

ผลของดนตรีบำบัดแบบผสมผสานต่อทักษะความใส่ใจของเด็กที่มีภาวะออทิซึม: การวิจัยกรณีศึกษาเดียว

เปรียบแก้ว สุขุมาลจันทร์¹ นีอร เตรตันชัย² และนัทธี เชียงชนะ^{3,*}

^{1,2}วิทยาลัยดุริยางคศิลป์, มหาวิทยาลัยมหิดล

* ผู้ประพันธ์บรรณกิจ อีเมล: natee.che@mahidol.ac.th

วันที่รับต้นฉบับบทความ: 11 กุมภาพันธ์ 2566

วันที่แก้ไขปรับปรุงบทความ: 08 มิถุนายน 2566

วันที่ตอบรับตีพิมพ์บทความ: 25 กรกฎาคม 2566

บทคัดย่อ

การวิจัยนี้มีวัตถุประสงค์เพื่อศึกษาประสิทธิผลของดนตรีบำบัดแบบผสมผสานที่มีต่อทักษะความใส่ใจในเด็กที่มีภาวะออทิซึม โดยใช้ระเบียบวิธีวิจัยกรณีศึกษาเดียวรูปแบบ ABAB ผู้เข้าร่วมวิจัย คือ เด็กที่มีภาวะออทิซึมเพศชาย อายุ 5 ปี และบิดามารดาของเด็ก ซึ่งเข้ารับกิจกรรมดนตรีบำบัด ทั้งรูปแบบ Onsite และ Online รวมทั้งสิ้น 8 ครั้ง กิจกรรมดนตรีบำบัดประกอบด้วย การร้องเพลง การเล่นเครื่องดนตรี การเคลื่อนไหวตามดนตรี และการเล่นเกมดนตรี เครื่องมือที่ใช้ในการวิจัยได้แก่ แบบประเมินดนตรีบำบัดรายบุคคล (IMTAP) ด้านทักษะความใส่ใจ และแบบสัมภาษณ์ผู้ปกครอง โดยวิเคราะห์ข้อมูลทักษะการใส่ใจด้วยการวิเคราะห์กราฟ และวิเคราะห์ข้อมูลจากการสัมภาษณ์ผู้ปกครองด้วยวิธีการวิเคราะห์เชิงคุณภาพ ผลการวิจัย พบว่า ในช่วงระยะเส้นฐาน (A1) ค่าเฉลี่ยของทักษะความใส่ใจของเด็ก มีค่าเฉลี่ยเท่ากับ 44 ต่อมาในระยะกิจกรรมดนตรีบำบัด (B1) มีค่าเฉลี่ยเพิ่มมากขึ้นถึง 92 จากนั้นเมื่อเก็บข้อมูลทักษะความใส่ใจ ในระยะเส้นฐาน (A2) อีกครั้ง พบว่า เด็กมีค่าเฉลี่ยทักษะความใส่ใจลดลงเท่ากับ 61 และกลับมาเพิ่มขึ้นในระยะกิจกรรมดนตรีบำบัด (B2) โดยมีค่าเฉลี่ยเท่ากับ 94 ผลการวิจัยสรุปว่า กิจกรรมดนตรีบำบัดในรูปแบบผสมผสานมีประสิทธิภาพต่อการส่งเสริมทักษะความใส่ใจในเด็กที่มีภาวะออทิซึม

คำสำคัญ: ดนตรีบำบัดแบบผสมผสาน ทักษะความใส่ใจ ภาวะออทิซึม

The Effects of Hybrid-Music Therapy Intervention on Attention Skills in a Child with Autism with Spectrum Disorder: A Single – Case Study

Preabkaew Sukumalchantra¹, Ni-on Tayrattanachai², and Natee Chiengchana^{3,*}

^{1,2,3}College of Music, Mahidol University

*Corresponding Author, Email: natee.che@mahidol.ac.th

Received: *February 11, 2023*

Revised: *June 08, 2023*

Accepted: *July 25, 2023*

Abstract

The purpose of this study was to investigate the effectiveness of hybrid-music therapy intervention on attention skills in a child with autism spectrum disorder (ASD). This study employed an ABAB single-case design. Participants were the five-year-old boy with autism and his parents. He received music therapy activities both onsite and online for a total of eight times. Music therapy activities consisted of singing, playing musical instruments, movement according to music and playing music-related games. The tools that were used in this study were the Music Therapy Individual Assessment Scale (IMTAP) on attention skills and parents interview form. Attention skills data were analyzed by visual analysis and interview data were analyzed by inductive analysis for qualitative data. The results showed that the mean scores of attention skills were 44 during the baseline phase (A1). Later in the music therapy activities phase (B1) the mean score increased to 92. Then when the attention skills data were collected in the baseline phase (A2) again, the mean score of attention skills decreased by 61 and increased to 94 in the music therapy activities phase (B2). The results concluded that hybrid-music therapy interventions were effective for promoting attention skills in children with autism.

Keywords: Hybrid-Music Therapy, Attention Skills, Autism Spectrum Disorder

Background of the study

Currently, children with special needs are becoming more prevalent, particularly those with Autism Spectrum Disorder (ASD). ASD is a neurodevelopmental disorder. The social communication, social interaction, socio-emotional reciprocity, language, speech, weak or no eye contact, and the development, maintenance, and understanding of relationships are all deficits in people with ASD. ASD is characterized by chronic deficiencies in social communication that is reciprocal, in nonverbal communication behaviors that are used for social engagement, and in relationship building, relationship maintenance, and relationship comprehension (Criterion A). Additionally, ASD also restricts repetitive behaviors, interests, or activities like hand flapping or finger flicking (Criterion B) (American Psychiatric Association, 2013).

