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## The Benefits of Music Education on Academic, Behavioral, and Communicative Skills with Middle School Students with Autism Spectrum Disorder

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The Benefits of Music Education on Academic, Behavioral, and Communicative Skills with  
Middle School Students with Autism Spectrum Disorder

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Submitted in Partial Fulfillment of the Requirements for the Degree

Master of Science in Education

School of Education and Counseling Psychology

Dominican University of California

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**Signature Sheet**

This thesis, written under the direction of the candidate's thesis advisor and approved by the Chair of the Master's program, has been presented to and accepted by the Faculty of Education in partial fulfillment of the requirements for the degree of Master of Science. The content and research methodologies presented in this work represent the work of the candidate alone.

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### **Abstract**

Music education has an important place for students with special needs. Through community based arts education programs, student benefits range from social to academic. The problem is that too often music education, among arts programs, is not taught in special education classrooms. The purpose of this study was to identify benefits that music education has on students with Autism Spectrum Disorder (ASD), focusing specifically on academic, behavioral, and communicative skills.

A review of the literature revealed that music is beneficial to students in a variety of ways, when they are provided the opportunity to engage in music education. Through this qualitative study, data were collected from teachers, community based master teachers, and middle school students, over a 9-week residency art programs in a public elementary/middle school in Northern California. Results identified that music education is beneficial to students with ASD in the areas of academics, behavior, and communicative skills.

**Key Words:** music education, academics, behavior, communication, special education, Autism Spectrum Disorder

## **Chapter 1 Impact of Music Education**

In Northern California, there is a private school for exceptional learners—students considered or labeled as “high functioning,” many diagnosed with ASD, and all identified with behavior issues. For many of the students and parents of the students, this school is their last hope as they have been expelled from previous schools, or other schools did not provide an environment for their child to blossom. The first thing one notices about this school is how unlike a typical school it is. Instead of hallways and rows of doors, it is an old house that has been converted into a school—warm, inviting, open, and sunny. The second thing one notices about this school, once inside, is the way in which teaching and learning take place. Students are scattered, engaged in various activities, all on task. What is “on task” may vary, but one certainly gets the sense that whether a student is engaged in a sensory activity with peers or simply sitting in a bean bag chair, eyes closed and face toward the sun like a cat sunning himself, the purpose for learning is set. And yet another very important aspect one notices upon entering this school is the use of music and the response that is elicited. Morning greeting activities are centered upon the use of music. Energy is shifted, memory is stimulated, social interactions occur. Children engage with one another during music programs, and thus communication and socialization are seen between students at a level of intensity that otherwise may not exist. Music brings these students and teachers together; it is interactive, benefits yield in abundance.

### **Statement of Problem**

What is the nature of the effect of music on students with special needs, in regards to communication? Research has shown that music can positively impact students with special needs in the realms of communication, behavior management, and academics; even self-esteem and reduced anxiety are noted as benefits (Hillier, Greher, Poto, & Dougherty, 2012). However,

the focus of this study was on the impact that music has specifically on students' interpersonal communication skills.

### **Purpose Statement**

The purpose of this study was to examine the impact that music has on students with special needs, with the focus on communication. A nonprofit organization in Northern California provides art education to students with disabilities. Organization leaders requested that program assessment tools be created to assess the effectiveness of their arts residency programs on students with disabilities. Together with arts education community leaders, Jacquelyn Urbani, Ph.D. and student researchers from Dominican University of California began a longitudinal study to investigate the effectiveness of the integration of the arts and special education program, beginning with an elementary and middle school.

### **Research Question**

To what extent are students with special needs or disabilities impacted by the use of music education in the classroom? How are communicative skills impacted and benefitted as a result of music education with students who have Individualized Education Programs (IEPs)?

### **Theoretical Rationale**

Music brings emotional response in people with or without special needs, responses that are both physiological and emotional (Constantin, 2015). It is through this emotional response that breakthrough can occur, breakthrough regarding the expression of emotion, self-esteem, learning, thinking, communication, socialization, and nonverbal expression. A study was conducted with a group of students with special needs, ranging in a variety of disabilities. For three years, the students underwent various forms of music therapy, which involved songs and the use of musical instruments. In addition, students underwent art therapy, dance and

movement therapy, and drama therapy. Because of these forms of art therapy, students were able to express their feelings through spoken word, dance, drama, and visual art.

### **Assumptions**

This study assumed that music programs and arts education in general are beneficial to children with special needs, as the community based arts education non-profit has requested program assessment tools to identify and provide evidence as to how their arts residency programs impact individual students. This study served to evaluate the music education program. Is it assumed that the non-profit believed the arts residency programs did, in fact, benefit students with special needs. The community arts program has been in existence for 45 years and has earned respect in the local community, therefore perceived by the public as reputable and beneficial in meeting the needs of children.

### **Background and Need**

Socialization and joint attention behavior were shown to increase in preschool children who were autistic through improvisational music therapy (Kim, Wigram & Gold, 2008). This 7-8 month qualitative study compared the benefits of improvisational music therapy with play therapy in regards to increasing joint attention behavior. Through analyzing data and anecdotal reports from therapists and parents, music therapy was identified as being more successful in increasing joint attention behavior. Results show that longer durations of eye contact and turn taking resulted from the music therapy condition. In addition, 3 non-verbal students showed signs of initial language development skills during and after the music therapy condition. This study highlights the power of music therapy in terms of increasing socialization in students with special needs.

**Summary**

Providing an educational program for children on the autism spectrum that address academics, behavior, and communicative skills can be a challenge to teachers. Incorporating music into the structure of the school day may assist these children in all of these areas.

The leaders of a local non-profit arts education organization requested assistance in evaluating the effect that music has on children with special needs. The following chapter is a review of the literature on the role of arts in education, with an emphasis on music in education and its impact on students with ASD.

