Background and Significance

Music:
- Long acknowledged for its unique power and influence
- Plato referred to music as “medicine for the soul”
- Widely believed that growing the brain’s exposure to music initiates growth in areas involved in speech and language development
- Music characteristics:
  - Consonant music: Typically pleasing to the ear; associated with sweetness, pleasantness or acceptability
  - Dissonant music: Typically displeasing to the ear; associated with harshness, unpleasantness, unacceptability

Music and language:
- Both rely on prosody (e.g., stress, rhythm, intonation and pitch) for expression
- Both facilitate social closeness and bonding

Play and language:
- Play develops simultaneously with language
- By age two, most children with typical development experience a burst in vocabulary growth along with an increase in multi-word utterances
- Play language provides opportunities for young children to practice and form symbolic relationships used in language

Study aim:
- To test an empirical body of knowledge regarding potential use of music in therapeutic setting for SLPs
- To address association of music type with observed language and play skills

Research Questions:
- Is there an association between type of music (upbeat, major, and mostly consonant music versus subordinated minor and mostly dissonant music) for two-year-olds with typical language development on communicative behaviors observed during a 20-minute play sample?
- Is there an association between type of music (upbeat, major, and mostly consonant music versus subordinated minor and mostly dissonant music) for two-year-olds with typical language development on type of play skills observed during a 20-minute play sample?

Method

Participants:
- n = 3; Ages 24 months to 28 months (M = 26.33, SD = 2.08)
- Identified typical development:
  - Standard score >85 on The Preschool Language Scale-5th edition (PRES-5)
  - Standard score >5th percentile on the Language Development Survey (LDS)

Procedures:

- Three 20-minute play-based conversational samples (60 minutes total) obtained from each child while interacting with his parent and researcher-supplied age-appropriate toys (e.g., farm set, toy groceries)
- Three different counter-balanced conditions: no music, consonant music, and dissonant music
  - Consonant music: J.S. Bach: Goldberg Variations
  - Dissonant music: Schenkenberg: String Quartet No. 3 (selections)

- Stages of play:
  - Exploratory (earliest, infancy - 24 months of age, peak: 9 months)
  - Simple pretend (‘symbolic’ or ‘representational’) play, 18 – 30 months of age, simple play schemes not linked to larger theme
  - Complex pretend (24 months – 5 years+), connecting pretend play acts into themes like going to school, making breakfast, etc.

- Each sample was analyzed for # of words used, total # of words used, and result type of Token (TRT)
  - The 60-minute samples from each participant were coded for play using the Play in Early Childhood Evaluation System (PIECEs) scale (Kelly-Vance & Ryalls, 2005, 2008)
  - The 1st author trained an independent coder (Senior undergraduate student in speech-language pathology) on the PIECES coding available from http://www.plaisuno.com
  - The 1st author coded 100% of recorded data; independent coder re-coded 20% of recorded data; reliability: 100-87%

Results and Discussion

Total number of words and different words:
- Consonant music was associated with the highest number of words and highest number of different words for all three participants
- This finding was consistent with Trainor and Heinmiller (1998) in that participants may have preferred consonant music over dissonant music and felt less inclined with consonant music playing in the background, which resulted in more communicative interactions
- Sallat & Jentschke (2015) concluded that music perception skills may contribute to language learning. Findings support the possibility that pleasant music may be correlated with more language production

Highest Level of Play:
- No music condition was associated with the highest level of play acts for all three participants
- Music conditions may have split the participants’ attention, leading to basic overall engagements in play behaviors under those conditions
- Findings may support Brandt et al. (2012) definition of music as “creative play with sound” (p. 3) in that the presence of background music may have affected the play levels as the participants were also “playing” by listening to music and participants could focus more on play with objects under no music condition
- When compared with findings from Kim et al. (2008), it illustrates a potential difference in interactive experiences with music versus music as a background feature

Limitations and Future Directions:
- Larger sample size
- Modifications to type and volume of music and/or active participant interaction with music stimuli
- Both the consonant and dissonant music selection were fairly complex, a future comparison could contrast simple versus complex music
- Standardization in-between sessions for all participants

Selected References