The Use of Song Cues for Preschool Students with Autism

A Research Project Report

Presented to

the Graduate Faculty at the

University of Wisconsin-Superior

In Partial Fulfillment

of the requirements for the Degree

Masters of Science in Education – Special Education

December, 2012

by

Amanda J. Pulkrabek

The Use of Song Cues for Preschool Students with Autism

Amanda J. Pulkrabek

A Research Project Report

Approved:

Xhodah Pohnon, Ed.D.
Research Adviser

Dec. 18 2012
Date

Accepted:

Xhodah Pohnon Ed.D.
Program Coordinator

Dec 18, 2012
Date

Table of Contents

Front Matter

Chapter I: Introduction

Chapter II: Review of the Literature

Chapter III: Methodology

Chapter IV: Results of the Study

Chapter V: Discussion and Summary

The Use of Song Cues for Preschool Students with Autism

Amanda J. Pulkrabek

University of Wisconsin-Superior

Abstract

Individuals with autism, while under the same special education label, come into our classrooms with varying skills, differing degrees of deficit, and with a wide range of ability levels. The struggle, and sometimes the reward, of working with this population of students is how individual they are. Such a large spectrum of skills and abilities creates obstacles for professionals when determining what methods of instruction to use with each student; as a single method does not work for all. This research project looked at two different teaching strategies that can help to create success for these students throughout their day. The purpose of this study was to investigate the use of song as a cue to direct behavior for preschool students with autism. The study analyzed and compared the use of song cues in daily situations when visual supports were typically used. These daily situations include a time when a transitional cue was needed and a time when a behavioral cue was needed. Five preschool students from the same ASD

classroom participated in the study. The data demonstrated that song cues were determined a successful cueing technique for preschool students with autism as supported by the data from all students during the behavioral request trials and three of the five students during the transitional request trails. This researcher was also able to determine that song cues had a lesser rate of success as compared to visual cues during the transitional request activity, but a greater rate of success during the behavioral request activity.

Chapter 1. INTRODUCTION

Introduction statement

Students with autism can face a number of challenges within a preschool classroom. It is likely that they will struggle with the social aspects of a typical day such as: turn-taking, sharing, understanding others' emotions, or joint attention activities. They may also struggle with communication skills related to: requesting, refusing, or initiating. Their restricted repertoire of activities and interests can pose as a barrier within the classroom when routines change, the day is not structured, or when expectations are unclear. The struggle, and sometimes the reward, of working with this population of students is how individual they are. With this individuality, many times comes additional work for the professionals working with them. There is no universal strategy that is proven effective for students with autism. Similar to many other disability areas, professionals are encouraged to teach to the individual child's ability levels,

strengths, and areas of need. This results in the use of different teaching approaches for each child. However, there are a number of recommended techniques that have gained credibility over the years. One of these techniques is the use of visual supports. Visual supports can help individuals with autism by: making abstract concepts more concrete, engaging and holding their attention, helping the individual to focus, reducing anxiety, assisting them with expressive language, and much more (Rao & Gagie, 2006). While visual supports have their benefits, they also have a few shortcomings.

Research Problem

There is no doubting the effectiveness of visual supports when used with students with special needs, especially for students with autism, but for visual supports to be effective there must be a good deal of prep work done first. It can be time consuming and expensive for a teacher to create, use, and implement visual supports across settings for a single child. Banda, Grimmett, & Hart (2006) explain that implementing a visual support such as an activity schedule can include as many as 12 steps to ensure its effectiveness for each individual student. Some steps within this process include: choosing a mode of presentation, choosing a medium, determining an appropriate and accessible location, training the student how to use it, and fading out adult prompts. Another important, yet cumbersome, element that the educational team must consider is how the student will have access to the visual supports in all settings. How portable are they? Does the student or the teacher carry them? Have copies been made for use at home? Have parents and other teachers been trained on how and when to use the visuals? These questions and many more must be answered before the use of a visual support can be executed correctly. Visual supports can also be expensive to create. Many schools and therapy centers use the program Boardmaker, which contains a database of 4,500 picture symbols to access.

Depending on the version, it can cost between 329 to 399 dollars for each downloadable program. For those students that need a more concrete visual, actual pictures of the environment will have to be taken and printed. This creates additional costs of cameras, color printers, or trips to the photo printing shop. The time consuming and expensive nature of visual supports leaves this researcher wondering what other methods can be successfully used with students with autism?

Rationale for the study

Music is a common component in many preschool classrooms. Gillespie & Glider (2010) found that preschool teachers use music throughout the school day, with the most frequent use of music happening during group, movement games, and transitions. Their study shows that preschool teachers used music most frequently for the purpose of scaffolding student learning. As an early childhood educator, I have used music as a teaching tool in all of my previous classrooms. Music has assisted me in teaching new skills, cueing transition times, engaging students, and by helping to create structure within the school day. The simplicity of music, or more specifically the simplicity of song, is that it requires nothing but the human voice. No supplies, materials, or extensive prep time is needed. Preparing for the use of a song cue might include a quick search on the internet for transition songs that fit the teaching situation. Or possibly it could include sitting down with a pencil and paper to compose a song to the tune of a familiar children's song that will explain your behavioral expectations to the students. Songs can also be quickly adapted by simply switching out a word or two to better fit the situation or the child's ability level. Due to the simplicity, familiarity, and adaptability of song, this researcher sought to document its effectiveness as an instructional strategy within the classroom.

Purpose of the Study

The purpose of this study was to investigate whether song can be used as an effective technique to cue preschool students. It focused on a population of preschool students who were receiving services under the categories of either Autism Spectrum Disorder (ASD) or Developmental Delay (DD). Regardless of their current special education label, all students were enrolled in a self-contained classroom structured for the unique needs of individuals with ASD. For the purpose of this study the classroom will be referred to as the ASD preschool room. The study documents the use of song cues during both transition times and as a reminder to use appropriate behavior. The researcher sought to investigate whether, in a situation where visual cues are showing rates of success, the use of song cues would also show success.

Research Questions and Hypotheses

Can song be used as a successful cueing technique with students in an ASD preschool classroom? Will song cues have a greater, lesser, or similar success rate as compared to visual cues? Will these song cues be successful during both transitional and behavioral requests?

The researcher hypothesizes that the song cues will have a varying degree of success with the sample population. The degree of success will be related to the extent to which music is a motivator for that particular child. The researcher hypothesizes that the success rate for song cues will come close to that of the visual cues.

Limitations

Limitations of the study include the minimal similarities of the students. The one common factor is that all participants attend the same ASD preschool classroom where the research will take place. Participants were evaluated at different times and by different educational teams who did not use similar procedures, so comparing ability levels or scores on ASD related assessment tools was not possible. Another limitation of the research will be the

researcher's lack of control over attendance. Preschool age children are not required by law to attend school. So if absent, participates might have varying degrees of exposure to the interventions. A final limitation of the study is the order of interventions. By the time the study moves into the second intervention stage, students will have had more exposure to and practice with the behavioral expectations which will be observed for data collection.

Delimitations

The study will not be conducted in any other preschool classroom besides the ASD room. Participates only include those students attending the ASD preschool classroom and will not include any other students under the educational label of ASD or DD within the school. The study will not include all transitions and behavioral requests that happen throughout the school day, but will instead be restricted to just two requests per day. Finally, the study will not look at the effects of visual and song cues when paired together as an intervention.

Definition of Terms

Autism: a developmental disability affecting verbal and nonverbal communication and social
    interactions, generally evident before age 2, that affects a child's performance (Stichter,
    J., Conroy, M., & Kauffman, J., 2008).