Furthermore, individuals with ASD prefer rigid schedules, insistence on doing things the same way, and resistance to changing behavior pattern. However, ASD is not a progressive illness, but it is typical for ASD people to continue learning and making adaptations throughout their life (American Psychiatric Association, 2013).

In the study conducted by Finnigan and Starr (2010) which aimed to promote social responsive behaviors in a preschool girl with ASD shown that music intervention was more effective than non-music intervention. Moreover, no avoidant actions were seen during the music situation in the same study. Another study by Kasuya-Ueba et al. (2020) examined thirty-five children in aged six to nine years and demonstrated significant improvements in attention through a single 30-minute interactive music intervention compared to a single 30-minute interactive video game intervention. Furthermore, Wolfe and Noguchi's (2009) conducted a study involving a group of kindergarten students to investigate the impact of music on preschoolers' ability to pay attention over time. The finding revealed that those who listened to musical stories performed significantly better under distraction compared to those who listened to spoken stories.

In this study, attention referred to interpersonal attention abilities that fall under the social domain of The Individualized Music Therapy Assessment Profile. These interpersonal attention skills include the following: (1) sustain activity-length attention span, (2) demonstrates sustained attention to therapist/ parents, (3) Return to activity after distraction with prompts, and (4) Return to activity after distraction without prompts (Baxter et al., 2007).

A musical cue may efficiently grab children's attention, give them more precise cue information, or help them interpret cues more precisely (Yoo, 2003). Participants' ability to display attentive behavior in a group learning setting was positively influenced by music (Robb, 2003).

Young children with ASD can benefit greatly from music therapy in diverse skills. Numerous studies have examined the usefulness of music therapy for young ASD children (Pasiali et al., 2014; Whipple, 2012), including improving the attention abilities. Children with ASD require simultaneously improve their attention abilities as well as their social skills (Lagasse et al., 2019; Shultz & Jones, 2015). Music therapy helped children with ASD develop

necessary abilities (Vismara, 2006) such as attention skills by motivating the children with ASD to pay attention or interact with others during the therapy.

Music experience serves as a social activity that provides practice in relating to others (Gfeller, 2008; Koelsch, 2013; Sears, 1996). The musical elements play a crucial role in the effectiveness of therapy. Music offers a variety of sensory stimulation that is employed by an individual or a group for therapeutic (Hanson-Abromeit, 2015). Children often react to music by moving or dancing. Music is tactile, auditory, and visual. Through music, children can become more sensitive, skilled, and appreciative of their environments (Schwartz, 2008).

Music therapy is the clinical and research-based application of musical treatments to reach particular objectives in a therapeutic setting by a qualified professional who has successfully completed an accredited music therapy curriculum. According to the American Music Therapy Association (AMTA), music can improve communication, ease the expression of feelings, promote wellbeing, and reduce stress (American Music Therapy Association, 2011). Children with a variety of conditions benefit from music therapy as an intervention. When dealing with children who have impairments, goals and objectives are always adjusted to take into account the strengths and weaknesses that each child is currently displaying as well as his or her particular personality (Wigram et al., 2002). As a joyful and fulfilling activity that inspires both clients and therapists, music can serve as an appealing mediating object for kids with ASD. Therefore, children with ASD can employ music therapy strategies to improve their language and communication abilities, social skills, cognitive skills, and behavioral issues (Adamek & Darrow, 2005). Successful music therapy participation enables improved social interaction and reciprocal attention to a shared stimulus (Arezina, 2011).

Due to the Coronavirus Disease 2019 (COVID-19) pandemic's widespread use of telehealth, music therapists have learnt to rely on families' involvement and participation to model behaviors, provide hands-on support, and provide resources while the music therapists and the family are in different locations (Whelan & Bolton, 2021). In response to government measures like lockdowns, stay-at-home directives, quarantine regulations, and social seclusion during the COVID-19 pandemic, a lot of early childhood music therapists switched right away to telehealth in order to continue helping and supporting young children and their families (Devlin, 2022; Kern & Furman, 2021; Knott & Block, 2020; Poole et al., 2020).

This study contributed to hybrid music therapy, which combines in-person, synchronous, and asynchronous music therapy interventions with parental collaboration for ongoing support of a child with ASD's attention skills during an epidemic. Accordance with UNESCO's recommendation that hybrid learning is suitable for enhancing the educational experience of students and maintaining continuity learning during pandemic situations (UNESCO, 2020).

Based on the concept of music therapy as the scientific application of music to meet therapeutic goals, the behavioral approach to music therapy utilizes music to address behavioral issues. Music and the therapist's own personality work together to encourage behavioral changes. The behavioral approach to music therapy is founded on principles of learning and concentrates on evaluation and remedial programs that are based on behavior

management in the environment. Answers have clear consequences that are arranged according to the principles of reinforcement to change behavior (Madsen et al., 1968). In conclusion, for hybrid-music therapy in this study, the researcher used suitable technique from behavioral approach to promote attention skills in a child with ASD both online and in-person interventions. Music will be used as a cue, as a structure for timing and body movement, as a point of concentration, and as a reward.

Finally, by adapting music therapy interventions throughout the pandemic, music therapists can employ more therapeutic strategies to support and encourage children with ASD, building their resilience during and after the current health crisis.

