUROSCIENCE LABORATORY

Introduction

- Music-evoked emotions are associated with particular sonic features such as mode and tempo[1,2]
- Much of this research uses only Western Classical music[1,3]
- Do findings based on Western Classical music extend to American popular music?
- Can parameters other than mode and tempo better predict music-evoked emotions in popular music?

Hypotheses

- Mode and tempo will not be related to self-reported emotion valence evoked by American popular music.
- Parameters more relevant in this music will have better predictive power.

Materials

- Familiar & unfamiliar music chosen based on artist familiarity and Year-End Billboard Top 100 chart entries
- Songs matched on developmental period: childhood, adolescence, and young adulthood
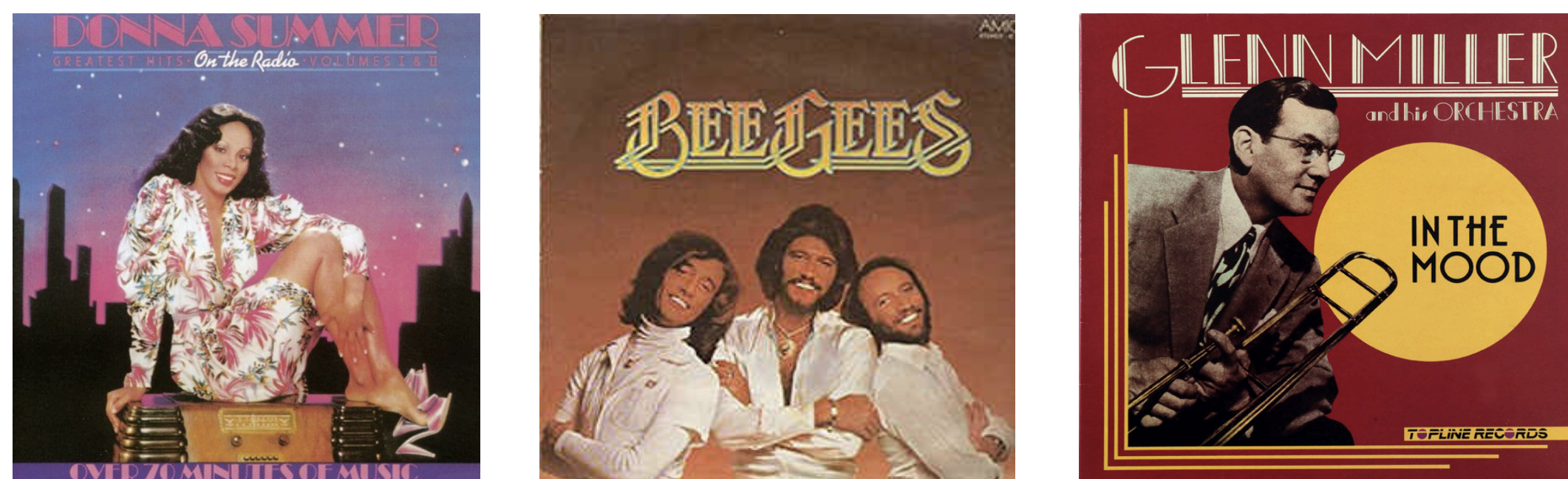
Music Variables