Autism Spectrum Disorder (ASD): An umbrella term used to refer to individuals who display
    characteristics commonly associated with autism. ASD includes the following disorders:
    autism, Asperger's syndrome, Rett Syndrome, childhood disintegrative disorder, and
    pervasive developmental disorder not otherwise specified (Stichter, J., Conroy, M., &
    Kauffman, J., 2008).

Developmental Delay (DD): A child up to age seven who is experiencing a measurable delay in

    development according to diagnostic instruments and procedures (MN Dept. of Ed.,

    2011).

Self-contained classroom: A special classroom, usually located within a regular public school

    building, that includes only students with qualifying exceptional needs (Stichter, J.,

    Conroy, M., & Kauffman, J., 2008).

Visual supports: are pictorial and graphic stimuli that enhance comprehension and learning in

    individuals who may otherwise struggle with communication (Arthur-Kelly, Sigafoos,

    Green, Mathisen, & Arthur-Kelly, 2009).

Stimulus cueing: a stimulus that provides information about what to do by suggesting the next

    words of something forgotten or imperfectly learned, such as a prompt to do a desired

    task (Stichter, J., Conroy, M., & Kauffman, J., 2008).

Visual cues: for the purpose of this study, a visual cue will refer to pictorial or graphic symbols

    presented to students to help students understand a classroom expectation and directions.

    Example: moving to the next activity, using a quiet voice, sitting down, etc.

Song cues: for the purpose of this study, a song cue will refer to the use of a song to help

    students understand classroom expectations and directions.

Music therapy: When client and therapist work together through music to promote health, guided

    by grounds sufficient to help ensure that the work is valuable (Abrams, 2010).

Behavioral request: for the purpose of this study, a behavioral request will refer to the research

    setting in which the researcher cues students to use a quiet voice while at the snack table.

Transitional request: for the purpose of this study, a transitional request will refer to the research

    setting in which the researcher cues the students to transition into the next activity.

Transition: a period of time when teachers direct students to end one task or activity and begin

      another (Banda, Grimmett, & Hart, 2009).

Time sampling: an observational recording system in which an observation period is divided into

      equal intervals; the target behavior is observed at the end of each interval (Alberto, P. &

      Troutman, A., 2009).

Event recording: recording a tally or frequency count of behavior as it occurs within an

      observation period (Alberto, P. & Troutman, A., 2009).

Latency recording: recording the amount of time between the presented stimulus and the

      initiation of a response (Alberto, P. & Troutman, A., 2009).

Changing Condition Design: a single-subject experimental design that involves successively

      changing the conditions for response performance in order to evaluate comparative

      effects (Alberto, P. & Troutman, A., 2009

Chapter 2: LITERATURE REVIEW

Introduction

      Autism is a developmental disability that falls under a broad group of disorders categorized as pervasive developmental disorders, or PDD. This spectrum of disabilities includes: autism, pervasive developmental disorder not otherwise specified, Asperger disorder, Rett's disorder, and childhood disintegration disorder. This group of disorders is most commonly referred to as autism spectrum disorder (ASD), by both professionals and families (Lord, 2010). Three distinctive domains categorize the characteristics of individuals with autism, they are: social interactions, communication, and a restricted repertoire of activities and interests (Stichter, Conroy, & Kauffman, 2008). The skills, deficits, and ability levels within each of these domains will vary per individual, making each individual with autism very unique.

Such a large spectrum of skills and abilities creates obstacles for professionals when determining what methods of instruction to use with each student. This literature view will take a look at what those obstacles are within the classroom, and two potential interventions to use.

Obstacles to success within the classroom

Social

One of the biggest deficits for individuals with autism is their ability to understand and interact in the social world. Impairments in social interaction is one of the three deficit areas that professionals look at when determining if an individual meets the diagnostic criteria for autism. This category includes such things as: trouble looking others in the eye, failure to develop age-appropriate friendships, does not share their interests or achievements with others, and a lack of social or emotional reciprocity (Stichter, J., Conroy, M., & Kauffman, J., 2008). At the young preschool age, the social deficits related to play situations set those students with autism apart from their regular education peers. For these students playing does not come naturally, they can many times be found in a corner of the room playing on their own. At the preschool level, social goals in the classroom include: joint attention, turn taking, imitation, holding eye gaze, and initiating. While these goals will likely be taught and learned in a play setting, as the students gets older these skills will translate over into the behaviors needed to function independently within the classroom (Lord & McGee, 2001). These social deficits make the school environment a challenging place for students with autism as they learn to adapt to and understand the school climate, the expectations, and their interactions with others.

Communication

Individuals with autism can have communication abilities that range from no verbal communication use to the use of an extensive vocabulary expressed with unusual intonation or

no eye contact. Impairment in communication is the second diagnostic criteria category that is looked at, with many of the characteristics of communication affecting an individual's social abilities as well. Characteristics under the communication criteria include such things as: delayed language development, echolalia, difficulties talking about topics not in their repertoire of interests, limited use of gestures or facial expressions, demonstration of odd production of speech, and difficulties with reciprocal conversation (Lord, 2010). Within the classroom the difficulties with the attainment of language and the struggle of understanding and using nonverbal behaviors both pose as obstacles for young and old students alike. One of the major obstacles for students with autism is their ability to attend and how that gets in the way of communication, both expressive and receptive. Their general education peers will, for the most part, be able to filter and prioritize information as it comes to them. Individuals with autism have difficulties with this process, in part due to their heightened or weakened use of their senses. A student might pay an equal amount of attention to the sound of the wind outside the classroom window as he or she does to the teacher's voice as she gives directions. Or a student may follow the eye gaze of a teacher as she points to the first direction being given, but remains fixed on that item as the teacher moves onto a description of the next three steps. Individuals with autism struggle to shift, focus, and filter their attention, especially within busy environments like a classroom (Lord & McGee, 2001). How individuals connect with their environment determines how they communicate within it. Connecting requires an efficient use of our senses, putting students with autism at a disadvantage when attempting to successfully participate in the classroom's many social and communication based activities.

Restricted/repetitive behaviors and interests

Individuals with autism have a variety of characteristics that can be both obvious to the average observer or easily disguised if the environment is made optimal for that child's learning needs. These characteristics fall under that broader diagnostic category of: restricted, repetitive and stereotyped patterns of behavior, interests and activities (Banda, Grimmett, & Hart, 2009). Criteria found under this category include: narrow focus to only topics of interest, performing activities in the same exact order, becoming upset by minor changes, anxiety when routines change, hand flapping, spinning of self or objects, interest in objects due to their sensory qualities, and attachment to unusual objects (Stichter, J., Conroy, M., & Kauffman, J., 2008). While these behaviors may not seem harmful to the student with autism or other students, they can create barriers to that student's learning and/or their involvement within the classroom. Individuals with autism may be engaging in repetitive behaviors as a way to express boredom, agitation, or as a self regulation technique when they become over-stimulated (Turnbull, Turnbull, & Wehmeyer, 2007). Some researchers believe that individuals with autism engage in stereotypical behaviors as a way to shut out overwhelming sensory input from their environment. They might use this repetitive behavior as a way to create certainty and predictability in situations they feel are confusing or out of control (Lord & McGee, 2001). Within the preschool classroom, difficulties for children with autism related to these characteristics might include: acting out when routines change, rigid interpretation of rules and directions, anxiety with new activities, inability to tune out unimportant sights and sounds, and an inappropriate use of objects from what was intended within the teaching situation. For students to succeed within the school setting, professionals must work together to create environments that provide: visual supports, structured and predictable routines, direct teaching of skills, and opportunities for sensory breaks from the otherwise very stimulating environment.