Purpose of the study

The purpose of this study was to investigate the effectiveness of hybrid-music therapy intervention on attention skills in a child with ASD.

Conceptual Framework

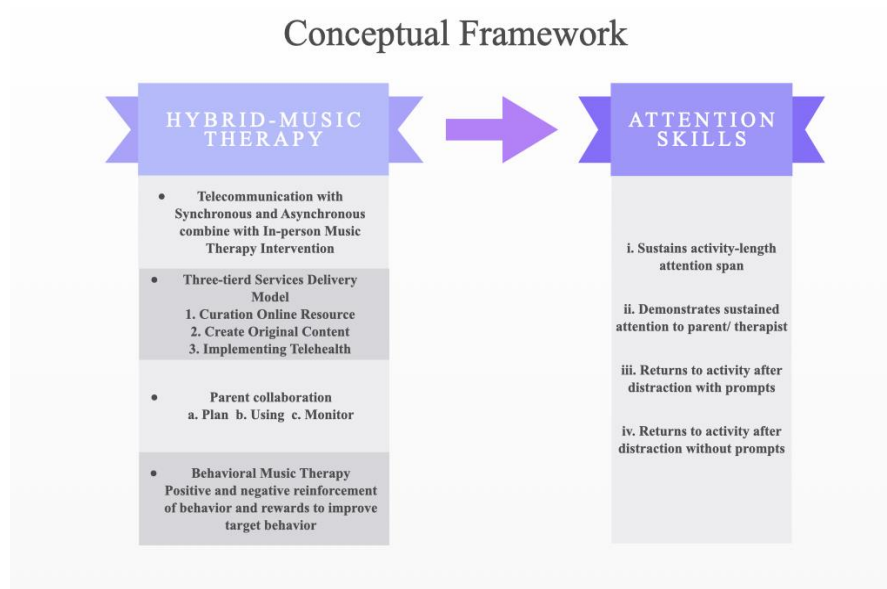


Figure 1 Conceptual framework

Methodology

This study is a part of a Master's thesis, College of Music, Mahidol University and received ethical approval from The Committee for Research Ethic (Social Sciences), Faculty of Social Sciences and Humanities, Mahidol University [MUSSIRB No.2022/091 (B1)]. ABAB Single-case designs was employed to investigate the effectiveness of the hybrid music therapy intervention on attention skills in a child with ASD. A withdrawal design known as an ABAB design compares baseline performance or the initial condition (A) with the intervention or experimental condition (B), then returns to the original condition (A), followed by a return to the second condition (B) (Jones & Brown, 2016; Kern, 2005).

Participants

There were two types of participants.

1. A child with ASD: A five-year-old boy who was diagnosed with autism spectrum disorder by a psychiatrist. He was a single child who had a severity level 1 or “requiring support” (American Psychiatric Association, 2013). He went to school and studied with his same age peers in preschool. He could read and communicated verbally. He can move by his both gross and fine motor in a manner that almost like normally. A child shown a lack of attention skills and he had never participated in a music therapy program before.

2. The parent: This study included both the child's mother and father. The mother and father attended every session on both phases. The purpose was that parents can encourage a variety of abilities in preschoolers including social, communication, joint attention, and play skills (Autism Focused Intervention Resources & Modules, 2017). They had basic knowledge to use telecommunications technologies and also had ability to access the internet as well as had the tools or any devices and had been at least two SARS-Cov-2 vaccinated.

Dependent Measures

The Individualized Music Therapy Assessment Profile (IMTAP) was created in response to the needs of a music therapy clinic that treated children and adolescents with a variety of problems. Each component of IMTAP can be utilized independently, and users can decide whether to just evaluate one domain. IMTAP can be utilized in a variety of contexts, including as a research methodology (Baxter et al., 2007).

In this study, attention skills in the social domain of IMTAP was used to examine the child's attention skills, including 1) sustaining activity-length attention span, 2) demonstrating sustained attention to therapist/parents, 3) returning to activity after distraction with prompts, and 4) return to activity after distraction without prompts.

The IMTAP quantification module converted attention skills into a percentage for this study's more precise numerical values. The IMTAP quantification module, which uses the observation of a single skill to give statistical data, is available for data gathering in research and supplements the normal NRIC scoring system. The researcher alternated between viewing and capturing data during the quantification procedure, producing a repeatable numerical score. In this study, the researcher used video recordings to gather data from both phases, repeating observations at least three times every session before noting them on tally sheet

Interview

Parents were interviewed by the researcher before the first session and after the last session, using an interview form that was modified by the researcher to be consistent with the study's unique purpose.

Baseline data collection (A)

Within a week, the researcher collected data online and from video recordings made using the Zoom program. After dinner, at 5.30 p.m., the commencement time began. Each session lasted 20 minutes and had steps by following:

The child was not given music therapy treatment. The parent and child will conduct routine home activities. The activity was captured on video via the Zoom application. The

researcher studied a videotape of the session in order to notice the attention skills activities that took place. Then also indicated the percentage scores on the IMTAP Social-attention domain form and recorded the behavior of the child on an observation note.

