Response Towards Musical Activities: A Case Study of Two Children on the Autism Spectrum

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Abstract

This current study intended to address the relationship between music and autism by examining how music strategies helped bridge the social communication gap and improved students’ educational experience, sense of well being, ability to communicate with the teacher, and success in the music classroom. This mixed-methods study used a case study approach to analyze children with autism. Two children met twice a week for a twelve week study to engage in various music activities planned by the current researcher. Activities included using picture books paired with music, responding to music through body movement, keeping a steady beat using an instrument or body percussion, and playing instruments. Observational notes were recorded for each activity and a music response scale was completed by the researcher and each child’s Education Assistant to measure the students’ level of engagement and quality of response. Results from the study varied according to each student but overall the findings showed a medium to high response rate of engagement and enjoyment of musical activities.
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Chapter One: Problem to be Investigated

Purpose of the Study

The purpose of this study was to investigate how students with autism responded to music. The current study intended to address the relationship between music and autism by examining how music strategies helped bridge the social communication gap and improved students’ educational experience, sense of well being, and ability to communicate with the teacher.

There is not a lot of understanding as to how children with autism respond to music. Often it is expected that students with autism participate along with their classmates in music class and they are expected to engage in music like the other children. When they act out or show a lack of response to musical activities, the children are taken out of music class. At times, it may be concluded that the child does not enjoy music. This has been the researcher’s personal experience, and thus, started her quest to discover how children with autism respond to music by planning various musical activities for the children in a one-on-one setting.

With a lack of solid understanding and training on how autistic children learn, it can be overwhelming as a teacher and music educator to work with students who are on the Autism Spectrum. It has become more common for students with disabilities such as autism to be included into the classroom, as well as the music classroom (Darrow, 2003). In addition, the music classroom can be a positive environment for autistic students to succeed (Darrow & Armstrong, 1999).

The researcher planned to share the results of the study with various educators such as district special education staff, Education Assistants, music teachers, and classroom teachers to help spread the awareness of how children with autism can respond positively to music.
Justification of the Study

Autism was first identified by a psychiatrist, Leo Kanner, in 1943 at John Hopkins University. He noted distinctive features in people with autism that included extreme lack of responsiveness to other people, restrictive verbal and nonverbal communication, excessive attachment to small objects, desire to maintain sameness in an environment, and certain isolated areas of ability such as excellent rote memory or spatial perception (Darrow & Armstrong, 1999). Autism affects approximately four out of every 10 000 children with approximately 75% of autistic individuals diagnosed as having an intellectual disability (Waterhouse et. al., 1996). According to a more recent statistic it is estimated that three to six children out of every 1000 children have autism (Darrow, 2009). This statistic indicates that incidences of autism are on the rise. Unfortunately, autism remains largely an unsolved mystery as the genetics of autism are complex (Dempsey & Foreman, 2001). There are a wide range of medical treatments available for autism including medication, psychotherapy, vitamin therapy, secretin, and the control of allergies (Dempsey & Foreman, 2001). However, the most effective strategy for autism appears to be early and intensive educational support to address behavioural, social, and communication deficiencies associated with the disorder (Rapin, 1997). Fewer than 25% of children diagnosed with autism make a satisfactory adjustment into adulthood (DeMyer, Hingten, & Jackson, 1981). This is a discouraging statistic that illustrates the continued need for research and proactive work in the early years of children with autism.

Studies have revealed that music can greatly assist in improving the quality of life of children with autism (Darrow & Armstrong, 1999). Children with autism have shown “unusual sensitivity and attentiveness to music” (Darrow & Armstrong, 1999, p. 16). Music is also proven to positively affect hormone levels, heart rate, blood pressure, body temperature, and brain
waves (Moore, 2008). In other words, music can calm the heart and soul. Autism continues to be a complex disorder where students struggle with social interaction and communication, yet music educators can help bridge the social communication gap and provide positive musical experiences to help aid in social interaction. Strategies such as routine, visual cues, and familiarity can support and assist students with autism in successfully experiencing music (Iseminger, 2009).

Several strategies for incorporating music into learning activities for children with autism have been examined. Research by Carnahan, Basham, and Musti-Rao (2009a) showed that students with autism were more likely to be engaged when books were sung to them. The average level of engagement for the group studied was 81%, while the use of interactive books without music produced a 40% level of engagement. These findings indicated that music, when coupled with text, could promote increased rates of engagement.

Stephen Shore (2002) conducted a study that showed how the experience of music was unique to each child and affected students on the Autism Spectrum differently. The study also demonstrated how music could be beneficial in helping children with autism feel successful about themselves.

Another study supported the present research project by showing how music could improve communication and how music calmed and aided in relaxation for children with autism (Krikeli, Michailidis, & Klavdianou, 2010). The study showed that aspects of music could help with autistic students’ mental and physical well being and improve their quality of life. Thus, more should be done to help children with autism by educating teachers about the positive effects of music on students with developmental disabilities such as autism.
As stated above, children with autism generally lack communication skills as compared to their peers (Darrow & Armstrong, 1999). Finnigan and Starr (2010) investigated the lack of communication skills for autistic children and the ways that children with autism tend to remain isolated and not acknowledge people around them or initiate interaction with others. Students with autism have difficulty making eye contact with others and lack the social skills needed to engage in play with other children. Thus, the purpose of Finnigan and Starr’s (2010) study was to determine the effects of using music therapy on the social responsiveness and avoidant behaviours of a preschool autistic child. When the children in the study were given musical activities, they showed a greater number of social responses and fewer avoidance behaviours in music therapy than in a non-music condition where the same activities were completed without music.

As stated by Koegel and Koegel (2006), many schools do not provide adequate social programming for students with autism to help target their social development. It has been asserted that music can and should be used in the daily routines of school-aged children with autism to help encourage socially responsive behaviours like eye contact, imitation, and turn-taking (Kern, Wolery, & Aldridge, 2007).

The current researcher drew upon the results from past research and developed musical activities for the two children with autism that promoted areas such as eye contact, creativity, relaxation, and enjoyment.

**Research Question and Hypotheses**

The research question for the present study was as follows: How do children with autism respond to elements of music? The hypothesis was that students on the Autism Spectrum would show a variety of responses to musical activities. Due to the vast evidence of the positive
implications of using music to help autistic students, the current researcher of this study believed that the students would show at least a medium response to most of the musical activities, such as singing with picture books, playing instruments, and moving to the way music makes them feel (Kern et al., 2007; Darrow & Armstrong, 1999).

