Autism and Music Education: Benefits and Best Practices

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Annotated Bibliography

Standley, J. M. (1996). A Meta-Analysis on the Effects of Music as Reinforcement for Education/Therapy Objectives. Journal of Research in Music Education, 44(2), 105–133. https://doi.org/10.2307/3345665

This study was done in 1995, so the results of it may be less impactful in 2022, however, I found the research to be interesting and insightful. The research is a meta-analysis of studies done regarding using music as a reinforcer for educational or therapeutic goals. In this study only included research in which music is used as a positive reinforcer, not a punishment. This means that students were receiving their typical music education regardless of behavior. In other words, the studies included are referring to additional earned music time. The researchers evaluated 93 different studies of music as a contingency or reward for certain behaviors. They identify the type of student or patient, setting, and researchers. Then, they coded the results to give quantitative data of the mostly qualitative studies. Their analysis of said data points to music being good reinforcer to create positive behavior change. I have personally seen music as a reinforcer in the school settings as well as in therapeutic settings in 2022. This indicates that while this meta-analysis is a little outdated, the content is still relevant. Essentially, students react well to having some sort of musical incentive in the classroom. A teacher could use familiar music, games, or instruments as rewards for completing tasks that are not preferred by students.

Heaton, P., Hermelin, B., & Pring, L. (1998). Autism and Pitch Processing: A Precursor for Savant Musical Ability? Music Perception: An Interdisciplinary Journal, 15(3), 291–305. https://doi.org/10.2307/40285769

This study aimed to find any precursors in autistic individuals that identify musical savant abilities. There are several different types of savant abilities that autistic people can present, though one does not have to be autistic to be a savant, and not all autistic people are savants. The researchers compared the pitch memory skills of a group of autistic children to children with similar cognitive abilities. The hypothesis was that they would find more subjects with absolute pitch ability in musically naïve autistic children than their mental-age matched peers. They rationalized this hypothesis since most savants are autistic and most musical savants have absolute pitch. Additionally, absolute pitch skills are characterized by the presence of labeled, retrievable memory representations for individual pitches, but neurotypical people are likely to blur those pitches in their memory of the "whole picture" experience, and not remember individual pitches or patterns (gestalt). They made the assessment more accessible to the students with autism by using images of animals rather than letters or numbers to represent the pitches and sounds. The study found that while both groups recalled speech sounds equally, the group of students with autism were better at recalling single notes over the course of the entire study. While this was a small group of students, and therefore should not be generalized to the whole population, a music instructor of students with autism could use this information to help with classroom management. For example, it might upset a student with perfect pitch if you change a songs key that they are accustomed to hearing in a different key. Additionally, the study highlights the differences in the gestalt experiences between the neurotypical brain and the autistic brain. It might help to inform instruction of a whole group, where some students will recall big picture ideas and those with disabilities might hold onto smaller details of information.

Adamek, M. S. (2001). Meeting Special Needs in Music Class. Music Educators Journal, 87(4), 23–26. https://doi.org/10.2307/3399720

This article from MEJ gives music educators some ideas and best practices for inclusion in music. The writer addresses different types of disabilities, what their needs might look like, and how a music teacher can adapt instruction to make all their students successful in music. Though this is an older article and some of the terminology is outdated, the advice still resonates. Reading IEPs, communicating with classroom teachers, and adapting for different types of needs is essential for meeting needs of students who require support. This guidance is relevant to this day since more students with varying disabilities are being mainstreamed for music classes. It is essential that music educators make the effort to be a valuable piece of a wholistic education for students who require adaptations and modifications to be successful.

Shore, S. M. (2002). The Language of Music: Working with Children on the Autism Spectrum. The Journal of Education, 183(2), 97–108. http://www.jstor.org/stable/42742477

This article is a retelling of the author's experiences of teaching music to students with autism. The first two sections are specific success stories of two students: one of which was non-verbal, the other a reluctant music student. These students primarily struggled with communication, which the educator had to adjust to by providing visual and kinesthetic ways of interacting with the music materials, rather than verbally discussing content. The author then discusses other cases more broadly, giving the teaching situation and how they solved the problem. Essentially, this article is a resource that provides example after example of how to make music instruction work for students with autism. This article could be used to advocate for starting or continuing inclusive music

education. It provides music educators with different strategies for adapting or modifying music instruction to better reach students with autism.