Music therapy intervention (B)

Music therapy intervention in this study was based on Behavioral Music Therapy, Three-Tiered Service Delivery Model, and Parent collaboration. Music influences behavior in a scientific way. Music therapists used music as a cue, as a time and body movement structure, as a focus of attention, and as a reward (Madsen et al., 1968). The child participated in a musical intervention by singing, playing, dancing, or responding either vocally or nonverbally (Adamek & Darrow, 2018). Attention demonstrated and social engagement occurred through improvisational music making (Kim et al., 2008). The "Stop and Start musical game" promoted self-confidence in children and increased awareness and attention (Woodward, 2004). Parents encouraged the child by singing along, playing an instrument, and working with the music therapist to get back to the activities. A pleasant and energetic environment was established in the room through movement and musical activities. In the view of the current pandemic crisis, parent coaching may be a useful addition to a music therapist's toolkit. Many telemedicine programs require that parents participate in sessions (Hernandez-Ruiz & Braden, 2021). The COVID-19 epidemic has made the use of technology for therapy delivery even more crucial because social distance restrictions have reduced the likelihood of in-person therapeutic contacts (Soares et al., 2021). Hybrid-music therapy interventions were appropriate to maintain the promotion of attention skills in an ASD child for both online and in-person sessions.

The child and parents attended hybrid-music therapy twice a week (20-30 minutes per session) which divided into 2 consecutive onsite sessions follow by two consecutive online sessions for a total of 8 music therapy sessions. The researcher was the music therapist.

Before starting music intervention phase, the researcher determined the child's background through discussions with the parents and information from the interview with the parents. A treatment or session plans were made using the information from the interview form. Additionally, the researcher produced original visual aids and digital resources for both synchronous and asynchronous music experiences. The researcher sent digital materials by online platforms and gave musical instruments by package delivery. After that, the researcher instructed and taught the parents online in the usage of basic music practice techniques and resources in each session plan.

For onsite session: After taking the COVID-19 antigen test kits and sent negative result to parents, the music therapist went to the participants residence. The researcher brought cleaned and sterilized musical instruments to provide music experience. To gather information during the music intervention, a video was taken. The music activities were divided to three parts as following:

1) Making the therapeutic relationship and prepare for treatment by singing or playing instruments in greeting song which was composed by inserting the child's name into lyrics.

2) Encouraged attention skills by singing, playing musical instruments, movement with music, playing music game. Favorite songs or familiar songs were used in every activity. Music therapist prepared lyrics sheet, music instruments, color noted sheet and other materials for each session. The music and non music materials were age appropriate, clean and safe for the child. Parents participated together with both father and mother in every music activities.

3) Farewell songs, for preparation to transfer to other daily activities.

For Online session: With Zoom application, to gather information during the music intervention, a video was taken. The music activities were divided to three parts as above. Music activities included greeting, singing, playing musical instruments, playing music game, and farewell song were performed through Zoom application. Music therapist created online visual aides such as sheet music or musical game. Parents participated together with both father and mother in every music activities.

According to Baxter et al. (2007), recorded or live sessions may be observed for data collection. Other their suggestion was data should be simultaneously obtained from a second reliability observer if live sessions are being watched. However, for this study which was during the epidemic situation, the researcher observed data from video recordings instead of live session and repeated video recordings observations at least three times per session before being noted on tally sheets of the IMTAP quantification module. These stages were used to fit the research subject especially while social distancing in an epidemic situation was required and forwarding video clips on line to other observer may lead to data leakage.

The researcher provided feedback after hearing the parents' reflections. The researcher encouraged families to incorporate music activities into their child's daily routine at home, using digital materials like pre-recorded tracks by music therapists. The researcher also determined on the subsequent stages of intervention based on the child's development.

Data Analysis

1. Visual analysis

Monitoring and assessing the impact of the intervention is accomplished by graphing the data (Engel & Schutt, 2017). In this study, the effect of the treatment condition on the child was determined via visual analysis under comparison of baseline and intervention phases. The researcher evaluated the trends, variance, and average of attention skills from the 4 characteristic of attention skills as well as analyzed of attention skills demonstrated in each session by studying at how desired behavior has occurred, how promptly effects are noticed, how attention skills remain up over time, and how data from baseline and intervention phases overlap

2. Interview data analysis

According to Patton (2006), learning more about people's experiences, perceptions, opinions, sentiments, and knowledge, open-ended questions and probes are utilized in interviews. In this study, the researcher employed interview method to compare the child's behaviors related to attention skills on pre and post interventions. The mother provided the

information for the interview. The interview took about 30 minutes per time and took place at the participant's home. The researcher utilized the same interview form for collecting data.