**Definitions of Terms**

For the purposes of the current study, there were a number of operational definitions that required clarification. The term autism referred to a developmental disability which affects verbal and nonverbal communication, as well as social interactions, generally showing evidence before the age of three (U.S. Department of Education, 1991). Respond is a term that has many different connotations. The term needed to be defined, as each autistic child functioned at different levels and showed different responses to various elements of music. Response was defined as a communication signal that indicated the correct understanding of a concept. The communication signal could be verbal or through the use of body language. For the purposes of this study a rubric was established and used to interpret either no response or a low, medium, or high response. The last term, elements of music, referred to different musical activities such as rhythm, singing, playing instruments, and movement/responding to music.

**Brief Overview of the Study**

The present study contributed to the existing research about how children with autism respond to music and the positive influences that music can have on an individual (Darrow & Armstrong, 1999). The study of how children with autism responded to music was conducted in the fall of 2011 and took place over four months. Information and data were collected using an intrinsic case study approach. The case study involved two students with autism, ages eight and ten, who attended an elementary school in a school district in British Columbia. They met one-on-one with the current researcher twice a week for twenty minute periods of music instruction.
Structured activities were designed and carried out by the researcher where variables such as type and length of activities were kept controlled. Activities involved keeping a steady beat, singing along with picture books, listening to music, moving to music, and playing instruments. Responses were recorded using anecdotal notes and a music response rating scale (Appendix A). Parents were informed about the study and permission was obtained from the parents/legal guardians to work with their children for the purpose of this study (Appendix B). Interviews with the parents were conducted to obtain a full scope of each student’s background and history (Appendix C). The data was analyzed for themes and trends in the way children with autism responded positively to musical activities.
Chapter Two: Background and Review of Related Literature

A review of research literature directly related to the current study provided insight into how children with autism respond to music and effective strategies that can be used when working with children on the Autism Spectrum. According to the related literature, there is strong evidence that links music to active engagement of students with autism. A review of the literature has provided key examples and strategies that pertain to the current study and how children with autism respond to music in unique ways.

The Carnahan et al. (2009a) study addressed the problem of lack of engagement for students with autism. The purpose of the study was to determine what effects interactive books that feature visual supports, with and without music, had on the engagement of students with autism in a small group setting.

An eight week pilot study occurred in an elementary special education classroom in a large suburban school district in the Midwestern, United States. It took place during a small group literacy based activity taught by the special education teacher. Six students ranging from ages six to eleven participated in the study. Five of the children had autism and one had a health impairment showing similar needs and behaviours as the students with autism. The researchers used a mixed method study where students were video taped. Students were observed for six second periods at a time during the book reading process and their level of engagement was recorded for each six second time frame. The researchers continued the data collection process of observation until the teacher finished reading the entire book. The group met daily and the teacher read an entire book aloud every day for the school week, with a new book being introduced each week.
The first phase was the baseline where the teacher read a picture book to the students and asked questions to elicit responses. The second phase assessed the use of interactive books without music. After each page, the teacher asked one or two students to answer questions. The students also had opportunities to manipulate and play with the interactive pieces that went along with the story. The third phase used interactive books paired with music. The teacher played audio tapes where the text was sung and set to background music such as piano or guitar. She stopped the music at the end of each page and provided opportunities for engagement or participation as she did when reading the book during the baseline.

The results of the Carnahan et al. (2009a) study revealed that when the books were presented to the students with the text of the words sung, the average level of engagement for the group studied was 81%. The use of interactive books without music produced a 40% level of engagement. These findings suggested that music, when coupled with text, can promote increased rates of engagement.

Limitations of the study included the wide range of age of the participants (Kindergarten to Grade Four.) Because of the broad range of students, it would be hard to choose age appropriate books for students, a variable which affected level of engagement. Also, it was not known if the books in the study contained a topic of interest or if it addressed background knowledge of the students, which also could affect one’s level of engagement.

Carnahan et al.’s (2009a) study supported the current thesis project because singing with picture books was chosen as one of the musical activities when working with the children with autism. Because of the high level of engagement that arose from the teacher singing along with the books in Carnahan et al.’s (2009a) research, it was used as a strategy for the current study. The current study determined how each student with autism responded individually to books
with text set to music. Carnahan et al.’s (2009a) study demonstrated that students with autism can be actively engaged through the use of books set to music, but doesn’t examine the degree to which the students’ engagement may be related to other factors besides music, such as their interest in the subject of the book or their reading level, which the current study will examine on a case study basis.

A similar study was completed by Carnahan, Musti-Rao, and Bailey (2009b) where the purpose was to determine how to engage students with autism. The researchers looked to visual learning materials as a strategy that leads to active engagement for students on the Autism Spectrum. They also believed that music should be integrated with the students’ interests by using routine and structure. Thus, this study analyzed the effects of music paired with additional interventions such as interactive and visual cues to help engage students with autism during small group activities.

The participants used in this study were six Caucasian students (five males and one female). Five of the students were autistic and one had a health impairment. They ranged in age from six to eleven years. It is important to note that the study took place in a special education resource classroom in a small, suburban United States school district. The classroom was designed specifically for students with autism and this was where they spent the majority of their day. Each day the group met for half an hour and participated in four activities that included a peer greeting, calendar activity, picture book activity, and a music or dancing activity. The data was obtained by using photography to define engagement. Students were photographed throughout the day and the photos were separated into two piles for each student. One pile of photos showed the student engaged in their activities while the other set showed the disengagement of the child in their activities. Specific descriptors were set by the researchers to
define what engagement looked like such as the students were sitting with their body, face, and eyes in the direction of the learning materials or activity. Data was also collected using tally marks to record responses each time the teacher posed a question to the group or asked the students to interact with a story.

Using ABCAC reversal design, the team evaluated the effects of interactive reading materials paired with music and how engaged the target students were. The teacher used one book per week, reading it every day for the entire week. During baseline A, the teacher read a picture book and prompted the children with questions related to the story. Condition B included the use of interactive books using manipulatives. During the C phase, the teacher paired interactive books with music to engage students. The song was recorded on tape and the narrator of the story sung the words with background music. The teacher stopped the music at the end of each page and then asked specific questions or used manipulatives related to the text. Baseline A (A2) was repeated to allow for experimental control. Condition C was also repeated (C2) using interactive books with music.

