

# PHILLIP'S GROOVE! INTEGRATING YOUNG CHILDREN WITH AUTISM ON CHILDCARE PLAYGROUNDS

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## ABSTRACT

This presentation describes a project integrating children with autism on a childcare playground. Children with special needs, especially those with autism, require support to participate successfully in meaningful play and social interactions in large spaces and during unstructured playtime. The presentation will focus on a research study conducted with four young children diagnosed with Autism Spectrum Disorder who displayed a lack of interest in interacting with their peers during outdoor play. The goal of the study was to improve their interactions with classmates on the playground by (a) adding an outdoor music center, (b) using songs individually composed for each subject, and (c) implementing the intervention by the subject's teachers engaging classroom peers as formal and informal helpers. Using a single-subject experimental design (multiple baseline across four children), the effectiveness of the intervention was evaluated. Data were collected in four conditions over eight months. The results indicate an increase in positive peer interaction and engagement when supported by adults. The findings suggest that the intervention significantly enhanced the children's quality of peer interactions and engagement on playgrounds, and addressed other therapeutic goals as shown in videotaped sequences.

## 1. BACKGROUND

This presentation is based on the research findings connected to my doctoral studies at the University of Witten-Herdecke, Germany. It is part of a series of single case studies investigating music therapy interventions for the integration of children with autism in childcare settings using an integrative therapy approach. This research project was conducted at the inclusive childcare program of the Frank Porter Graham (FPG) Child Development Institute, University of North Carolina at Chapel Hill, USA.

Given the importance of early intervention and the positive impact of social environments on the child's development (Berk, 1989), there is an increasing trend in including children with autism in inclusive play settings (National Research Council, 2001). This creates a new demand for the development of innovative techniques and interventions for serving children with autism and their families.

Quite a few educational/therapeutic strategies have been developed and applied clinically as well as evaluated empirically. Among them are individualized and structured teaching, the establishing of predictable routines and schedules, and the use of integrated therapy, meaning the intervention is embedded in the ongoing classroom routine. These strategies allow children

with autism to improve their skills and use their strength to act independently in classroom routines (e.g. TEACCH, 2003; McWilliam, 1995; Wolery et al, 2001).

As prevalent in the research literature, music therapy interventions have potential benefits in supporting social interaction and facilitating verbal and non-verbal communication in children with autism (e.g. Aldridge, Gustorff, & Neugebauer, 1995; Brownell, 2002; Warwick 1995).

No studies in the early intervention/music therapy literature could be found related to promoting desirable outcomes in increasing positive peer interaction on inclusive child care playgrounds for preschoolers with autism.

One of the defining characteristics of autism is a severe delay in understanding social relationships and communication, which often results in a lack of peer interaction (Dunko, & Buysse, 2002; Quill, 2001). During the childcare day, children spend large blocks of time in outdoor play. Due to the large undefined spaces, unstructured playtime, the fast pace of play, and play styles the playground is a very challenging setting for children with autism. Predictable play routines and different play activities which support the children's interests and strengths need to be identified and established to ensure the time spent on child care playgrounds promotes the development of children with autism (Nabors et al., 2001). The aims of this project were:

- Provide support to increase peer interaction of young children with autism on playgrounds through an individually designed intervention based on music therapy principals
- Design a motivating and supportive playground for children with autism and their peers
- Implementation of the intervention by teachers in the childcare routine, and subsequently by peers, using peer-mediated strategies
- Evaluation of the effects of the interventions
- Increase the credibility of music therapy as a valuable health service in early intervention

## 2. METHOD

### 2.1. Participants

The participants in this study consisted of young boys with autism (n=4), typically developing children and children with other special needs (n=32), and their classroom teachers (n=6). Two external agencies diagnosed the children with autism using the Psychoeducational Profile-Revised (PEP-R), (Schopler, Reichler, Bashford, Lansing & Marcus, 1990), the Autism Diagnostic Observation Schedule (ADOS) (Lord, Rutter, DiLavore & Risi, 1999), clinical observation, and parent interview. The target children had severe delays in social skills and lacked the interest and appropriate skills to interact and play with their peers on the childcare playground. Phillip, as mentioned in the title of this presentation, was subject 3 of this study. The classroom peers, ages 2 to 5, participated in the study voluntarily, and two peers for each target child were trained as formal helpers. The “peer-buddies” consisted of typically developing children and one child diagnosed as having high functioning autism. The teachers participated based on their schedules.

