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ORIGINAL PAPER

# Use of Songs to Promote Independence in Morning Greeting Routines For Young Children With Autism

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**Abstract** This study evaluated the effects of individually composed songs on the independent behaviors of two young children with autism during the morning greeting/entry routine into their inclusive classrooms. A music therapist composed a song for each child related to the steps of the morning greeting routine and taught the children's teachers to sing the songs during the routine. The effects were evaluated using a single subject withdrawal design. The results indicate that the songs, with modifications for one child, assisted the children in entering the classroom, greeting the teacher and/or peers and engaging in play. For one child, the number of peers who greeted him was also measured, and increased when the song was used.

**Keywords** Music Therapy · Child Care Program · Inclusion · Autism · Transitioning · Collaborative Consultation

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## Introduction

Providing early intervention services to young children with autism spectrum disorders is supported by substantial research and program evaluation data (Dawson & Osterling, 1997; National Research Council, 2001). Some of this research argues for providing services in inclusive classes in community-based programs (Strain, McGee, & Kohler, 2001). However, for children with autism to benefit from such placements, attention must be given to their individualized learning needs (Strain et al., 2001).

Children in early childhood classes experience multiple transitions each day between activities and routines as well as to and from the classroom. Examples are initial arrival at the classroom, engaging in play, moving from one area of the classroom to another, going outdoors and coming back from outdoors, moving to a snack area, and going to a cot for naptime (Alger, 1984; Baker, 1992). Young children often spend large amounts of time in these classroom transitions (Carta, Greenwood, & Robinson, 1987). For many young children with and without autism, the initial transition into a classroom each day can result in crying, clinging to the caregiver, and active avoidance of the class. Their parents and other caregivers may be uncertain about how to respond to these behaviors (Alger, 1984). These behaviors also may result in similar reactions from classmates and avoidance of the entering child (Osborn & Osborn, 1981).

Transitions, including the initial daily transition into the class, may be difficult for young children with autism (Dawson & Osterling, 1997; Mesibov, Adams, & Klinger, 1997). In addition, they may lack an understanding of symbolic gestures such as waving

hello or good-bye or at least may engage in these greeting behaviors less than age mates (Hobson & Lee, 1998). Recommended strategies for promoting successful transitions of children with autism include using (1) structure and predictable routines (Marcus, Schopler, & Lord, 2001; Trillingsgaard, 1999), (2) visual cues (Bryan & Gast, 2000; Schmit, Alper, Raschke, & Ryndak, 2000), and (3) songs (Baker, 1992; Furman, 2001; Gottschewski, 2001; Williams, 1996).

Songs are a common occurrence in early childhood classes and are used by a wide range of professionals for skill promotion, entertainment, and expression of emotions (Enoch, 2001; Furman, 2001; Humpal, 1998). In music therapy, ''hello'' and ''good-bye'' songs are used frequently to establish predictable routines and structure, provide undivided attention, and communicate a welcome (Bailey, 1984; Nordoff & Robbins, 1995). Using songs to promote successful transitions is recommended for young children with autism (Furman, 2002; Humpal & Wolf, 2003; Snell, 2002), but no previous study evaluated greeting and good-bye songs on the performance of young children with autism during the morning arrival time.

Studies on interest in music and relative strength of musical abilities in some children with autism (Applebaum, Egel, Koegel, & Imhoff, 1979; Thaut, 1987, 1988) and the effectiveness of music therapy interventions (Bunday, 1995; Kostka, 1993; Wimpory, Chadwick, & Nash, 1995) suggest music therapy is a viable treatment option for individuals with autism. For instance, songs have been used to supplement the use of social stories to support social interaction in children with autism (Brownell, 2002; Pasiali, 2004). Key recommendations for educating young children with autism (e.g., individualization, structure and predictability, emphasis on strengths and individual needs) can be incorporated in music therapy protocols or are part of the nature of music itself (American Music Therapy Association (AMTA), 2002). Although not studied systematically, music therapy can include embedding music therapy principles and strategies into ongoing routines of children's days using a collaborative and consultative model of service delivery (Furman, 2001, 2002; Snell, 2002).