Results of the study show increased levels of engagement when the teacher used interactive materials paired with music (Condition C). When interactive books were used without music, one student demonstrated a 43% level of engagement versus a 72% engagement level when music was coupled with interactive books. All students showed increased levels of engagement to varying degrees. The results of the teacher satisfaction survey indicated that the teachers found the music intervention useful and easy to put into practice. The data supported the use of visual and interactive materials along with music as a way to increase academic engagement for students with autism.
Limitations of this study include the wide range in age of the participants. This could result in the use of books that were not necessarily age appropriate. Another limitation was the amount of time spent reading a book. As the group met for thirty minutes a morning doing various activities, approximately ten minutes was set aside for the book reading activity. Some books were longer than others, which could affect a child’s level of engagement. Conclusively, this study showed the need for further research to get a better understanding of how strategies such as interactive books and music can be used to promote academic engagement for autistic students.

Carnahan et al.’s (2009b) study supported the current study in that it demonstrated that active engagement is possible through the use of music paired with interactive books. It heightened the current researcher’s awareness that visuals are extremely important when working with autistic children. Carnahan et. al.’s (2009b) research also provided support for the engagement of groups of students using music paired with interactive books, but students’ interactions likely also depended on their individual characteristics. The current study will examine how this strategy may work differently for different students depending on their individual characteristics such as interests, age, and reading level.

A qualitative study using direct observation was completed by Stephen Shore in 2002 on the topic of working with children on the Autism Spectrum. Shore showed how music was an effective way to communicate with children who had autism. His research demonstrated the benefits that music had on autistic children. He showed how music improved a child’s self-esteem when given an activity they could excel in. Furthermore, he emphasized the importance of playing instruments and how they could be used to help extend social interaction within the school and promote social community by focusing on the child’s strengths.
Shore used a case study approach and wrote about his observations when working with Zack and Sam, two children on the Autism Spectrum. Zack was a nonverbal child whose limited speech would probably never be his primary mode of communication. Shore used various attempts to establish a meaningful connection with Zack by using instruments and having Zack try to keep a steady beat while the researcher played the piano. This resulted in Zack wanting to play the piano and him trying to remove Shore’s hands off of the piano. Similar occurrences like this took place where Zack did not want anyone else to play an instrument. Shore saw that Zack was not responding and engaging in the way that he liked. After talking with the parents, they suggested using an activity time board. By using images of tasks that were going to be completed during the session, Zack would know what to expect. The tasks ended up being broken down into tiny steps such as picking up the stick, tapping the drum four times and then putting the stick down. When Shore showed and demonstrated the task board to Zack and broke down the tasks for him in sequential order, he followed the instructions perfectly. Because Zack was able to understand what was expected of him by observing the activity time board, he was able to participate in the task successfully and feel good about himself.

The second case study included Shore’s (2002) work with a twelve year old boy named Sam with Asperger Syndrome. Students with Asperger Syndrome tend to be quite verbal and have average to above average IQ’s but are challenged with communication (Shore, 2002). Shore gave guidance to Sam and taught him note names on a staff using post it notes on the piano keys, eventually leading to Sam learning the note names for songs such as “Hot Cross Buns” and “Twinkle Twinkle Little Star” and translating the notes to the piano. The researcher created a safe environment where Sam knew there would be no penalties for making mistakes. Therefore he achieved success in reading and playing music.
Shore mentioned a few other case studies from his work with teaching autistic children how to make, create, and enjoy music. He shared an interesting story about an autistic child with no functional communication who knew a lot of children’s songs. Shore sung the beginning of “Twinkle, Twinkle, Little Star”, purposely leaving out the last phrase. Immediately the child filled in the missing phrase of the song, singing it in perfect pitch. With another child, Shore used all of his communication strategies by singing to a child with Asperger Syndrome. This helped to focus the child on directions and instructions, whereas when directions were spoken, the child had a harder time focusing.

The main results of the study were that music is unique to each child and affects students on the Autism Spectrum differently. The study also showed that music can be beneficial in helping children with autism feel successful about themselves. The key was finding out how a child can learn and respond to music.

Shore (2002) established that a case study approach was an appropriate methodology for the current study of how music strategies can impact students who have autism. Through case studies, individualities of students can be taken into account and explored. The current study examined how particular strategies worked for individual students. Shore’s (2002) research provided wonderful ideas and strategies to employ during the course of the present study, such as his idea with teaching Sam how to play the piano.

Krikeli et al. (2010) investigated the effect of music on communication of children with developmental disabilities. The goal of the study was to show how communication was improved through music and how music calmed young children with developmental disabilities. They sought to demonstrate how music produced psychological and physical well being and improved quality of life.
The researchers used forty subjects (18 boys and 22 girls) ranging from ages seven to twelve who volunteered to participate in the research. Two special schools from each of the countries of Greece, France, Germany, Cyprus, and Italy were randomly selected using a lottery-wheel. The children were divided into two groups. While group A participated in music therapy activities for sixty minutes, group B (the control group), played or watched television. This was repeated five times in total during a two month period. The State-Trait Anxiety Scale (STAIC) was developed by a well known psychologist, Charles Spielberger (as cited in Krikeli et al., 2010). The STAIC was administered to the students before and after the sessions to measure anxiety. This instrument was comprised of self-report scales for measuring state (S-Anxiety) and trait anxiety (T-Anxiety). The scale consisted of twenty statements that described how the respondents felt and was administered to the participants prior to completing their tasks. Furthermore, the heart rate response to the music therapy was monitored for the children in group A, during and after the session.

The results revealed that music therapy helped calm young children with developmental disabilities. After 30 minutes of the music therapy session, on average their heart rates decreased from 105.7 beats per second (bps) to 101.0 bps. At the end of the session (after 60 minutes) their heart rates were at 100.1 bps. A communication test was also given after music therapy sessions. Overall, the music therapy process helped to improve the communication of children with developmental disabilities. The S-Anxiety scale score was positively influenced by music therapy. On the other hand, group B, who watched television or played, was not significantly influenced when their S-Anxiety scales were administered. Furthermore, there was a strong relation between communication and heart rate decrease. Krikeli et al.’s (2010) study made an
important step in showing how music therapy helps calm young children with developmental disabilities.

Limitations of Krikeli et al.’s (2010) study were that it did not provide a detailed description of what activities were involved in the music therapy sessions. As well, the children in the control group were given free reign to participate in whatever activities they wanted, such as playing, talking, and watching television. This could change the results as they were not all participating in the same activities. Stress or tension could have arisen from arguments over playing with toys which could influence their SAIC score.

