



Autism Focused Intervention
Resources & Modules

MMI

EBP BRIEF PACKET: **MUSIC-MEDIATED INTERVENTION**

UNC Frank Porter Graham Child Development Institute
Autism Focused Intervention Resources & Modules
Nowell, S., Sam, A., Waters, V., Dees, R., & AFIRM Team, 2022



The National Professional
Development Center on Autism



**FRANK PORTER GRAHAM
CHILD DEVELOPMENT INSTITUTE**

OVERVIEW OF CONTENT

1. **Table of MMI Contents:** This list details the specific MMI resources that apply to Music-Mediated Intervention.
2. **What is MMI:** A quick summary of salient features of Music-Mediated Intervention, including what it is, who it can be used with, what skills it has been used with, and settings for instruction.
3. **Evidence-base:** The evidence-base details the National Clearinghouse on Autism Evidence and Practice (NCAEP) criteria for inclusion as an evidence-based practice and the specific studies that meet the criteria for Music-Mediated Intervention.
4. **Planning Checklist:** This checklist details the steps for planning for Music-Mediated Intervention, including what prerequisite learning of practices are needed, collecting baseline data of the interfering behavior if needed, and what materials/resources are needed.
5. **Other Resources:** Other resources may include decision trees, checklists, and/or template forms that will support the use of Music-Mediated Intervention.
6. **Step-by-Step Guide:** Use this guide as an outline for how to plan for, use, and monitor Music-Mediated Intervention. Each step includes a brief description as a helpful reminder while learning the process.
7. **Implementation Checklist:** Use this checklist to determine if Music-Mediated Intervention are being implemented as intended.
8. **Monitoring Progress Checklist:** Use this form as a method for collecting and analyzing data to determine if the learner on the spectrum is making progress towards the interfering behavior.
9. **Tip Sheet for Professionals:** Use this tip sheet, intended for professionals working with learners on the spectrum, as a supplemental resource to help provide basic information about Music-Mediated Intervention.
10. **Parent Guide:** Use this guide intended for parents or family members of learners on the spectrum to help them understand basic information about Music-Mediated Intervention and how it is being used with their child.
11. **Additional Resources:** This list provides additional information for learning more about Music-Mediated Intervention as well as resources.
12. **CEC Standards:** This list details the specific CEC standards that apply to Music-Mediated Intervention.
13. **Glossary:** This glossary contains key terms that apply specifically to Music-Mediated Intervention.
14. **References:** This list details the specific references used for developing this MMI module in numerical order.



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MUSIC-MEDIATED INTERVENTION

WHAT IS MMI?

Music-Mediated Intervention (MMI) is an intervention that incorporates songs, melodic intonation, and/or rhythm to support learning or performance of skills/behaviors. It includes music therapy, as well as other interventions that incorporate music to address target skills.

DISCLAIMER: This module is not intended to replace the university-based degree program and certification process of a music therapist, but rather, to introduce basic knowledge of MMI as an evidence-based practice for use with learners on the spectrum in daily routines.

EVIDENCE-BASE:

Based upon the 2020 systematic review conducted by the National Clearinghouse on Autism Evidence and Practice (NCAEP), Music-Mediated Intervention is a focused intervention that meets evidence-based practice criteria with 9 single case design studies. Music-mediated intervention has been effective for early intervention (0-2 years), preschoolers (3-5 years), elementary schoolers (6-11 years), and middle schoolers (12-14 years) on the spectrum. Studies included the 2020 EBP report detail how music-mediated intervention can be used to effectively address the following outcomes for a target goal/behavior/skill: adaptive/self-help, behavior, communication, motor, play, school readiness, and social.

HOW IS MMI BEING USED?

MMI is implemented by a certified music therapist (MT) or someone (e.g., teacher, parent, therapist) who has been guided by an MT to deliver the MMI program with a learner. Completing a university degree, including 1200 hours of supervised clinical training, and passing a national certification exam administered by the Certification Board for Music Therapists (CBMT) are required to practice music therapy.

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<https://afirm.fpg.unc.edu>



EVIDENCE-BASE

The National Clearinghouse on Autism Evidence and Practice has adopted the following criteria to determine if a practice is evidence-based. The 2020 EBP report (Steinbrenner et al., 2020) provides more information about the systematic review process.

Efficacy must be established through high-quality, peer-reviewed research in scientific journals using:

- At least 2 randomized or quasi-experimental group design studies, or
- At least 5 single subject/case design studies, or a
- Combination of evidence of 1 randomized or quasi-experimental group design study and 3 single subject/case design studies

OVERVIEW:

Based upon the 2020 systematic review conducted by the National Clearinghouse on Autism Evidence and Practice (NCAEP), Music-Mediated Intervention is a focused intervention that meets evidence-based practice criteria with 9 single case design studies. Music-mediated intervention has been effective for early intervention (0-2 years), preschoolers (3-5 years), elementary schoolers (6-11 years), and middle schoolers (12-14 years) on the spectrum. Studies included the 2020 EBP report detail how music-mediated intervention can be used to effectively address the following outcomes for a target goal/behavior/skill: adaptive/self-help, behavior, communication, motor, play, school readiness, and social.