### 2.2. Setting

All experimental sessions occurred on the playground of the FPG childcare program. The playground contained different areas of play such as a sandbox, a climbing and sliding structure, a wooden playhouse, a concrete track for riding tricycles, raised flower and garden beds, and the Sound Path, a musical stimulation path built by the author for a previous study involving a child with visual impairment (Kern, & Wolery, 2001). In addition, an outdoor music center (Music Hut) was added and connected to the Sound Path (Kern, Marlette, & Snyder, 2002). The Music Hut consisted of a Chinese Wind Gong, six drums in different sizes, a cymbal, a Mini Cabasa, three Sound Tubes of different lengths, a Marching Drum, an Ocean Drum attached to wooden beams, steel arches and Plexiglas walls. The Music Hut was under a huge canopy and located on a wheelchair accessible hardwood deck.

### 2.3. Materials

The author composed songs for each target child, matching the child’s personality musically. “Phillip’s Groove,” was the song written for Phillip. The goals of the intervention, developed in close collaboration with the interdisciplinary team of the childcare program were embedded in each subject’s songs. For example turn taking was illustrated by the lyrics “ It’s Phillip’s turn to keep the groove, to sing and play and keep us move.” Educational/therapeutic strategies as described above were taken into consideration in the song and in the design of the intervention. A CD (compact disc) recording of each song including a sing-along was handed out to the teachers along with the song transcriptions. The author practiced the songs with the teachers individually and introduced them to all children during group activities. Finally the investigator provided a hands-on training in the Music Hut for teachers which included special instructions on how to engage peers in the intervention based on music therapy principles. Training and consultation was provided prior to and during the intervention.

### 2.4. Experimental Design

A multiple baseline design across four subjects was used to evaluate the effects of the embedded music therapy intervention (Aldridge, 1996; Holcombe, Wolery, & Gast, 1994; Kazdin, 1982). Categories of interaction behaviors were coded through direct observation of a 10-minute videotaped segment using a 15-second momentary time sampling recording procedure. In addition, teacher’s and peer’s task behaviors as well as field notes were recorded on a specially designed data sheet.

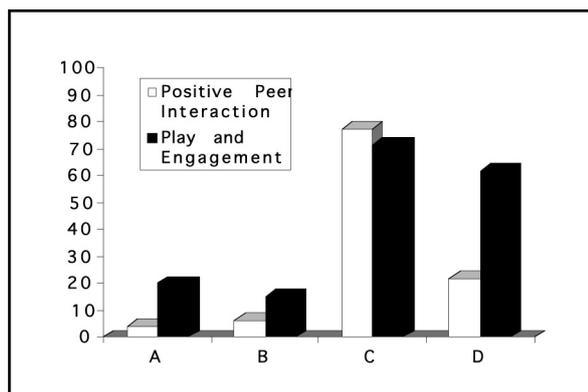
The study followed four sequential conditions:

1. Baseline (Condition A): the subjects’ interactions with peers on the playground were observed prior to the construction/availability of the Music Hut.
2. Adaptation of the playground (Condition B): the subjects’ interactions with peers were observed following construction of the Music Hut to document any changes related to the new materials only.
3. Teacher-mediated intervention (Condition C): The unique song was sung in the Music Hut by the teachers with the subjects and peer volunteers. Teachers trained the formally selected peers to mediate the intervention.
4. Peer-mediated intervention (Condition D): the same song was sung by the voluntary peers and subjects in the Music Hut. The teacher’s support was gradually faded out.

The four conditions were implemented for all subjects, except condition D, where only three subjects participated. Data collection occurred over 8 months. Reliability checks were carried out for an average of 36.8% of total observations within each phase and for each child. Inter-observer agreement across all conditions and children ranged from 93.8% to 99.8%, with a mean of 98.2% prior to and during the intervention.