The purpose of this study was to evaluate the effects of individually composed greeting songs implemented by classroom teachers on the independent performance of two young children with autism during the morning greeting routine. Three research questions were asked: (1) Does the use of an individually composed song, sung by teachers, increase appropriate independent performance during the morning arrival routine of young children with autism; (2) Can classroom teachers apply the principles important to music therapy in a particular routine, and (3) Does use of the song increase interactions between the child with autism and his peers?

## Method

### Participants

Two boys, Phillip and Ben, with autism participated in the study. Phillip was a 3 year 5 month-old African American, and Ben was a 3 year 2 month-old European American. Licensed psychologists who were not involved in the study used the DSM-IV criteria (American Psychiatric Association, 2000) when establishing their diagnoses. On the Childhood Autism Rating Scale (Schopler, Reichler, & Renner, 1988), both boys were placed in the mild to moderate range. Prior to the study, Phillip and Ben had been enrolled for 10 months in an inclusive community-based child care program affiliated with an university. They were selected for the study on the request of their parents and classroom teachers and therapists.

Both boys had limited speech, and the Picture Exchange Communication System (PECS) (Bondy & Frost, 1994) was being used. Ben was beginning to use a few functional words. Phillip and Ben showed limited social interactions with peers, played primarily when supported by adults, and engaged in stereotypic behaviors. Both children exhibited difficulties with transitions, although objects were used successfully with some transitions other than the morning arrival transition. The morning arrival transition was problematic for both boys. Phillip would refuse to enter the classroom, scream, or lie on the floor. Ben would hold on to his caregiver, cry, and ignore efforts of the teachers to welcome him. Phillip and Ben were interested in and responded well to music. They preferred listening to selected musical pieces, and participated in classroom musical activities.

Other participants included the target children's classmates with parental consent ($n = 13$), the target children's respective caregivers ($n = 2$), and classroom teachers ($n = 5$). The class size of Phillip's class was seven children (including him) ages 2 to 3 years and included both males and females from different ethnic groups. Five of his classmates were developing typically, and one had disabilities. Ben's class had eight children (including him) ages 3 to 4 years and included both males and females from different ethnic groups. Five of the children were developing typically and two had disabilities. All adults in the classroom

participated based on their schedules, which included staggered start times to cover the entire child care day. They had diverse educational backgrounds, ranging from high school diploma to Baccalaureate degree with certification in early childhood education. Their teaching experience ranged from 1 to 4 years. Phillip and Ben's caregivers (a mother and nanny, respectively) participated in the study on a daily basis by bringing them to their classrooms and participating in the greeting time procedures. The teachers and caregivers did not have prior experience with music therapy interventions.

## Setting

The inclusive university-affiliated child care program in which the study occurred held accreditation from the National Association for the Education of Young Children (NAEYC) and the State's highest quality ranking for child care programs. The classrooms followed the recommended practice guidelines of NAEYC (Bredekamp & Copple, 1997) and the Division for Early Childhood (Sandall, McLean, & Smith, 2000). Specialists such as music therapists, occupational therapists, speech language pathologists, physical therapists or special educators worked with the individual child or a group of children in the ongoing classroom routines or as a consultant to the classroom teachers (McWilliam, 1996). Cubbies for children to place their personal items were located in the hall outside each classroom.

The study occurred during the morning greeting routine. In the mornings, children arrived individually over a 1.5 h period. The usual routine was for each child, and his/her parent, to place personal items in the child's cubby and then enter the classroom together. All children would be greeted by, and greet, the teacher and peers, then engage in play. The classroom curriculum allowed free play during the morning arrival time. Children engaged in different play areas by themselves or with each other. The parents signed the child in and had a brief conversation with the teacher before saying ''good-bye'' to the child and leaving the classroom.

## Materials

Before the study, the teachers used a laminated picture ($10 \times 10$ cm) communication symbol (Mayer-Johnson, 1992) showing a waving stick figure and the word ''Hello'' printed on the top using 18 pitch letters and the Arial font. This symbol was used in the study to assist the target participants in greeting classroom teachers and peers, regardless of their language and communication skills when entering the classroom in the morning.