In the table below, the instructional outcomes identified by the evidence base are shown by age of participants.

Age	Adaptive	Behavior	Communication	Motor	Play	School Readiness	Social
0-2	Yes	Yes	Yes	Yes	Yes	Yes	Yes
3-5		Yes	Yes	Yes		Yes	Yes
6-11			Yes				Yes
12-14			Yes				

EARLY INTERVENTION (0-2 YEARS):

Kern, P., Wakeford, L., & Aldridge, D. (2007). Improving the performance of a young child with autism during self-care tasks using embedded song interventions: A case study. *Music Therapy Perspectives*, 25(1), 43-51. <https://doi.org/10.1093/mtp/25.1.43>

PRESCHOOL (3-5 YEARS):

- *Dieringer, S. T., Porretta, D. L., & Sainato, D. (2017). Music and on-task behaviors in preschool children with autism spectrum disorder. *Adapted Physical Activity Quarterly*, 34(3), 217-234. <https://doi.org/10.1123/apaq.2015-0033>
- Kern, P., & Aldridge, D. (2006). Using embedded music therapy interventions to support outdoor play of young children with autism in an inclusive community-based child care program. *Journal of Music Therapy*, 43(4), 270-294. <https://doi.org/10.1093/jmt/43.4.270>
- Kern, P., Wolery, M., & Aldridge, D. (2007). Use of songs to promote independence in morning greeting routines for young children with autism. *Journal of Autism and Developmental Disorders*, 37(7), 1264-1271. <https://doi.org/10.1007/s10803-006-0272-1>
- *Sandiford, G. A., Mainess, K. J., & Daher, N. S. (2013). A pilot study on the efficacy of melodic based communication therapy for eliciting speech in nonverbal children with autism. *Journal of Autism and Developmental Disorders*, 43(6), 1298-1307. <https://doi.org/10.1007/s10803-012-1672-z>
- *Srinivasan, S. M., Eigsti, I. M., Gifford, T., & Bhat, A. N. (2016). The effects of embodied rhythm and robotic interventions on the spontaneous and responsive verbal communication skills of children with Autism Spectrum Disorder (ASD): A further outcome of a pilot randomized controlled trial. *Research in Autism Spectrum Disorders*, 27, 54-87. <https://doi.org/10.1016/j.rasd.2016.04.001>
- *Srinivasan, S. M., Park, I. K., Neelly, L. B., & Bhat, A. N. (2015). A comparison of the effects of rhythm and robotic interventions on repetitive behaviors and affective states of children with Autism Spectrum Disorder (ASD). *Research in Autism Spectrum Disorders*, 18, 51-63. <https://doi.org/10.1016/j.rasd.2015.07.004>

ELEMENTARY SCHOOL (6-11 YEARS):

- *Dieringer, S. T., Porretta, D. L., & Sainato, D. (2017). Music and on-task behaviors in preschool children with autism spectrum disorder. *Adapted Physical Activity Quarterly*, 34(3), 217-234. <https://doi.org/10.1123/apaq.2015-0033>
- Ghasemtabar, S. N., Hosseini, M., Fayyaz, I., Arab, S., Naghashian, H., & Poudineh, Z. (2015). Music therapy: An effective approach in improving social skills of children with autism. *Advanced Biomedical Research*, 4(157). <https://doi.org/10.4103/2277-9175.161584>
- *Sandiford, G. A., Mainess, K. J., & Daher, N. S. (2013). A pilot study on the efficacy of melodic based communication therapy for eliciting speech in nonverbal children with autism. *Journal of Autism and Developmental Disorders*, 43(6), 1298-1307. <https://doi.org/10.1007/s10803-012-1672-z>
- *Srinivasan, S. M., Eigsti, I. M., Gifford, T., & Bhat, A. N. (2016). The effects of embodied rhythm and robotic interventions on the spontaneous and responsive verbal communication skills of children with Autism Spectrum Disorder (ASD): A further outcome of a pilot randomized controlled trial. *Research in Autism Spectrum Disorders*, 27, 54-87. <https://doi.org/10.1016/j.rasd.2016.04.001>
- *Srinivasan, S. M., Park, I. K., Neelly, L. B., & Bhat, A. N. (2015). A comparison of the effects of rhythm and robotic interventions on repetitive behaviors and affective states of children with Autism Spectrum Disorder (ASD). *Research in Autism Spectrum Disorders*, 18, 51-63. <https://doi.org/10.1016/j.rasd.2015.07.004>