## 3. RESULTS

The teacher-mediated intervention resulted in an immediate and significant increase in positive peer interaction. With only one exception, a high level of the teacher’s ability to implement the intervention was observed ( $M=84\%$ ). Peers participated and modeled the tasks on a high level ( $M=85.3\%$ ). However, peer interaction decreased during the peer-mediated intervention, but was significantly higher than during baseline condition and the adaptation on the playground phase. Classroom demands and schedules did not allow to implement Condition D for subject 1. With the intervention based on music therapy principles, play and engagement increased significantly for three subjects and reminded the same over conditions for one subject. Figure 1 shows Phillip’s performance during each condition.



**Figure 1:** Mean (M%) of Phillip's positive peer interaction and play and engagement on the playground for each condition of the study.

The design and adaptation of the playground equipment itself did not improve the social interactions of children with autism significantly, but facilitated the involvement and motivation to interact with their peers and engage in meaningful play.

Field notes of the author indicate that the intervention significantly enhanced the children's quality of peer interaction, frequency and duration of play. Additionally, the targeted children accomplished Individualized Education Plan (IEP) goals such as improving communication and sign language, increasing choice making, turn taking, imitation skills, and using appropriate body contact. Crucial aspects of this project were the motivation of peer-buddies to participate in daily activity repetition over a long period of time, and the interpretation of the subject's uneven pattern of behavior and communication style. Interestingly, that was not true for the participating peer-buddy diagnosed with high functioning autism. A minimum of ongoing adult support in interpreting the meaning of the actions of children with autism, as well as verbal cues and reinforcement were necessary to facilitate positive peer interaction. This replicates and broadens earlier publications which have pointed out that typically developing children and their partners with special needs may require adult support to successfully interacting with each other (e.g. Nabors et al, 2001; Quill, 2001). In this study some of the peers asked to record the unique songs on a CD. This functioned as a high motivator for them to sing and play in the outdoor music center with the target children. After the study, one class recorded their songs. A CD was handed out to each participating child.

The positive outcome of this study is also indicated by the reports of the target children's classroom teachers. One teacher commented:

*I had a wonderful time working with Phillip in the Music Hut. This was a fun and effective intervention. The best part for me was having Phillip look up at me with his big brown eyes in wonder while I sang to him.*

Families shared the song recordings with their extended family, which validates the social impact of the intervention and music itself (Aasgaard, 1999). The mother of Phillip's peer buddy, diagnosed with high functioning autism commented:

*After receiving the CD, I slipped it into the CD player in the car on the way home from school without telling Justin. When the music came on, he got very excited and yelled, "Hey that's my class!" When the track of him singing "I want to play the drum with you" came on, he yelled, "Hey that's me!" and "Hey, that's Petra!" He was fascinated with hearing himself sing on the CD and asked me to play it about a hundred times. It sparked great conversations about his experience in the Music Hut and he taught me, my husband, and his little brother how to sing the song. I kept the CD in the car and for the first few weeks, he asked to listen to it over and over again on the way to and from school. Each time he heard "his song", his face would light up and he'd yell, "Hey that's me!" And "Hey that's Petra!" It became known in our house as "Justin's song" and even his brother would request that I play "Justin's song". Having the CD was a great way for him to share his experience with us.*

Future research should investigate the use of music as a therapeutic tool to include other children with special needs on playgrounds. It would be desirable to have more studies proving that music therapy can be an embedded therapy approach in childcare settings.

#### 4. CONCLUSION

The outcomes of this study are important, because they demonstrate that music therapy strategies can be effective in increasing social experiences and play for young children with autism on playgrounds. Individualized songs are powerful and easy to use for teachers and children with and without special needs. Music therapists play a valuable role in consulting with and training classroom teachers to implement interventions based on music therapy principles in ongoing childcare routines. Music therapy can enhance services for young children with autism and should be routinely considered as a treatment option. This information may help to improve future integrated therapeutic services for young children with autism and their families.

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