Whipple, J. (2004). Music in Intervention for Children and Adolescents with Autism: A Meta-analysis. Journal of Music Therapy, 41(2), 90-106. Retrieved from https://proxy.wichita.edu/login?url=https://www.proquest.com/scholarly-journals/music-intervention-children-adolescents-with/docview/223558481/se-2?accountid=15042

This meta-analysis looked at 9 quantitative studies that compared students who received music interventions to those that did not, all of whom have autism. According to the author, all the included studies suggest that music education was effective for students with autism, regardless of purpose for implantation. One drawback of this meta-analysis is that it focused only on students with autism spectrum disorder, meaning that any studies completed with students with diverse diagnoses were not included. There is a possibility that the information produced is not generalizable to the entire population of people with differing needs. Regardless of generalizability, a music educator can use these findings to advocate for inclusion within their program. The prevalence of autism has only gone up since the publication of this article, meaning that these findings are just as relevant to today.

Scott, L. P., Jellison, J. A., Chappell, E. W., & Standridge, A. A. (2007). Talking with Music Teachers about Inclusion: Perceptions, Opinions, and Experiences. Journal of Music Therapy, 44(1), 38-56. Retrieved from https://proxy.wichita.edu/login?url=https://www.proquest.com/scholarly-journals/talking-with-music-teachers-about-inclusion/docview/223549818/se-2?accountid=15042

This research article discusses a qualitative study done through interviews with music educators that represented an array of music instruction types, all of whom had taught within an inclusive environment. The responses were recorded and kept anonymous throughout the report. Their answers were coded to provide a quantitative analysis of their answers. The findings suggested that most of the time music teachers are informed when they will have a student with a disability in their class, however they are not usually a part of creating support systems or IEPs for students, despite wanting to be involved. Many report that it is a matter of logistics, for example not being able to make the meeting times due to a teaching conflict, or not being told with enough time in advance to make plans to attend. Overall, the study suggests that music teachers as of the publication of this article feel positively about inclusion in their schools and receive some support, usually from parents or paraprofessionals. However, it should be noted that the sample size was only around 50 people, about half of which were local to the interviewers. Therefore, they were likely to be in areas that were supportive of arts education and inclusion. As an educator, this article could provide insight into how other schools' function. One could use this article to back up their need for support within their classroom or within the classrooms of an entire music department. Essentially this article suggests that music educators are not alone in the need for support, especially for their students with varying needs.

Bakan, M. B., Koen, B. D., Bakan, M., Kobylarz, F., Morgan, L., Goff, R., & Kahn, S. (2008). Saying Something Else: Improvisation and Music-Play Facilitation in a Medical Ethnomusicology Program for Children on the Autism Spectrum. College Music Symposium, 48, 1–30. http://www.jstor.org/stable/25664805

This article detailing a mixed methods study executed at Florida State University focused on music therapy, primarily free-improvisation, and the benefits of it for people with Autism Spectrum Disorder. Although this research is slightly dated, as one can tell based on certain terminology and data included, the content of the research is innovative. The content is written in a manner that is human, understandable, and personal. The authors make a great effort to make the experiences of those with ASD easier. They recognize individuals with autism as whole and inherently good people. The goal is to provide them with tools to be interactive, social, and musical individuals. The research, in my opinion, is forward thinking, and ultimately points to the many benefits and joys of music-play. The data was taken in several ways, primarily through video observation and through referencing the parents of the children with ASD. The researchers conducted interviews with parents and had them keep journals regarding their experiences. The individual children's needs and reactions to the music-play were very different, but each of their communicative needs were met by the facilitators adjusting to them, what they wanted to do, and what they responded well to. These children were provided with the opportunity to, "say something" in their way. Their environment was not restricted: the possibilities were endless. This article is an informative look into genuine music as therapy. The guidelines that these researchers followed give a great example of free improvisation as communication that teachers should aim to provide, especially for students with communication disorders like autism. It also provides stories of first-person accounts about the benefits of music performance as therapy which is the best way to advocate for music education. It humanizes the experience of autism. An educator could use this article to advocate for starting a music therapy or education program in their schools,

especially for students who have little to no communication skills. It also allowed for stress relief and connection to one another for these students who struggle with making any sort of connection with other humans. It could become the foundation of a non-communicative persons life and education if implemented correctly.