MIDDLE SCHOOL (12-14 YEARS):

- *Srinivasan, S. M., Eigsti, I. M., Gifford, T., & Bhat, A. N. (2016). The effects of embodied rhythm and robotic interventions on the spontaneous and responsive verbal communication skills of children with Autism Spectrum Disorder (ASD): A further outcome of a pilot randomized controlled trial. *Research in Autism Spectrum Disorders*, 27, 54-87. <https://doi.org/10.1016/j.rasd.2016.04.001>**

Notes: * denotes the study has participants in at least two age ranges
Bold denotes new studies since 2011 (2012 till 2017)

MUSIC THERAPY APPROACHES

Orff-Schulwerk Method

A derivative of the Orff music education program designed for German school children, the Orff-Schulwerk method is a naturalistic, developmental, and success-oriented music treatment for small groups of learners with autism or other developmental disabilities. Musical activities conducted based on Orff-Schulwerk use components of music hearing, singing songs and chants, clapping, movement and dancing, musical drama, working with instruments, and free and creative playing of instruments.

Nordoff-Robbins Approach

Developed by a composer and a special education teacher, the Nordoff-Robbins music therapy approach addresses learner goals by establishing therapeutic relationships through interaction with music. It uses a combination of improvised and pre-composed musical interactions with a variety of instruments, expressive movement, dramatic play to tap into the learner's "core musicality" and stimulate their self-regulation, communication, and social interaction skills.

Neurodevelopmental Approach

The Neurodevelopmental Approach to music therapy involves understanding of the developing brain across all domains (communication, motor, sensory), neurological differences in autism, and how music-based activities may impact that development.



DATA COLLECTION: OBSERVATIONS

Learner's Name: _____ Date/Time: _____

Observer(s): _____

Target Goal/Behavior/Skill: _____

Directions: Collect data observations on the learner's communication behaviors.

Date	Activity	Behavior Observed	Notes



PLANNING CHECKLIST

Learner's Name: _____ **Date/Time:** _____

Observer(s): _____

Target Skill/Goal/Behavior: _____

Directions: Complete this checklist to determine if MMI is ready to use with the learner on the spectrum.

CONDUCT LEARNER ASSESSMENT:

- ☐ Does the learner respond positively to music or music-based activities like singing, dancing, or playing instruments?
- ☐ Does the learner have any spontaneous music-related behaviors like tapping or clapping rhythmically, singing to themselves, or preferring certain songs?
- ☐ Has the learner's progress toward certain goals slowed or plateaued?
- ☐ Are there any daily routines where the learner could practice their goals and where adding music would be appropriate?
- ☐ Has the learner's team, including family, brought up any musical abilities or preferences of the learner? Or an interest in music therapy services for the learner?

Note: If you checked off any of these questions, then the learner may need a more thorough assessment.

CONSIDERATIONS:

- ☐ Is additional support needed to address goals?
- ☐ Is music a learning strength for the learner?
- ☐ Are their music resources available?
- ☐ Has the learner's response to music-related activities been observed, reflected upon, and shared with a music therapist?
- ☐ Has a formal MMI assessment indicated the learner may benefit from MMI?
- ☐ Has the team, led by a music therapist, developed an MMI intervention plan?
- ☐ Is there a plan for opportunities for the learner to use MMI?
- ☐ Have MMI strategies been discussed with all team members?



SESSION PLAN:

Days:

Time:

Setting:

Leading:

MATERIALS:

☐ Individual MMI plan and data collection forms are ready and available?

Materials for MMI are ready and available?

☐ Instruments?

☐ Music apps?

☐ Microphone, Headphones, Device(s)?

☐ Songs?

☐ Instrumental music?

☐ Designated learning space ready (classroom, outside, Zoom)?

SELECT ADDITIONAL EBPS:

☐ Modeling

☐ Naturalistic Interventions

☐ Parent-Implemented Intervention

☐ Peer-Based Instruction & Intervention

☐ Prompting

☐ Reinforcement

☐ Social Narratives

☐ Time Delay

☐ Video Modeling

☐ Visual Supports

☐ Other:











PLANNING:

- ☐ Has the target goal/behavior/skill been identified?
- ☐ Is the target goal/behavior/skill measurable and observable? Does it clearly state **what** the target goal/behavior/skill is, **when** it will occur, and **how** team members/observers will know it has been mastered?
- ☐ Has baseline data and/or a functional behavior assessment been collected through direct observation of the learner? Has a formal MMI assessment of the learner been conducted?
- ☐ Is Music-Mediated Intervention appropriate for the learner's target goal/behavior/skill?
- ☐ Does a team member have Music Therapy certification?
- ☐ Have times and settings been identified for MMI use?
- ☐ Have reinforcers/rewards for the learner been identified based on the learner's interests/preferred items and/or activities?
- ☐ Are additional materials and/or resources for using this selected practice ready and available?