The first author composed a greeting song unique to each target participant.[1] The music was composed to match each child's personality with the lyrics conveying the demands of the desired five-step morning greeting routine (see below). To emphasis the detachment from the caregiver, step four, which reflected the ''good-bye'' part, differed musically in melody and mood from the other steps. All other steps followed the same melody, but used different lyrics. Some of the lyrics were flexible to allow the children to choose different peers and describe the daily weather condition. A practice CD containing the song and the song transcriptions were given to the teachers and caregivers during a staff/caregiver training session. The intention of the songs for both children was to ease the transition from home to school, to increase their independent performance (i.e., independent functioning) during the five-step morning greeting routine, and to support their interaction with peers (i.e, engaging in greeting peers).

## Design

Single subject research designs were used. For Phillip, an A-B-A-B withdrawal design (Aldridge, 2005; Tawney & Gast, 1984) was used. The baseline condition (A) consisted of the existing greeting routine, and the treatment (B) involved using the song during the greeting routine. For Ben, a modification of this design was used; specifically, an A-B-C-A-C design. The baseline (A) was the existing greeting routine, the treatment (B) was the use of the song during the greeting routine, and the C condition was a modification of the song. Staff/caregiver training activities occurred prior to baseline measures.

### *Baseline Condition (A)*

In the baseline condition, the child and caregiver entered the center, placed the child's belonging in his cubby in the hallway, and picked up the picture symbol showing the stick figure waving ''Hello,'' which was attached with Velcro to the child's cubby. They then entered the classroom, and a classroom teacher initiated the greeting routine, which was similar to that used with classmates. Five steps were followed: (1) the target child enters the classroom

[1] Interested readers can contact the first author to get a music score.

independently; (2) the target child greets a person (teacher or peer) in the classroom verbally and/or hands over the picture symbol; (3) the target child greets a second person (teacher or peer) in the classroom verbally and/or hands over the picture symbol; (4) the target child says/waves ''good-bye'' to the caregiver, who leaves the classroom; and (5) the target child engages in appropriate play with a toy or material found in the classroom. A system of least prompts (Wolery, Ault, & Doyle, 1992) was used to assist the target child in responding independently to each step of the greeting routine and ensure the child completed each step of the routine.

*Staff/Caregiver Training Activities*

Initially, the first author consulted with the caregivers and teachers to identify realistic intervention goals and acceptable procedures for use in the greeting routine. Before baseline measures, she composed and recorded the individual songs, and gave them to the caregivers and teachers. During a circle time in the children's classrooms, the first author led the children and teachers in learning and singing the songs. She also gave precise instructions to the teachers and caregivers about how to approach and assist the target children in greeting and interacting with peers musically. The teachers were encouraged to include all peers who would come forward voluntarily to greet the target child in the greeting routine during all phases (baseline, intervention, and reversal). Staff training ended after 2 weeks when the teachers and respective caregiver sang the song correctly and indicated that they were comfortable with the procedures.

*Intervention (B)*

In the intervention condition, the procedures used in the baseline were continued. The only change was the use of each child's greeting song. The songs had lyrics matching each of the five steps of the greeting routine. The teacher began singing the song as the child entered the classroom, and sang the lyrics for each step as it was occurring.

*Modified Intervention (C)*

For Ben, the number of independently completed steps did not change substantially with the introduction of the song. Based on an analysis of the situation, we concluded Ben began to cry when separating from his caregiver and this interfered with independent performance of the steps. Thus, the fourth step (saying ''good-bye'') was eliminated, and his caregiver left the classroom as Ben entered it. Other procedures remained the same.

Response Definitions and Measurement

Two adult behaviors and five child behaviors were measured through direct observation using event recording. Data were collected during morning arrival time, when the teachers and peers were present. The observation started when the target child and his caregiver entered the classroom. The observation ended when the target child picked up a toy/material in the classroom, even if he had not said ''hello'' or ''good-bye.'' Data collection sessions lasted between 2 and 10 min. Phillip was observed for a total of 28 sessions across 2 months. Data collection for Ben was initiated 5 months later, and occurred in 31 sessions over 3 months.