"Classical" Parameters:
- Mode (major/minor)
- Tempo

"Spotify" Parameters:
- Danceability
- Energy
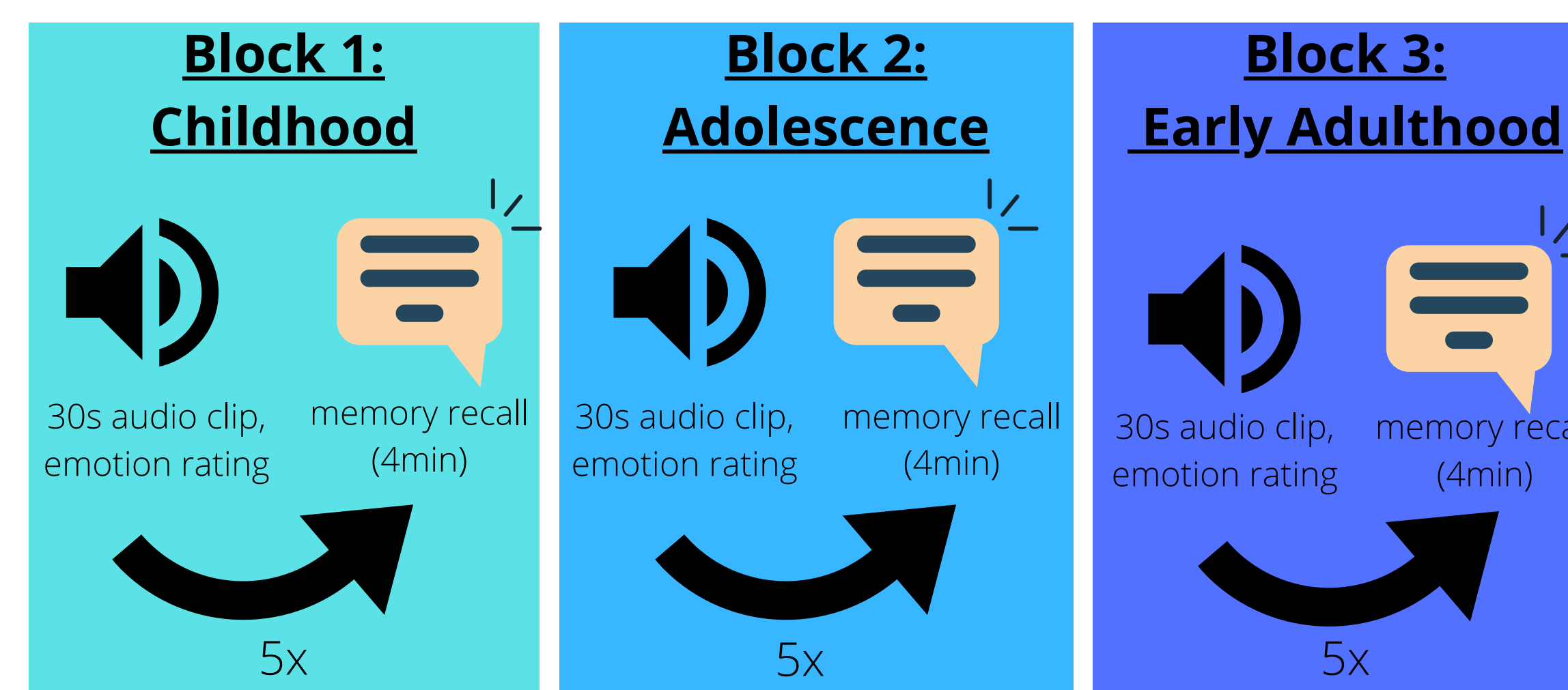- Speechiness
- Acousticness
- Valence

Participants

- Pilot study, N=6 (5F, 1M)
- Ages 65-80 (M = 71)
- No reported neurological conditions
- Score >=21 on MOCA

Methods

Session 1: Familiar Music
Session 2: Unfamiliar Music
Session 3: Control

At least one week between sessions
Session order counterbalanced across participants

