Using Music to Assist With EveryDay Needs

By Kristina Gindo, MT-BC, Music Therapy Empowers

About Kristina

Board Certified Music Therapist, Neurologic Music Therapist

Education: Wartburg College, Waverly Iowa

Internship: Laura Baker Services, Northfield, MN

Currently serving adults with developmental disabilities, children with special needs, seniors served in long-term care and home health, adults with traumatic brain injuries, preschoolers and early childhood music classes

Based in Brookings, South Dakota

Main Instrument: Voice

Secondary Instruments: Harp, drums, hand percussion, piano, Autoharp, ukulele, guitar

Who is a Music Therapist?

Music therapy board-certification (MT-BC)
Education
Background
Competencies
Continuing education
Physical therapy vs. music therapy

Definition….

Music therapy is the clinical and evidence-based use of music interventions to accomplish individualized goals within a therapeutic relationship by a credentialed professional who has completed an approved music therapy program. (AMTA, 2014)

Autism and Music Therapy Research

Autism and Music Therapy Research

Skills increased according to NACI standards:

Communication
Self-Regulation
Personal Responsibility
Placement

Over the past seven decades numerous anecdotal case studies, narrative reviews (e.g., Reschke-Hernández, 2011) and systemic reviews (e.g., Geretsegger, Elefant, Mössler, & Gold, 2014) describe the benefits of music therapy for individuals with ASD. Currently, music therapy is identified as an emerging intervention by the National Autism Center (2015).

Autism and Music Therapy Research (cont.)

The following research-based examples demonstrate the value of music therapy for those with ASD:

Music therapy interventions are informed by research evidence and incorporate many of the identified ASD-specific evidence-based practices in each session (Kern, Rivera, Chandler, & Humpal, 2013).

Music therapy services for young children with ASD are very effective for improving communication, interpersonal skills, personal responsibility, and play (Whipple, 2012).

Music therapy interventions may elicit joint attention (Kalas, 2012 and enhance auditory processing. Music therapy also enhances other sensory-motor, perceptual/motor, or gross/fine motor skills (LaGasse & Hardy, 2013); and appropriate identification and expression of emotions (Katagiri, 2009).

Music therapy interventions based on family centered practice may increase social engagement in the home environment and community (Thompson, McFerran, & Gold, 2013).

Music therapy interventions using musically adapted social stories may modify target behavior and teach new skills (Brownell, 2002).

Autism and Music Therapy Research

Whipple (2004), Clinical population: Autism Spectrum Disorder;

9 studies

Main findings: All found use of music highly effective, regardless of treatment design, age, music used, treatment methodology, or profession of music provider.

Gold et al. (2010), Clinical population: Autism spectrum disorder;

3 studies

Main findings: Music therapy superior to placebo for verbal and gestural communication skills; effects not significant for behavioral outcomes. Studies encouraging, but limited applicability to practice.

Meta-Analysis

1. Researchers incorporated group for individual subject experimental treatment designs. Design, procedures, and results allowed replicated data analysis.

2. Research involved children who were five years or younger diagnosed with ASD, but did not include studies that incorporated diverse special education populations regardless of inclusion of students with ASD.

3. Utilized music as a separate, independent variable contrasted with a no-music control condition (e.g., no-contact control condition; standard care; or other treatment condition, such as play therapy or spoken instructions only).

4. Music treatment procedures were conducted by a music therapist.
5. Quantitative results were reported with sufficient information to extract an effect size.

6. Results were in the form of articles published worldwide in peer-reviewed journals (i.e., dissertations, theses, and research poster session presentations were not included).

Music Therapy & Research

Communication: Kern, Wolery, and Aldridge (2007) incorporated the concept of caregiver training by teaching classroom teachers a routine and original morning greeting song to ease individual children's morning transitions into the classroom and facilitate peer interaction. Significant results (see source).

Lim (2010) compared the effect of a video with six original songs and pictures of 36 vocabulary words viewed by children twice a day for three days to (a) a video with six stories and pictures of the same words and to (b) no intervention on the verbal production of the target words. Significant result (see source).

