The Effect of Tonal Context on Children's Singing Accuracy

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REVIEW OF LITERATURE

Previous researchers have investigated the influence of the following factors on children's singing accuracy:

- age/grade level
- music aptitude
- sex
- home musical environment
- private lesson enrollment
- presence/frequency of music instruction
- song-teaching method
- presence/absence of lyrics
- group/individual singing
- adult/child vocal model
- single pitch vs. pattern singing

Gordon (2012) theorized that tonal context influences one's perception of pitch. Furthermore, he posited that the same tonal pattern would be audiated and performed differently depending on the tonal context being heard/audiated. However, there is little empirical research to support this aspect of Gordon's theory.

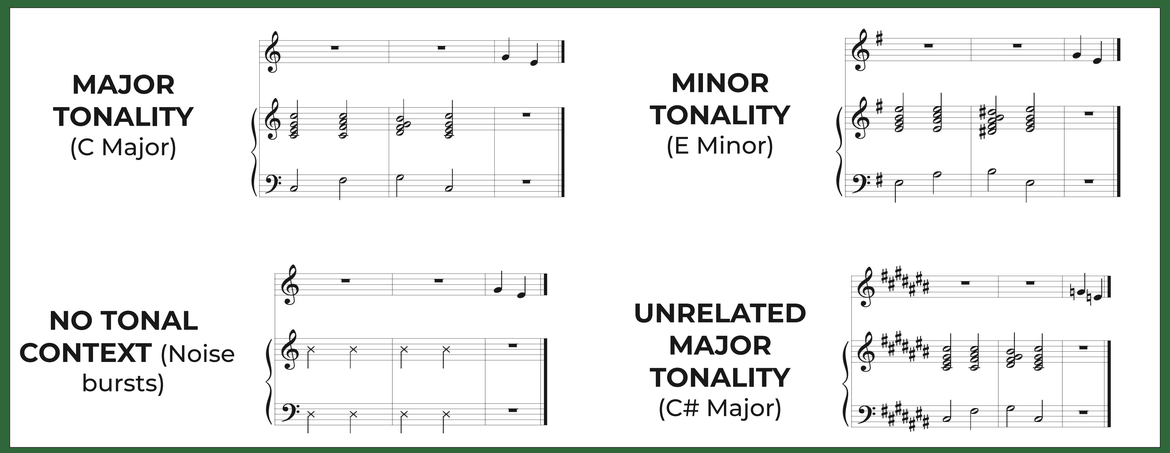
Scan for abstract, literature review, and references:

The purpose of this study was to investigate the effect of tonal context on children's singing accuracy.

1) Does children's singing accuracy vary depending on the tonal context provided?
2) Does children's singing accuracy in different tonal contexts vary depending on tonal aptitude and/or grade level?

METHOD

Participants were 135 children in grades 1-4 at one suburban elementary school in the Midwestern U.S. The students were prompted to echo the same recording of the pattern G_4-E_4 on "doo" preceded by four different tonal context conditions:



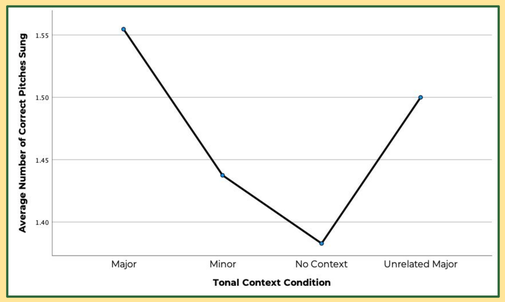
The order of the four conditions was varied across participants using a Latin square. Each context condition was preceded by four practice patterns in the same key as the context with the exception of the no-context condition, which was preceded by atonal practice patterns.

Audio recordings of participants' singing were measured using Praat software to determine the frequency in Hertz of the middle 50% of each pitch sung (to reduce the influence of vocal "scooping"). Pitch deviation scores were determined by calculating the absolute difference between each sung pitch and the target pitch and converting to cents. Pitches within 50 cents of the target pitch were scored as accurate, and the total number of accurate pitches sung was calculated for each of the four context conditions. Repeated measures ANOVA was used to answer the research questions.

RESULTS

Children's singing was significantly more accurate under the Major Tonality condition than under the No Tonal Context condition.

($F(3, 381) = 2.695$, $p = .046$)



After including grade level as an independent variable, there was a between-subjects effect for grade level.

($F(3, 124) = 3.588$, $p = .016$)

(Note: We did not have sufficient aptitude test data to include this variable.)

Singing accuracy was significantly more accurate among Grade 3 students than Grade 1 students.