The adult behaviors were: *Prompting* was defined as a teacher or caregiver assisting the child in performing a step in the routine. This assistance was either verbal (e.g., ''Say, Hello'') or physical (e.g., the adult put her hand on the child to help in the exchange of the picture). *No adult prompt* was defined as the teacher or caregiver not giving a prompt for a step of the greeting routine.

The child behaviors for each step of the routine were as follows. *Independent response* was defined as the child performing the behavior required in each step of the routine without any adult assistance. *Prompted response* was defined as the child performing the step of a routine but receiving adult prompt to do so. *No response* was defined as the child not responding, even when prompted. *Error* was defined as the child either not following the sequence of the routine or engaging in an appropriate behavior not prescribed by the routine, and *Inappropriate response* was defined as the child engaging in problematic behavior (i.e., tantrums). These categories were coded for each of the five steps of the morning greeting routine. An additional category was added for Ben to identify the number of classmates with and without disabilities who greeted him independently during the routine. This category was added because of informal observations with Phillip indicating peer greeting behavior changed during the course of the intervention. The *number of peers greeting independently* was defined as peers receiving the ''Hello'' symbol from Ben without verbal or physical prompting from an adult. Some observations were videotaped with a Panasonic AG-195 Camcorder and analyzed immediately afterwards.

### Observer Training and Interobserver Agreement

Before the baseline condition, a music therapist (first author), a special educator and a research assistant observed and recorded the behaviors of teachers and children in the morning greeting routine. Training was concluded when inter-observer agreement was at 80% for three consecutive observations. During the study, inter-observer agreement checks occurred in a mean of 22% of the observations for each condition and child. The percentage of agreement was calculated using the point-by-point method (Tawney & Gast, 1984). The number of agreements were divided by the number of agreements plus disagreements with the quotient multiplied by 100. Overall, inter-observer agreement ranged from 75 to 100%, with a mean of 94%.

## Results

### Phillip

During the initial baseline condition, Phillip's performance was stable as shown in Fig. 1. In all sessions except the fourth, Philip completed two steps of the routine independently. In the fourth session, he did not do any step independently. The steps he did independently were entering the classroom and finding a toy with which to play. With the introduction of the song intervention, Phillip's performance initially dropped to one step independently (entering the classroom), but after two days of song intervention, Phillip's performance was back at baseline level. By the forth day of intervention, Phillip's performance was above baseline level and by the sixth session, Phillip's performance was consistently higher than the baseline level. The trend during the intervention condition indicates Phillip's performance steadily moved toward independence. After 10 sessions in intervention, Phillip's performance appeared consistent, as evidenced by three consecutive sessions with four independent steps at the same level; thus, the intervention was withdrawn. Phillip's performance immediately decreased and by the second day of the second baseline condition, his performance returned to the initial baseline levels with two independent steps (again entering the classroom and finding a toy to play with). After three days, the song intervention was re-introduced. Immediately, Phillip's performance increased. After four sessions, Phillip's performance was equal to his performance at the end of the initial intervention condition. His performance remained steady at this level until the ninth session of intervention where Phillip performed all of the steps of the routine independently.

### Ben

In the initial baseline condition, Ben's performance was stable as shown in Fig. 2. In the majority of the sessions, he had one independent step completed, entering the classroom independently. On session four of the first baseline condition, Ben did three independent steps. With the introduction of the song intervention, Ben's performance was variable. Ben responded in the majority of sessions with one independent response, as in the baseline condition. In four of 12 mornings, Ben completed more than one of the steps independently. Given the lack of substantial change in his performance, the ''good-bye'' step was eliminated and the caregiver left the classroom as he entered (Condition C). This produced an abrupt and sharp increase in the number of steps completed independently. He consistently had three of four steps done independently. After five sessions of stable performance, the intervention was