All three deficit domains must be taken into consideration when setting up a classroom and preparing the teaching techniques needed to support students with autism. This researcher explored all three areas before finding specific situations that will be addressed within the study. Both situations selected for the study are affected by and relate to all three domains in some way. The first situation deals with a daily transition between activities within the classroom. The students' success with this task depends on their receptive language skills and their ability to switch their focus from one activity to the next. The second situation includes the common behavioral expectation of using a quiet voice while in the school hallways. The students' success with this task will depend on their direction following abilities, their understanding of social expectations within the school setting, and their ability to retain focus when a prompt is removed. While there are a number of techniques that can be used to support these students as they participate in both tasks, this researcher sought to evaluate the use of visual cues and song cues with students in an ASD preschool classroom. We will now look into the details of these two strategies, the qualities that make them effective, and research that has already been conducted on the topics.

Visual Supports and ASD

Visual supports can be described as, "pictorial and graphic stimuli that enhance comprehension and learning in individuals who may otherwise struggle with communication" (Arthur-Kelly, Sigafoos, Green, Mathisen, & Arthur-Kelly, 2009). Hume (2008) also described visual supports as, "any tool presented visually that supports an individual as he or she moves through the day (pg.1). Visual supports can include items commonly used by the general population such as: pictures, written words, schedules, maps, or labels. There are also items that can be categorized as visual support systems that are better structured to meet the needs of

individuals with autism, which include: activity schedules, contingency maps, social stories, picture exchange communication system (PECS), or real life objects and photos (Arthur-Kelly, et al., 2009). Visual support systems can be used to assist the learning of students throughout their day as a supplement to verbal directions or as a standalone tool. They help to reduce the student's reliance on adult assistance, which is otherwise needed in order for them to understand directions and expectations in many situations. When implemented correctly, visual supports allow individuals with autism to more fully engage in their environment by minimizing communication barriers (Rao & Gagie, 2006). Within the school setting, a commonly used visual support system provided for many students with autism is an activity schedule. Activity schedules use photographs or drawings to show the progression of activities within the child's day. This can be presented as a class schedule or an individual child's schedule, and can be stationary or portable. These schedules provide structure for the students; helping them to see what comes next and allowing them to foresee any changes that might occur to their daily routine (Banda, Grimmett, &Hart, 2009). We know that individuals with autism have unique learning styles, they do not deal with their environment and learn new skills in the same way their peers might. Professionals have discovered that visual supports help to lessen this gap. But, what is it about visual supports that make them so effective?

Visual supports are effective tool to use with students with autism due to their concrete qualities, their versatility of use, and their ability to bridge communication gabs. When a teacher gives the direction "it's time to clean up", the verbal cue is only present for a few seconds as the teacher speaks. Verbal messages are momentary, they come and go quickly. For an individual with autism, who has trouble shifting and reestablishing attention, this form of communication is more difficult for them. Arthur-Kelly, et. al., (2009) discuss the "tangible and permanent

quality" of visual supports. Visual supports are static; they remain present until the learner is able to process them. This concrete quality also helps the learner in situations where the visual is used to trigger their memory of past events in order to create links between concepts (Lord & McGee, 2001). Visual supports bring structure, routine, and sequence to a student's daily interactions. This allows the student to focus on the message being communicated and in doing so decreases anxiety (Rao & Gagie, 2006).

Another reason why visuals have proven to be a successful tool for individuals with autism is their versatility. Visual support systems do not come in one form, but rather many forms with ways to adapt each. Within each system, professionals can make accommodations to meet the individual's ability level by choosing a form of representation. These forms include: objects, photographs, drawings or picture symbols, words, phrases, or a combination of those (Hume, 2008). Allowing the format of the visual support system to be at the level of the individual, increases their ability to understand and use the system effectively. Visuals are also versatile due to the fact that they can be integrated and combined with other approaches (Lord & McGee, 2001). Visual supports can be used to strengthen a positive behavior intervention plan, create concrete meaning in a social skills lesson, or provide structure to joint attention tasks. Arthur-Kelly, et. al., (2009) state that visual supports play a variety of roles, including "expressing needs and wants, sensory preferences and emotions, seeking and offering information, and reflexive language or self-talk" (pg 1476). This variety is what helps to make these supports so effective.

One of the areas that individuals with autism struggle with is deficits in communication. Visual supports can help to strengthen the accuracy between the messages given by others and the information that is received by the individual with autism. Visual supports also help

individuals to express their thoughts (Rao & Gagie, 2006). The breakdown in communication exchanges, for individual with autism, many times has to do with their difficulty understanding social cues such as: gestures, facial expressions, and body language. Supporting these communication interactions with visuals helps to bring concrete meaning to the exchange and provides the individuals with autism with a better understanding of what is expected of them (Arthur-Kelly, et. al., 2009). When the struggle to decode communication interactions is reduced, due to the use of visuals, anxiety is decreased and individuals with autism are better able to engage in these interactions.

Now that we have reviewed what visual supports are, the different system that can be used, and the reasons they are recommend for use with individuals with autism, let's take a look at what other professionals have found when implementing these strategies. Visuals supports have been used to teach students with autism to: develop literacy skills, cook, encourage positive behavior, for signaling activity changes, increasing task engagement, and to support play skill development (Rao & Gagie, 2007; Hume, 2008). Waters, Lerman, & Hovanetz (2009) looked at the use of visual supports as a supplement to the strategies of extinction and differential reinforcement. They looked at how the combination of techniques would help to decrease problem behaviors for 2 six year old boys with autism during transition times. Their results show that, while visual supports alone did not work to decrease behavior, they may have enhanced the effectiveness of extinction and differential reinforcement. Banda & Grimmett (2008) found that activity schedules enhanced the social interactions and on-task behaviors of individuals with autism. They also found that in some cases these behaviors then generalized across settings. A final study by Carnahan & Musti-Rao (2009) researched the effectiveness of interactive reading materials paired with both visual cues and music. The researchers looked at

the students' levels of engagement with each type of supplemental intervention during a group time activity for 6 students with autism. The results indicated an increase in engagement when interactive materials were combined with music, and less engagement when presented separately.

A review of visual supports and its relevant research shows that visuals can be used as an intervention to support skills ranging from adaptive behavior and transitions, to play skills and social initiation. Due to the reported success of visual supports with individual with autism, the researcher of the present study looks to use this intervention. The literature review builds on the researcher's belief that visual cues will be helpful, not harmful, in supporting preschool students with autism as they engage in two daily activities within the study.

Music and ASD

Children are born with a natural musical ability that is then developed through their exposure to and use of music. The use of music and song is a commonly occurring activity within the early childhood and elementary classroom. Gillespie & Glider (2010) found that preschool teachers use music throughout the school day, with the most frequent use of music happening during group, movement games, and transitions. When music is used within the classroom it creates a positive learning environment where children feel free to express themselves, engage with others, and participate in activities they might otherwise choose not to engage in (Paquette & Rieg, 2008). Many early childhood and elementary teachers use music and song for a variety of purpose. They use music as a teaching tool to develop and extend vocabulary, for improving listening skills, or to strengthen attention and memory. They might also use music to support social skills such as expression of emotions, to motivate initiation, to

promote language use, or to elicit joint attention (Kern, Wolery, & Aldridge, 2007). The use of music also has some lasting benefits when used with individuals with autism.

