

# **Music and Autism: Discovering Potential Through a Universal Language**

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# 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."

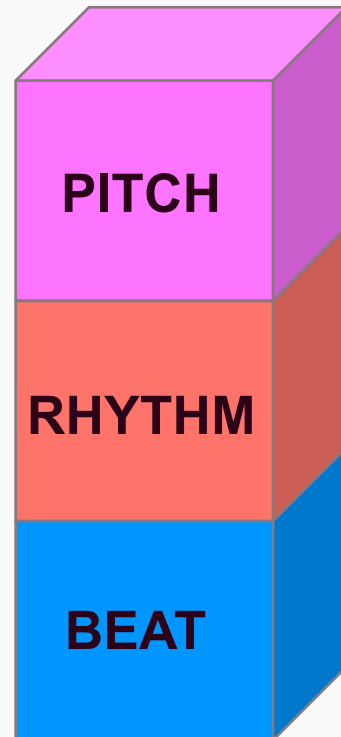
-Stevie Wonder

# Music and Language

Ockelford (2013)

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

# The Three Building Blocks of Music



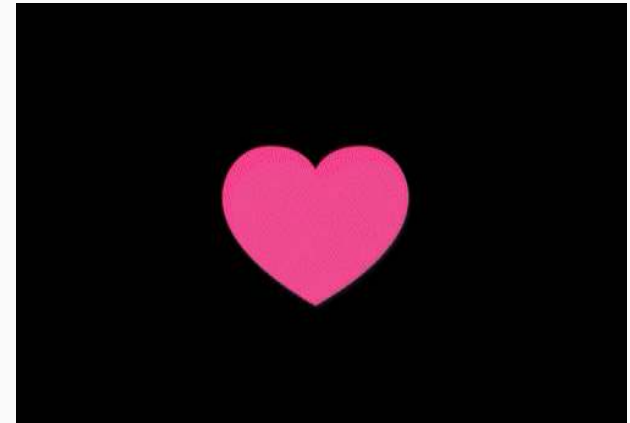
# 1. Beat



The silent  
and steady

**PULSE**

of the music.



# **Group Activity: Feel the Beat**

# Research on **Beat**

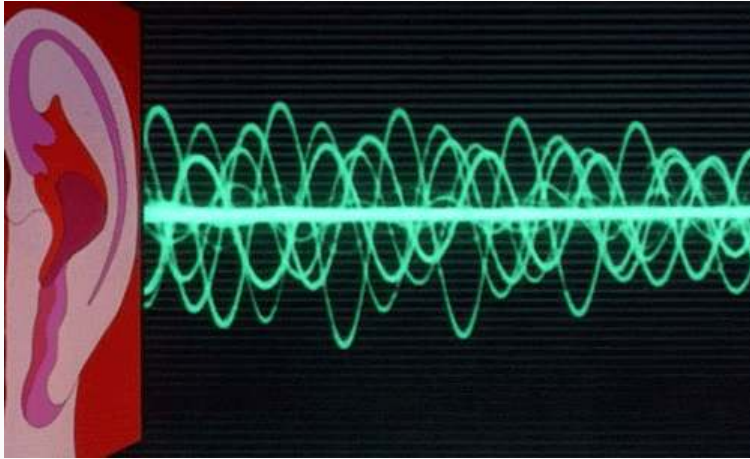
- Relevant neural mechanisms for keeping a beat are widespread among animal species (Darwin, 1871)
- Keeping a beat makes use of a complex brain function between auditory regions and motor planning regions (Patel & Iversen, 2014)
- Neurological studies on beat are being conducted in relation to issues 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)

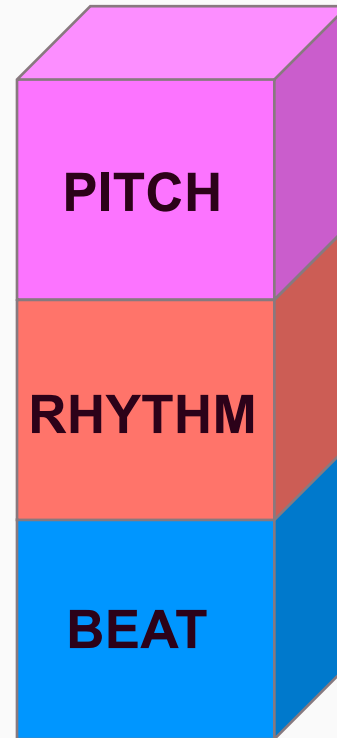
**(Definition)** A rare ability of a person to identify or re-create a specific pitch without the benefit of a reference pitch.

- 1 in every 10,000 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

**versus**

# Music Education

Goals =  
**Non-Musical**

Professional =  
**Music Therapist**

Locations =  
**Clinics, Hospitals,  
and Schools**

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

Goals =  
**Musical**

Professional =  
**Music Teacher**

Locations =  
**Schools and  
Studios**

Pursue in order to:  
**Develop musical  
abilities in a child**

# Music Therapy

Ryan Judd - Music Therapist, MT-BC

## Goals Include:

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

[https://www.youtube.com/watch?v=OIsiC0Cf95I&list=PLkApPD8Bju9iYM3\\_0JtwHWZ97u5VugCAR&index=40&t=1s](https://www.youtube.com/watch?v=OIsiC0Cf95I&list=PLkApPD8Bju9iYM3_0JtwHWZ97u5VugCAR&index=40&t=1s)

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

## Notice:

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

# Music Education

Jo Price – Voice Teacher

## Goals Include:

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

[https://www.youtube.com/watch?v=8PH9j41WCeo&list=PLkApPD8Bju9iYM3\\_0JtwHWZ97u5VugCAR&index=42](https://www.youtube.com/watch?v=8PH9j41WCeo&list=PLkApPD8Bju9iYM3_0JtwHWZ97u5VugCAR&index=42)

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

## Notice:

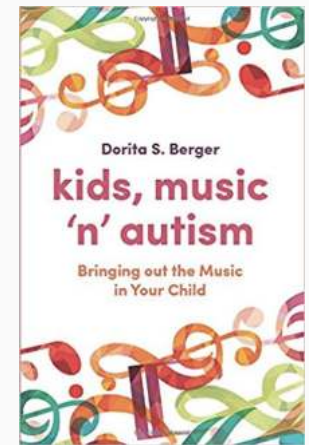
- Martin's musical improvement
- Martin's boost in confidence

# **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/>
  - Heart & Harmony Music Therapy - <https://www.heartandharmony.com/>
- Music Education
  - Creative Soul Music School - <https://www.creativesoulmusic.com/>
  - Park Cities School of Music - <https://parkcitiesschoolofmusic.com/special-needs-childrens-program/>
- Musical Instruments
  - West Music - <https://www.westmusic.com/>
  - Guitar Center - <https://www.guitarcenter.com/>
- Music Technology
  - iPad apps – Music Beats, Bloom HD, Trope, Drop Dots, Real Percussion, LoopesqueKids
- Book
  - *Kids, Music, 'n' Autism: Bringing Out the Music in Your Child* by Dorita S. Berger





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# **Thank You!**

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