SOCIAL NARRATIVE

 During music time, I can use instruments to make music.

 Different instruments make different noises. My teacher will let me

know when and how to use each instrument. I will follow my
 teacher's directions to use different instruments during music.


 Sometimes I will make music by myself. Other times, I will
 listen to my teacher or classmate make music. And sometimes we
 will play music together. I will follow my teacher's instructions for
 playing and listening to music.

 My checklist will let me know what activities will happen
 during music. I can check off each activity after I complete it. I will
 follow my checklist so I can listen to my favorite song at the end of
 music time.




GENERALIZATION PLAN

Learner's Name: _____ **Date/Time:** _____

Observer(s): _____

Target Goal/Behavior/Skill: _____

Directions: Use this form to plan for supporting generalization of the learner's skills across settings.

Time	Activity	Sensory Input	Behavior Observed	Possible Strategies



DATA COLLECTION: FREQUENCY

Learner's Name: _____ **Date/Time:** _____

Observer(s): _____

Target Goal/Behavior/Skill: _____

Directions: Collect data on the frequency the learner demonstrating the target goal/behavior/skill to determine if the learner is making progress.

Date	Engagement Observed	Turn-taking Tally	Total Tally	Support Needed	Notes

Prompt Key: VB = Verbal; VSP = Prompt to use Visual Support; G = Gestural; M = Model; P = Physical; I = No prompts needed/Independent; IS = Independent with support (VS = Visual Support; VM = Video Modeling; SN = Social Narratives)



DATA COLLECTION: INTERVALS

Learner's Name: _____ Date/Time: _____

Observer(s): _____

Target Goal/Behavior/Skill: _____

Music Activity Engagement: _____

Directions: Collect data at 5-minute intervals to determine if the learner is making progress.

Date	Setting	Music Engagement Observed	Activity Engagement Observed	Support Needed
		<input type="checkbox"/> 5 min? <input type="checkbox"/> 10 min? <input type="checkbox"/> 15 min? <input type="checkbox"/> 20 min? <input type="checkbox"/> 25 min? <input type="checkbox"/> 30 min?	<input type="checkbox"/> 5 min? <input type="checkbox"/> 10 min? <input type="checkbox"/> 15 min? <input type="checkbox"/> 20 min? <input type="checkbox"/> 25 min? <input type="checkbox"/> 30 min?	5 min: _____ 10 min: _____ 15 min: _____ 20 min: _____ 25 min: _____ 30 min: _____
		<input type="checkbox"/> 5 min? <input type="checkbox"/> 10 min? <input type="checkbox"/> 15 min? <input type="checkbox"/> 20 min? <input type="checkbox"/> 25 min? <input type="checkbox"/> 30 min?	<input type="checkbox"/> 5 min? <input type="checkbox"/> 10 min? <input type="checkbox"/> 15 min? <input type="checkbox"/> 20 min? <input type="checkbox"/> 25 min? <input type="checkbox"/> 30 min?	5 min: _____ 10 min: _____ 15 min: _____ 20 min: _____ 25 min: _____ 30 min: _____
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Prompt Key: VB = Verbal; VSP = Prompt to use Visual Support; G = Gestural; M = Model; P = Physical; I = No prompts needed/Independent; IS = Independent with support (VS = Visual Support; VM = Video Modeling; SN = Social Narratives)



MONITORING PROGRESS CHECKLIST

Learner's Name: _____ **Date/Time:** _____

Observer(s): _____

Target Skill/Goal/Behavior: _____

Directions: Complete this checklist to determine if the learner is making progress with using Music-Mediated Intervention.

REFLECTION:

1. How do you think that went?

2. At which points did you see strategies working?

3. What could you have done differently?

☐ Did you encounter any challenges implementing MMI or other EBP strategies?

☐ Did the learner respond positively to MMI activities?

☐ Did the learner seem to enjoy the activities?

MONITORING PROGRESS:

☐ Has data been collected to determine if the learner is making progress?

☐ Has the learner achieved the target goal/behavior/skill?

☐ Is the target goal/behavior/skill measurable and observable? Does it clearly state **what** the target goal/behavior/skill is, **when** it will occur, and **how** team members/observers will know it has been mastered?

☐ Are all team members using/supporting MMI in a consistent manner?

☐ Was MMI implemented with fidelity (see Implementation Checklist)?

STEP-BY-STEP GUIDE

This step-by-step practice guide outlines how to plan for, use, and monitor Music-Mediated Intervention.

BEFORE YOU BEGIN...

Each of the following points is important to address so that you can be sure Music-Mediated Intervention is likely to address the target goal/behavior/skill of your learner on the spectrum.



HAVE YOU FOUND OUT MORE INFORMATION ABOUT...?