One intervention options for individuals with autism is music therapy. Music therapy uses music to address physical, emotional, cognitive, and social needs of individuals. In this process the therapist uses musical experiences to help the individual improve, maintain, or restore a state of well-being (Finnigan & Starr, 2010). For individuals with autism a variation of music therapy is used called improvisational music therapy. In these therapy sessions the activities are structured to engage the child at their level, helping them to produce spontaneous self-expression, communicate on an emotional level, and to create social interaction opportunities. This type of therapy is very child-centered in nature. The child is allowed to direct the adult's behavior, due to the fact that the adult creates music based off the child's actions and reactions (Kim, Wigram, & Gold, 2008). Whipple (2004) reviewed previous studies on the use of music as an intervention for students with autism and found a number of benefits in common. She discovered that music therapy helps to: increase appropriate behavior, attention to task, and vocalizations. It helped to enhance body awareness and engagement with others, and was successful in deducing anxiety.

Music can be used effectively with individuals with autism even when used outside a music therapy setting. One component that makes music use successful is when it is paired with other intervention plans such as behavior incentives, social stories, or group time routines. The outcome is also improved when there is a systematic and replicable use of music (Carnahan & Musti-Rao, 2009). Song can help to motivate students to engage in social tasks when it is embedded into daily routines. Students who are otherwise not motivated to follow through on a teacher direction, such as cleaning up, are more likely to comply when music is involved

(Finnigan & Starr, 2010). For individuals with autism music provides that structure and stability they need, with the flexibility that makes new interactions and engagement opportunities with the world around them possible.

A number of studies have been conducted with individuals with autism that look at the use of music for a variety of purposes. We looked at five studies to get a better understanding of the potential benefits of music. Three of the studies look at the use of music in situations most closely related to music therapy, while the other two studies use song as a way to direct student behavior. All five studies include only participants with ASD. In the first study, Finnigan & Starr (2010) observed the social responsive behaviors of a 3 year old girl while she participated in both music and non-music therapy sessions. Toys were included in both types of sessions with which the therapist tried to engage the child. During non-music sessions the therapist talked about the toys as she played with them and during music sessions the therapist sang about the toys using familiar childhood melodies. They found that the occurrences of eye contact, imitation, and turn-taking were all higher during music sessions as compared to non-music sessions. Kim, Wigram, & Gold (2008) also looked at the use of music to elicit joint attention behaviors. They compared improvisational music therapy sessions to play therapy sessions with 15 preschool students. The results showed that participants had a higher rate of eye contact during the music therapy sessions, but that students did not exhibit improvements in higher level joint attention skills such as pointing or showing in either of the sessions types. In a final study, Simpson & Keen (2010) evaluated the motivation of 3 boys to engage in a teacher directed activity. They created a powerpoint presentation where the boys were instructed to identify an animal by touching its picture on the screen. Directions were given verbally during one session and to the tune of Old MacDonald during the other session. Results showed that all three boys

improved in their correct responses when music commands were used as compared to verbal commands.

We now take a look at two studies that are more closely related to the purpose of the present study, which looks at the use of song to help direct student behavior. Brownell (2002) investigated the use of musical presentation of social stories on 4 students with autism. The social stories were all individuals written to address current behavioral goals for each of the students. These stories were then combined with melodies to create a musical presentation of them. Data was collect on the students' behaviors at times when the stories were read and other times when the stories were sung. Results show that inappropriate behaviors were decreased when the story was presented in both forms, but more profound improvements were seen when the musical presentation was used. Another study using individually composed songs looked at the need for increased independent behaviors of two students during their morning greeting routine. Kern, Wolery, & Aldridge (2007) evaluated the effects of these songs to determine whether they were able to increase the students' independence in completing the steps of a routine as they enter their classroom each day. Steps that were sung to each child include: putting away items, entering the room, greeting the teacher and peers, and engaging in play. Both boys, while at different levels, showed an increase in independent behaviors on days when the song was used. The results support the use of song to ease transitions for students with autism.

Summary

The literature review supports the use of and need for the researcher's present study. Through a detailed look at visual supports and musical interventions, it is evident that both prove to be an appropriate strategy to use with individuals with autism. They possess a number of

qualities that help to engage and hold the attention of individuals with autism. While a review of

previous research provides some substantial evidence of the effectiveness of these two strategies,

none of the studies contain the same procedures or purpose that the present study seeks to

analyze. The researcher attempts to evaluate the use of visual cues and song cues as a teaching

technique used to direct student behavior.

Chapter III. METHODOLOGY

Introduction

The purpose of this research project was to investigate the use of song as a cue to direct

behavior for preschool students with autism. The study attempted to analyze and compare the

use of song cues in daily situations when visual supports were typically used. These daily

situations included a time when a transitional cue was needed and a time when a behavioral cue

was needed. Data was collected over an eight week period during the 2011/2012 school year.

Data was collected to document the students' behaviors after being given three different types of

cues: verbal with no visual, verbal cue paired with a visual, and lastly when given only a song cue.

Participants

Participants in this study included those in a special education preschool classroom. This was a self-contained classroom structured for students with ASD. In attendance for the 2011/2012 school year were eight students, seven boys and one girl. Five of these students agreed to take part in this research project. All five students taking part in the study were males. Ages of the students range from 3 years, 9 month to 5 years, 1 month. As indicated by their most recent evaluation, four of the students were being served under the category of Development Delay (DD), with one students served under the category of Autism Spectrum Disorder (ASD). The district's evaluation teams determined that each child shows unique learning needs that would best be supported in a setting for students with autism, regardless of their current special education label. In the state of Minnesota, children can receive services under the category of DD until age 7. These students are placed in the ASD preschool classroom due to the high probability that their educational label will be switched from DD to ASD once they turn 7 because of the autistic characteristics and behaviors they already show at the present time. Therefore, throughout this paper the researcher will refer to the participants as students with autism.

Students attended the preschool classroom for four hours a day, 5 days a week. The classroom was located on the first floor on an elementary school. The classroom was structured much like that of a typical general education preschool classroom. Students were expected to participate in such activities as: morning greeting, social play, circle time, small group instruction, art projects, meal times, large motor play, and independent choice time.

Accommodations, those not typically found in a general education classroom, to help support the unique needs of these students with autism included: increased visual supports for all activities of the day, a decrease in verbal instruction, sensory breaks, a highly structured day, consistent routines, and a focus on social skill development through the use of concrete teaching strategies. These participates were chosen for the study due to the convenience of data collection and the researcher's control over environmental factors by having all students in the same class, experiencing the same daily routines and expectations. A parent consent form was sent home that informed parents of the study and how their child will be involved in the procedures of the study. The forms gave parents the necessary details of the study and information on how to contact the researcher.

Research Setting

The study occurred within the classroom. The first setting in which student behavior was observed and documented occurred during a daily transition from group time to lining up, for that purpose we called it the *transitional request.* Group time was conducted with all students seated in a designated spot on the rug which then forms a half circle where everyone involved faced the teacher. The classroom was divided into two adjoining rooms with an open doorway between them, which was blocked off by a moveable divider. The transition began when group time was over, as cued by putting away their carpet squares. The expectation was that all students would transition in a timely manner from the group time area to waiting in line by the divider.

The second setting in which student behavior was observed and documented was during a daily walk down the hallway to the gym. During this activity, the focus and behavioral expectation was that students retain a quiet voice as they walk down the hallway. We will

therefore call this activity the *behavioral request*. This activity happened in the middle of the students' day. Students line up at the classroom door, the teacher gives the reminder to use a quiet voice, and then leads that class out into the hall. Students either hold the teacher's hand or walk in line between two adults. This depends on their level of ability to follow directions and safety commands. Walking down the hallway to the gym includes taking two turns. Students did not need to take any stairs or go through any closed doors. Data was collected from the point when the students walked out their classroom door until the first turn, a 20 yard distance.