Lim and Draper (2011) compared the effect of developmental speech-language training using an Applied Behavior Analysis Verbal Behavior approach and the same approach paired with music in which instruction was sung acapella rather than spoken. They assessed the impact of both interventions on speech production of target words, including immediate echolalia of target phrases. Found significant results (see source).

Music Therapy & Autism

Interpersonal: Finnigan and Starr (2010) ; Examined the use of individual music play sessions involving various instruments and toys as well as original “piggyback” songs and guitar. Decreasing avoidant behaviors of gaze aversion, pushing away toys and people, and moving away also were investigated.

Responses to these sessions were compared to individual play therapy sessions that also incorporated instruments and toys but no singing, melodic, or rhythmic play.

Kim, Wigram, and Gold (2008) compared the effect of individual improvisational music play sessions versus individual play therapy sessions, both partially child led and partially therapist directed. The researchers focused on joint attention behaviors and duration of both eye contact and turn-taking.

Wimpory, Chadwick, and Nash (1995) addressed social acknowledgement and eye contact by providing several music therapy sessions incorporating games, movement, singing, and musical accompaniment of activities.

Personal responsibility: Kern, Wakeford, and Aldridge (2007) explored the use of an original song outlining the steps of three self-care tasks (i.e., hand-washing, toileting, and cleaning up) taught to the classroom teacher to guide a preschool child with ASD through the daily tasks. This study incorporated caregiver training as in the Kern and Aldridge (2006) communication study.

Why Music?

Music & Individuals Diagnosed with ASD

- Advanced musical memory (Kanner, 1943)
- “savants”, 10% of population (Treffert, 2012)
- Increased sensitivity to musical pitch and timbre
- Able to identify music and associated emotions
- Better memory for tones and chords (Heaton, 2003)
- Have trouble separating parts from whole

Managing meltdowns & Encouraging resilience

Music For Everyday Needs today

1. Music for mindfulness
2. Use Brain science language (accompanying song)
3. Transition songs
4. Rhythmic Entrainment songs/music pairing techniques
5. Social Stories and songs

Managing Meltdowns-Practice

Practice regulating behavior WITHOUT verbal cues BEFORE escalation, at periodic times throughout the day

Imagine coffee scenario

Keeping the container full-Keep more water going in than out.

Practice Resilience

- Capacity to deal with adversity
- Get back up and self adjusting
- Our brain is the container to deal with life
- We all have different container sizes -resilience is connected to joy
- I must _____ to thrive

Resilient Student Looks Like...

- Developing self-care
- Developing non-critical view of self
- Ability to delay gratification and calm (self soothe)
- Comfortable with failure
- Can tolerate non-preferred focus

Brain Science

Brain Science: Practice

-Neurogenesis-the brain creates new cells. 100 cells...it can heal itself. Brain Derived Neurotrophic factor

New learning

Neuroplasticity-the brain is capable of creating new brain pathway. Cells help create new pathways from pathology

Tunnel Vision

https://www.youtube.com/watch?v=gm9CIJ74Oxw.

Brain In Meltdown Mode

- Back of brain-reptilian brain
- Middle-Limbic system-Emotional high center
- Front-judgement
    - 90-95% of people go to back **and** front during a crisis

Tunnel vision-Child trying to protect self, feels everyone is the enemy

Talk about Science

https://www.youtube.com/watch?v=gm9CIJ74Oxw.

https://www.youtube.com/watch?v=H_dxnYhdyuY.

Stay away from problem solving until child is calmer

“I think we are both feeling upset. Let’s take a few deep breaths.”

Talk about going to the back part of the brain.

“I’d like to help. I see you are going to the back of the brain with your thoughts.”

Balance

Three most important things to know:

Knowing I am out of balance

Getting back into balance

Strengthening the balance throughout the day

Mind-Body-Heart Skills

Reflect

Mention

Manage

Connect

Before After & During MeltDown

Before Meltdown

Build positive experience

Manage mirror neurons-use music for self AND client

Use specific music during specific times of day based on child’s energy.