## **Chapter 2 Review of the Literature**

### **Introduction**

This section is an examination of the research literature on music and students with special needs. Information was gathered from academic library searches of peer-reviewed articles using online resources. Research information is organized under the categories of Historical Context and Review of the Academic Research.

### **Historical Context**

Rembrandt (as cited in Kearsly, 2011), though poor and alone toward the end of his life, painted masterpieces that point toward healing and an investigation of self. Michelangelo described sculpting as a way to reveal soul and as a way to find self. These examples of master artists illustrate how art plays a major role in the concept of finding self, self-expression, and healing. Art is not only beneficial to those who receive; it is also beneficial to the ones who engage in its creation. This sets the context for looking at the arts as therapy in multiple contexts; there is a long history, which has been going on for centuries in a variety of formats.

Within the context of his medical practice, Kearsley incorporated various healing strategies in treating cancer patients. He had a friendship with patients, and encouraged them to use self-expression as a form of healing through oral story telling and writing (Kearlsey, 2011). There is a need to explore art as therapy for different populations, including the impact that it has on students with special needs.

## **Review of Academic Research**

### ***Arts and Education***

Music and elements of music possess inherent mathematical properties (Geist, Geist & Kuznik, 2012). “Teaching patterns to very young children is also a key to the concept of emergent mathematics, which parallels the idea of emergent literacy” (p. 74). Music contains these patterns in steady beat and rhythm, which can be exposed to children as early as infancy in songs sung by caregivers, or in “patting” and “rocking” them as a way of soothing. As children get older, patterns in music can be heard in the songs they sing and in the songs their parents sing to them. And, as children enter elementary school, music can continue to be used to reinforce mathematical patterns. The authors of this article conducted a study with 3- and 4-year old children in Ohio. They interviewed the participants regarding the math activities in their preschool classroom. Some math activities incorporated music and some did not. Math concepts are clearly reinforced by the use of music in the classroom.

All but one of the children commented on the activities that included music, and these children used music in some way to explain the math concept to the interviewer. Many times the children did not recognize the activity as mathematics. The children who did not have the musical experiences along with the mathematics had trouble recalling any of the concepts that were discussed in the lessons (Geist, Geist & Kuznik, 2012, p. 76).

Expressive arts therapy and the expressive use of music is a therapeutic tool that helps children who have experienced trauma (Davis, 2010). Twenty students, age 8 to 11 years old, participated in counseling that involved music therapy as a part of healing and processing,

following a natural disaster. Students were both male and female, lived in the Southeastern United States, and came from Caucasian and Latino ethnic backgrounds. This was not a formal study; the author simply described the creative musical activities that were incorporated into the sessions. Students used these activities as a way to process and express their own feelings surrounding the natural disaster they experienced.

Music therapy for children who have experienced trauma can be particularly impactful if the child does not have the language or ability to express themselves otherwise. Davis (2010) states, “Because young children are frequently at a loss for words and do not always have the vocabulary to articulate experiences or feelings, I chose to use an expressive arts activity that focused on processing feelings through...music” (p.129). Although this study was not conducted on students with special needs exclusively (the author does not state whether any of the subjects had special needs or disabilities), the implications are the same for some students who are on the autism spectrum. Students with ASD may have difficulty expressing themselves and difficulty with social communication; thus music therapy is a way for these students to do so non-verbally. “Creative and expressive arts activities are well suited for children who often do not have the words or vocabulary to explain or express complex feelings and experiences. The use of music as a medium to express feelings was a simple and concrete way for them to communicate such complex inner experiences” (Davis, 2010, p. 131). This provides a context for the use of music with students who have a variety of special needs, as music can be used to bridge many gaps whether they be social, physical, or emotional.

A study took place over 7 years to “examine whether patterns of sport and music participation during elementary school predicted adolescents’ participation through adolescents’ self-concept of ability and interest” (Simkins, Vest & Becnel, 2009, p. 1369). This study

followed elementary school students into middle school, consisted of 987 children in 12 public schools in Michigan, and over 3 cohorts. Fifty-one percent of the participants were female, and 49% were male. Ninety-two percent were of European American origin; no further information identifying the ethnic make up of the remaining 8% of participants were included. Participants largely came from middle class families, and the median parental education level was a college degree. Data were collected largely through questionnaires completed by students, teachers, and parents. Results of this large study showed that students who participated in an activity, such as sports or music, had a higher self-concept than students who did not participate in an activity. In addition, students' participation in elementary school predicted their self-concept and interest in the activity as adolescents.

Art in Education (AiE) is a program, which introduces and integrates art into content areas via professional development for elementary and middle school teachers in Alabama, Mississippi, and Florida (Vitulli, Santoli & Fresne, 2013). This program trains teachers to use various art forms, such as dance, music, theater, and visual arts to teach academic subjects in the classroom. Over ten years old, this program began in 2004, and focuses on project based learning. Students are empowered to take charge of their own learning through discovery. Another benefit for teachers who are involved in the AiE program is that they receive mentoring. Mentors can come to the classroom and co-teach, or provide a demonstration lesson. Through comment evaluations, teachers report that they are extremely happy with this grant program.

Despite what the media suggests, music programs in the schools still exist (Richerme, 2011). The public may value music education for various reasons—links to brain development, to help emotionally disturbed students, improved test scores—however, we must “value music as a unique discipline that provides understandings and experiences impossible to achieve through

other subjects” (p. 38). Music educators must “emphasize the value and importance of their work in order to set the frame; only then will the public find the facts relevant” (p. 38).

Additionally, Richerme advises music educators to connect with students, parents, and families to ask specific question regarding music programs, such as “*What types of music classes do you wish to see offered in schools? How can music become a more active part of community life? How can music help solve a school’s problems? Where is music’s place within the larger goals of American education?*” (p. 39). It is the music educator’s responsibility to connect with their audience and correct misinformation in order to further the life and role of music education in the schools.