Carnahan, C., Musti-Rao, S., & Bailey, J. (2009). Promoting Active Engagement in Small Group Learning Experiences for Students with Autism and Significant Learning Needs. Education and Treatment of Children, 32(1), 37–61. http://www.jstor.org/stable/42900006

The purpose of this research was to examine the effects of visual materials when paired with music on engagement of students with autism in small group learning. Researchers also wanted to examine how the teachers use visual and aural materials to enhance the student learning experience and if that affects attentive behaviors. The students were all in the same small resource classroom for the study, not mainstreamed. The children in this classroom had very little literacy skills. None of them were verbal beyond short utterances; 3-word phrases maximum for the most communicative child. Therefore, working on sight words was already a difficult task, but was the main area of the study. Only the teacher was in the room at the time of the study since the goal was to increase student engagement without increasing the number of people in the classroom at a time. The evidence suggests that engagement increased when the teacher used interactive materials combined with music. However, when music wasn't used, some of the students in the class demonstrated lower engagement than when there was no materials or music. The teacher also felt more satisfied with the lessons done during the intervention. It was useful for their classroom and relatively easy to implement. The more ways for a student

to interact with material they better they will engage with instruction and the likelihood they will recall the information is higher. However, this study is limited. There was a limited number of students and therefore should not be generalized for the whole population. Additionally, the intervention described is just good teaching. It provides several modes of interacting with educational materials and should've been in place already. As an educator this article serves as a reminder to provide multiple modalities for instruction. This doesn't need to just be with students who have varying needs. Providing visual, aural, and kinesthetic ways of interacting with material is wholistic teaching. This article provides clear evidence that teaching that way works well and will reach all kinds of students.

Hourigan, R., & Hourigan, A. (2009). Teaching Music to Children with Autism: Understandings and Perspectives. Music Educators Journal, 96(1), 40–45. http://www.jstor.org/stable/40666383

This article is the predecessor of another article by Hourigan and Hammel titled, "Understanding the Mind of a Student with Autism in Music Class" which will be discussed later. This article is intended for music educators who feel unprepared to teach students on the autism spectrum, especially considering that they will be doing so alone. They define autism spectrum disorder and then offer strategies to address communication and behaviors in the music classroom. At the time the article was written, the isolated autism classroom was becoming the norm in public schools which meant music teachers would also have to adapt to teach said group of students. Though the data concerning the prevalence of autism and the possible diagnoses have changed since the publication of this article, however, the recommendations for adaptations and modifications are still

relevant. They make several recommendations such as using a picture schedule for classroom procedures, the PECS communication systems for students to make choices or answer questions, and visuals paired with aural materials. These are methods of communication as well as teaching strategies that music educators can employ with all their students, not just those with autism or other disabilities.

Allen, R., & Heaton, P. (2010). Autism, Music, and the Therapeutic Potential of Music in Alexithymia. Music Perception: An Interdisciplinary Journal, 27(4), 251–261. https://doi.org/10.1525/mp.2010.27.4.251

This article is a lengthy review of literature and recommendations for music as a therapy based on said literature. The authors discuss available research on the causes and genetics of autism, and then focuses on the correlation between autism and Alexithymia, a disorder of emotion processing and understanding, stating that as much as 85% of the Autism population has Alexithymia. However, consideration must be taken that sometimes individuals with autism are diagnosed with Alexithymia, but they later find that they do not have the later disorder. Rather, the individual is really experiencing an issue with communication and vocabulary. It isn't that the individual does not comprehend emotions, they simply do not know the words, they don't have the ability to verbally communicate those words or cannot recall the words when asked. Therefore, the issue is not with expression of emotion, rather with communication of emotion. After discussing music cognition and autism, the role of music in the lives of people with autism, the connections between music and emotion, the authors discuss music applications for individuals with autism and or alexithymia. They recommend assigning tangible characteristics, like colors, tastes, smells, items, or other language that helps

individuals make connections to emotion through music. They conclude their review of literature by indicating that music can be a powerful tool for the induction of fundamental emotion under controlled and safe conditions for people with autism. This review of literature into therapy recommendation is useful as an educator. It is a reminder to connect material to the individuals in the classroom, especially when working with kids who have differing needs. Giving more tangible examples will provide meaning when emotion words do not carry typical meaning. It provides yet another reason to include visual, kinesthetic, and aural representations of the materials at hand.