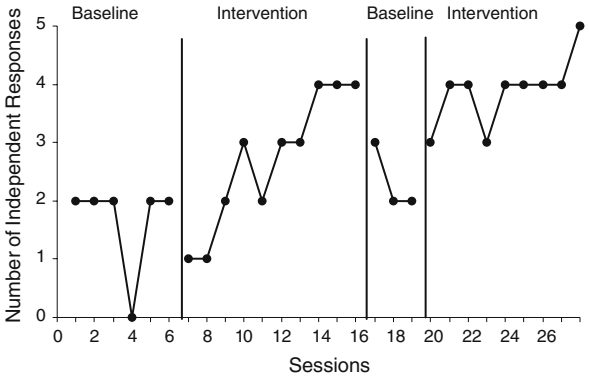


**Fig. 1** Number of independent responses performed by Phillip during the morning greeting routine in baseline and intervention sessions

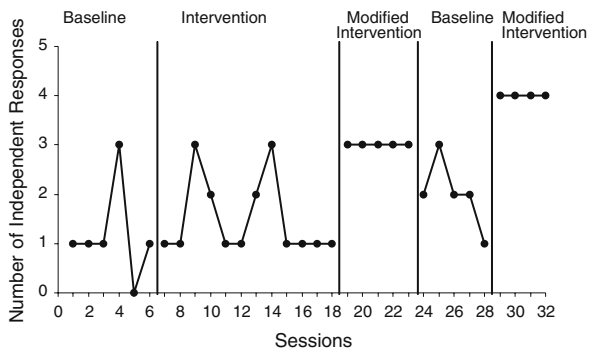


**Fig. 2** Number of independent responses performed by Ben during the morning greeting routine in baseline, intervention, and modified intervention sessions

withdrawn. An immediate decrease in his independent behavior occurred. With the re-introduction of the intervention, the data resulted in an abrupt and sharp increase in the number of independent steps. Ben completed all four steps independently. This high level of performance was stable during the last condition.

The number of peers who greeted Ben without adult prompting are shown in Fig. 3. During the initial baseline condition, no peers greeted Ben during the greeting routine. With the use of the song intervention, two peers greeted him independently on 9 of 12 days, and four, three, and one peer greeted him on the remaining days. With the modified intervention, two peers greeted him on three of five days, but on one day no peers greeted him and on the other day, one peer greeted him. The removal of the song in the second baseline resulted in more variable data. Two peers greeted him independently on two of five days; on the second day, three peers greeted him, but on the last two days, one peer greeted him. The reintroduction of the modified intervention resulted in two peers greeting him on three of four days, with one peer greeting him on the first day of the condition. Thus, initiation of the song intervention resulted in an increase in the number of peers greeting Ben, but withdrawal of the song in the second baseline did not result in data patterns similar to the first baseline. Neither the modification of the intervention nor the withdrawal of the song intervention returned the peers' behavior to baseline conditions, with the exception of one day.

## Discussion

This study evaluated the effects of embedding a music therapy intervention (using original greeting songs) in the morning arrival routine on the independent functioning of two young boys with autism. It also examined whether teachers could implement the songs in the context of that routine after receiving consultation and training from a music therapist; and, finally, whether use of the songs influenced classmates' greetings to one target child. As shown, the data support the use of individualized songs implemented in this manner to facilitate independent entry into classrooms. As such, it adds to the literature on how to include young children with autism in inclusive classrooms (Strain et al., 2001). In this study, individualized greeting songs matching the participants' personality (based on the music therapist's judgments) and the demands of the morning greeting routine were effective in facilitating a smooth transition from home to the child care program. These findings support the recommendation to use songs to ease transitioning for individuals with autism (Baker, 1992; Furman, 2001; Gottschewski, 2001).

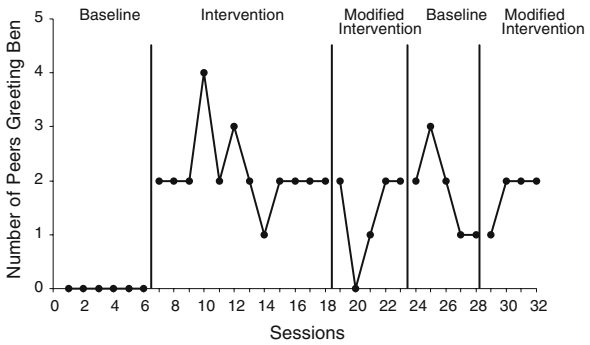


**Fig. 3** Number of peers greeting Ben during the morning greeting routine in baseline, intervention, and modified intervention sessions