Activate the relaxation response: Before And During

1. Validation

2. Grounding

3. Breathing

Increased parasympathetic activity and heart rate variability (coherence)

- Changes in neurotransmitter levels, including increases in serotonin and decreases in norepinephrine and cortisol

- Neurogenesis: Neuroplasticity: Mindfulness increases our brains' ability to adapt and rewire.

- Meditation can change anyone's brain-prefrontal cortex ● More resilient recover faster from stress

- Being able to experience feelings and not let them interfere with their lives is an active process rather than passively ignoring these feelings

- Brain attentional regions activated and strengthened by mindfulness (Developing the concentration)

Adding Pause throughout the Day

- Weave a ritual
- Choose a number as a class
- Model self-advocacy and efficacy
- Ask individual what they need
- Create a break space

Adding a pause

Setting intention

Breathe while reviewing plan

How did we do?

Research on Motor Synchronization

Research on motor synchronization

“Cerebellum: General purpose device that anticipates the neural systems need for a particular motor or non-motor operation and then prepares for operation “at hand”

Cerebellum dysfunction can lead to “overshooting or undershooting”

Lack of coordination is due to a “preparatory deficit”

83% of children have noted differences in fine, gross, and motor agility and coordination when compared to peers. (Hilton et. alt. 2012)

Research on motor synchronization

- Noted differences on MRI studies related to brain stem Limbic System,Basal Ganglia,Frontal and Parietal Lobes
- These areas as associated with motor skills
- Language skills
- Memory
- Somatosensory perception
- Visual perception
- Emotional regulation
- Control of behaviors

Research on motor synchronization

- Cerebellar differences, increased white matter and under/over connectivity has been repeatedly documented
- Cerebellum-found to be smaller of bigger than usual, hypoplasia of spheres
- Cerebellum not only functions as motor mechanism but also in:
  - Attention
  - Associative learning
  - Declarative and working memory
  - Semantic associations
  - Conditioned anxiety
  - Mental exploration
  - Complex reasoning
  - Problem solving

(Lagasse & Hardy, 2013)

Research on motor synchronization

Researchers have noted people with ASD have poorly planned movement and planning

Goal is to improve motor control and thereby regulate the mind with entrainment

People with cerebellar differences maintain the ability to synchronize to an external stimulus (molinari et al., 2005)

Tryfon et. al, 2012 demonstrated that indv. With ASD had better auditory motor synchronization than typical peers

(Lagasse & Hardy, 2013)

Research on motor synchronization

http://www.finr.net/files/brain/index.htm

Noted behaviors related to individuals performance of motor tasks in ASD:

- stereotypical/atypical movements
- Lack of imitation
- Difficulty inhibiting movements
- Immobility
- Forced grasping of people or objects
- Preservation
- Aggression
- Changes in speech (Donnellan et. alt. 2013)

Research on Motor Synchronization

Creates boundaries interacting with env. and expressing true intent of emotions is difficult.

Rhythm may be used to entrain and regulate the body so that the mind can regulate.

Research on motor synchronization

LaGasse found that after rhythmic entrainment, a child with ASD decreased behaviors and was happier throughout the rest of the day. The child improved motor functioning as well.

When given proper motor support, the clients repetitive motor patterns (putting hands in fists and moving rapidly by head) decreased and ceased.

As his strength increased and mood resulting in a lengthened school day.

Activate the Relaxation Response

Rhythmic entrainment

1. Rocking
2. Tossing a ball
3. Swinging
4. Metronome app
5. Physical movement such as arm movements, substitute flapping for synchronized

Activating the Relaxation Response With Music

Breathing

Instruments- Ocean drum, rain stick, wind chimes

Hoberman’s Sphere

Glitter Jar

Pinwheel

Hour glass

Bubbles

For Clients with Limited Language Comprehension

Use a sensory item or instrument to provide vibrotactile stimulation and sing acapella about what the item is, sensations, breathing, etc.

Social Stories And Music

Social Stories & Music

Improved reading comprehension due to:

- Higher arousal
- Multi-Sensory approach
- Pitch and harmony leads to greater recall

Stimulation of multiple neural networks facilitated through repeated practice is reinforced and transferred through multiple domains.