Music education in the schools is often justified by claiming educational, social, and personal benefits to the learner, yet too often the final results are stressed instead of the process and the intrinsic benefits to the student (Westerlund, 2008). Because of this, “students, whose musical performances may be qualitatively good, during the process of learning do not create attitudes that are experienced as positive enough to support a life-long interest in music, or at least in music-making” (p. 85). It makes sense that the creation of music, the means, are celebrated and recognized as a right in its own being, instead of simply focusing on the end product or performance, which does not “necessarily reveal the attitudes that the learners develop during their education” (p. 87). Simply put, music education must be found enjoyable to the learner. Students have thoughts and opinions about their own musical education, and their desires and opinions should be taken into consideration as they engage in the process of musical education.

While there are many claims as to the benefits of teaching music in the schools, there is a call for more research to be done. One question we as educators must ask ourselves is if our

students are finding music education relevant and connected to their lives (Williams, 2007). As society changes, so should music education. Technology has greatly impacted society over the years, and thus changed music and how it is taught, as well as how our lives are integrated and connected with it. Implications for future practice include an infusion of music with technology, which would create music programs that are more relevant to students.

### ***Music and Students with Special Needs***

Early intervention is important for children, as it provides support, services, and education. As 3-, 4-, and 5- year old children with disabilities are serviced in areas of communication, physical development, cognitive development, social/emotional development, and adaptive development, music education can help support their goals (Darrow, 2011). For example, music can be used to reinforce academic material and help to promote psychomotor skills. In addition, because most children are motivated by music, it is a way to promote positive attitudes in students toward academic goals, social skills, and values. The use of music created positive mood changes and lowered anxiety (Darrow, 2011). Social skills also improved by the use of music in the classroom, for example “making eye contact while greeting others or shaking hands” (Darrow, 2011, p. 29) during a morning greeting song.

A qualitative study was conducted with students who had learning disabilities. The study incorporated the use of background music during writing instruction, and the purpose was to identify if music had a positive effect on the students’ writing performance, in both quality and fluency (Legutko & Trissler, 2012). The study was conducted in the spring of 2009 and totaled 21 weeks. Participants were enrolled in a suburban public elementary school in the mid-Atlantic region of the United States. All students received instruction in a Learning Support classroom; in addition they were all diagnosed with a learning disability in reading, writing, or both reading

and writing. There were a total of 9 participants in 6<sup>th</sup> grade, who were between 11 and 12 years old. Two students were female, and 7 were male. The study was comprised of 3 sections. The first section was 6 weeks long, and no music was incorporated in writing instruction. The second section was 7 weeks long, and background music (up tempo Mozart pieces) was added in during writing instruction. The third section of the study was 6 weeks in length, and during this section, background music was taken away. Once a week, participants were given story starters. They had 1 minute to think about the topic, and 3 minutes to complete their writing. Students were graded on correct use of spelling, punctuation, capitalization, and if their story/words made sense. Results from the study show that all students improved their writing from baseline. In addition, when there was any change in environment, scores dropped noticeably and quickly. “This likely shows that consistency in routine is essential to the academic performance of students with learning disabilities, and that variability or change in routine is both a distraction and a hindrance in performance” (Legutko & Trissler, 2012, p. 7). However, only 5 of the 9 participants performed better on average, with the use of background music. Two of the participants performed better without the use of background music, and 2 participants performed about the same with or without the use of background music.

Although the arts and special education are connected and research based on studies conducted have shown various benefits that arts education has on students with special needs, the two fields—arts education and special education—are still disconnected and separate (Malley & Silverstein, 2014). The John F. Kennedy Center for the Performing Arts and its affiliate VSA brought the leaders in these fields together for a meeting of minds in 2012. Two hundred and fifty professionals attended this dynamic conference. As a result, two broad proposals were created. One, there is a need for an information hub or technical assistance center. Participants

viewed this hub as necessary because they “identified the lack of a centralized information source as a significant barrier in their work to achieve total inclusion of students with disabilities in learning in and through the arts” (Malley & Silverstein, 2014, p. 41). Secondly, “forum participants identified a need for an informal, centralized coalition that would meet the needs of a diverse group of professionals and other stakeholders by unifying and structuring their work to exert a greater national impact” (Malley & Silverstein, 2014, p. 41).

In 1974, Jean Kennedy Smith founded a non-profit organization, which focuses on arts integration and individuals with disabilities. This organization is called “Vision of an Inclusive Community; Strength of Shared Resources; Artistic Expression that unites us all,” or for short, VSA arts. Mason, Steedly, and Thormann (2008) conducted two studies to identify the impact that arts education has on students with disabilities for VSA arts. Study 1 encompassed 34 focus group interviews over 2 years in 16 states, in rural, urban, and suburban areas. Teachers, resident artists, and VSA directors participated in the interviews, which were 60 to 90 minutes in length. Teachers were from elementary, middle, and high school special education centers or classrooms. All interviews were audio recorded and transcribed. The focus of these interviews was on the “arts’ impact on students with disabilities in terms of social, cognitive, academic, and artistic skill development” (Mason, Steedly & Thormann, 2008, p. 39). The interviews provided anecdotal evidence as to the value and impact of arts education on students with special needs. Various themes emerged from this study, such as: voice, choice, access, the importance of administrator involvement regarding arts integration, the idea that a primary measure of success is simply that the student enjoys and participates in the activity, and that the arts made learning fun for all involved. The second study involved the use of rubrics that were tied in with arts education to measure academic, cognitive, social, and artistic skill development in students with

special needs, which were implemented over the course of 2 months. Participants in this study included 6 teachers and 1 resident artist—3 males and 4 females from the Southeastern United States, the Midwest, and Western United States. These individuals taught Pre-Kindergarten to 8<sup>th</sup> grade, and included 2 special education instructors, 1 theater arts teacher, 1 music teacher, 1 visual arts teacher, 1 resource teacher, and 1 teacher taught students who were deaf or hard of hearing to middle school students. They received a stipend of \$1,000 upon completion of this study. Three conference calls were made with each participant, one at the beginning of the 2 months, one in the middle, and one at the end of the study. In addition, participants submitted student work, rubrics, surveys, and permission forms. Results of this study indicated that all participants found the activity valuable, and that they would recommend the rubric approach to colleagues.