Instrumentation

The researcher used a single subject changing condition design for each student. Phases of the research will include baseline, intervention 1, a return to baseline, and intervention 2, forming an ABAC design. Baseline documented student behavior when they were given only a verbal cue. Intervention 1 was the use of a visual cue to support the verbal request. Intervention 2 was the use of a song cue to replace both the verbal and visual cues.

Transitional request

During the baseline phase of the transitional request the teacher cued the students by speaking loud enough so all students can hear her and said the following twice, "group time is all done, go line up". Baseline was continued for two weeks. During intervention 1, the teacher paired the verbal request with visual cues for students. The cue was a 12x12 pictures of the students lined up at the divider (Appendix A). The picture was presented individually as each student is excused from group time. During intervention 2, the teacher cued the student to transition by singing a transition song (Appendix B). The song was repeated twice, once while students were still seated at group time and again while they were in transition.

Behavioral request

During the baseline phase of the behavioral request the teacher cued the students by speaking loud enough so all students could hear and say the following twice, "We are going into the hall, quiet voices". Baseline continued for 2 weeks. During intervention 1, the teacher paired the verbal cue with a visual. The visual cue was a 12x12 Boardmaker picture of the quiet symbol that is found on that database (Appendix A). Two copies of the visual were used. One was held up by the teacher as she said the verbal cue. The other was taped to the side of the door and each student's attention was brought to it before they walk out of the classroom. During intervention 2, the teacher cued the students to use a quiet voice by singing a song (Appendix B). She repeated the song twice, first as they stood in line waiting to leave the room and again while they were walking down the first half of the hall.

Data Collection Procedures

Transitional request

The expectation for this interaction was that the children transition from their designated spot at group time to the line within 15 seconds. The success of the transition was documented by setting a timer for the allotted time and marking down the number of students in line when the timer went off. A teacher's assistant used time sampling procedures by placing a check by the names of the students who were not in line when the timer went off. The timer was started 10 seconds after the teacher begins to give her cues. This helped to strengthen the reliability of the results by giving students the same amount of time to transition, regardless of how long the different cues took to complete. If a student was in line within the allotted time it was assumed the student did not get distracted while transitioning, did not engage in inappropriate behavior, and that the cue worked to gain his attention.

Behavioral request

The expectation during this activity was that students retain a quiet voice during their daily walk in the hallway to the gym. Data collection occurred during the first half of the walk to the gym. This included about a 20 yard distance from the classroom door to the first turn. The teacher and two classroom assistants were each assigned 2-3 students to observe during this time. They used time sampling procedures to document whether or not the student were engaging in the target behavior, which is to keep a quiet voice. Behaviors that were expectable included no talking or a whisper. The teacher and assistants observed students until they turned the corner to determine who was able to retain a quiet voice. The teacher placed a check by the names of the student who were able to do this.

Data Analysis

An investigation was conducted by analyzing and comparing the quantitative data. Data was collected daily, converted into weekly percentiles, and then plotted onto a graph using an ABAC design. The researcher was able to compare the student's percentile of compliance to the behavioral and transitional request on a weekly basis. By implementing the two interventions separately and providing a return to baseline between the interventions, the research was able to compare the use of visual cues and songs cues as two separate interventions. The data answered the researcher's questions of whether song cues have a greater, lesser, or similar success rate as compared to visual cues. The research was also able to determine the success rates during both the transitional request and the behavioral request. Date was analyzed per students and with the classroom as a whole group. The researcher was also able to incorporate qualitative data such as observations of student behavior and trends, which will be considered when discussing the research results and the effectiveness of both interventions in the following chapters.

Chapter IV. RESULTS OF THE STUDY

Introduction

Data from this research project will be used to investigate the use of song as a cue to direct behavior for preschool students with autism during two daily situations when visual supports were typically used. These daily situations included a time when a transitional request was made and a time when a behavioral request was made.   The transitional request occurred during a daily transition from group time to lining up at the door. The behavioral request occurred when students were required to use a quiet voice during a daily walk down the school hallway to the gym. Data was collected on 5 students over a seven week period during the

2011/2012 school year. Data was collected to document the students' behaviors after being

given three different types of cues: verbal with no visual (baseline), verbal cue paired with a

visual (intervention one), and lastly when given only a song cue (intervention two). The

transitional request was marked as successful if the student was able to transition from their spot

at group time to standing in line at the door within 15 seconds after the verbal, visual, or song

cues was given to the class. The behavioral request was marked as successful if the student was

able to retain a quiet voice, which meant a whisper or completely silent, during the first 20 yards

of their walk in the hallway. Student behavior was converted into weekly percentiles to show

what percent of the time they were able demonstrate successful compliance with the given

request.

The research was conducted to answer the following research questions: Can song be

used as a successful cueing technique with students in an ASD preschool classroom? Will song

cues have a greater, lesser, or similar success rate as compared to visual cues? Will these song

cues be successful during both transitional and behavioral requests?

Transitional Request

Student A is a male student who was 4 years old at the time of the study. During the

transitional request he showed the highest rate of success during week 3, a visual cue

intervention phase. During this week he had 100% compliance which means he was able to

transition from group time to lining up at the door 5 out of the 5 possible opportunities that week.

Student A showed lower scores during baseline periods, with rates of compliance at 0%, 60%,

and 40%. His rates of compliance during the visual cue intervention phase were 100%, as

mentioned above, and 75%. His rates of compliance during the song cue intervention phase

were 80% and 66%. While slightly higher during the visual cue phase, student A's data shows that both visual cues and song cues were more successful in helping him transition to standing in line, but song cues did show a lesser rate of success.