(Schawartzberg & Silverman 2016)

Social Stories & Songs

Social Teaching with a song “We Can Do It Better”

Use the formula!

Ten-steps to implement a story

1. Identify target behavior or problem situation
2. Define target behavior for data collection
3. Collect baseline data for target social behavior
4. Write short story with 4 types of sentences
5. Two or three sentences per page
6. Use pictures
7. Read and model behavior
8. Collect data 9. Review data 10. Review findings and related procedures

(Swaggert, et. alt 1995)

Social Stories & Music

- Create engaging but not complicated songs. Make it straightforward and reflect the mood of the story.
- Music Functions to: (Katagiri , 2009)
  - Encourage student engagement
  - Promote active participation
  - Serve as an additional took to aid in memory and recall
  - Provide nature and appropriate environment for repetition

Present the song immediately before the situation and make book and recording available all day.

Encourage child to participate rather than just being sung too, dry velcro Boardmaker on keywords

Social Stories & Music

Children with developing verbal skills can say or sing key phrases.

Use positive, engaging tone of voice and facial expression and eye contact.

Do not change the melody-if you are using a live performance keep that consistent.

Keep the key the same, try not to let anyone alter the song.

Examples

Listening to Directions

We Can Make it Better (see source)

Prescriptive and Transition Songs

Prescriptive songs

When pictures and creating a book are not available

Use general guidelines of social stories but not as definitive as a social story

Can include original or “piggyback” music

Found to be effective in three case studies, (Pasiali, 2003)

Prescriptive songs

- Target behaviors: Echolalia during dinner, constant rewinding fastforwarding of a video after school, rummaging through cupboards and compulsive binge eating

Song lyric handout

Research found that all of the targeted behaviors decreased in the first trial , three weeks later all target behaviors were at lower levels than prior to the intervention.

(Pasiali,2004)

Transition Songs-Research

Horner (1994): “The student may be resistant because he/she does not know what is going to happen or needs help processing what will happen next.”

Current Strategies: Advance warning (Sterling-Turner & Jordan) did not work with adults that engage in injurious behavior,instead used physical prompts, and used a bell.

(Ferguson, Ashbourgh O’Reilly, 2004), have students ring a bell (Sainator, Lefebvre, and Rapp (1987). Visual cues and picture schedules, give 4 tasks child can do successfully and then the transition, giving a preferred item.

Transition songs-Research on Prior Approaches

- Teachers playing pre-recorded music during transitions (1999, Buck)
- Learning math through music (Geist, Geist, & Kuznick)
- Music functions as distracter and a source of information
- Auditory clue
- Decreased the amount of time it took for transitions in Pre-k, SES (Register & Humpal 2007)
- Transition song resulted in shortest transition between a preferred and non-preferred activity (Gadberry, 2011)

Transition Songs-Research

- Individuals with ASD respond to music (AMTA, 2012)

- Music functions as cue but also as a distractor since it is a preferred activity (humpal & Kern , 2013)

- After transition begins, the song shifts from cue to a mechanism that provides structure in which to complete the transition (Walworth, 2013)

How to Create a Transition Song for indv. with ASD

1. Write songs that address a target situation that can be sung by a variety of different individuals in a variety of settings.
2. Use original music OR a familiar melody (see handout).
3. Us lyrics that repeat the important message.
4. Sing directly and repeatedly to the child.
5. Use the same transition songs across different environments and situations.
6. All individuals who transition with the child should sing the song.

(Humpal & Kern 2013)

Other Ideas for Creating a Song

- Add a tactile cue.
- Add an auditory cue before the song or songs;(see Study by Humpal-chimes, children playing chimes)
- Create changes within the song to reflect what will happen in the transition;
  - Study by Juhnke, marching to child's pace, adjust words to match location (Juhnke, 2015)
- Use live music unless recorded music is custom made by a MT-BC (due to engagement and modifying factors)

Other Examples

Samples

ThAnkS For Coming !