- ☐ Identifying the behavior...?
- ☐ Collecting baseline data through direct observation...?
- ☐ Establishing a target goal or outcome that clearly states when the behavior will occur, what the target goal or outcome is, and how team members and/or observers will know when the skill is mastered...?

If the answer to any of the above questions is 'No,' review the process of how to select an appropriate EBP (<https://afirm.fpg.unc.edu/selecting-EBP>).

For more information about Music-Mediated Intervention, please visit <https://afirm.fpg.unc.edu/>.

Keep in mind that **Music-Mediated Intervention** can be used to increase student communication, socialization, play, motor, and adaptive skills while reducing interfering behaviors.

STEP 1: PLANNING FOR MMI

The planning step details the initial steps and considerations involved to prepare for using Music-Mediated Intervention with a learner on the spectrum.

1. Obtain music therapy degree and certification or collaborate with a certified music therapist

To practice as a music therapist professionally, individuals must first obtain a bachelor's degree in music therapy and sit for a national Board Certification exam. It is possible that someone may implement MMI as part of a team that includes a trained music therapist rather than receiving a degree themselves.


2. Determine if learner would benefit from MMI

If you have concerns about a learner's progress toward goals and know that they enjoy music, consider a referral to a music therapist.

 Use the **Planning Checklist** to determine if the learner would benefit from MMI.

- **Reflect/address concerns and observe learner**

Assist in the MMI assessment process by collecting observational data on the learner's music-related activities and responses within the classroom setting.

 Use the **Data Collection: Observations** sheet to collect observations on the learner's behavior.

- **Conduct a formal MMI assessment**

A formal MMI assessment must be implemented by a music therapist. The goals of a music therapy assessment are to:

- document the learner's current skill level for intervention planning
- determine the type and intensity of the services needed

3. Plan an individualized MMI program

Use observational and formal data from the MMI assessment to plan an individualized program. The IEP team and the learner's music therapist should work together to create the MMI program.

- Identify when and how MMI will be used with the learner
- Plan for and obtain MMI materials
- Combine other EBPs to use with MMI
- Consider prominent music therapy approaches


4. Discuss program with team members

- All members of the learner's school team, including family members, will need some understanding of the learner's MMI assessment results and how to implement MMI.
- Include the learner's peers in discussion if they are affected by the learner's MMI.
- Include the learner as a leader of their own support team.

5. Have materials ready and available

Gather materials and tools to implement MMI.

- Individual MMI plan
- Materials for MMI activities
- Data collection forms
- Other EBP supports the team has decided to use


 Use the **Planning Checklist** to determine if ready to use MMI.

STEP 2: USING MMI

This step details the process of implementing Music-Mediated Intervention with a learner on the spectrum.

1. Implement the MMI program

When beginning an MMI program, first, introduce the learner to the music-based materials and teach them what to expect.

 Use the **Social Narrative** with the learner to explain the expectations of using materials during MMI.


2. Use other EBPs to support MMI

Once the learner is comfortable with the MMI materials and expectations, add the use of other EBPs to support the ongoing use of MMI.

3. Promote generalization of learner's target skills

Consider the following steps for promoting generalization of skills learned from MMI.

- Communicate regularly with the learner's team about consistently supporting the learner's goals with MMI across settings.
- Work with the learner's team to establish consistent use of EBPs supporting MMI as well as consistent responses to any of the learner's challenging behaviors using MMI.
- Honor the learner's music preferences and music-based activities they would like to practice across settings.

 Use the **Generalization Plan** form to plan for supporting generalization of the learner's skills across settings.


STEP 3: MONITORING MMI


The following step details how to monitor the use of Music-Mediated Intervention with a learner on the spectrum and how to determine next steps based on the data.


1. Collect and analyze data

It is important to continuously collect and review data. Also use self-reflection when discussing collected data from using MMI. Collect data on:

- The setting of the MMI
- Engagement with music-based activities and materials
- Level of support needed to use the target skill

 Use the **Data Collection: Frequency** form to monitor learner progress towards MMI goals.

 Use the **Data Collection: Intervals** form to monitor learner progress towards MMI goals.

 Use the **Monitoring Progress Checklist** to reflect on your understanding of collected data and determine learner progress.

2. Fade prompting and thin reinforcement

In the process of monitoring MMI, keep in mind that the long-term goal will be to fade the level of support the learner needs and start this process as early as possible.

3. Determine next steps based on learner progress

Collecting data will help team members decide about the effectiveness of using Music-Mediated Intervention and whether the learner on the spectrum is making progress. If a learner is making progress based upon data collected, team members should continue to use the selected strategies.

If team members determine that the learner is not making progress, consider the following:

- Have team members received coaching by a certified music therapists or is additional training needed?
- Is the target goal/behavior/skill well defined?
- Is the target goal/behavior/skill measurable and observable?
- Has enough time been devoted to using this practice (frequency, intensity, and/or duration)?
- Is the behavior targeted during appropriate routines and activities?
- Is MMI appropriate or a 'good fit' for the target behavior?
- Are the MMI strategies addressing the target behavior?
- Was this practice implemented with fidelity (see Implementation Checklist)?
- Does the learner need additional supports?
- Are the selected reinforcers preferred items/activities for the learner?