Krikeli et al.’s (2010) study supported this current study by showing how music can improve communication and how it helped to calm and relax children with autism. If aspects of music can help students on the Autism Spectrum’s mental and physical well being and improve their quality of life, then more should be done to help them through the use of music. Also, more can be done to educate teachers about the positive effects of music on students with developmental disabilities such as autism.

Another study that was related to the area of how children responded to music was completed by Kern et al. (2007). The study took place in an inclusive university-affiliated child care program in the United States. Their study evaluated the effects of individually composed songs on the behaviour of two young children with autism during their morning greeting song that was part of their classroom routine (Kern et al., 2007).

Children in primary classes experience many transitions throughout the day between activities and routines such as arrival at the classroom, going out for recess, and moving from one area of the classroom to another. Transition can be difficult for students with autism, sometimes resulting in crying, clinging to the caregiver, or avoidance of the class (Kern et al.,
Using songs to promote successful transitions is recommended for young children with autism (Furman, 2002; Humpal, 1998; Snell, 2002). Strategies for avoiding negative behaviours include promoting successful transitions using structure and predictable routines, visual cues, and songs.

The purpose of Kern et al.’s (2007) study was to evaluate the effects of individually composed songs implemented by classroom teachers on the performance of two young children with autism during the morning greeting routine. The participants were two three year old boys, Phillip and Ben. Both had limited speech and used the Picture Exchange Communication System (PECS), which is a system that uses pictures instead of words to help children communicate. Both boys showed limited speech and social interaction with peers while also exhibiting difficulties with transitions. At times, Phillip refused to enter the classroom and would scream or lie on the floor. A morning greeting song was developed for the boys for the procedures of the morning routine, such as walking in, putting the bag on the hook, waving goodbye to the caregiver, and then going to play time. Single subject research designs were used.

Using a mixed method study, behaviours of the two boys were measured through using direct observation and event recording. The observation started as soon as the boys entered the classroom and their responses were classified as independent, prompted, inappropriate, or no response. The routine was assessed as an independent response if the child performed the behaviour required for the routine. Prompted response was defined as performing the step of the routine but having to receive an adult prompt to do so. No response was defined as the child not responding even when asked. Inappropriate response was used if the child engaged in problem behaviours such as temper tantrums.
After ten sessions of the morning greeting and song, results of the study showed that Phillip’s performance appeared consistent and above baseline level. He was able to perform all the steps of the routine correctly. As for Ben, he started with performing one independent step and on the fourth day, he completed three independent steps. After five sessions, he was able to complete all four steps independently. The boys’ parents reported that with the help of having a morning song the transition of coming to school was much easier for their child.

The data supported the use of music in morning arrival routines in the inclusive classroom. The researchers suggested that the use of songs also had the potential to have positive effects on peers’ greeting behaviour and interactions towards the autistic children (Kern, et al., 2007).

Some limitations of this study were that only two participants were studied which does not allow a sufficient pool of subjects to base a conclusion on. Also, if there was no access to music therapists or music teachers in a school district, it would be hard for a classroom teacher to be able to compose their own song for the child with autism, especially if they do not have music training. Further research could be done on using songs to promote other skills such as social and communicative abilities.

Kern et. al.’s (2007) study correlated well with the current researcher’s topic of study, as the concept of having a consistent greeting song to start off each session was used for the autistic students when they arrived at the music room for their session. The researcher of this current study learned through Kern et al.’s (2007) study the importance of incorporating musical activities that promote areas such as eye contact, turn-taking, creativity, relaxation, and enjoyment.
The problem investigated in Finnigan and Starr’s (2010) study was the lack of communication skills that children with autism demonstrate. Children on the Autism Spectrum tend to remain isolated and do not usually acknowledge people around them or initiate interaction with others (Finnigan & Starr, 2010). They have difficulty making eye contact with others and lack the social skills needed to engage in play with other children. Thus, the purpose of Finnigan and Starr’s (2010) study was to determine the effects of using music therapy on the social responsiveness and avoidant behaviours of a preschool child with autism. Their hypothesis was that the child would show a greater number of social responses and fewer avoidance behaviours in music therapy than in a non-music condition where the same activities were completed without music.

The researchers used a single-subject design. Their participant, Anna, was a three year old girl with autism. She had no prior exposure to music therapy sessions. When observed, Anna had poor eye contact and limited social interaction with others. She did not often play with toys and her facial expressions frequently remained emotionless with occasional smiles. A total of six toys including a large ball, plastic car, two plastic people, large stacking cups, two plastic maracas and a large drum were used for the study.

Anna had four fifteen minute sessions a week. Sessions were held twice a week in an empty room at a preschool. The other two sessions were held at Anna’s home in her family living room. In Phase A, Anna was seated and presented randomly with each of the six toys for three minutes while the therapist offered opportunities for imitation and turn-taking without any instruction or prompting. Phase B included both the music and non-music conditions. For the music conditions, a drum, car, and ball were presented to Anna. The therapist sang simple songs accompanied by guitar, providing opportunities for Anna to take turns to initiate in play with the
toys and make eye contact with the researcher. For the non-music interventions, the stacking cups, farm animals, and maracas were presented to Anna. The therapist interacted with Anna in a similar fashion as during the music phase except without music. Her responses were again recorded. In Phase C, the toys that appeared to be less effective interventions were used with the more effective intervention. The purpose was to find out if there was a difference when the same toys that were used in the less effective intervention were used with the more effective intervention. The music therapist interacted with Anna in the same manner as Phase A, with the deletion of music. Phase D consisted of two follow-up sessions where Anna was randomly presented with each of the six toys for three minutes with no instruction. The reasoning behind this was to determine whether or not Anna’s social responses she had demonstrated during the intervention phase had been sustained.

Study findings concluded that eye contact was observed in the music condition and not in the non-music sessions. When the non-music toys in Phase B were used in Phase C, eye contact was noted in six of the seven sessions. During Phase D in which no music was used, eye contact frequency returned to zero. In terms of turn-taking, Anne demonstrated a mean of 27.4% in Phase A versus a mean of 87.5% in the music Phase B. In Phase C, Anna had an average of 91.7% for turn-taking. Social avoidant behaviour results showed Anna pushing away the toys in the Phase A session. There were no instances of pushing toys away during the music condition. Results showed that through the use of songs Anna demonstrated a higher frequency of eye contact, imitation, and turn-taking when compared to the non-music condition. Her socially responsive behaviours increased, while her avoidant behaviours decreased. Therefore, the evidence suggested that the use of songs was an effective tool for increasing socially responsive behaviours for autistic children. Familiar songs helped to motivate Anna to complete the tasks
set before her. When the toys towards which Anna showed avoidant behaviours were introduced with music, the avoidant behaviours were not observed (Finnigan & Starr, 2010).

