

# Children's Association of Tonal Stability and Emotional Valence

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## Introduction

- Western music is governed by tonality
- Measures have established the psychological reality of tonality as a cognitive schema for both adults and children.
- Little is known about tonality's emotional effects in children

**Questions: Do children associate levels of tonal closure with emotional valence?** whether such associations are age-dependent? and how they interact with other musical dimensions: instrumental timbre and pitch height?

## Method

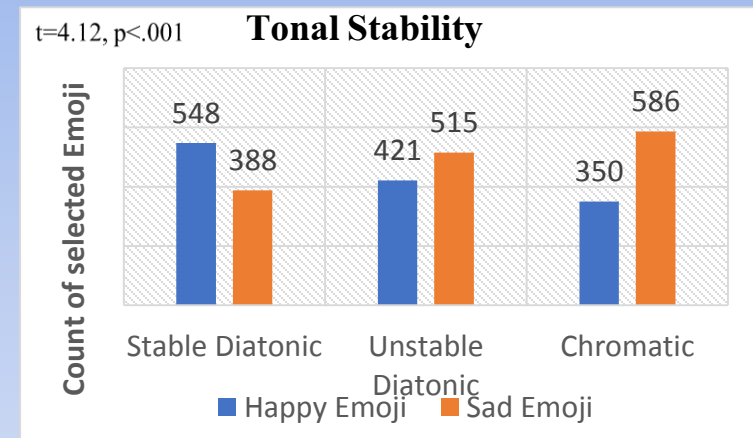
52 children, aged 7, 11, listened to chord progressions implying closure followed by a probe tone.

Stimuli:  $IV-I^4_6-V^7$  > Probe tone ( $1^{\wedge}/6^{\wedge}/4\#\wedge$ ) – Piano/guitar/ Woodwind – Eb/E/F

Stimuli were described to participants as exchanges between two children (chords, probe); participants chose one of two emojis, suggesting positive/negative emotions, as representing the “2nd child's” response. Data was analyzed using the generalized linear mixed-effects model.

## Results

Happier emoji was selected more often for the stable diatonic than for unstable diatonic and chromatic tones. Sadder emoji was selected more often for the chromatic tone than for the unstable diatonic and stable diatonic tones,  $t=-2.211$ ,  $p=.027$ .



- Younger children tended to associate the musical stimuli generally with more positive valence.
- Probe tones lower in pitch were associated with negative valence, compared to higher probes.
- Piano sounds, relative to guitar and woodwinds, were associated with positive valence.

## Conclusions

- 1) **Tonality affects children's perception of emotion in music early, robustly and independently of basic musical dimensions.**
- 2) **Young children reliably associate degrees of tonal closure with levels of emotional valence.**

## Follow-up questions

At what age is tonality internalized as a cognitive schema and thereafter affect emotional valence?

To what extent children internalize the full tonal hierarchies of minor and major scales and their emotional connotations?

## References

Corrigall, K. A., & Trainor, L. J. (2010). Musical enculturation in preschool children: Acquisition of key and harmonic knowledge. *Music Perception: An Interdisciplinary Journal*, 28(2), 195-200.

Krumhansl, C. L. (1990). *Cognitive foundations of musical pitch*. New York: Oxford University Press.

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