Results

1. Result of visual analysis

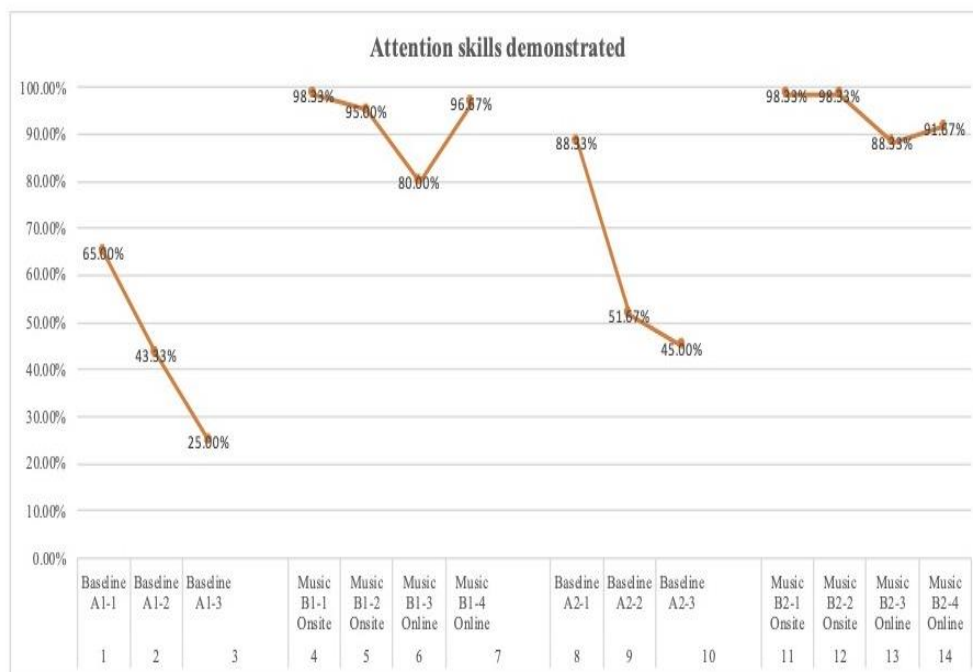


Figure 2 Attention skills demonstrated

The session's mean score (\bar{X}) of the first baseline phase (A1), which measures attention skills, was 44.4. (out of 100). Baseline sessions 1-3 had a mean score decline from 65.0 to 25.0 gradually. The average mean score for the first phase of musical interventions (B1) was 92.5. (B1-onsite was 96.6 in session 4-7, B1-online was 88.3 in session 6-7).

The mean score was higher than the first baseline in the second baseline phase (A2) of session 8–10 with a mean score of 61.6, but the trend still dropped from 88.3 to 45.0. The mean score for the second phase of musical interventions (B2) was 94.1. (B2-onsite was 98.3 in session 11-12, B2-online was 90.0 in session 13-14).

The baseline and music interventions' second phase mean scores were higher than the baseline and music interventions' first phase mean scores. Additionally, the baseline phase's mean scores were lower than the music interventions phase's mean scores. However, in both phases, the mean ratings of onsite music interventions were greater than those of online music interventions.

2. Result of Interview

Parent interview before the interventions

“He was a good writer and reader” mother said to the researcher. She continued to explain that his son enjoyed writing while sitting alone for extended periods of time. Mother frequently diverted him to perform other tasks out of concern that her child could be

exhausted. “He loves to draw the variety of watch or clock very much. He was completely fixated by all real clocks and watches” mother said.

“He enjoyed playing games like Blocks game, Jigsaw, Domino, and Uno. He had little interest in playing slider, going on adventures, or other outside hobbies”. When the researcher asked about paying attention to his friends or other, his mother replied that “He didn’t talk to anyone. He doesn’t like anyone coming to his home. If there are guests coming, he will ask when to return” mother replied.

Mother responded for questions about music that “He like to listen to country songs from the 1960s through the 1980s that I and his father frequently played on the CD player. He was silently hearing when the intro started”. For the question Has your child received music therapy before? Mother answered “No”.

When the researcher asked “What do you think your child would improve his ability to pay attention to others or during required activities?”. Mother answered that “I think mixing his favorite things, like toys, drawing, or favorite games could be more help him increase his attention”. His mother gave him a 50% rating for attention span. “I thing we (mother and father) would be able to engage him in musical activities” she said and continued saying “We hope his participation in music therapy will make him happy, passionate about music, capable of playing instruments, and self-assured”.

Parent interview after the interventions

For the question “What your child is doing well?” mother replied “He was talented in the reading, writing, and memorization of song intros and the melody of the 1960s through the 1980s songs. “He remembered precisely how many seconds each song’s intro took” she told with a proud expression. About other prefer activities she said that her child still enjoyed playing Domino. “He continued to dislike outdoor activities” she further informed.

Mother responded for questions about music that “He enjoyed playing a variety of musical instruments, but his favorites were the energy chimes that produce resonant sounds”. In addition, she continued said that “He also enjoyed playing the rain stick and the ocean drum. He didn't like to play the shaker and tambourine. He really enjoyed the songwriting exercise which he did with his parents and also enjoyed using his phone to record videos of his performances”. She claimed that her son preferred music more and was eager to check out the newest musical release. “He enjoyed listening to country music from the 1960s to the 1980s very much” she spoke in a bright voice.

When the researcher asked “Now, what do you think your child would improve his ability to pay attention to others or during required activities?”. Mother said “I believed that his favorite tunes would help him pay more attention. He often sprinted to stop in front of the music player or other sound source as soon as he hears one of his favorite songs”. Instead, parents reported that their child's attention skills had improved to 79%. “We think that we would be able to engage our son in musical activities” she said confidently. “We wanted him to like the music, feel relaxed, and be able to play any instruments in music activities” she replied with a face full of hope and happiness.

Discussion

This study demonstrates the promotion of attention skills in a child with ASD by hybrid-music therapy intervention. Improving attention skills can be considered from the following topics.

1. Music

- Effect of singing activity on attention skills
- Effect of Playing instruments activity on attention skills
- Effect of music movement activity on attention skills
- Effect of Music games activity on attention skills
- Effect of Song selection on attention skills

2. The role of parents

3. Hybrid-music therapy intervention

1. Music Interventions

Effect of singing activity on attention skills

The child would sing loudly during the verses that he could recall from the words. He can sing along with his parents' songs and seems to be comfortable doing so. Father naturally sang along with his child and wife. The participants were able to sing freely. As Jalongo and Collins (1985) advised that try to strike a balance between the child's voice and your own when singing with children.