Student B is a male student who was 5 years old at the time of the study. During the transitional request he showed the highest rate of success during week 3, a visual cue intervention period. During this week he had 80% compliance which means he was able to transition from group time to lining up at the door 4 out of the 5 possible opportunities that week. Student B showed lower scores during the baseline periods, with rates of compliance at 60%, 60%, and 50%. His rates of compliance during the visual cue intervention phase were 80%, as mentioned above, and 60%. His rates of compliance during the song cue intervention phase were 50% and 0%. Student B's data shows that the use of a visual cue was the most successful for him and the use of a song cue had lesser rates of success.
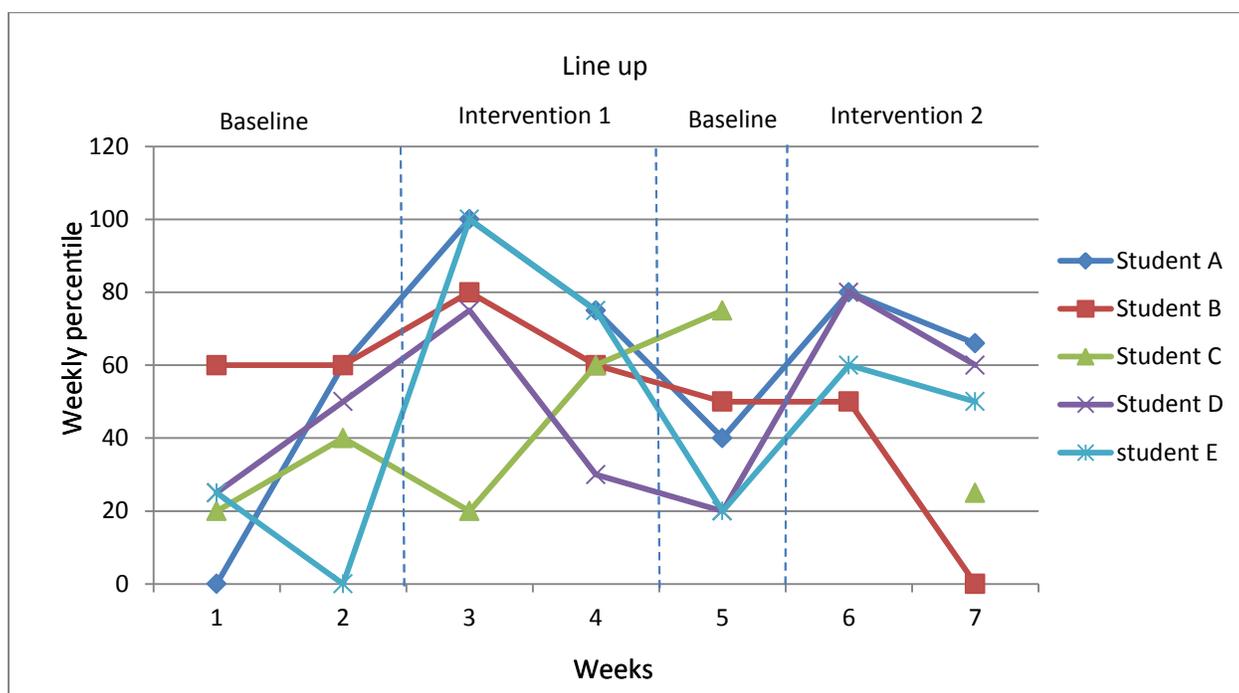
Student C is a male student who was 5 years old at the time of the study. During the transitional request he showed the highest rate of success during week 5, a baseline week in which only a verbal cue was given. During this week he had 75% compliance which means he was able to transition from group time to lining up at the door 3 out of the 4 possible opportunities that week. Student C second highest rate of successes was during week 4, a visual cue intervention week in which he had 60% compliance. His remaining scores during baseline were 20% and 40% compliance. His rates of compliance during the visual cue intervention phases were 60%, as mentioned above, and 20%. His rate of compliance during the song cue intervention phase was only a 25% for week 7. Student C was absent for all of week 6, which was a song cue intervention week. Student C's data shows that neither the visual cues nor the song cues had the highest rate of success, but rather the verbal cues were the most successful in

helping him transition to standing in line. When comparing visual cues verses song cues for student C, song cues showed a lesser rate of success.

Student D is a male student who was 4 years old at the time of the study. During the transitional request he showed the highest rate of success during week 6, a song cue intervention phase. During this week he had 80% compliance which means he was able to transition from group time to lining up at the door 4 out of the 5 possible opportunities that week. Student D showed lower scores during baseline periods, with rates of compliance at 25%, 50%, and 20%. His rates of compliance during the visual cue intervention phase were 75% and 30%. His rates of compliance during the song cue intervention phase were 80%, as mentioned above, and 60%. Student D's two highest rates of success were during one week of a song cue (80%) and one week during a visual cue (75%). While both the song cue and visual cue phases produced high rates of success, student D performed at a consistent high rate of success during the two weeks of song cues. Therefore, student D's data shows that the use of a song cue was the most successful for him and so the use of song cues has a greater rate of success as compared to visual cues.

Student E is a male student who was 5 years old at the time of the study. During the transitional request he showed the highest rate of success during week 3, a visual cue intervention phase. During this week he had 100% compliance which means he was able to transition from group time to lining up at the door 5 out of the 5 possible opportunities that week. Student E showed lower scores during baseline periods, with rates of compliance at 25%, 0%, and 20%. His rates of compliance during the visual cue intervention phase were 100%, as mentioned above, and 75%. His rates of compliance during the song cue intervention phase were 60% and 50%. Student E's data shows that both visual cues and song cues were more

successful in helping him transition to standing in line than a verbal cue was, but song cues did

have a lesser rate of success as compared to visual cues.

Behavioral Request

Student A is a male student who was 4 years old at the time of the study. During the

behavioral request he showed the highest rate of success during week 7, a song cue intervention

phase. During this week he had 100% compliance which means he was able to retain a quiet

voice in the hallway 5 out of the 5 possible opportunities that week. Student A showed lower

scores during baseline periods, with rates of compliance at 20%, 60%, and 20%. His rates of

compliance during the visual cue intervention phase were 0% and 50%. His rate of compliance

during the song cue intervention phase was 100%, as mentioned above, and 40%. Student A's

two highest rates of success were during week 7 of a song cue phase (100%) and week 2 during a

verbal cue phase (60%). Therefore, student A's data shows that the use of a song cue had a

greater rates of success as compared to a visual cue and verbal cue.

Student B is a male student who was 5 years old at the time of the study. During the behavioral request he showed the highest rate of success during week 6, a song cue intervention phase. During this week he had 25% compliance which means he was able to retain a quiet voice in the hallway 1 out of the 4 possible opportunities that week. Student B showed lower scores during the baseline periods, with rates of compliance at 0%, 0%, and 0%. His rates of compliance during the visual cue intervention phase were 0% and 0%. His rate of compliance during the song cue intervention phase was 25%, as mentioned above, and 20%. Student B's data shows that the use of a song cue had a greater rate of success as compared to a visual cue.

Student C is a male student who was 5 years old at the time of the study. During the behavioral request he showed the highest rate of success during week 7, a song cue intervention phase. During this week he had 100% compliance which means he was able to retain a quiet voice in the hallway 5 out of the 5 possible opportunities that week. Student C second highest rate of successes was during week 2, a baseline verbal cue week in which he had 80% compliance. His remaining scores during baseline were 40% and 75% compliance. His rates of compliance during the visual cue intervention phases were 60% and 75%. His rate of compliance during the song cue intervention phase was 100%, as mentioned above. Student C was absent for all of week 6, which was a song cue intervention week. Student C's data shows that the use of a song cue had a greater rate of success as compared to a visual cue.

Student D is a male student who was 4 years old at the time of the study. During the behavioral request he showed the highest rate of success during week 7, a song cue intervention phase. During this week he had 80% compliance which means he was able to retain a quiet voice in the hallway 4 out of the 5 possible opportunities that week. Student D showed lower scores during baseline periods, with rates of compliance at 50%, 0%, and 0%. His rates of

compliance during the visual cue intervention phase were 50% and 0%. His rates of compliance during the song cue intervention phase were 80%, as mentioned above, and 40%. Student D's data shows that the use of a song cue had a greater rate of success as compared to the use of a visual cue.

Student E is a male student who was 5 years old at the time of the study. During the behavioral request he showed the highest rate of success during week 4, a visual cue intervention phase, and week 7, a song cue intervention phase. During both these weeks he had 100% compliance which means he was able to retain a quiet voice in the hall 5 out of the 5 possible opportunities that week. Student E showed lower scores during baseline periods, with rates of compliance at 50%, 40%, and 600%. His rate of compliance during the visual cue intervention phase was 100%, as mentioned above, and 80%. His rate of compliance during the song cue intervention phase was 100%, as mentioned above, and 80%. Student E's data shows that the use of a song cue has an equal rate of success as compared to a visual cue.