Example Session

Block 1: Childhood — 30s audio clip, emotion rating → memory recall (4min) — 5x
Block 2: Adolescence — 30s audio clip, emotion rating → memory recall (4min) — 5x
Block 3: Early Adulthood — 30s audio clip, emotion rating → memory recall (4min) — 5x
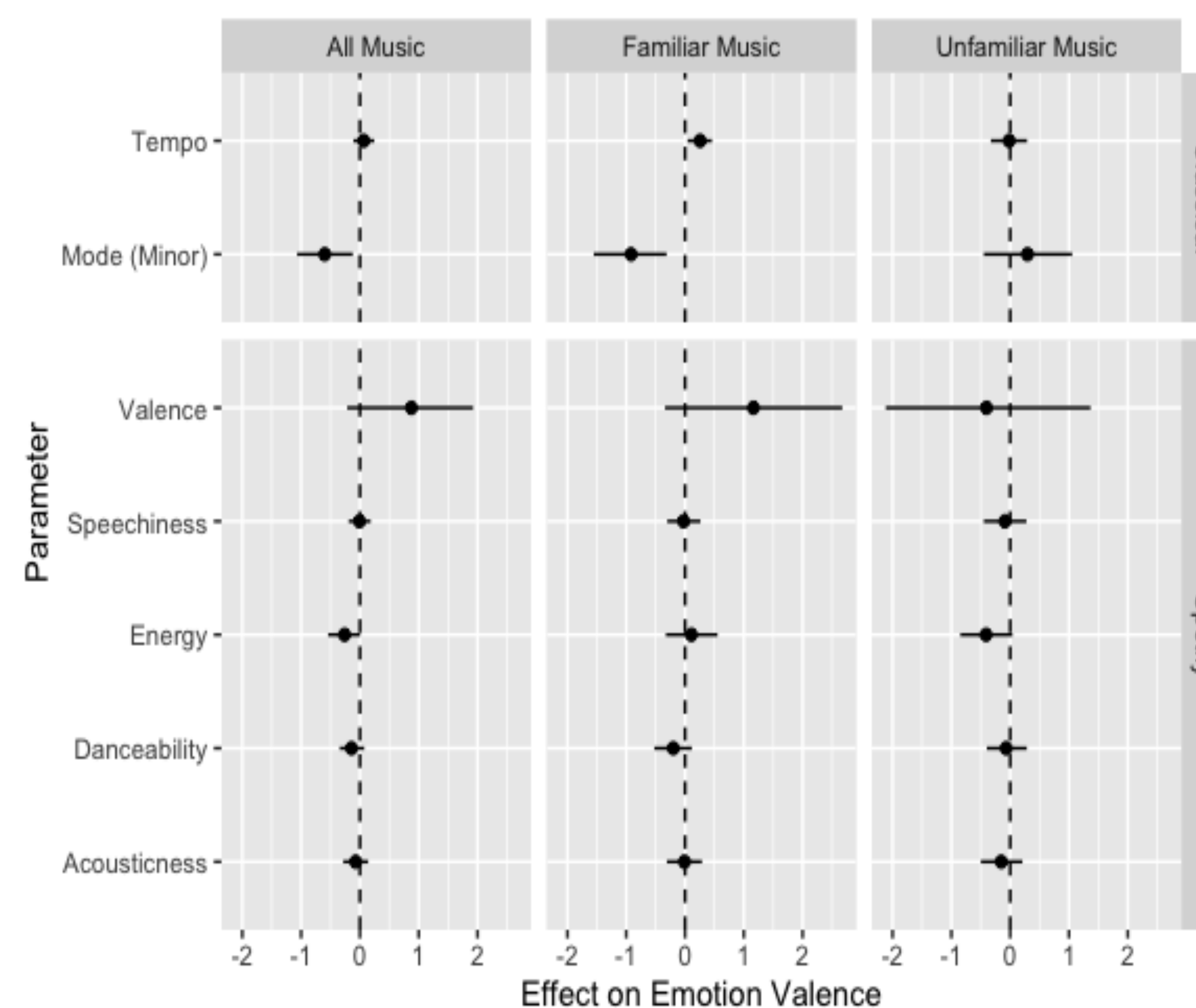
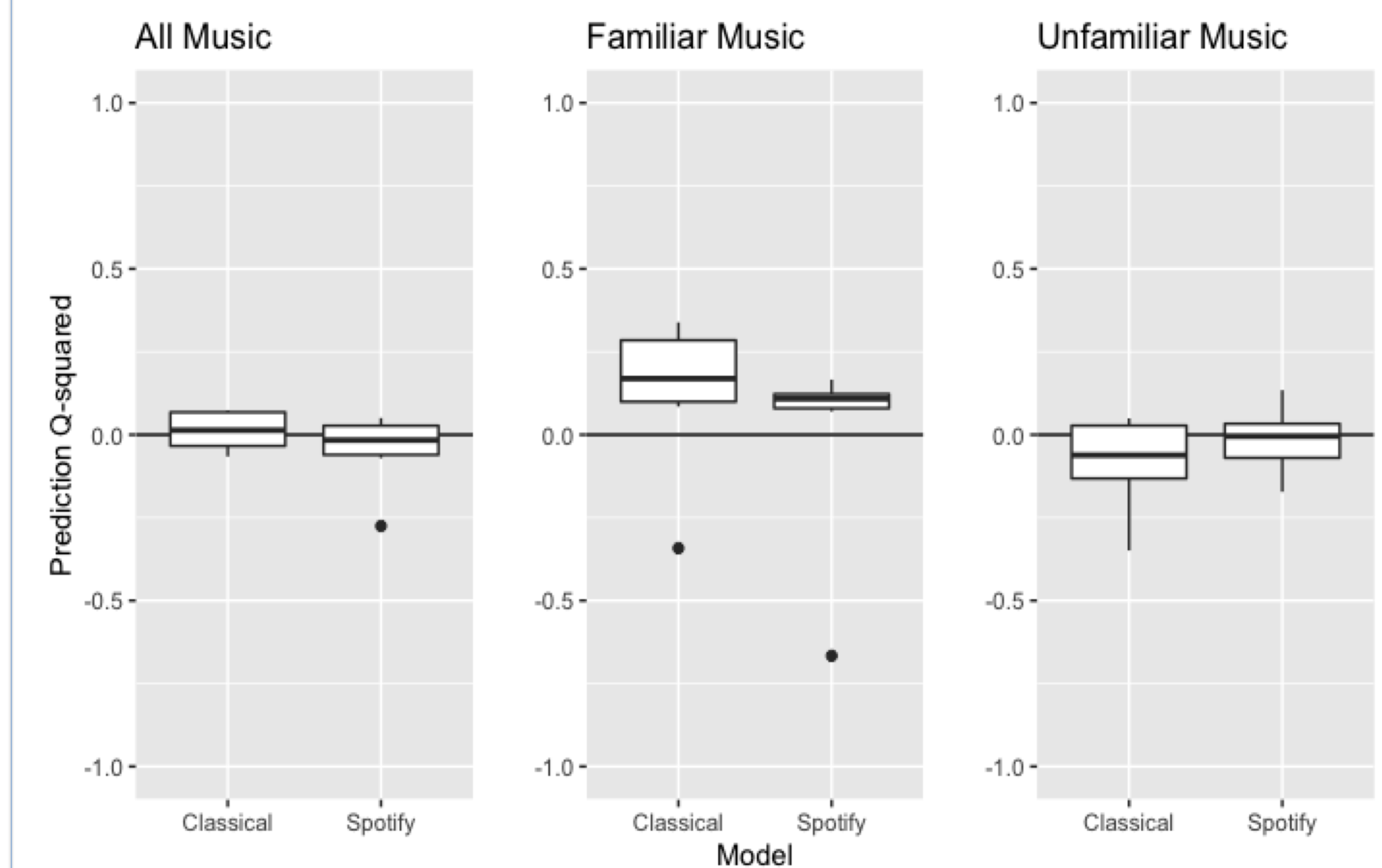(block order counterbalanced across participants)