Effect of Playing instruments activity on attention skills

The child using various instruments to create sounds. When the music therapist created a sound, he also turned his attention to the instruments, due to the opportunity for engagement, motivation, and delight with music activities. He used all of the instruments by striking, tapping, strumming, or shaking them while listening to the sounds that were produced. His favorite instrument was "Energy chimes". He was also play colored instruments by reading the colored notes. He also preferred to play the "Rainbow music desk bells," which he could make a sound with by knocking them down with his palm. The child interacted with his or her parents and a music therapist. According to Hiller (2017), a client in music therapy can create musical sounds and connect with the therapist and other people through playing, singing, and creating. This goes beyond simply being a listener. In addition, he liked to improvise the song's intro on his own which made him had attention skills with others. According to the study by Kim et al. (2008) which found that children with ASD who participated in improvisational music therapy showed significant improvements in attention behaviors.

Effect of music movement activity on attention skills

Every time the child engaged in music movement he smiled, laughed, and made a joyful noise. He was able to quickly and effectively create the gestures for the songs when the music therapist offered him the opportunity. He enjoyed moving while carrying both musical and non-musical items such as scarves and parachute. The music therapist instructed him to lift his hands high or lower them while he was moving to the song "Top of the World," which is one of his favorites. He was able to follow along.

When music was utilized to signal the beginning and end of movement activities, the child also paid attention. When the music stopped, he froze and stopped moving, when music started again, he moved. In accordance with the study conducted by Woodward (2004) which shown that a trial including parents and children with ASD revealed that the "Stop and Start Game" helped enhance awareness and attention in addition to boosting children' self-confidence. This finding also corresponds to the writing by Schwartz (2008) which said that through music, children can become more sensitive, skilled, and aware of their surroundings.

Effect of Music games activity on attention skills

For onsite sessions, in animal jigsaw game. The child could start and stop to put the pieces of jigsaw following the songs and bell signal. When he stopped immediately when the bell rung, the researcher said with excitement that *"Very good! You can stop immediately when the bell rings"*. According to Adamek and Darrow (2018) who said that giving the child with ASD instant praise for good behavior can help them comprehend what is expected of them. In addition, he participated and assisted the group to count the number of certain words in the song. He assisted parents in determining the lyrics' word count, find the missing word in the lyrics or the instrument's name. The researcher found that if he won in a non-musical game with his parents, such as "Domino" or "Snake and ladder," he had some emotional issues or felt unsatisfied. But throughout the musical game, he delightedly clapped while smiling whether he won or lost.

For online sessions, he participated in the matching game, found the identical picture of the instruments game and assisted the parents in finishing. He could wait till it was his turn. In a group context, music can improve the processes of establishing trust and cohesion. He focused on the song lyrics that the music therapist displayed and engaged to think of additional words to add. Songwriting was the child's favorite activity, he frequently created new songs about himself and recorded them in clips using mobile device. According with Beer and Birnbaum (2019) who commented that lyrics was an effective tool and also be changed with the child's actively participating.

Effect of Song selection on attention skills

The child focused on the printed lyrics for favorite and well-known songs such as *"Top of the World"* by the Carpenters, *"Puff the Magic Dragon"* by Peter, Paul & Mary, *"Take me Home, Country Road"*, and more songs in the country style from the 1960s to the 1980s. According to Gfeller (2008) who said that favorite music might aid in capturing a child's attention. In this study, the result indicated that familiar and favorite songs could motivate a child to pay attention. This finding correspond to the finding of Finnigan and Starr (2010) which finding the potential to enhance other areas of functioning and response by using well-known songs to motivate children. In addition, the researcher also composed the tailor songs for him, the welcome song "Sawasdee" and "Children have to go to school" helped him be ready and pay attention to what was coming ahead. Another song that helped him transition to a new activity was "Today is over (Wan nee mod way-la)," which was played during the farewell activity.

Additionally, it was discovered that in each phase, onsite music interventions had higher mean scores for attention skills than online music interventions. The researcher found that onsite music therapy intervention could promote more attention, remain the child's attention span and supported the child to return to the activities better than online music therapy intervention. Because of music therapist could adjust music activities, musical instruments, musical elements and could redirect and gave prompted immediately. However, the child had more attention in music activities than non-music activities. These findings are consistent with the many studies which claim that children paid more attention to and engaged with others in a musical context than in a non-musical context (Detmer, 2018; Hanser, 2018; Hiller, 2017; Kasuya-Ueba et al., 2020).

2. The role of parents

Parents could promote attention skills for their child in their home. From comparing both baseline stages, the mean scores rise in ascending order (44 and 61). It demonstrates that parents are better at getting their children to pay attention. The researcher also noticed that parents modeled music activities that the music therapist did to do with the child later. Such as song writing, playing percussion, especially in song writing that was the most child's favorite activity. The child liked to create the new chants for express his feeling with his father. While the mother provided many musical instruments during his perform. It was observed that the parents were at ease and participating in the musical activities with their child. The researcher found that more conversation between parents and the child often occurred in music activities. Parents were easily able to participate in musical activities and naturally sing or play along with the activities related to well-known tunes.

Coaching parents by giving parents the chance to implement or lead a music intervention was important because of a child lived with their parents every day. Every session in this study ended with discussion and feedback from the researcher for the parents. With cooperation of parent would enhance children's social and communicative outcomes according to comments from Estes et al., (2019) that parents can also be modified to address a specific symptom or behavior of their child.

3. Hybrid-music therapy intervention

We may observe that some children have returned to studying on-site at school when the epidemic's severity lessens. The researcher thought that a hybrid-music therapy intervention can be appropriate for the current situation in order to keep continuity in fostering attention skills in the children with ASD, despite the partial reopening of the school and preparation for a viral reappearance. Utilized interventions can be flexible and appropriate for the situation at hand in order to maintain the child's attention.