Quiet Voice
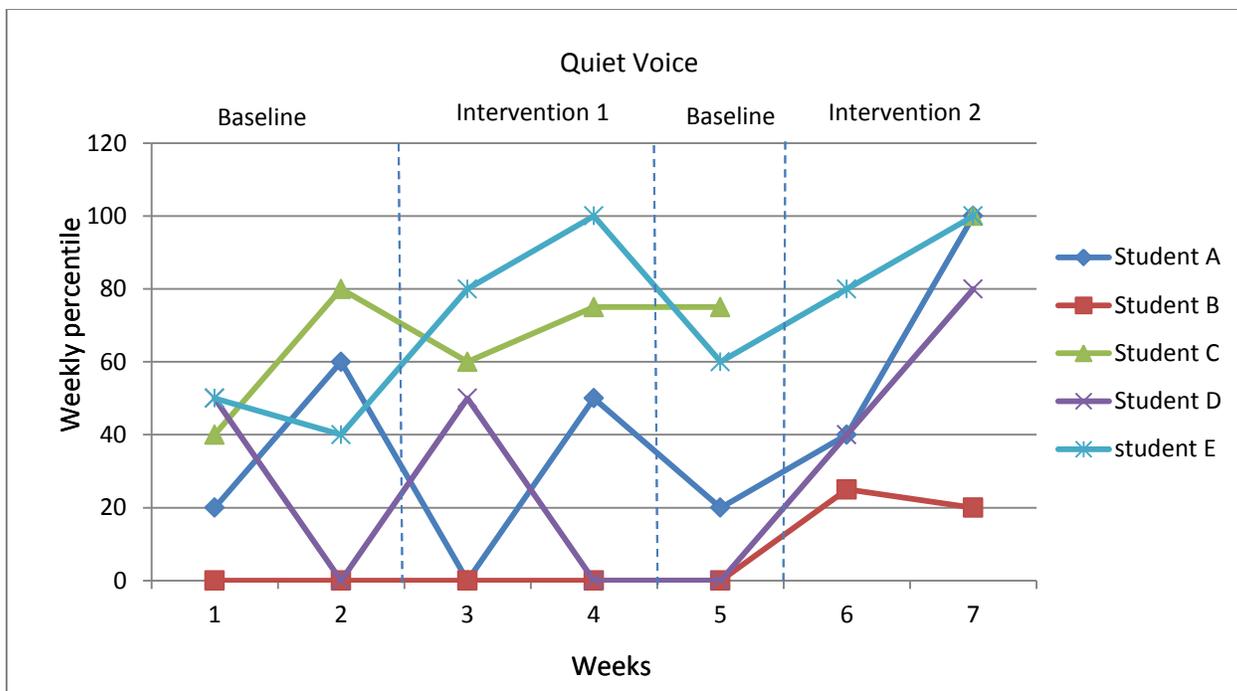
Summary

The transitional request was a daily activity when students were instructed to move from group time on the rug to lining up at the door. Three different levels of cueing were used which included: verbal with no visual (baseline), verbal cue paired with a visual (intervention one), and lastly when given only a song cue (intervention two). This researcher sought to investigate the use of song cues at times when visual cues were typically used and to determine if they had a greater, equal, or lesser affect on the students' rate of success. This researcher found that overall the use of a song cue had a lesser rate of success as supported by the date from Student A, student B, student C, and student E. Only student D's rate of success was greater with the use of a song cue.

The behavioral request was a daily activity when students were instructed to keep a quiet voice when walking down the school hallway. The three different levels of cueing were again used which included: verbal with no visual (baseline), verbal cue paired with a visual

(intervention one), and lastly when given only a song cue (intervention two). This researcher sought to investigate the use of song cues at times when visual cues were typically used and to determine if they had a greater, equal, or lesser affect on the students' rate of success. This researcher found that overall the use of a song cue had a greater rate of success as supported by the date from Student A, student B, student C, and student D. Only student E's rate of success using a song cue was equal to that of a visual cue.

Chapter V. DISCUSSION AND SUMMARY

Summary of the Study

Students with autism can face a number of challenges within a preschool classroom which may relate to communication, social skills, or restrictive behaviors. The struggle, and sometimes the reward, of working with this population of students is how individual they are. With this individuality, many times comes additional work for the professionals working with them. There is no universal strategy that is proven effective for students with autism. Similar to many other disability areas, professionals are encouraged to teach to the individual child's ability levels, strengths, and areas of need. This results in the use of different teaching approaches for each child. Visual supports are a popular strategy that can help individuals with autism by: making abstract concepts more concrete, engaging and holding their attention, helping the individual to focus, reducing anxiety, assisting them with expressive language, and much more (Rao & Gagie, 2006). However, this researcher finds that visual supports can be both expensive and time consuming to create and implement. A strategy that does not encompass the common downfalls of visual supports is the use of music or song. Due to the simplicity, familiarity, and adaptability of song, this researcher sought to document its effectiveness as an instructional strategy within the classroom.

Data from this research project was used to investigate the use of song as a cue to direct behavior for preschool students with autism during two daily situations when visual supports were typically used. All five students attended the same self-contained special education classroom. They attended the class five days a week for four hours a day.   The daily situations involved in this study were a time when a transitional request was made and a time when a behavioral request was made.   The transitional request occurred during a daily transition from

group time to lining up at the door. The behavioral request occurred when students were required to use a quiet voice during a daily walk down the school hallway to the gym. Data was collected over a seven week period during the 2011/2012 school year. Data was collected to document the students' behaviors after being given three different types of cues: verbal with no visual (baseline), verbal cue paired with a visual (intervention one), and lastly when given only a song cue (intervention two). The transitional request was marked as successful if the student was able to transition from their spot at group time to standing in line at the door within 15 seconds after the verbal, visual, or song cues was given to the class. The behavioral request was marked as successful if the student was able to retain a quiet voice, which meant a whisper or completely silent, during the first 20 yards of their walk in the hallway. Student behavior was converted into weekly percentiles to show what percent of the time they were able demonstrate successful compliance with the given request.

The research was conducted to answer the following research questions: Can song be used as a successful cueing technique with students in an ASD preschool classroom? Will song cues have a greater, lesser, or similar success rate as compared to visual cues? Will these song cues be successful during both transitional and behavioral requests?

Conclusions for the data

The transitional request was a daily activity when students were instructed to move from group time on the rug to lining up at the door. This researcher found that overall the use of a song cue had a lesser rate of success as compared to a visual cue. This was supported by the data from Student A, student B, student C, and student E. Only student D's rate of success was greater with the use of a song cue. Three out of the five students (students A, B, and E) had the highest rate of success during the visual cue intervention phase. One student (student C) had his

highest rate of success during a baseline phase, which was with just the use of a verbal cue. And one student (student D) had his highest rate of success during a song cue phase. While the data shows that song cues have a lesser rate of success as compared to visuals cues, the data from three of the students (A, D, and E) also answers the question of whether song cues can be used as a successful cueing technique for students with ASD. These three students had higher rates of success during the song cue phase than the baseline phases and so song cues were found to be successful. Students were marked as successfully completing the request if they were in line when the 15 seconds was up. This researcher feels that the rates of success could have been improved if the students were marked as successful if they were standing in line at any point during the 15 second interval. This researcher observed multiple students transitioning to the line but then running away before the 15 seconds was up. This was observed as more common during the visual and song cue phases, than during the verbal cue phases. This researcher also feels that the visual cue phase may have had an additional advantage. The verbal and song cues were presented to the all students at the same time. The visual cue was presented to each child to ensure that they made eye contact with it. This resulted in each student having the potential to hear the verbal direction (which was presented along with the visual cue) four times, as well as having the one-on-one interaction with the teacher.