If these issues have been addressed and the learner on the spectrum continues not to show progress, consider selecting a different evidence-based practice to use with the learner on the spectrum.



IMPLEMENTATION CHECKLIST

BEFORE YOU START, HAVE YOU...?

- ☐ Identifying the target goal/behavior/skill...?
 - ☐ Collecting baseline data through direct observation...?
 - ☐ Establishing a target goal or outcome that clearly states when the behavior will occur, what the target goal or outcome is, and how team members and/or observers will know when the skill is mastered...?
- If the answer to any of the above questions is 'No,' review the process of how to select an appropriate EBP (<https://afirm.fpg.unc.edu/selecting-EBP>).

Observation:		1	2	3	4	5
Date:						
Observer's Initials:						
STEP 1: PLANNING						
1.1	Obtain music therapy degree and certification or collaborate with a certified music therapist					
1.2	Determine if learner would benefit from MMI:					
1.2a	Reflect/address concerns and observe learner					
1.2b	Conduct formal MMI assessment					
1.3	Plan an individualized MMI program:					
1.3a	Identify when and how MMI will be used with the learner					
1.3b	Plan for and obtain MMI materials					
1.3c	Plan other EBPs to use with MMI					
1.3d	Consider prominent music therapy approaches					
1.4	Discuss program with team members					
1.5	Have materials ready and available					
STEP 2: USING						
2.1	Implement the MMI strategies:					
2.1a	Introduce the materials to the learner					
2.1b	Use other EBPs to support MMI program and promote engagement					
2.2	Use other EBPs to support MMI sessions					
2.3	Promote generalization of learner's target skills					
STEP 3: MONITORING						
3.1	Collect and analyze data					
3.2	Fade prompting and reinforcement					
3.3	Determine next steps based on learner progress					

TIP SHEET FOR PROFESSIONALS

MUSIC-MEDIATED INTERVENTION ...

- An evidence-based practice that uses music as a key feature to address target skills and behaviors of learners on the spectrum
- Used to increase a target goal/behavior/skill and/or to decrease an interfering/inappropriate behavior



WHY USE WITH LEARNERS ON THE SPECTRUM?

- Some learners on the spectrum respond particularly well to music and show greater progress toward goals when music is integrated into their intervention.
- MMI strategies can address core autism symptoms like social communication and interaction or sensory and motor issues in a learner's natural environment.
- Music-based activities are familiar to learners, families, and practitioners and can be implemented with some guidance across settings (Kern, 2019).

INSTRUCTIONAL OUTCOMES:

The evidence-base for Music-Mediated Intervention supports its use to address the following outcomes, according to age range, in the table below:

TIPS:

- Collaborate with a certified music therapist to plan for and use MMI.
- Use other EBPs to support engagement in MMI programming.
- Support learners in generalizing skills learned from MMI across settings.

Age	Adaptive	Behavior	Communication	Motor	Play	School Readiness	Social
0-2	Yes	Yes	Yes	Yes	Yes	Yes	Yes
3-5		Yes	Yes	Yes		Yes	Yes
6-11			Yes				Yes
12-14			Yes				

STEPS FOR IMPLEMENTING:

1. PLAN

- Obtain music therapy degree and certification or collaborate with a certified therapist
- Determine if learner would benefit from MMI
- Plan an individualized MMI program
- Identify additional EBPs
- Discuss plan with team members
- Have materials ready and available

2. USE

- Implement MMI strategies
- Use other EBPs to support MMI sessions
- Promote generalization of learner's target skills

3. MONITOR

- Collect and analyze data
- Fade prompting and reinforcement
- Determine next steps based on learner progress



Music-Mediated Intervention MMI

This sheet was designed as a supplemental resource to provide basic information about Music-Mediated Intervention for professionals working with learners on the spectrum.

For more information about this selected evidence-based practice, please visit <https://afirm.fpg.unc.edu/>.

PARENT'S GUIDE

WHAT IS MMI?

- An evidence-based practice that uses music as a key feature to address target skills and behaviors of learners on the spectrum
- MMI includes music therapy and the planned use of songs, melodic intonation and/or rhythm to support learning. MMI may also include Melodic Based Communication Training and music-based activities that use technology aided instruction practices.
- Used to increase a target goal/behavior/skill and/or to decrease an interfering/inappropriate/challenging behavior



WHY USE THIS MMI WITH MY CHILD?

- MMI can address core autism symptoms like social communication and interaction, sensory and motor issues.
- Learners on the spectrum often find musical activities enjoyable.
- Music-based activities are accessible to diverse learners regardless of abilities, cultural background, or socioeconomic status (Kern, 2019).