Some limitations of the study include the use of a single-subject design. The question of generalizing from a single subject arises. Also, the study was done over a two month period, which was a short span of time for interventions for autistic children. Continuing the music therapy sessions for a longer period of time may have helped in increasing Anna’s socially responsive behaviours.

Finnigan and Starr’s (2010) study related to the current study as the present study involved two autistic students who have similar characteristics to Anna. The two children in the current study also had limited speech, avoidance of eye contact, and showed limited interaction. Finnigan and Star’s (2010) research suggested that music can be a tool to try to engage children with autism. Music can be used to develop a program that will help to bring children with autism out of their shell and allow them the chance to experience success through music.

As indicated by the six literature studies, there was strong evidence of the positive effects of music on autistic students. As stated by Koegel and Koegel (2006), many schools do not provide adequate social programming for students with autism to help target their social development. Music can and should be used in the daily routines of school-aged children with autism to not only reinforce self-care tasks, but also socially responsive behaviours like eye contact, imitation, and turn-taking (Kern et al., 2007). The studies reviewed provide music educators with many teaching strategies that can be used in classrooms such as providing routine, visual cues, familiarity, and other approaches to make music a successful experience for students with autism. Special learners, such as children with autism, can achieve success, have fun, and create music in a safe and comfortable place where the children feel secure and relaxed (Iseminger,
The research studies above demonstrated the power of music and how it can be used as a crucial communication tool for students with disabilities such as autism. For children who have difficulty with expressive language, music can be an outlet where they can achieve positive success. Autism is a complicated disorder, but by gaining knowledge and further understanding, students with autism can enjoy music by actively engaging them.
Chapter Three: Procedures & Methods

Research Design

The purpose of the current study was to discover how students with autism responded to different musical activities. As children with autism often struggle with communication, the current researcher designed an action research study using music as a strategy and method to connect with students on the Autism Spectrum and to help them to express themselves.

The present study was conducted during the fall of 2011. Using a mixed methods case study approach, qualitative and quantitative data were used to describe the responses of two students on the Autism Spectrum. The children met with the current researcher for twenty minutes twice a week. The present researcher and Education Assistants completed a music response scale (Appendix A) after each session to assess the level of response to musical activities for each child. Each child had their own Education Assistant who worked directly with the child during music sessions. A rubric (Appendix D) was established to define what a high, medium, and low response was for each child. Observational notes were recorded by the current researcher and were analyzed for trends. The data from the music response scale was graphed to show the level of music response to activities over the time span of the music sessions.

Musical activities included singing with picture books. The activity of using picture books with music was chosen based on the research of Carnahan et al. (2009a) that demonstrated that there is a high level of engagement for autistic children when a book is sung rather than spoken. The second activity involved moving to music using streamers, drums, and/or rhythm sticks. The final activity consisted of learning the names of various instruments and experimenting with the different sounds and vibrations. Further into the sessions this transpired into learning songs to play on the piano.
The design of using a case study and working directly with children with autism was chosen because the current researcher was an elementary music teacher. The current researcher wanted to learn more about how children on the autism spectrum are affected by music and how the children responded to musical activities in a one on one setting.

Sample

Participants of the current study included an eight and ten year old. Both autistic children attended the same elementary school in a rural school district in British Columbia. Jennifer and Bryan are the pseudonyms that have been used for the two participants to protect their anonymity. The parents/guardians gave their consent for their child to participate in the study and the identity of all individuals was protected. The sample was purposely selected from autistic students attending the current researcher’s school of employment. Because the sample was not random, and due to a small group of individuals used, the study was limited in its generalizability.

Jennifer is a caring, happy, and responsive child who understands when spoken to, but has difficulties responding verbally. She is working on developing her speech and using her words to respond to others. Jennifer is extremely visual and often relies on her pictorial board system to lay out her tasks and activities for the day and thrives on having structure and routine. It is at this stage that she is beginning to participate in play within structured settings. Often, Jennifer needs encouragement to engage in appropriate conversation responses and social interactions. For example, when given something, she will need to be coached to say “thank you” by asking her, “What do you say?” Jennifer’s interests include swimming, watching Walt Disney movies, navigating on the computer, and using her iPod. It is important to note that Jennifer had not participated in music classes for the last two years, as she would cover her ears
and act out in order to be removed from the music room. She did not seem to enjoy music classes or be getting much out of the sessions. There were many unknowns about why she did not enjoy music.

Bryan is a kind, sensitive, happy, and loving child. At times, he can be affectionate. He enjoys running, skipping, and playing games such as chase. Bryan struggles with social interaction and continues to work on his speech. Conversations and directions need to be simple and broken down into small sequences for him to understand. He requires ongoing encouragement when participating in activities. Bryan uses the pictorial board system, but is not as dependent on it as Jennifer. Bryan participated with the current researcher and his classmates in music classes once a week for the last two years, but with little to no response to the music activities. Often, he would ask to be excused to go to the bathroom. It was assumed by some of the school staff that he did not like music.

It is because of the lack of success teaching these children with autism in the music class that the current researcher chose to work with this specific sample to discover ways to make music fun, interesting, engaging, and at their level, thus discovering how they respond to various musical activities.

**Instrumentation**

The present researcher wanted to measure how the children responded to various musical activities. Using a mixed methods study, the instrumentation used collected a combination of qualitative and quantitative data. Using a case study approach, the present researcher observed all the actions of the two children during their music session and made detailed anecdotal notes about the child’s responses to each session. Observational notes were noted and recorded during each session, such as interesting body movements, facial expressions during activities, attitude,
and mood of the subjects. Trends were not compared between the two children, rather the focus was on each individual and how they responded to each music activity.

A music response scale (Appendix A) was used to assess the level of response to musical activities. The response scale consisted of assigning a high, medium, low, or no response for each musical activity. The Education Assistants completed the scale along with the current researcher as often as they were present at the sessions. Responses were either recorded as a high (3), medium (2), low (1), or no response (0) and were measured individually according to each child by methods such as eye contact, participation, verbal communication, and body language. The musical response scale was set up to assess each child anywhere along the continuum of no response up to high response, which meant that sometimes a child was assessed as being in between two points of data. For example, a 2.5 was assigned for a child who showed a medium to high response to a musical activity. In order to ensure consistency between the current researcher and Education Assistants in rating musical responses for each level, a rubric (Appendix D) was established. One rubric was used for both children as they were similar in their characteristics.