Equality in the classroom should be a right held by all students. Interestingly enough, “musical instruments’ designs sometimes turn impairments into disabilities” (Abramo, 2012, p. 41). If this is the case, teachers can help students have access to these instruments by either ordering manufactured modified instruments, or by brainstorming new ways in which musical instruments can be played. Additionally, teachers “can begin to ask if there are unnecessary boundaries in their teaching that can turn a student’s impairment into a disability” (p. 41). An example of this would be a student with visual impairment who cannot access material related to musical instruction.

### ***Music and Students Diagnosed on with Autism Spectrum Disorder***

Simpson and Keen (2011) conducted a literature review of articles, which identified that music positively impacted children and individuals with autism. They conducted a comprehensive search with criteria they identified to discern if a study was relevant. Of 128

studies they identified, only 20 met their criteria. Criteria were as follows: articles were published in a peer reviewed journal, participants were individuals (0-18 years old) with autism, participants were not musical savants, and lastly the studies demonstrated experimental control by using musical intervention. The focus areas concentrated on were communication, socialization, and behavior skills. Authors created a table that listed all of the relevant music studies they identified.

A musical therapy intervention was introduced to a child care playground in order to assess the impact it would have on peer interactions between children with autism and those without (Kern & Aldridge, 2006). This qualitative study included four male children with autism ages 3-5, and their classmates ages 2-5, both with and without disabilities. Three of the target children were classified as Mild-Moderate on the autism rating scale, and the last child fell into the Moderate to Severe range. Two ethnic groups were represented in this study: African-American and Caucasian. Three lead teachers and three assistant teachers, all female, participated in the study as well. Two peers from the classroom served as “peer buddies” for each target child. For the study, an outdoor music center was added to the play area, which contained musical instruments such as a Chinese Lion Wind Gong and Bongos. In addition, Kern composed songs for each target child, which were unique to each child’s needs or goals. “The themes of each song supported the target children’s growth by incorporating their strengths and individual education goals such as improve turn taking, increase choice making, use appropriate body contact” (Kern & Aldridge, 2006, p. 277). Data were collected by videotaping the musical therapy sessions. In these sessions, interaction and social behaviors such as play and engagement were analyzed. The observers paused the videotape every 15 seconds to record data, which was then recorded on a data form. Each observation lasted 10 minutes a day for 8 months.

Student A had 30 sessions, Student B had 56, Student C had 63, and Student D had 71. Results indicate that the individual songs, which incorporated specific goals for each targeted child, proved to be beneficial. All target children were drawn to the sound of the musical center in the playground and played with the instruments for a short time. Peer buddies helped to increase social interactions and meaningful play on the playground.

Kern, Wolery and Alldridge (2006) conducted a study to evaluate the impact that personalized greeting songs have on students with autism. This study focused on two boys with autism, both three years old. One child was of African American descent and the other European American. Both children had limited speech and difficulties with transitions. The morning arrival to school and the transition and separation from their caregiver was very difficult for both children. A personalized song was created for each of the participants, and sung upon their entry to the classroom. Data was collected by the observers through direct observation which began once the child and caregiver entered the classroom and ended when the child picked up a toy or object in the classroom. Data collection sessions lasted anywhere from 2 to 10 minutes. One child was observed for 28 sessions, occurring over 2 months. The other child was observed for 31 sessions, occurring over 3 months. The results from the study show that the greeting songs helped facilitate smoother transitions in the mornings for both of the participants. In addition, for one of the participants, the number of peers that greeted him during the morning greeting song was tallied. As a result of the morning greeting song, the number of his peers that greeted him increased.

Thompson, McFerran and Gold (2013) conducted a study that researched the impact that Family-Centered Music Therapy (FCMT) has on children with autism, regarding social engagement abilities. Participants included 23 children between the ages of 3 and 6 years old.

All participants were diagnosed with autism, had limited or non-functioning verbal communication, and attended a family-centered early childhood intervention program. The duration of the study was 16 weeks; a music therapist led in-home sessions once a week for 30 to 40 minutes. Two conditions were created: A. In-home FCMT in addition to their early intervention program, and B. Early intervention program only, that is, no music therapy sessions provided for students. Music therapy methods within FCMT sessions included the use of songs, improvisation, and movement to music. Various activities to address social communication were addressed in therapy sessions including shared attention, focus on faces, turn taking, response to joint attention, and initiation of joint attention. Results of the study show that FCMT improved the parent-child relationship as well as social aspects related to home and community, but not language skills.

Music therapy can be used with children who have autism as a way to enhance communication (Markworth, 2014). In this qualitative study, children between the ages of 3-6 underwent music therapy sessions with Nordoff-Robbins music therapist. There were 3 music therapists, and 3 children involved in this study. All subjects were male, and had limited verbal language skills. Each session consisted of one therapist and one child; each child received 3 music therapy sessions. Data were collected by videotaping and analyzing each session. In addition, the music therapists were interviewed by the author. Three categories of communication emerged from the data. They are Music Language, Music Expression, and Music as a Shared Experience. Results of the study indicate that music can surely be used as a communication tool with children who have autism and also who have limited language skills. A music language was developed between teacher and student through the music therapy sessions. “Through this trusting partnership and shared language, the client and therapist were

able to communicate ideas, validation, questions, invitations, preferences, conversations, disagreements, personality traits, emotions, humor, and acknowledgement” (Markworth, 2014, p. 34).