WHAT ACTIVITIES CAN I DO AT HOME?

- Listen to music for enjoyment at home.
- Engage in music-making during family and community events (e.g., birthdays, holidays).
- Use digital instruments and music apps on mobile devices.

Music-Mediated Intervention MMI


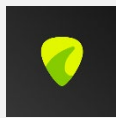
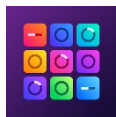

This parent introduction to MMI was designed as a supplemental resource to help answer questions about Music-Mediated Intervention.

To find out more about how this MMI is being used with your child, please talk with:

For more information about this selected evidence-based practice, please visit <https://afirm.fpg.unc.edu/>.

ADDITIONAL RESOURCES

APPS:

	Developer	Name	Available	Pricing
	Kids First Smile: Preschool Toddlers ABC Games Ltd.	<i>Glow Piano</i>	App Store	Free
	Yousician Ltd.	<i>GuitarTuna</i>	App Store Google Play Store	Free
	Easybrain	<i>Groovepad- Music & Beat Maker</i>	App Store Google Play Store	Free
	Musicnotes	<i>Musicnotes – Sheet Music</i>	App Store Google Play Store	Free

BOOKS:

Berger, D. (2016). *Kids, music 'n' autism: Bringing out the music in your child*. Jessica Kingsley Publishers.

Dunn, H., Coombes, E., Maclean, E., Mottram, H., & Nugent, J. (2019). *Music Therapy and Autism Across the Lifespan*. Jessica Kingsley Publishers.

Kern, P., & Humpal, M. (2018). *Early childhood music therapy and autism spectrum disorder: Supporting children and their families (2nd ed.)*. Jessica Kingsley Publishers.

WEBSITES:

American Music Therapy Association (AMTA) <https://www.musictherapy.org/>

Certification Board for Music Therapists (CBMT) <https://www.cbmt.org/>

National Association of Schools of Music <https://nasm.arts-accredit.org/>

World Federation of Music Therapy <https://wfmt.info/>



CEC STANDARDS

INITIAL PRACTICE-BASED STANDARDS FOR EARLY INTERVENTIONISTS/EARLY CHILDHOOD (0-5 YEARS; CEC, 2020)

Standard 4: Assessment Processes

- 4.2 Develop and administer informal assessments and/or select and use valid, reliable formal assessments using evidence-based practices, including technology, in partnership with families and other professionals.
- 4.4 Candidates, in collaboration with families and other team members, use assessment data to determine eligibility, develop child and family-based outcomes/goals, plan for interventions and instruction, and monitor progress to determine efficacy of programming.

Standard 5: Application of Curriculum Frameworks in the Planning of Meaningful Learning Experience

- 5.1 Collaborate with families and other professionals in identifying an evidence-based curriculum addressing developmental and content domains to design and facilitate meaningful and culturally responsive learning experiences that support the unique abilities and needs of all children and families.

Standard 6: Using Responsive and Reciprocal Interactions, Interventions, and Instruction

- 6.1 In partnership with families, identify systematic, responsive, and intentional evidence-based practices and use such practices with fidelity to support young children's learning and development across all developmental and academic content domains.
- 6.3 Candidates engage in ongoing planning and use flexible and embedded instructional and environmental arrangements and appropriate materials to support the use of interactions, interventions, and instruction addressing developmental and academic content domains, which are adapted to meet the needs of each and every child and their family.
- 6.4 Candidates promote young children's social and emotional competence and communication, and proactively plan and implement function-based interventions to prevent and address challenging behaviors.
- 6.6 Candidates use responsive interactions, interventions, and instruction with sufficient intensity and types of support across activities, routines, and environments to promote child learning and development and facilitate access, participation, and engagement in natural environments and inclusive settings.
- 6.7 Candidates plan for, adapt, and improve approaches to interactions, interventions, and instruction based on multiple sources of data across a range of natural environments and inclusive settings.

Standard 7: Professionalism and Ethical Practice

- 7.2 Engage in ongoing reflective practice and access evidence-based information to improve own practices.



INITIAL PRACTICE-BASED STANDARDS FOR (GRADES K-12; CEC, 2020):

Standard 2: Understanding and Addressing Each Individual's Developmental and Learning Needs

- 2.1 Apply understanding of human growth and development to create developmentally appropriate and meaningful learning experiences that address individualized strengths and needs of students with exceptionalities.

Standard 4: Using Assessment to Understand the Learner and the Learning Environment for Data-Based Decision Making

- 4.1 Collaboratively develop, select, administer, analyze, and interpret multiple measures of student learning, behavior, and the classroom environment to evaluate and support classroom and school-based systems of intervention for students with and without exceptionalities.
- 4.3 Assess, collaboratively analyze, interpret, and communicate students' progress toward measurable outcomes using technology as appropriate, to inform both short- and long-term planning, and make ongoing adjustments to instruction.