Brown, Laura S,PhD., M.T.-B.C., & Jellison, Judith A,PhD., R.M.T. (2012). Music research with children and youth with disabilities and typically developing peers: A systematic review. Journal of Music Therapy, 49(3), 335-64. Retrieved from https://proxy.wichita.edu/login?url=https://www.proquest.com/scholarly-journals/music-research-with-children-youth-disabilities/docview/1181173604/se-2?accountid=15042

This meta-analysis is a follow up to an earlier analysis of research by one of the authors. The writers found 45 articles that met their criteria for inclusion and coded the data to give the mostly qualitative experimental research quantitative data. They found an increase of experimental studies; most of which concluded some degree of success. The type of participants was focused in, primarily on individuals with autism. Like in other reviews, it was found that high incidence disabilities, like learning disabilities, were underrepresented. The implications of these findings mean that there are fewer ways to back up the best practices of teaching those with high incidence disabilities. This article directs music educators to other research articles and suggests ideas for teaching students with more severe needs, which is especially helpful for students in self-contained classes.

Kopec, J., Hillier, A., & Frye, A. (2014). The Valency of Music Has Different Effects on the Emotional Responses of Those with Autism Spectrum Disorders and a Comparison Group. Music Perception: An Interdisciplinary Journal, 31(5), 436–443. https://doi.org/10.1525/mp.2014.31.5.436

In this study, researchers compared the perceived and felt emotions from music of participants with autism spectrum disorder to a group of typically developing people. They predicted that those with Autism would have a flattened emotional response compared to the control group in both the perceived emotions of music and the felt emotions. Another prediction was that the people with Autism would differ in their ratings of perceived emotion to the felt emotions. Both areas of the hypothesis were not entirely supported by the findings. The research suggests that in terms of positive emotions those with autism perceived and felt approximately the same as their typical peers. The only category in which the hypothesis was slightly supported was the perceived and felt category of negative emotions. The findings suggest that those with Autism experience negative emotions in music less significantly than their typically developing peers. While this study was conducted in a way to exclude as much bias as possible, this study was conducted with an ableist viewpoint- expecting those with Autism to not achieve understanding of emotion. The researchers never defined the emotion words for those on the spectrum, which might have contributed to the difference between the two groups. Lack of knowledge of the words does not equal lack of ability to perceive the emotion. However, the way of collecting data, which was a Likert-Type scale of all 8 feeling words, plus the familiarity and liking categories, might have eliminated some of that confusion since the participants could shape their answers based

on words they already understood. As an educator, this study could inform how one approaches teaching meaning of music to students on the spectrum. Music educators should be aware that they might have to be more specific in describing the emotional quality of the music since abstractly discussing emotion, especially negative ones, might not be comprehended by those on the spectrum. An educator might need to tap into what the students already understand regarding emotions, perhaps based on preferred items or topics of interest, and make connections to the music through them to induce a performance with more musicality.

VanWeelden, K., & Whipple, J. (2014). Music Educators' Perceived Effectiveness of Inclusion. Journal of Research in Music Education, 62(2), 148–160. http://www.jstor.org/stable/43900241

This research is based on an older study done in 1990 by Gfeller, Darrow, and Hedden which intended to identify music educators perceived effectiveness in terms of inclusion, curriculum adaptations or modifications, and student achievement. The survey was essentially repeated by Vanweelden and Whipple in 2014 to identify if teacher's perspectives had shifted since there had been several education laws passed and reforms initiated since the original study. Of the 5,000 music educators sent the survey, 1,194 answered. The teachers represented all 50 states, and all school sizes, community settings, student socioeconomic statuses, and years of teaching experience. The sample size was well rounded. Of those who answered, 99%, indicated that all students with special needs took music classes or could elect to take them. The survey suggested that music educators in 2014 felt more equipped to be inclusive within their music classroom. Additionally, they indicated that they were prepared to accommodate students with

different needs and that neurotypical students were not hindered by having inclusive music classes. Essentially, this research suggests that teachers feel better equipped to be inclusive in the music classroom and that generally speaking students are better included in music education than they were in the 1990s. Teachers today should take the information from this article and reflect on their own teaching. They should assess where they fall in comparison to colleagues, consider if they should seek out more information about teaching students with varying needs, and decide if they are true advocates for their program and for their students with disabilities. Basically, this article should provide some relief or inspire action to adjust their inclusion strategies and ask for support from their child study team, principal, and guidance counselors, if needed.