The Education Assistant proved to be a valuable source of information, as they not only had extensive training and experience working with children on the Autism Spectrum, but they knew the child’s mannerisms, interests, and capabilities. It is important to note that the Education Assistants were not always able to be at the music sessions due to scheduled breaks or school absences. Their data, therefore, did not match up with the current researcher in terms of the same number of days. Their data was analyzed and compared to the overall trend of the current researcher. Data comparisons between the Education Assistants and the current researcher were quite similar. When there was more than a 0.5 difference between the current
researcher and Education Assistant’s data, the anecdotal notes were used to justify the data point given by the current researcher. The observational notes were used to back up the current researcher’s data and to help explain how each child responded to musical activities.

The quantitative data that was collected for each child was separated into the three activities: singing with picture books, moving to music, and playing instruments. Each day was assigned a numerical value ranging from 1 to 3 based on each child’s level of response. The data for each musical activity was plotted on a line graph to compare the day to day trend for each child. The qualitative data was used to explain any upward or downward trends in the line graph. Furthermore, the qualitative data was used to provide descriptions of the children’s responses to various elements of music.

To fully develop the case study, the current researcher conducted an interview with the family of each child at the beginning of September to have a greater understanding of their child’s autistic background and history (Appendix C). The purpose was to get a sense of who the child was and what was their musical background. Questions were asked pertaining to the child such as when they were first diagnosed with autism, how the child best communicates, and any strategies that are used for communication. By asking these questions, the present researcher gained insight as to what communication strategies can be used during music sessions to best help the children understand what was being asked of them. Other questions asked included how their child view music and if they enjoy music and/or listening to music. This helped the current researcher in planning how to introduce musical activities by knowing what each child was exposed to. The present researcher also asked the parents if there was anything important that should be known about their child, such as any special behaviours, likes, or dislikes to help in preparing musical activities to suit the child’s needs. The interview took place at the school in
the music room where the research was to be conducted. The music room was chosen for the interview setting so that parents would feel comfortable in the setting in which their child would be participating in music activities for the purpose of the action research.

**Procedures**

With the purpose of discovering how children on the Autism Spectrum respond to music, the current researcher sought approval from the Vancouver Island University Ethics committee, as well as from the local School District and principal to work with vulnerable children. When approval was received, parents were informed about the current study via a cover letter and were asked to sign consent forms (Appendix B). They were made aware that their child’s participation was voluntary. After free and informed consent was obtained, the parents of the children with autism were interviewed (Appendix C) about their child’s autistic background and condition, as well as their perceptions of the relationship their child had towards music.

The study used a mixed methods approach to determine the individual responses of students to various musical activities. Students met individually with the current researcher two times a week for twenty minute blocks, where they participated in various musical activities. For the months of September to the middle of December 2011 (twelve weeks), anecdotal records were used as a method of recording individual behaviours and responses to music during music sessions. With the help of the child’s Education Assistant, a musical response rating scale (Appendix A) was used to track each child’s individual response and engagement level in each music activity. A rubric (Appendix D) was established as a guide to use for rating the level of response to each music activity. The author of the present study reviewed the anecdotal notes and behaviour response scales regularly to reflect on each autistic child’s response to the musical activities they participated in. From the data set conclusions were drawn for each child about the
music activities that elicited the most positive responses from the children. All information obtained was kept in a locked cabinet and the data will be destroyed after five years.

Each music period consisted of structured music activities. The current researcher used a pictorial activity board to map out activities that would be completed each music session, as Jennifer is quite visual and both Jennifer and Bryan benefit from routine and structure. The pictorial board used a Velcro strip board using pictures of each activity that took place during the sessions. The pictures also included the words of the activity or song. Other symbols on the pictorial board included emotion faces for Bryan and Jennifer to express their feelings, such as frustration or happiness they might be experiencing during an activity.

The beginning of each music session started with a music greeting that was sung to the child welcoming them to music. The first activity consisted of using one to two picture books sung by the teacher and if appropriate, the students as well. Music books such as “Five Little Ducks” incorporated actions and movement while at times using props such as puppets. The activity of using picture books with music was chosen because of the research done by Carnahan et al., (2009a) that indicated interactive books paired with music produced increased levels of engagement. The second activity involved listening and responding to music through movement, often with the use of streamers to aid in movement. The third activity incorporated playing instruments, sometimes keeping a steady beat with the chosen instruments. At times, the students needed guidance and help keeping a steady beat depending on their level of functioning. Students needed to be comfortable using instruments and as such they were slowly introduced. Pictures were taken of the instruments that were introduced to familiarize the child with instruments they would be playing, as well as to help them learn the names of the instruments. If
it was appropriate for the child, transition songs between activities were used. Songs and story books were repeated throughout the twelve weeks to allow for familiarity and in keeping routine.

Anecdotal notes were recorded after each activity along with the behaviour response scale for the three activities. Data was graphed and compared with observational notes. Trends were compared between the present researcher and Education Assistant’s data. Parents were given a debriefing form (Appendix E) after the research was completed. The debriefing form was designed to thank parents for their child’s participation and to provide the results of the study.

Validity

The current researcher made as many attempts as possible to ensure the internal validity of the present study and addressed areas of internal validity threats that included subject characteristics, loss of subjects, location, instrumentation, maturation, and attitude of subjects.

Although random selection is usually recommended when doing action research, this was not possible for this type of study. Subjects of the study were chosen based on their autism background. They were also chosen because the age groups were relatively close together and they attended the school at which the current researcher was employed.

Loss of subjects had the potential to be a threat to the current study, as the present researcher was unsure of how the health and school absences of the two children would affect the results. Jennifer had a few days of school absences, which resulted in completing fewer sessions than Bryan, but overall it posed a minimal threat.

The location threat was minimized by carrying out the music sessions in the music room at all times. Because consistency is important for children with autism, all music sessions occurred at the same time and location. The door was closed while the research was being
obtained to allow for privacy and to avoid external interference from other classes who might be walking by the music room.