Standard 5: Supporting Learning Using Effective Instruction

- 5.2 Candidates use effective strategies to promote active student engagement, increase student motivation, increase opportunities to respond, and enhance self-regulation of student learning.
- 5.6 Candidates plan and deliver specialized, individualized instruction that is used to meet the learning needs of each individual.

Standard 6: Supporting Social, Emotional, and Behavioral Growth

- 6.2 Candidates use a range of preventive and responsive practices documented as effective to support individuals' social, emotional, and educational well-being.

Standard 7: Collaborating with Team members

- 7.2 Candidates collaborate, communicate, and coordinate with families, paraprofessionals, and other professionals within the educational setting to assess, plan, and implement effective programs and services that promote progress toward measurable outcomes for individuals with and without exceptionalities and their families.



GLOSSARY

- **Augmentative & Alternative Communication (AAC)** - Interventions using and/or teaching the use of a system of communication that is not verbal/vocal which can be aided (e.g., device, communication book) or unaided (e.g., sign language)
- **Baseline data** - information gathered from multiple sources to better understand the target behavior, before using an intervention or practice; data collected on current performance level prior to implementation of intervention
- **Duration data** - records how long a learner engages in a particular behavior or skill
- **Dynamics** - how loudly or softly music is played
- **Expressive communication** - one's ability to communicate thoughts and feelings through words, gestures, or facial expressions
- **Fade** - to systematically reduce and eventually withdraw the use of stimulus such as a prompt, request, or reinforcer
- **Fidelity** - how well and how often the implementation steps for an evidence-based practice are followed
- **Generalization** - the ability to use learned skills in new and different environments
- **Harmony** - the sounds of two or more musical notes played at the same time
- **Implementation checklist** - the specific steps needed to accurately follow an evidence-based practice.
- **Interfering behavior** - a challenging behavior that interferes with the learner's ability to learn
- **Melody** - the musical combination of pitch and rhythm
- **Modeling (MD)** - Demonstration of a desired target behavior that results in use of the behavior by the learner and that leads to the acquisition of the target behavior.
- **Music-Mediated Intervention (MMI)** - Intervention that incorporates songs, melodic intonation, and/or rhythm to support learning or performance of skills/behaviors. It includes music therapy, as well as other interventions that incorporate music to address target skills.
- **Naturalistic Intervention (NI)** - A collection of techniques and strategies that are embedded in typical activities and/or routines in which the learner participates to naturally promote, support, and encourage target skills/behaviors.
- **Neurodevelopmental Approach** - an approach to music therapy that involves an understanding of the developing brain across all domains (communication, motor, sensory), neurological differences in autism, and how music-based activities may impact that development



- **Nordoff-Robbins Approach** - an approach to music therapy that addresses learner goals by establishing therapeutic relationships through interaction with music
- **Orff-Schulwerk Method** - an approach to music therapy that uses a naturalistic, developmental, and success-oriented music treatment for small groups of learners
- **Parent-Implemented Intervention (PII)** - Parent delivery of an intervention to their child that promotes their social communication or other skills or decreases their behavior that interferes with their safety or learning.
- **Peer-Based Instruction & Intervention (PBII)** - Intervention in which peers directly promote autistic children's social interactions and/or other individual learning goals, or the teacher/ other adult organizes the social context (e.g., play groups, social network groups, recess) and when necessary provides support (e.g., prompts, reinforcement) to the autistic children and their peer to engage in social interactions.
- **Phrasing**- the shaping of a sequence of notes to allow for expression in music
- **Prompting (PP)** - Verbal, gestural, or physical assistance given to learners to support them in acquiring or engaging in a targeted behavior or skill.
- **Prompting hierarchy**- the continuum of prompting used to support a learner in acquiring new skills
- **Reinforcement (R)** - The application of a consequence following a learner's use of a response or skills that increases the likelihood that the learner will use the response/skills in the future.
- **Social Narratives (SN)** - Interventions that describe social situations in order to highlight relevant features of a target behavior or skill and offer examples of appropriate responding.
- **Team members**- includes the parents, other primary caregivers, IEP/IFSP team members, teachers, therapists, early intervention providers, and other professionals involved in providing services for the learner with autism
- **Technology-Aided Instruction & Intervention (TAII)** - Instruction or intervention in which technology is the central feature and the technology is specifically designed or employed to support the learning or performance of a behavior or skill for the learner.
- **Tempo**- the pace or speed at which music is played
- **Video Modeling (VM)** - A video-recorded demonstration of the targeted behavior or skill shown to the learner to assist learning in or engaging in a desired behavior or skill.
- **Visual Supports (VS)** - A visual display that supports the learner engaging in a desired behavior or skills independent of additional prompts.



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