Limitations and recommendation

The following factors were taken into consideration by the researcher and can be used in future studies.

-Hygienic Preparation

-Communication channels (Line, or Zoom, etc.)

- The technology (Hardware and Software)
- Limitations (Reliability observer during the pandemic situation; Technology with some distortion, network latency, and network stability; Characteristics of the participants; Communication with parents; and Number of the session)

Conclusion

The adaptation of music therapy interventions during the pandemic can assist music therapists in putting more therapeutic strategies into practice to encourage and support children with ASD. An intervention using hybrid music therapy can help an ASD child with their attention abilities because it is intended to apply appropriate music elements in each situation of in-person, synchronous, or asynchronous music therapy. Musical components including rhythm, melody, and harmony contain therapeutic qualities to improve attention skills. While Parents are encouraged to use musical activities to support their autistic children. Hybrid music therapy enhance resilience in children with ASD both during and after the current pandemic health crisis.

Acknowledgement

This study is a part of a Master's thesis, College of Music, Mahidol University accomplished with the kindness of the all of advisors who have given advice, assistance in checking, improving, correcting, which is beneficial to the study. As well as is the study that received the partly thesis scholarships from the Faculty of Graduate Studies and Graduate Studies of Mahidol University Alumni Association.

References

- Adamek, M. S., & Darrow, A. A. (2005). *Music in special education*. American Music Therapy Association.
- Adamek, M. S., & Darrow, A. A. (2018). *Music in Special Education* (3rd ed., p. 447). American Music Therapy Association.
- American Music Therapy Association. (2011). *What is Music Therapy*. World Federation of Music Therapy. <https://wfmt.info/wfmt-new-home/about-wfmt/>
- American Psychiatric Association. (2013). *Diagnostic and statistical manual of mental disorders* (5th ed.). American Psychiatric Association.
- Arezina, C. H. (2011). *The effect of interactive music therapy on joint attention skills in preschool children with autism spectrum disorder* [Master's thesis, The University of Kansas]. The University of Kansas. <https://kuscholarworks.ku.edu/handle/1808/10010>
- Autism Focused Intervention Resources & Modules. (2017). *Parent implemented interventions*. <https://afirm.fpg.unc.edu/parent-implemented-interventions>
- Baxter, H. T., Berghofer, J. A., MacEwan, L. M., Nelson, J., Peters, K., & Robers, P. (2007). *The individualized music therapy assessment profile*. Jessica Kingsley Publishers.
- Beer, L. E., & Birnbaum, J. C. (2019). *Using Music in Child and Adolescent Psychotherapy*. The Guilford Press.
- Detmer, M. R. (2018). Music Therapy in Educational Settings. In O. S. Yinger (Ed.), *Music Therapy: Research and Evidence-Based Practice* (p. 31). Elsevier, Inc.

- Devlin, K. (2022). Shaping the digital space: Exploring relationships in online music therapy session delivery. *Nordic Journal of Music Therapy*, 31(3), 203–213.
<https://doi.org/10.1080/08098131.2022.2026453>
- Engel, R. J., & Schutt, R. K. (2017). Single-subject design. In R. J. Engel & R. K. Schutt (Eds.), *The practice of research in social work* (4th ed., pp. 382–439). SAGE.
- Estes, A., Swain, D. M., & MacDuffie, K. E. (2019). The effects of early autism intervention on parents and family adaptive functioning. *Pediatric Medicine*, 2(June), 1–14.
<https://doi.org/10.21037/pm.2019.05.05>
- Finnigan, E., & Starr, E. (2010). Increasing social responsiveness in a child with autism: A comparison of music and non-music interventions. *Autism*, 14(4), 321–348.
<https://doi.org/10.1177/1362361309357747>
- Gfeller, K. E. (2008). Music: A human phenomenon and therapeutic tool. In W. B. Davis, K. E. Gfeller, & M. H. Thaut (Eds.), *An Introduction to Music therapy Theory and Practice* (3rd ed., pp. 41–75). The American Music Therapy Association.
- Hanser, S. B. (2018). *The new music therapist's handbook* (3rd ed.). Berklee Press.
- Hanson-Abromeit, D. (2015). A conceptual methodology to define the therapeutic function of music. *Music Therapy Perspectives*, 33(1), 25–38. <https://doi.org/10.1093/mtp/miu061>
- Hernandez Ruiz, E., & Braden, B. B. (2021). Improving a Parent Coaching Model of Music Interventions for Young Autistic Children. *Journal of Music Therapy*, 58(3), 278–309.
<https://doi.org/10.1093/jmt/thab008>
- Hiller, J. (2017). Aesthetic Foundations of Music Therapy: Music and Emotion. In B. L. Wheeler (Ed.), *Music Therapy Handbook*. The Guilford Press.
- Jalongo, M. R., & Collins, M. (1985). Singing with young children!: Folk singing for nonmusicians. *Young Children*, 40(2), 17–22.
- Jones, J. D., & Brown, L. S. (2016). AB, ABA, ABAB, and other withdrawal designs. In B. L. Wheeler & K. M. Murphy (Eds.), *Music Therapy Research* (3rd ed., pp. 303–313). Barcelona Publishers.
- Kasuya-Ueba, Y., Zhao, S., & Toichi, M. (2020). The Effect of Music Intervention on Attention in Children: Experimental Evidence. *Frontiers in Neuroscience*, 14(July), 1–15.
<https://doi.org/10.3389/fnins.2020.00757>
- Kern, P. (2005). The use of single case designs in an interactive play setting. In *Case Study Designs in Music Therapy* (pp. 119–144). Jessica Kingsley Publishers.
- Kern, P., & Furman, A. (2021). Inside early childhood music therapy exploring a flexible online service delivery model during Covid-19. *Imagine*, 12(1), 12–23.
- Kim, J., Wigram, T., & Gold, C. (2008). The effects of improvisational music therapy on joint attention behaviors in autistic children: A randomized controlled study. *Journal of Autism and Developmental Disorders*, 38(9), 1758–1766. <https://doi.org/10.1007/s10803-008-0566-6>
- Knott, D., & Block, S. (2020). Virtual music therapy: Developing new approaches to service delivery. *Music Therapy Perspectives*, 38(2), 151–156.
<https://doi.org/10.1093/mtp/miaa017>

