Music and Autism: Discovering Potential Through a Universal Language

Amalia Allan, Florida State University
About Amalia
Music Teacher and Researcher

• PhD Student and Researcher in Music Education - present

• Special Education Music Teacher - 2016-present – Music teacher at the Kristin Farmer Autism Center in Denton, Texas (January 2019 – present) and It’s a Sensory World Academy in Dallas, TX (2016–2017).

• Music Teacher - 2010-2016 – Elementary music teacher and choir director in the Richardson Independent School District in Texas.

• Piano Teacher - 2000-2016 – Private and group piano teacher to students of all ages and abilities, including children on the spectrum.
"Music is a world within itself, with a language we all understand."

-Stevie Wonder
## Music and Language

Ockelford (2013)

<table>
<thead>
<tr>
<th>Feature</th>
<th>Language</th>
<th>Music</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Universal Characteristics</strong></td>
<td>Highly complex communication through sound.</td>
<td>A feature of all societies.</td>
</tr>
<tr>
<td></td>
<td>A feature of all societies.</td>
<td>Acquired through exposure and interaction.</td>
</tr>
<tr>
<td><strong>Engagement</strong></td>
<td>Primarily improvised by everyone everyday</td>
<td>Primarily produced by a small number of performers</td>
</tr>
<tr>
<td><strong>Elements</strong></td>
<td>Comprised of (symbolic) words with ‘absolute’ meanings; basic units of meaning.</td>
<td>Comprised of notes (non-symbolic in themselves) with weak ‘absolute’ meanings; basic units of meaning</td>
</tr>
<tr>
<td><strong>Structure</strong></td>
<td>Words fulfill ‘functions’ through various parts of speech; repetition is the exception; sequence of words is important</td>
<td>Notes fulfill one of 12 functions for pitch and one of 4 functions for meter; repetition is the rule; sequence is of primary importance</td>
</tr>
<tr>
<td><strong>Meaning</strong></td>
<td>Tends to convey specific information; demands shared understanding of symbolic concepts; contextually dependent</td>
<td>Tends to convey general feelings; only limited shared understanding is required; less contextually dependent</td>
</tr>
</tbody>
</table>
The Three Building Blocks of Music

- Pitch
- Rhythm
- Beat
1. Beat

The silent and steady pulse of the music.
Group Activity: **Feel the Beat**
Research on Beat

- Relevant neural mechanisms for keeping a beat are widespread among animal species (Darwin, 1871)
- Keeping a beat makes use of a complex brain function between auditory regions and motor planning regions (Patel & Iversen, 2014)
- Neurological studies on beat are being conducted in relation to issues of memory, sense of time and space, error correction, and musical expression (Repp, 2005)
- Lack of research on musical beat and ASD.
**Beat: What to Look For**

- Rocking and swaying to the beat of music
- Nodding head to the beat of music
- Moving body parts (e.g. hands, knees) to the beat of music
- Audible sounds (e.g. clapping, hitting objects) to the beat of music
2. Rhythm

Patterns of sounds and silences in the music.
Rhythm Activity: Body Percussion
Research on Rhythm

- Beat and rhythm work hand in hand (Grahn, 2012)
- Listening to rhythms activates motor and pre-motor cortices (Bengtsson et al., 2009)
- Benefits of rhythmic rehabilitation for autism (Hardy & LaGasse, 2013)
- Benefits of rhythm-mediated interventions for social skills and behavior issues (Yoo & Kim, 2018; Ross, 2016).
- Lack of research on musical rhythm and ASD.
Rhythm: What to Look For

• Playing/Hitting rhythms on objects
• Playing/Hitting rhythms on self or others
• Interest in drums
• Interest in drum-like sounds
3. Pitches

The **high** and **low** tones that create tunes of songs.
Pitch Activity: Autism Chant
Research on Pitch

• People with ASD have heightened pitch perception (Stanutz et al., 2014)
• People with ASD have enhanced pitch discrimination (Heaton et al., 2008; Heaton, 2009)
• Heightened pitch perception may have connections to Weak Central Coherence Theory (Mottron et al., 2000)
• Enhanced pitch discrimination in ASD may be connected to language delays (Eigsti & Fein, 2013)
Absolute/Perfect Pitch (AP)

(Definition) A rare ability of a person to identify or re-create a specific pitch without the benefit of a reference pitch.

- 1 in every 10,0000 in the general population
- 1 in 20 advanced musicians
- Even higher percentage in people with ASD, though exact percentage not known

- Classical Composers with AP: Mozart, Beethoven, and Bach
- Modern Artists with AP: Stevie Wonder, Michael Jackson, Mariah Carey
Pitch: What to Look For

• Humming songs
• Singing songs with an open mouth (with or without words)
• High interest in specific songs or artists (vocal or instrumental)
• Interest in music in general
Recap:
Music Therapy

Goals = Non-Musical

Professional = Music Therapist

Locations = Clinics, Hospitals, and Schools

Pursue in order to: Develop non-musical goals through the use of music

versus

Music Education

Goals = Musical

Professional = Music Teacher

Locations = Schools and Studios

Pursue in order to: Develop musical abilities in a child
Goals Include:

- Building Self-Esteem
- Expressing personal strengths
- Completing thoughts/sentences
- Musical expression (through the drum)

Notice:

- How music is used to meet goals
- Elliott’s rhythms on the drum
- Elliott’s boost in confidence

https://www.youtube.com/watch?v=OLsiC0Cf95I&list=PLkApPD8Bju9iYM3_0JtwHWZ97u5VugCAR&index=40&t=1s

*Clip used in presentation was from 4:07 to the end.
Goals Include:

• Refining Singing Voice
• Vocal Expression
• Emotional Expression
• Building Self-Esteem
• Preparing a performance

Notice:

• Martin’s musical improvement
• Martin’s boost in confidence

https://www.youtube.com/watch?v=8PH9j41WCeo&list=PLkApPD8Bju9iYM3_0JtwHWZ97u5VugCAR&index=42

*Clip used in presentation was from 11:38 to 14:33.
Discussion Activity

1. Musical observations in a loved one?
2. Reflections on the musical interests of this loved one?
3. What might be done to help develop this interest or gift?
Resources

- **Music Therapy**
  - Sound Starts Music Therapy - [https://soundstartsmusic.com/](https://soundstartsmusic.com/)
  - Heart & Harmony Music Therapy - [https://www.heartandharmony.com/](https://www.heartandharmony.com/)

- **Music Education**
  - Creative Soul Music School - [https://www.creativesoulmusic.com/](https://www.creativesoulmusic.com/)
  - Park Cities School of Music - [https://parkcityesschoolofmusic.com/special-needs-childrens-program/](https://parkcityesschoolofmusic.com/special-needs-childrens-program/)

- **Musical Instruments**
  - West Music - [https://www.westmusic.com/](https://www.westmusic.com/)
  - Guitar Center - [https://www.guitarcenter.com/](https://www.guitarcenter.com/)

- **Music Technology**
  - iPad apps – Music Beats, Bloom HD, Trope, Drop Dots, Real Percussion, LoopesqueKids

- **Book**
References


References


Thank You!

Amalia Allan
Florida State University
amalia.allan84@gmail.com