Jellison, J. A., & Draper, E. A. (2015). Music Research in Inclusive School Settings: 1975 to 2013. Journal of Research in Music Education, 62(4), 325–331. http://www.jstor.org/stable/43900262

This meta-analysis examines research in inclusive music settings between 1975 and 2013. The author found 22 experimental studies that can be coded to provide numeric data. The findings were limited since there was little research to begin with. The most profound findings were that all the studies were done at the preschool or elementary level, and that few measured music knowledge, though the context was intended to be research regarding music education. Studies also focused on people with disabilities, but not populations with high incidence, like learning disabilities. Rather the studies focus on autism and intellectual disabilities. The research from the 22 articles suggests that music interventions in inclusive preschool settings create positive outcomes in the areas of reading and literacy for children who do not have disabilities. However, no summative

statements can be made regarding music learning outcomes. They suggest further research by expanding current research models to measure music learning, as well as develop research in for secondary school situations. Music educators could use the findings of this meta-analysis to support some cross curricular benefits. Additionally, the guidance and suggestions could support music educator's endeavors to conduct research in their classrooms.

Thompson, W. F., & Schlaug, G. (2015). The Healing Power of Music. Scientific American Mind, 26(2), 32–42. https://www.jstor.org/stable/24946494

This article is a collection of stories and research regarding the use of music as medicine. The author discusses story of a young girl who had a massive stoke and couldn't speak, but she could sing. Through a specific music therapy called melodic intonation therapy, the young girl learned to use her undamaged brain regions to regain speech. Essentially, she recovered her ability to speak by using the attributes of music that are closely linked to language, such as rhythm, and tempo. She also experienced the many social and emotional benefits that come with studying music. The author argues that music helps to rewire the brain post injury, or to form and reinforce neuropathways in individuals who have neurological disorders. The structure of the article is simple and understandable to the average person: no need to be a musician or neuroscientist to understand. The bottom line is that while music therapy research is limited it is obvious to this writer that there are benefits. This article would be great supportive evidence for introducing a music therapy program, especially to students with cognitive impairments. In addition, it would be a great advocacy tool in the event a music program is potentially being cut from the

school's budget since it highlights the cross curricular and social benefits of music education.

Polischuk, D. K. (2016). Autism Spectrum Disorder Research And Its Implications For Music Teachers. American Music Teacher, 66(1), 15–18. https://www.jstor.org/stable/26386011

This article specifically discuses High-Functioning Autism, research, and what it means for music educators. The discussion begins by discussing research and how to design instruction based on said research. The author recommends one-to-one private instruction for those with high functioning autism since that is the environment that they will succeed best in since social situations, loud areas, and surprises can all be difficult for a person with autism to deal with. Then the author discusses Applied Behavior Analysis and Discrete Trial training as a teaching strategy. The suggestion is to break down content to the smallest possible format for learning. The next suggestions is the Treatment and Education of Autistic and related Communication-Handicapped Children (TEACCH) program. This program relies on building instruction of off existing skills or memories of individuals with autism. They suggest a structured classroom environment, visual schedules for lessons and transitions, discussion of the type of instruction students will participate in and providing visual and aural directions. The following recommendation is for a mentor program in which a peer is working directly with the individual with autism on writing. Finally, scaffolding and sequencing of instruction is the last recommendation. This is to help students take the detailed information that they are likely to recall and bring it into global understanding of a concept. This article provides helpful teaching strategies that are detailed enough for understanding as an

educator but broad enough that they can be applied to any kind of music teaching. While some of it seems obvious it serves as a reminder of positive teaching strategies for any student, not just those with autism. It is important to note that the labeling of, "high-functioning autism", which is used throughout the article, is considered outdated since individuals with autism have varying levels of intelligences just like neurotypical people. However, those variances can be vast, causing these labels to be meaningless because an individual can be high functioning in one area but low functioning in another.