- Koelsch, S. (2013). *Brain and Music*. A John Wiley & Sons, Ltd.
- LaGasse, A. B., Manning, R. C. B., Crasta, J. E., Gavin, W. J., & Davies, P. L. (2019). Assessing the Impact of Music Therapy on Sensory Gating and Attention in Children with Autism: A Pilot and Feasibility Study. *Journal of Music Therapy*, 56(3), 287–314. <https://doi.org/10.1093/jmt/thz008>
- Madsen, C. K., Cotter, V., & Madsen, C. H. (1968). A behavioral approach to music therapy. *Journal of Music Therapy*, 5(3), 69–71. <https://doi.org/10.1093/jmt/5.3.69>
- Pasiali, V., LaGasse, A. B., & Penn, S. L. (2014). The effect of musical attention control training (MACT) on attention skills of adolescents with neurodevelopmental delays: A pilot study. *Journal of Music Therapy*, 51(4), 333–354. <https://doi.org/10.1093/jmt/thu030>
- Patton, M. Q. (2006). *Qualitative research & evaluation methods*. Sage.
- Poole, M. E., Fettig, A., McKee, R. A., & Gauvreau, A. N. (2020). Inside the Virtual Visit: Using Tele-Intervention to Support Families in Early Intervention. *Young Exceptional Children*, 1–12. <https://doi.org/10.1177/1096250620948061>
- Robb, S. L. (2003). Music Interventions and Group Participation Skills of Preschoolers with Visual Impairments: Raising Questions about Music, Arousal, and Attention. *Journal of Music Therapy*, 40(4), 266–282. <https://doi.org/10.1093/jmt/40.4.266>
- Schwartz, E. (2008). *Music, Therapy, and Early Childhood*. Barcelona Publishers.
- Sears, W. W. (1996). Processes in music therapy. *Nordisk Tidsskrift for Musikkterapi*, 5(1), 33–42. <https://doi.org/10.1080/08098139609477865>
- Shultz, S., & Jones, W. (2015). Early departures from normative processes of social engagement in infants with Autism spectrum disorder. In B. Bertenthal & A. Puce (Eds.), *The Many Faces of Social Attention: Behavioral and Neural Measures* (pp. 157–177). Springer International Publishing. <https://doi.org/10.1007/978-3-319-21368-2>
- Soares, E. E., Bausback, K., Beard, C. L., Higinbotham, M., Bunge, E. L., & Gengoux, G. W. (2021). Social Skills Training for Autism Spectrum Disorder: a Meta-analysis of In-person and Technological Interventions. *Journal of Technology in Behavioral Science*, 6(1), 166–180. <https://doi.org/10.1007/s41347-020-00177-0>
- UNESCO. (2020). COVID-19 response: Hybrid Learning as a key element in ensuring continued learning. *Unesco*, 2(December), 35–52.
- Vismara, L. A. (2006). Understanding the role of motivation in joint attention behaviors for children with autism [University of California]. In *Dissertation Abstracts International Section A: Humanities and Social Sciences* (Vol. 66, Issues 10-A). <http://ezproxy.deakin.edu.au/login?url=http://search.ebscohost.com/login.aspx?direct=true&AuthType=ip,sso&db=psyh&AN=2006-99007-060&site=ehost-live&scope=site>
- Whelan, M., & Bolton, D. (2021). Parent engagement in tele-interventions. *Imagine*, 12(July), 80–84.
- Whipple, J. (2012). Music Therapy as an Effective Treatment for Young Children with Autism Spectrum Disorders Introduction : Evaluating the research. In P. Kern & M. Humpal (Eds.), *Early Childhood Music Therapy and Autism Spectrum Disorder* (pp. 58–76). Jessica Kingsley Publishers.

- Wigram, T., Pedersen, I. N., & Bonde, L. O. (2002). *A comprehensive guide to music therapy : theory, clinical practice, research, and training*. Jessica Kingsley Publishers.
- Wolfe, D. E., & Noguchi, L. K. (2009). The use of music with young children to improve sustained attention during a vigilance task in the presence of auditory distractions. *Journal of Music Therapy*, 46(1), 69–82. <https://doi.org/10.1093/jmt/46.1.69>
- Woodward, A. (2004). Music Therapy for Autistic Children and Their Families: A Creative Spectrum. *British Journal of Music Therapy*, 18(1), 8–14. <https://doi.org/10.1177/135945750401800103>
- Yoo, G., E. (2003). *The effect of musical attention cues on the frequency and accuracy of joint attention behaviors of children with autism* [thesis]. University of Kansas.