The same method of instrumentation was used at each session. The researcher of the current case study used mostly qualitative data. A rubric (Appendix D) was established to help in determining each level of response for each child. Data collector bias was minimized by the current researcher recording factual and specific records, while avoiding evaluative comments. To gain another perspective and help minimize data collector bias, the Education Assistants completed the musical response scale (Appendix A) along with the present researcher to track each child’s individual response and engagement level to each music activity. Validity was improved by having the child’s Education Assistant in the room when at all possible. Bryan’s Education Assistant was only able to come to one session a week due to her scheduled breaks. Results of the music response scale were compared between the current researcher and Education Assistant to ensure similar findings in each child’s response rate to the music activities. As stated before, the results completed by the present researcher and Education Assistant were compared overall for trends as the amount of data collected was different.

Internal validity was also addressed by keeping the first three music activities consistent for both children. Activities were also repeated to allow for consistency and repetition, which was important when working with children on the Autism Spectrum (Iseminger, 2009).

Change in age and experience posed little threat as the study took place over four months. If it was a more long term study, the maturation threat would have been a more serious concern.

Attitude of subjects was a challenge in this research study because Jennifer had not been attending music classes previously for the last few years. When music activities were too loud or she felt over stimulated, she wanted to be removed from the music room. The current researcher
took this into account by being sensitive to the amount of noise level or anything that would require Bryan or Jennifer to experience discomfort or anxiety.

**Data Analysis**

The purpose of collecting data was to determine how two children on the Autism Spectrum responded to various musical activities. Qualitative and quantitative data were collected from the current researcher’s anecdotal notes and music response scale ratings and were analyzed for trends and common themes pertaining to how students with autism responded to music. Qualitative data included detailed observational notes and comments about each child and how they responded to musical activities presented to them. The qualitative data helped the current researcher with assessing the child’s level of response to musical activities and in analyzing the overall trend of musical response. When there was a decline in musical response, the observational notes provided insight as to reasons why the child showed a lower level of response.

The current researcher and Education Assistants also completed a musical response scale (Appendix A) at the end of each music session. Responses from the music response scale were recorded on a scale from high to no response and the response rate was tracked to see if it improved over time for each activity. Each level of response was assigned a number, such as a high response at a 3 and a low response at a 1. Responses were charted on a line graph in order to assess the overall trend of musical response for each activity. The Education Assistant’s data was compared to the researcher’s and data was analyzed for overall trends. Musical areas that Jennifer and Bryan experienced a medium to high response in were noted by the current researcher.
The information obtained through the parent interviews was used for background knowledge about the student and their history with autism and to plan appropriate music activities. All data was collected and analyzed in order to develop an effective case study pertaining to each individual student and how they responded to various music activities.
Chapter 4: Results

The purpose of the current study was to determine the level of engagement and quality of response of two children on the Autism Spectrum to various music activities. To determine the level of response of the two children, they participated in music sessions twice a week from September until December 2011. A music response scale (Appendix A) was completed by the current researcher based on three activities: singing with picture books, moving to music, and playing instruments. The response to each activity was assessed as no response, low, medium, or high response. Anecdotal notes were recorded by the current researcher at the end of each music session to help justify the data and give greater explanation as to why the children responded in a certain manner. When able to, the Education Assistant attended the music sessions and completed the music response scale to compare to the current researcher’s results. The data collected from the Education Assistant and the current researcher was graphed and analyzed for overall trends.

Bryan completed twenty-one music sessions and his level of engagement with musical activities was analyzed and charted on a line graph. Figures 1 and 2 show the current researcher and Education Assistant’s results for Bryan’s level of response to singing along with picture books.
Figure 1. Researcher Results: Bryan’s Response to Singing with Picture Books

![Line Graph 1](image1)

Figure 2. Education Assistant Results: Bryan’s Response to Singing with Picture Books

![Line Graph 2](image2)

As noted from the line graphs of the data completed by the current researcher and Bryan’s Education Assistant in Figures 1 and 2, there was an upward trend towards musical engagement. It is important to note that Bryan’s Education Assistant attended the music sessions once a week. Due to her scheduled breaks, she was not able to attend both sessions each week.
Bryan started off the first two sessions demonstrating a 1 to 2 level of response and as he became comfortable and more confident with learning the words to the songs, he moved towards a high level of response on average near the end of the sessions, often showing a level 3 response. When asked to use manipulatives to further show understanding of the songs, he was able to do so successfully.

Qualitative data indicating high engagement with singing included him smiling, moving his body in a rocking motion back and forth as he sang, and frequent eye contact with the picture books. At times he needed to be reminded to use a louder voice so he could be heard. Near the end of the sessions he was able to sing all the words to the songs independently. When the researcher would sing a phrase of a song, he was able to complete the phrase for the next part of the song. Bryan also showed a lot of emotion and sensitivity to music when singing, such as when singing the song “Five Little Ducks.” He started tearing up when the Mother Duck became sad that her little ducks had left her. He often would state that “mother duck is sad.”

In comparing Figure 1 and 2, Bryan mostly showed a medium to high response to singing with picture books. The overall trend for the Education Assistant’s record is slightly higher than the current researcher. When looking at the graph trends near the end of the sessions, the Education Assistant rated Bryan at a level 3 response versus the current researcher scoring a 2.5 (medium high) level of response at times. This resulted from slightly different expectations and interpretations of what each thought Bryan was capable of achieving. In Figure 1, the score of 2 on Day Four was due to sickness which affected the emotional level and capability of Bryan to sing on that particular day. Overall, the Education Assistant was very proud and impressed that Bryan sang out so well during the sessions and that he was engaged with the books. Before the music sessions started she was convinced that Bryan did not enjoy music. After the first week of
music sessions she was amazed with the transformation in Bryan and how much he was getting out of each session and responding so positively to all the musical activities.

The next set of data shown in Figures 3 and 4 demonstrated the level of response to musical movement. This often involved listening to music while moving to the beat using streamers, drums, or rhythm sticks.

Figure 3. Researcher Results: Bryan’s Response to Musical Movement
In comparing the data trend of Bryan’s response to musical movement, the Education Assistant and researcher had similar findings. The one difference in data was on Day 1 where the current researcher assessed Bryan at a level 2 response and the Education Assistant scored Day 1 at a level 3 high response. The reason why the researcher did not rate Bryan at a 3 on Day 1 was because she wanted to focus on allowing Bryan to feel comfortable during his music sessions, especially on the first day. The current researcher did not push Bryan to try and do new things or copy movements.