A study was conducted to determine the effects of Tomatis Sound Therapy on the expressive and receptive vocabulary in children who have autism (Corbett, Shickman & Ferrer, 2007). Tomatis is an alternative sound therapy treatment that uses music as a form of therapy. In this form of sound therapy, individuals listen to recordings of Mozart and Gregorian chants with headphones. Participants consisted of 11 children with autism, between the ages of 3 and 7 years old. Nine of the participants were male, and 2 were female. Four participants were Caucasian, 2 were Hispanic, 2 were Caucasian and Hispanic, 2 were Caucasian and Native American, and 1 was Pacific Islander. All participants could speak at least between 1 and 3 words, and they could all point as a form of gesturing. 2 assistants administered the Tomatis Method from The Listening Clinic in Sacramento, California. The study utilized a double blind, placebo controlled, crossover design. Assessments were conducted at the beginning, middle, and at the conclusion of the study. Results indicate that the Tomatis Method does not improve students’ receptive or expressive language skills. However, all students’ language skills improved over the course of the study, but this did not seem to be connected to the use of the Tomatis Method.

Children with autism may increase social interaction and engagement after being imitated, which excludes prompting and extrinsic rewards (Stephens, 2008). A qualitative study was conducted on 4 students, aged between 5 and 8 years old. Two of the students were male, and two female; one student’s primary language was Spanish. All students fell under the Mild to Moderate category of autism. Musical routines were put into place for the children in a one-on-one setting in a teacher’s kitchen area, which occurred once a day, every day the child attended

school. The musical sessions, which used repetitive imitation routines of both actions and words, were audio recorded to catch the researcher's verbal praise when the student engaged with the music by engaging in the following; dancing, singing, moving, and imitating the researcher. A graduate student collected data by observing each session and reviewing audiotaped recordings as needed. Data were also collected through social validity questionnaires that the students' teachers, which included special education and general education, completed at the end of the study. Results of the study indicate that three of the children increased both spontaneous action and word imitations. One child increased imitations only of action models. There were some limitations of this study; one being that the study was limited in time due to summer break for the students.

The impact that background music and the use of songs with text has on students with autism with regards to enhancing emotional understanding was studied by Katagiri in 2009. This qualitative study took place in Osaka, Japan and involved 12 students with autism, ages 9-15. Sessions met twice a week, in total there were eight thirty-minute sessions. During the session, participants were given verbal praise and a sticker at the end of each session. The student groups were taught 4 emotions over 4 different control conditions. The emotions were happiness, sadness, anger and fear. Control conditions were as follows:

- A. Emotions were not taught in any way.
- B. Emotions were taught using verbal instruction only.
- C. Background music that correlated with a specific emotion was played as the verbal instruction for that emotion was taught.
- D. Songs with lyrics were used to teach emotions.

Data were collected by conducting pre and posttests on the participants. These tests contained four subtests each. Three were based on the student's skill in decoding emotions, and the last subtest measured the student's ability to encode emotion. Results from this study showed an increase in participants' understanding of emotion from pre- to post test. However, the two conditions that involved music proved to be more effective than the conditions that did not contain music. In addition, parents reported that the children enjoyed the conditions with music much more so than the conditions that did not contain music.

A pilot music program was created for adolescents and young adults who were on the autism spectrum in order to evaluate how music therapy would impact participants' levels of self-esteem, anxiety, and peer relationships (Hillier, Greher, Poto & Dougherty, 2011). This qualitative study took place over 8 weeks, and involved 22 adolescents and young adults between the ages of 13 and 29. Eighteen participants were male, and 4 were female; 1 individual was Asian, the rest were Caucasian. Participants in the study worked as a group to produce a short movie and sound track, thus integrating the arts and technology. Groups met for 90 minute weekly music sessions, which were led by music education students and students majoring in psychology at the University of Massachusetts Lowell. Data were collected by the use of questionnaires completed by both the participants and their parents or guardian, before and after the music therapy program. For weeks 2-7, participants completed a questionnaire that measured anxiety, before and after each weekly music session. Results indicate, "participants showed significantly higher self-esteem, significantly lower self-reported anxiety, and significantly improved attitudes toward peers" (Hillier et al., 2011, p. 209).

A study was conducted with high functioning adults on the autism spectrum to explore how they experience music (Allen, Hill & Heaton, 2009). Participants included 12 adults—10

were male and 2 were female, ages 21-65. Nine of the participants were diagnosed with Asperger Syndrome, and 3 were diagnosed with autism. The study employed the use of semi-structured questionnaires and open-ended interviews, which were recorded. From the data, 2 groups emerged with 5 participants in each category. The first group was “Classical” and the other was “Pop.” Two participants did not fit into either category. They were the outliers. The sample primarily used music for personal reasons, with 75% reporting to use music for “mood altering” reasons. Other popular descriptions that participants reported as to why they listen to music were “aesthetic appreciation”, “therapeutic”, “belonging” and “performance.” The participants found it difficult to discuss music in emotional terms or associations. However, the data showed that these individuals experience many benefits from music, nonetheless. The authors bring up this important point, that “the majority of our group found music of value in achieving improvements in mood, as well as for improving personal and social integration. This suggests that there are likely to be extensive practical benefits if caregivers or clinicians working with high-functioning adults with ASD encourage them to foster their music interests” (Allen et al., 2009, p. 36).

### **Personal Communication/Interview with an Expert**

Two interviews were conducted with the resident artist: one before the 9-week music program, and one after. Jacquelyn Urbani, Ph.D. led the interviews and one of the graduate student researchers was present, and transcribed the interviews. The first interview consisted of the artist discussing his learning objectives for the students, what he wanted them to achieve and ways in which he felt they could do this. Some of the learning goals he named included “concentration, attention, pattern recognition, also confidence of playing in a group; social skills we are trying to develop.” (Personal communication, October 28, 2016) He also stressed the

importance of repetition and a predictable routine, which he said he would incorporate in his music classes.