The behavioral request was a daily activity when students were instructed to keep a quiet voice when walking down the school hallway. This researcher found that overall the use of a song cue had a greater rate of success as compared to the use of a visual cue. This was supported by the data from Student A, student B, student C, and student D. Only student E's rate of success using a song cue was equal to that of a visual cue. Just as Finnigan & Starr (2010) found that song can help to motivate students to engage in social tasks when it is embedded into daily

routines, this research project demonstrates that song can also be used to direct behavior during teacher directed tasks. A student that stood out during this activity was student B. This was a student who would talk or hum to himself throughout the majority of the day. When in the hallway this student would become even louder when walking past a particular picture in the hall. For the first five weeks of data collection student B continued to hum and make verbalizations during the walk down the hall regardless of the verbal or visual cue given. It was only during the song cue phase that he was able to complete the walk down the hall with a quiet voice on a number of days that week. He continued to show excitement through his body language, but his voice was at a whisper or off. Student D was another student who stood out during the trials. Before the song cue phase he was frequently bouncing and making loud vocalizations as he walked down the hallway. During the second week of the song cue intervention student D was observed quietly humming the "quiet voice" song as he walked down the hallway.

Upon reviewing the data this researcher is able to answer all of the research questions. Song cues were determined a successful cueing technique for preschool students with autism as supported by the data from all students during the behavioral request trials and three of the five students during the transitional request trails. These students performed better during the song cue phases then the baseline (verbal cue only) phases and so we can conclude that song cues were successful. This researcher was also able to determine that song cues had a lesser rate of success as compared to visual cues during the transitional request activity, but a greater rate of success during the behavioral request activity.

Implications from the data

Data from this research project shows that both visual and song cues can be used as a successful cueing technique for students with autism. The data however did not produce the same exact outcome for each student. As educators we need to still consider each student on an individual bases. While a strategy may show an overall rate of success, it is still important to determine how much or how little assistances a student needs and in what setting the different types of cues are successful for them. Ongoing documentation and evaluation of the strategies is also needed to help the educators determine when to make adjustments or try something new.

While conducting this study the researcher saw a need for further research related to the topic. If this study were to be duplicated the researcher would recommend using more concrete behavioral request. It was unclear if the students in this current study knew what the teacher expected after being given the verbal directions "line up" and "quiet voice". The researcher would also have included a return to baseline after the song cue phase. This would have helped to validate that the students rate of success was directly related to the song cue and not related to the fact that the song cue was presented last and therefore the students had more practice with the requests. Further research could also be conducted to include a third intervention phase in which a song cue and visual cue were presented at the same time.

References

Abrams, B. (2010). Evidence-based music therapy practice: An integral understanding. *The Journal of Music Therapy*, 47(4), 351-379

Alberto, P. A., & Troutman, A. C. (2009). *Applied Behavioral Analysis for Teacher* (8th ed.) Upper Saddle River, NJ: Pearson

Banda, D. R. & Grimmett, E. (2008). Enhancing social and transition behaviors of persons with autism through activity schedules: A review. *Education and Training in Developmental Disabilities,* 43(3), 324-333.

Banda, D. R., Grimmett, E., & Hart, S. (2009). Activity schedules: Helping students with autism spectrum disorder in the general education classes manage transition issues. *Teaching Exceptional Children,* 41(4), 16-21

Brownell, M. D. (2002). Musically adapted social stories to modify behaviors in students with autism: Four case studies. *Journal of Music Therapy,* 39(2), 117-144

Carnahan, C. & Musti-Rao, S. (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

Finnigan, E. & Starr, E. (2010). Increasing social responsiveness in a child with autism. *Autism: The International Journal of Research & Practice,* 14(4), 321-348.

Gillespie, C. W. & Glider, K. G. (2010). Preschool teachers' use of music to scaffold children's learning and behavior. *Early Child Development & Care,* 180(6), 799-808.

Hume, K. (2008). *Overview of visual supports.* Chapel Hill, NC: National Professional Development Center on Autism Spectrum Disorders. Retrieved from: http://autismpdc.fpg.unc.edu/content/autism-internet-modules-aim

Kelly, A. (2009). Issues in the use of visual supports to promote communication in individuals with autism spectrum disorder. *Disability and rehabilitation,* 31(18), 1474-

Kern, P., Wolery, M., & Aldridge, D. (2007). Use of songs to promote independence in morning greeting routines for young children with autism. *Journal of Autism and Developmental Disorders*, 37(7), 1264-1271.

Kim, J., et. al. (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.

Lord, C. E. (2010). Autism: from research to practice. *American Psychologist*, 65(8), 815-826.

Lord, C., & McGee, J. P. (Eds.). (2001). *Educating Children with Autism*. Washington, DC: National Academy Press.

Minnesota Department of Education (2011). *Categorical disabilities.* Retrieved from http://education.state.mn.us/MDE/Learning_Support/Special_Education/Categorical_Disability_Information/Developmental_Delay/index.html

Paquette, K. & Rieg, S. (2008) Using music to support the literacy development of young English language learners. *Early Childhood Education Journal,* 36(3), 277-232.

Rao, S. M. & Gagie, B. (2006). Learning through seeing and doing: Visual supports for children with autism. *Teaching Exceptional Children*, 38(6), 26-33.

Simpson, K. & Keen, D. (2010). Teaching young children with autism graphic symbols embedded within an interactive song. *Journal of Development & Physical Disabilities*, 22(2), 165-177.

Stichter, J. P., Conroy, M. A., & Kauffman, J. M. (2008). *An Introduction to Students with High-Incidence Disabilities.* Upper Saddle River, NJ: Pearson

Turnbull, A., Turnbull, R., & Wehmeyer, M. L. (2007). *Exceptional Lives: Special Education in Today's Schools* (5th ed.) Upper Saddle River, NJ: Pearson

Waters, M. B., Lerman, D. C., & Hovanetz, A. N. (2009). Separate and combined effects of visual schedules and extinction plus differential reinforcement on problem behavior occasioned by transitions. *Journal of Applied Behavior Analysis*, 42(2), 309-313.

Whipple, J. (2004). Music in intervention for children and adolescents with autism: A meta-analysis. *Journal of Music Therapy*, 41(2), 90-106.

Wigram, T. & Gold, C. (2006). Music therapy in the assessment and treatment of autistic spectrum disorder: Clinical application and research evidence. *Child: Care, Health & Development*, 32(5), 535-542.

Zur, S. S. & Johnson-Green, E. (2008). Time to transition: The connection between musical free play and school readiness. *Childhood Education*, 84(5), 295-300.

Appendix A

Transitional request visual:

Behavioral request visual:
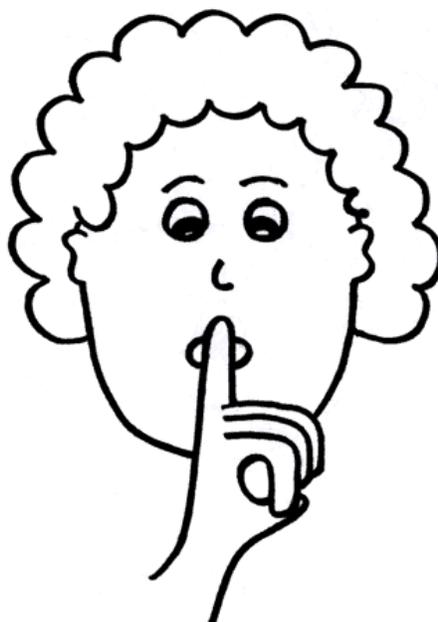
Appendix B

Transitional request song:

Tune of: "If you are happy and you know it"

If you're ready and you know it, go line up.
If you're ready and you know it, go line up.
If you're ready and you know it
Then it's the time to show it
If you're ready and you know it, go line up.

Behavioral request song:

Tune of "Farmer in the Dell"

My body is calm
My body is calm
My arms are calm
My legs are calm
My body is calm
Calm and quiet shhhh
Calm and quiet, shhhh
My body is so very very
Calm and quiet shhhhhh