These effects occurred, with the teacher rather than the music therapist implementing the songs in the morning greeting routine. The teachers did not use songs for this purpose prior to this study, did not know the songs until they were taught by the music therapists, and did not have formal musical training or experience with music therapy interventions. In addition, the training time was relatively short. This study replicates and extends earlier studies showing that classroom teachers can embed intervention strategies successfully into ongoing routines, when training and monitoring were provided (Kemmis & Dunn, 1996; Venn et al., 1993). However, despite their success, teachers were challenged with parts of the musical characteristics of the songs. For example, in both cases the teachers did not implement the change in music indicating the good-bye part of the songs (step four of the greeting routine). Interestingly, and perhaps coincidentally, it was exactly this part that distressed both target children. This raises the question if the implementation of the change in music signaling the ''good-bye'' part would have changed the target children's performance during this step. No data are available to suggest the change in the music would produce positive outcomes, but future research should examine this possibility. Other explanations exist for the children's difficulty with this step such as the lack of understanding of conventional gestures and the fact that it signaled the caregiver leaving. Clearly, high quality staff development activities and ongoing collaborative consultation seem to be critical components for appropriate and successful implementation of teacher-mediated interventions using music therapy principles. In this study, maintaining teacher's comfort level, motivation, and monitoring of the teachers' use of the procedures were needed.

The use of the songs also potentially had positive effects on peers' greeting behavior and interaction toward the target children. This was noted informally for Phillip and then measured formally for Ben. Peers volunteered in singing and greeting the target children during their morning arrival time, or participated by giving their input to the song (e.g., statements about the weather condition) while engaging in other activities. The song intervention seemed to pique the interest of peers and evoke a positive view toward Ben. This change seemed to be affected by the intervention alone and was not contingent on Ben's performance. That is, the greeting song motivated the peers to interact with Ben, but his performance did not change until after the peers had regularly greeted him. However, the number of peers greeting him did not return to the levels of the initial baseline during the second baseline condition.

The teachers, parents of the target children, and parents of other classmates reported the intervention was effective and valuable. The mother of one of Phillip's peers said that before the intervention her child was intimidated by Phillip's inappropriate behavior at greeting time. With the implementation of the song, this classmate ran to school hoping to arrive before Phillip so he could participate in Phillip's greeting song. Phillip's mother reported she was very pleased by the success of the intervention and requested further songs for other challenging situations. Ben's caregiver said: ''I think this was perfect for Ben. He had a hard time leaving me in the mornings, but with the help of the *Good Morning Song* the transition became much easier for Ben.'' After evaluating the song intervention with Phillip's classroom teacher, she came to the following conclusion: ''Transitions into the classroom were stressful for the children, parents, and teachers. The *Hello Song* allowed us to implement a simple intervention each day. The song is great, and helped all of us tremendously.'' These comments, the teachers willingness to use the song intervention within daily classroom routines, and the request for new songs addressing other challenging behaviors (i.e., waiting and hand washing) is some evidence of the social validity of the procedures and effects.

This study has several limitations; for example, only two participants were studied because of their need for intervention during the morning arrival time. Replication of this study for additional participants is recommended. Further, for Ben, a modification was needed before the song was successful. Thus, it is unclear whether the modified intervention would have been effective if Ben had not experienced the original intervention. Also, the music therapist composed original songs for each child; thus, these data do not indicate whether a teacher, without assistance from a music therapist, could adapt a pre-composed song (referred to as the ''Piggybacking'' technique) and produce similar results. Another limitation concerns the lack of maintenance and generalization data.

This study suggests future studies should focus on the effects of songs in other challenging routines for young children in inclusive classes. Similarly, studies focusing on using songs to promote other skills (e.g., social and communicative abilities) should be implemented. Finally, systematic studies of the effects of songs designed for young children with autism should contain measures of the effects on their peers. Do such songs change the behaviors and attitudes of peers toward their classmates who have autism?

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