

# A Longitudinal Investigation of Phonological Awareness and Music Aptitude

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## Introduction & Purpose

Reading ability throughout the elementary years has been predicted by rhythmic ability as measured in kindergarten (Butler et al., 1985) and first grade (David et al., 2007). Phonological awareness is a strong predictor of reading skills (David et al., 2007). The purpose of this study was to investigate the relationship between phonological awareness and music aptitude over time.

## Terms

- A. Phonological Awareness: the ability to manipulate larger units of speech; e.g., *syllable* deletion: “say kangaroo without the roo”
- B. Music Aptitude: one’s potential to achieve in music, characterized by the ability to recognize and discriminate between musical events

## Method

To examine this relationship, *The Phonological Awareness Test 2* (PAT-2) (Robertson & Salter, 2007) and the *Intermediate Measure of Music Audiation* (IMMA) (Gordon, 1986) were administered to students in a rural elementary school in Pennsylvania. Students were in second grade ( $N = 17$ ) during time 1 ( $t_1$ ) testing and in third grade ( $n = 7$ ) during time 2 ( $t_2$ ) testing. Speech-language specialists administered hearing screenings and the PAT-2 individually to participants and scored the measures. The primary researcher (a music specialist) administered the IMMA to participants in groups and scored the measure.

## Results

**Correlations.** Wilcoxon signed ranks tests indicated no statistically significant differences between any measure from  $t_1$  to  $t_2$ . The IMMA tonal subtest scores measured in  $t_1$  significantly correlated ( $p$ 's  $< .05$ ) with scores measured in  $t_2$  on the PAT-2: isolation subtest ( $r = .817$ ), deletion subtest ( $r = .808$ ), substitution subtest ( $r = .773$ ), and composite ( $r = .862$ ) scores. The IMMA tonal subtest scores from  $t_2$  only correlated with PAT-2 scores measured in  $t_2$  on its isolation subtest ( $r = .849$ ).

**Predictions.** A regression formula developed in  $t_1$  (PAT-2 Composite =  $84.362 + .635 * (\text{IMMA Tonal})$ ) was used to predict PAT-2 composite scores in  $t_2$ . When IMMA tonal subtest scores from  $t_1$  were used in the model, a strong correlation was found between observed and predicted PAT-2 composite scores ( $r = .862$ ,  $p = .013$ ). However, a significant correlation was not found between observed and predicted PAT-2 composite scores when IMMA tonal subtest scores from  $t_2$  were included in the model ( $r = .649$ ,  $p = .115$ ).

## Conclusions

Results seem to indicate that tonal music aptitude measured in second grade may predict phonological awareness in third grade. Due to the small sample size, all findings should be considered as preliminary evidence of the nature of this relationship over time. Future investigations should replicate this study with larger and more diverse samples.

## Implications

The plateau of skills found in this population speaks both to the stability of the phonological inventory after age 7; and the nature of music aptitude. Although individual scores changed, participants remained relatively constant as a group over time. Given the stability of the phonological inventory and the pliability of music aptitude, improving music aptitude may help to improve the phonological inventory, which is otherwise rather fixed. Music teachers should spend time developing music aptitude and can add strategies that bolster phonological awareness.

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## Applications to Teaching

Use appropriate musical experiences to improve phonological awareness, increase music aptitude, and overall music ability.

### Rationale:

1. The Common Core Standards have expectations for literacy
2. Phonological awareness is a building block of and predictor for literacy
3. Music is a predictor for phonological awareness and literacy
4. Students with deficits in phonological awareness may be considered “at risk” for failure in reading and may be pulled out of naturalistic environments (e.g., music class) for remediation
5. Musical experiences *already occurring* in many elementary general music classes have been shown to improve students’ phonological awareness (Dege & Schwarzer, 2011)
  - a. e.g., songs, rhymes, chants, games, books, and poems
6. A student’s ability to achieve and engage in musical experiences may be influenced by music aptitude
7. Music aptitude can be positively influenced by musical experiences until age 9

### Solutions:

1. Provide rich musical experiences to *all* students from an early age
  - a. Songs, rhymes, chants, games, books and poems can improve a student’s music aptitude
  - b. Songs, rhymes, chants, games, books and poems can improve a student’s phonological awareness
2. Provide “musical” remediation and tailor instruction
  - a. Appropriate musical experiences can be provided to suit a student’s musical aptitude
  - b. Additional musical experiences can be provided to students who are “at-risk” for failure in reading
  - c. Music teachers can collaborate with reading specialists, classroom teachers, and speech-language specialists to develop new and innovative strategies

## References

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