60-90 minutes

- In between each clip, participants asked "How did that clip you just heard made you feel?"
- Response on a 1-7 scale, 1 = 'extremely negative,' 7 = 'extremely positive'

Effects of Parameters on Emotion

Cross-Validation

Conclusions

- Major mode associated with positively valenced emotions; minor mode associated with negatively valenced emotions
- No detected effect of Spotify parameters on emotion valence
- Generally low Q^2 value for both models; Classical Model better predicted music-evoked emotion valence compared to Spotify Model only within familiar music

Future Directions

Full Study Follow-Up
- Larger sample (N=75)
- Over zoom
- Effect of the valence and semantic meaning of lyrics

Future Studies
- Physiological measures & facial gestures as a measure of emotion
- Experience sampling methods to explore more "real life" music-evoked emotions

References

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2. Lundqvist, L., Carlsson, F., Hilmersson, P., & Juslin, P. N. (2008). Emotional responses to music: Experience, expression, and physiology. Psychology of Music, 37(1), 61-90. doi:10.1177/0305735607086048
3. Bella, S. D., Peretz, I., Rousseau, L., & Gosselin, N. (2001). A developmental study of the affective value of tempo and mode in music. Cognition, 80(3). doi:10.1016/s0010-0277(00)00136-0

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OSF Repository can be accessed by QR code or link: osf.io/kjnwd