In the post interview, the artist spoke specifically about each student in the classroom and discussed the changes and improvement that he witnessed over the course of the 9-week period. The artist also spoke a little about his feelings about teaching music to the students, that “it’s a lot of work because it’s kind of like you have a circle and 5 different kids in 5 different directions. Having all the kids come together, it doesn’t matter what it sounds like, it brings people together. Doesn’t matter how old you are, if you’re general education or special education, everyone can enjoy music, it’s so powerful and a special tool.” (Personal communication December 16, 2016).

### **Summary**

Research demonstrates that there are numerous benefits that expressive arts therapy can provide to all students, and music therapy is no exception. The articles and studies indicated that music education benefits not only typically developing students, but students with special needs as well in areas of communication, socialization, academics, and even as a form of therapy. However, the quantity of articles that discuss the impact of music on students with ASD in regards to an improvement in academics, behavior, and communicative aspects are lacking. The focus of this paper lies in examining the impact that music education has on students with ASD in these areas.

## **Chapter 3 Method**

### **Research Approach**

The purpose of this research was to investigate the effectiveness of integrating the arts into special education through a community based arts in education program. This non-profit is interested in using program assessment tools to identify and provide evidence as to how their arts residency programs impact individual students basis. The leadership is interested in tracking the positive impact that music has on students with special needs, linking their program outcomes to each student's Individualized Education Program (IEP) over the course of their educational career, from pre-kindergarten to junior college. The current research is a pilot project examining the effectiveness within arts programming with several classes in one elementary and middle school, before moving this project to more schools and across the age ranges.

### **Research Method**

Researchers met with participating teachers for interviews both before and after the 9-week arts residency program. Teachers discussed the IEP goal identified by the teachers for focus during the study. Next, the artists conducting the community based arts in education residency were interviewed in person by the researchers, both before and after the residency program. During the pre- program interview the goal was to learn more about the artist's plans for his 9-week residency. The artist was not informed of the identified IEP goals for the participating students so that their programming was not specifically tailored to the needs of each student but to the artistic goals of the 9-week program.

### **Observations**

Once the music class started, the researchers conducted ongoing classroom observations. Music classes took place once a week, for approximately 45 minutes per session. All classes

were conducted in the students' normal classroom, and the same artist taught the music lessons for the entire 9-week course. The researchers used a classroom observation protocol tool to take notes on what they observed in the classroom, including the artist's instruction, student participation and behavior, and observations of each participating student in the study. Observation Protocol forms were designed to help researchers focus on the identified goal per participating student. Based on the parental consent and student assent documents, any photographs or videotaping was strategically orchestrated. For example, the researcher asked the teacher to seat/group participating students together for photography and video purposes, prior to the class and without student knowledge. Photography and videography was not used if students not participating in the research are within the frame of the cameras. The lead researcher, Jacquelyn Urbani, Ph.D., has previously conducted such research and trained the graduate students to preserve the privacy of students as well as the organic nature of the class setting.

### **Interviews**

Researchers met with participating teachers for an interview before the music classes began. Teachers discussed the IEP goal they identified for focus during the study. Next, the artist conducting the residency was interviewed in person by the researchers. During this interview the goal was to learn more about the artist's plans for the 9-week residency. The artist was not informed of the identified IEP goals for the participating students so that their programming was not specifically tailored to the needs of each student but to the artistic goals of the 9-week program. During the course of the program, parents were also interviewed. Upon the completion of the 9-week arts residency program, researchers interviewed the teachers and artist to follow up on student progress in conclusion of the arts residency program.

**Pre-test/ Post Test Comparison**

Prior to the 9-week arts residency program, teachers identified an IEP goal that they chose to focus on for the duration of the study. Through an interview with the teacher, the chosen IEP goal will be discussed with researchers. At the completion of the study, researchers met with the teacher to discuss student progress made toward their IEP goal in an attempt to link progress with the arts residency program.

**Ethical Standards**

This paper adheres to the ethical standards for protection of human subjects of the American Psychological Association (2010). Additionally a research proposal was created by the faculty lead for this research, Jacquelyn Urbani, Ph.D., which was submitted and reviewed by the Dominican University of California Institutional Review Board for the Protection of Human Subjects (IRBPHS), approved and assigned number 10392.

**Sample and Site**

This study was conducted at a Title I, K-8 public school located in a large suburb of Northern California. During the 2015-16 school year, the school served 731 students of which 52.5% were English language learners and 77.7% qualifying for free or reduced lunch. The sample for the study included 6-8<sup>th</sup> grade participants with mild to moderate learning disabilities in a self-contained special day classroom. The students in the classroom were between the ages of 10 to 14 years old, with a total of 9 students: 2 female and 7 male.

**Access and Permissions**

The researchers contacted the appropriate school and district personnel to explain and receive approval for the research, including the county superintendent and assistant

superintendent. Written permission from parents and individual student assent were given for participation in the study prior to the start of the residency arts program.

### **Data Gathering Procedures**

Prior to, during, and at the close of the 9-week arts residency program, assessments were conducted through direct observation of the participants during non-music class time so researchers could identify current functioning. Interviews with the teacher and resident artist were conducted prior to and after the residency program. Additionally, parent interviews were conducted during the course of the study. Data from each weekly music session were collected through direct classroom observations, which were videotaped, per participants' assent and parental consent. Researchers completed a classroom observation protocol tool during every session to take notes on what they observed in the classroom. These notes include the artist's instructions, student participation and behavior, and observations of each participating student with regards to their identified IEP goal that was chosen as a focus for the 9-week arts residency program. After each music session, researchers met to debrief and analyze observations. Researchers also coded the weekly videos, which included transcription and analysis of each participant's behavior and progression toward their chosen IEP goal.