Spiro, N., & Himberg, T. (2016). Analyzing change in music therapy interactions of children with communication difficulties. Philosophical Transactions: Biological Sciences, 371(1693), 1–11. http://www.jstor.org/stable/24768735

This research sought to identify what aspects of music therapy cause a person to have an increase in communication abilities. According to prior research there is a correlation between learning music and verbal communication abilities, however the authors of this article are concerned with the cause of those correlations. The group they studied was quite small; only 5 pairs of therapists and clients. The results suggest that when music therapists start their program with simple behaviors like shared rhythmic pulse and facing one another that those aspects of interaction can build the framework to improve communication. Though the sample size of this article is small, it does provide enough information to advocate for students with communication deficits to still participate in music. If anything, it would be a convincing article to help persuade teachers, parents, and maybe even students to try to participate in music.

Hourigan, R. M., & Hammel, A. M. (2017). Understanding the Mind of a Student with Autism in Music Class. Music Educators Journal, 104(2), 21–26. https://www.jstor.org/stable/26588614

This article is a discussion of the Theory of Mind, which divides the functions of the brain into key parts and identifies how they can be affected by autism. Then, the author gives examples of how those differences may present themselves in a student with autism in the context of a music classroom. Finally, the article gives recommendations for adapting music instruction for students that are having issues navigating music class content due to their disability. The bottom line for teaching students with autism, according to this article, is to adjust the environment for learning so that students with autism don't have to navigate cognitive disruptions on their own. The article makes several recommendations, such as having less distractions hanging on the walls of the classroom, providing visuals, and giving directions to students via video recording and modeling. As an educator these tips and tricks are valuable suggestions. This article will be something to reference when teaching students who are continually having difficulties in music class.

Nelson, C., Paul, K., Johnston, S. S., & Kidder, J. E. (2017). Use of a Creative Dance Intervention Package to Increase Social Engagement and Play Complexity of Young Children with Autism Spectrum Disorder. Education and Training in Autism and Developmental Disabilities, 52(2), 170–185. https://www.jstor.org/stable/26420388

This study examined the effects of a teaching strategy with students who are on the autism spectrum. Teachers utilized preferred items in their teaching by having the toys available in the learning centers, followed by a creative dance activity. They also used the

toys as a foundation to build social interactions, and then further develop more complex play abilities. This study used a multiple-baseline design since each of the students had their own individual preferred toys, willingness to participate, and existing social and dance skills. They evidence suggests that the strategy is a successful way to increase social play, specific social play levels, and play complexity. Since the dance curriculum was student based and improvisatory in nature, the concepts could be transferred into the music classroom. The recommendations can be implemented easily in the music classroom by allowing students to explore their own interests and building music content off them. For example, one student's hyper focus might be dog or have a favorite stuffed animal that is a dog. A teacher could provide social opportunities to discuss what the students all like about dogs, if they have a dog at home, what their name is, and then the class could potentially learn the song, "bingo" along with the unit.

Sharda, M., Tuerk, C., Chowdhury, R., Jamey, K., Foster, N., Custo-Blanch, M., Tan, M., Nadig, A., & Hyde, K. (2018). Music improves social communication and auditory-motor connectivity in children with autism. Translational psychiatry, 8(1), 231. https://doi.org/10.1038/s41398-018-0287-3

This experimental research study divides a group of 51 children with autism. Half of them received an 8–12-week music course based in improvisation with the goal of improving social communication and behaviors. The other group was enrolled in a typical intervention for social and communication behaviors. The findings suggest that the music group had more success in communication which was correlated to the changes in brain connectivity found in the group. This article suggests further research into the neurobiology of people with autism and how music interventions work and could benefit

them. This article is a great find since it can be used as advocacy material to support keeping students with disabilities, particularly autism, participating in music. Additionally, this material suggests the same benefits, and therefore can be advocacy material for neurotypical students' participation in music. The typical brain, like those on the spectrum, creates new neural pathways and connections when individuals participate in music education. They can also benefit from the social and emotional impacts of participation in music education.