### **Data Analysis Approach**

After the 9-week arts residency program, the identified IEP goal for each participant was reexamined by the teacher and researchers. Through interviews with the teacher and resident artist at the conclusion of the residency program, researchers ascertained if students made progression toward their preselected IEP goal.

## Chapter 4 Findings

### Description of Site, Individuals, Data

The study took place in a K-8 public school in northern California, and focused on a special day middle school classroom, grades 6-8, with 1 lead teacher and 2 classroom aides. The age range of students in the classroom was between 10 and 14 years old, with a total of 9 students, 2 of which were female and the remaining 7, male.

Four male students participated in the study. All participants were of Hispanic and Native American descent. Three students, Carlos, Alberto, and Emilio, had the primary diagnosis of Autism and the secondary diagnosis of Intellectual Disability identified on their IEP. Casper's primary diagnosis on his IEP was also Autism, but unlike the other three, the secondary diagnosis was Speech and Language Impairment. The age range of the participants was between 11 and 14 years old.

### Themes

The music classes benefited participants in the area of academics, in several ways. Two of the lower functioning and less verbal students showed participation by counting along with the artist. In session 2, the resident artist wrote numbers 1-8 on the board, and prompted students to count with him. Alberto counted and participated in this activity, as an aide prompted him by touching him and gesturing to the board. In the same session and the same activity, Emilio also joined in and counted.

During session 4, the artist engaged students one-on-one to play a polyrhythm (a rhythm that has two parts, and involves both hands to play) on their drum. He came to Alberto, and verbally prompted him to play the rhythm. Alberto followed the artist's instructions, and played

the polyrhythm, thus demonstrating that he understood what to do and how to do it. In session 5, the artist asked Carlos what the word *polyrhythm* meant. The student identified that *poly* means “many,” and that the word *polyrhythm* means “many rhythms.” The artist had only just introduced the concept of polyrhythms the week before (week 4), so this was a relatively new concept to the students.

Carlos demonstrated on session 2 that he had memorized lyrics to one of the songs that they sung. When the artist prompted Carlos by saying, “What is it? I see...” Carlos replied, “Trees.” In session 3, Casper also demonstrated knowledge of the contents of a song they sung in every session. The artist said to the students, “We had numbers, then we have letters, and last we have...?” Casper answered, “Colors!”

Problem solving was another area that was developed during music class. Students were engaged in an activity that required them to intently watch a ball that the artist bounced. When the ball touched the floor, they were to hit their instruments. Casper had a tambourine in this particular session, and was having difficulty picking up his instrument and hitting it at precisely the right moment because picking it up took too much time. Independently, Casper figured out that if he rested his tambourine on his desk, he would be able to hit it at precisely the right time.

The music classes also benefitted students in the area of social communication and communicative skills. Expressive and receptive language skills were practiced and built upon, simply from some of the activities the artist incorporated during music class. The artist offered each student the choice of a drum during each class, and the student would have to choose the instrument and verbalize their decision. For example, in Week 2, the artist said to Alberto, “Alberto, would you like the bongo please or the tambourine please?” Alberto touched the tambourine and said, “This one, this one.” The artist said, “Can you say ‘Tambourine please?’”

Alberto mumbled something that was not understandable. The artist said, "Let's try again." Again, Alberto mumbled something that was not intelligible. The artist said, "Tambourine please." Alberto mumbled something in response. The artist said, "Tambourine." Finally Alberto said, "Tambourine please." The artist said, "There it is, nicely done sir!" Another example of how expressive and receptive language was used was when the artist asked students what song they wanted to sing in class. Or, in this example, Casper told the artist which song he wanted to sing, without being prompted. After finishing another song, Casper said to the artist, "Sunny Side of the Street." The artist asked Casper, "You wanna do 'Sunny Side of the Street?'" Casper replied, "Yeah-yeah!" In another activity during music class, the artist wrote numbers 1-16 on the board. He called on students to select a number between 1-16, and the artist would circle the number the student selected. Students were instructed to play their instrument on the circled numbers, as the artist called out the numbers in order. Before doing this, the artist would ask students about the pattern. For example in Week 3, the artist asked the class, "Are we doing to play on 1?" Carlos responded aloud and said, "Yeah, no." Then the artist asked, "Are we going to play on 2?" Carlos responded, "No." The artist asked, "Are we going to play on 3?" Carlos responded, "No."

This activity required participation and concentration of the students for full engagement. Music class also required students to listen. During Week 5, Alberto hit his drum while the artist was talking to the class. The artist said, "Don't play, Alberto." Immediately, Alberto stopped hitting the drum.

The artist began music class by going around the room and greeting each student. He would sometimes engage in casual conversation with the students, which required them to both listen and speak. For example, in Week 5, the artist greeted Emilio. He said, "Hi Emilio."

Emilio said, “Hi,” and waved at the artist. The artist said, “How are you Emilio?” Emilio said, “I good.” The artist said, “You’re good?” Emilio said, “Good.” The artist said, “Okay, nice to see you Emilio. I like your haircut, Emilio has a nice haircut.” Emilio, then touched his hair. In another example, the artist asked students about their Halloween. In Week 4, the artist asked Carlos, “Did you dress up?” Carlos said, “Yeah.” The artist said, “Who were you?” The student replied, “Corderoy.” The artist asked, “Is Corderoy a character?” Carlos said, “Yeah.” During music class on Week 5, the artist said to the class, “We should start a band.” Carlos said enthusiastically, “A band! Yeah!” The artist replied, “We should start a rock band.” Carlos was extremely excited by this prospect and said, “Rock band!”

Emilio was not given the choice of instrument that he desired during music class on Week 3. Emilio said, “Ahhhhh bongos.” He became very upset, shook his head, got out of his seat and jumped up and down. The artist went to the student and said, “Emilio, let’s have a seat, let’s talk, let’s talk for a second here.” Emilio at this point was crying and rubbing his eyes. The artist said, “I want to give you a bongo, but before I give you a bongo, you have to calm down.” Emilio’s classroom teacher said to him, “Yeah, tell us what you need.” Emilio said, “I want a bongo please.” The following week, before the artist handed out the instruments, Emilio said, “The bongos.” His classroom teacher prompted him to raise his hand, which he did. She said to the artist, “Emilio has something to tell you.” The artist said called on the student, to which the student said, “The bongo.” The artist asked him, “Would you like to play the bongo? Let’s say...” Emilio said, “I want to play the bongo.” The artist gave him a “high 5” and said, “That was an excellent sentence, Emilio. Because of that, I will happily give you the bongo.”

Areas of behavior improvement were also touched upon during music class. In one of the songs that students sung each week, the lyrics read, “I hear babies cry.” The students thought

this line in the song was very funny, and would laugh. The artist lectured the students about not laughing and sometimes before the lyrics were sung, he would remind students not to laugh. During Week 5, Carlos covered his mouth during that part of the song, to prevent himself from laughing. It worked, and he did not laugh, though other students did.

In Week 5, Emilio asked for the bongo again, which he was given. The classroom teacher said, “Maybe bongo this week, then a different drum next week.” Emilio was a student who thrived on routine and predictability. He was very rigid in this sense, but his classroom teacher and the artist wanted him to be flexible. In Week 6, the artist handed out drums. He came to Emilio and said, “Oh Emilio. Do you remember last time we were in class, you said you were gonna try a different drum, not the bongo, but a different drum? You remember? So let’s think about it. Your choices could be tambourine or tom. What would you like today?” Emilio said, “Tambourine.” The artist said, “Tambourine, good choice, Emilio, so let’s start with that. And, I really appreciate you being flexible.”

## **Chapter 5 Discussion /Analysis**

### **Summary of Major Findings**

The use of music in the classroom with students who have ASD can assist and enhance academics, behavior, and communication. Student benefits range from reinforced math skills to strengthened expressive and receptive language. Over the course of the study, researchers also witnessed a reduction in behavioral outbursts in one participant. It should also be noted that the participants simply enjoyed music class and enjoyed seeing the artist each week.

### **Comparison of Findings to the Literature**

Studies included in the literature review point to music being a positive influence with students with ASD and students with special needs in general. The use of music has seen to create positive mood change and lower anxiety in preschoolers with special needs (Darrow, 2011). Findings from this study were along those same lines. One of the participants, Emilio, demonstrated anxiety during music class if he did not receive the drum he wanted, or if something in the classroom was out of place. He also showed distress if the artist didn't use the same visual prompts from week to week. However, over the course of the music classes, his anxiety level dissipated.

Children with autism were shown to increase social interaction after being imitated (Stephens, 2008). In this study, students engaged in daily musical routines in one-on-one settings. In another study, children with autism showed an increase in communication skills (Kim, Wigram & Gold, 2008) after weekly one-on-one improvisational music therapy sessions. In both of these published studies, participants received one-on-one time with the music teacher. It is difficult for the researcher of this study to compare findings to the findings of the two published studies mentioned, as the music classes were structured very differently.

### **Limitations/Gaps in the Research**

The purpose of the study was to examine the impact that music classes had on the participants. Specifically, to analyze the progress made toward each student's preselected IEP goal. Research was conducted for this purpose, as the researchers believed that growth and progress would be shown over the course of 9-week music class toward the IEP goal. However, after analyzing the data, researchers agreed that the music classes did not necessarily provide ample opportunities for the students to show movement toward mastery of their preselected IEP goal. For example, Emilio's IEP goal stated, "Student will initiate an appropriate social interaction such as saying 'Good morning' or 'Goodbye' to a familiar adult or peer with 75% accuracy as measured by teacher-charted observation/data in 4 out of 5 trials." Music classes were structured, and did not allow for students to initiate social interactions.

Because the results from the study did not provide significant insight as to whether students moved toward mastery of their preselected IEP goal, student researchers chose to widen the lens with which they examined the data. Areas of academics, behavior, and communicative skills were examined instead.

Additionally, the study was somewhat short in length, only 9 sessions total. Because of parent-teacher conferences in the semester, music class did not occur during one week, leaving a gap between sessions. Additionally, Emilio was absent for 2 of the sessions, so in total he was present for 7 instead of 9 music classes.

### **Implications for Future Research**

The study will most likely be conducted again, as the non-profit community arts organization does seek more information and data regarding the effectiveness of their arts

program. To make data more measurable, the IEP preselected goals should be ones that students can demonstrate during music class. If the IEP goal is too specific, another goal could be created to examine instead. An abundance of articles about the impact that music has on students with ASD does not exist. There is a call for more research to be conducted, especially with middle-school age students.

### **Overall Significance of the Study**

This study speaks to the impact that music has on students with special needs, in particular, ASD. Academic skills were reinforced during music class, which included counting, sequencing, memorizing, problem solving, and learning new vocabulary. Communicative skills were also enhanced in the form of expressive and receptive language and turn taking. Behavioral skills were reinforced, such as self-control and an increased ability for students to be flexible. This study pointed to music being responsible for increased opportunities for students to demonstrate their ability to succeed in these areas.

### **About the Author**

Sarah Foley was born in South Korea and raised in Dallas, Texas. She holds a Bachelor's of Science degree in Interdisciplinary Studies from the University of North Texas, and is working toward a Master's of Science degree in Education from Dominican University of California. She has taught elementary school for 9 years in various public and private schools in Texas, Hawai'i and California. Sarah lives with her son in San Rafael, California.

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