Qualitative, observational data enriched the quantitative results. Bryan’s favourite songs to move to included “Fireflies” and “I Gotta Feelin”. The movement took place at the end of each session and every day he would request “Fireflies.” With his continued requests at each session, it was affirmed that Bryan enjoyed listening and moving to music. Bryan demonstrated a medium-high level of response to musical movement right from the start of the music sessions. With Bryan being an active child who enjoys games and playing, it comes as no big surprise that
he enjoyed moving to music. He would copy movements such as moving the streamer from side to side to the beat, bending his knees, skipping around the room, making circles, and doing jumping jacks. At times, the current researcher would copy his movements. When skipping around the music room, he would follow the current researcher and Education Assistant, often ending in a game of chase. This would result in him smiling or laughing. His favourite activity was to spin to the music, which had to be controlled because otherwise he would spin for the entire song. Bryan moved to the beat quite well and showed extreme sensitivity to music. The fact that he asked for “Fireflies” each session showed his enjoyment of the activity. It was also a great way for him to burn off energy and release stress in a fun and interactive way. Overall, Bryan showed and expressed enjoyment moving to the beat of music.

The other area of musical movement that Bryan enjoyed was playing the rhythm sticks to a song called “Grease Lightning.” The sticks were his “car” and the song gave him instructions for driving by tapping his sticks, asking him to tap his sticks to the left, right, above his head, sometimes faster, and sometimes slower. Bryan loved tapping his sticks as fast as he could go, immediately smiling and making eye contact with the current researcher. Bryan was given positive affirmation that he could tap his sticks very fast, which made him smile even more. Overall, Bryan showed high engagement to musical movement and it was exciting to find an area of music that he enjoyed and excelled in.

Figures 5 and 6 show the results of Bryan’s response to playing musical instruments including various pitched and non-pitched instruments such as the drum, sand scraper, xylophone, triangle, and piano.
Figure 5. Researcher Results: Bryan’s Level of Response to Playing Musical Instruments

![Graph showing Bryan's level of response to playing musical instruments.]

Figure 6. Education Assistant Results: Bryan’s Level of Response to Playing Musical Instruments

![Graph showing Bryan's level of response to playing musical instruments.]

Results of the current researcher and Education Assistant were again, very similar. The researcher rated Bryan as showing a 2 level response on the first day due to easing him into the
sessions and allowing him to feel comfortable. After Day 1, Bryan showed a high level of engagement. He showed a decrease to a level 2 response on Day 5 (Education Assistant) and Day 10 (Researcher) due to not feeling well with a cold and he did not have much energy or show great enthusiasm that day. He also did not follow directions as well as he normally did. Other than the one decline, he consistently showed a level 3 response throughout his sessions.

During the first eight sessions, Bryan was introduced to a variety of instruments such as the drum, triangle, sand scraper, cabasa, xylophone, and piano. He enjoyed experimenting with the instruments and learned how to play a few songs on the xylophone. When Bryan was introduced to the piano, it was magical. Qualitative data confirmed that he was very engaged and intent when playing on the piano keys. The piano notes were written on dots on the piano keys using a colour coded system. He easily learned the song “Hot Cross Buns” on the piano using the piano dots. What amazed the current researcher was that he immediately transposed “Hot Cross Buns” to the black keys on the piano. He was able to reason that if “Hot Cross Buns” could be played on the dots using the notes “B, A, and G,” that it could be played anywhere on the piano. When asked to play “Hot Cross Buns” up high on the piano, he immediately did so. To confirm his understanding, he was asked to play “Hot Cross Buns” on the lower part of the piano, which he did with no problems. It was after this session that the current researcher knew Bryan had a special connection with playing the piano, and thus he was taught more songs on the piano. Over the next thirteen sessions, he learned to play “Mary Had a Little Lamb,” “Twinkle Twinkle Little Star,” and “Happy Birthday.” Bryan has a talent for playing the piano and even tried to use the right fingers for each note. He showed such great sensitivity and skill on the piano that he performed “Twinkle Twinkle Little Star” for his school talent show. He had many teachers and parents in tears as he performed his song perfectly.
Although he depended on using his music for most of the songs, he showed a very high engagement and interest in playing instruments and extreme sensitivity to playing the piano.

Jennifer participated in seventeen music sessions. She had fewer sessions than Bryan due to some school absences. Jennifer’s level of response and engagement to musical activities was charted. Figures 7 and 8 show her level of response to singing along with picture books from the data collected by Jennifer’s Education Assistant and the current researcher. It is important to note that Jennifer’s Education Assistant had three less sessions charted than the present researcher due to absences.

Figure 7. Research Results: Jennifer’s Response to Singing with Picture Books
Jennifer started off her music sessions with a level 1 response. Her Education Assistant had prepared her by letting her know that she was going to be going to music with the current researcher. Day 1 was met with much resistance. Jennifer had to be reminded to not cover her ears and needed constant reinforcement to participate in the activities. Her Education Assistant was firm with her that she was going to give the music sessions a try. From Day 2 to 5, Jennifer showed an upward trend up to a level 3 response to singing with picture books. It was with patience, familiarity, repetition, routines, and constant encouragement and affirmation that Jennifer was able to show her full capability. Observational data indicated that Jennifer enjoyed singing songs such as “Five Little Ducks” and “Kiss the Girl.” It was on Day 5 with the current researcher that Jennifer connected with her singing voice. From that day on she fully sang out songs taught to her. Like with Bryan, manipulatives were used to assess for Jennifer’s level of response, such as in using the ducks to count how many ducks there were at each part of the story. The current researcher experienced a breakthrough with Jennifer during Day 12 when a song for the Christmas concert was introduced to her. The song was called “Listen to the
Jingle,” which was chosen for its beautiful melody and repetition. Jennifer was taught the chorus while ringing a sleigh bell. Jennifer immediately took to the song and immediately tried singing it, with a smile on her face the whole time. It was apparent that she was concentrating hard on singing the song. She was able to learn “Listen to the Jingle” and sang it with her class for the Christmas concert. Jennifer had not participated in the school Christmas concerts for the last three years. The teachers, her family, and Education Assistant were very proud of her.

Figures 9 and 10 show the results of Jennifer’s response to movement to music. The movement component consisted of moving to music using the streamers, as well as drums and rhythm sticks.

Figure 9. Researcher Results: Jennifer’s Response to Musical Movement
Figures 9 and 10 show Jennifer’s engagement in moving to music. Again, Jennifer started out with a level 1 response due to unfamiliarity of activities and expectations. By Day 2, Jennifer demonstrated a medium (2) to high level (3) of engagement to moving to music. This was due to her becoming familiar with the current researcher, repetition, and familiar routines established using the Pictorial Board System. Her favourite song to sing and move to was “Kiss the Girl” from the movie “The Little Mermaid.” When listening to the song and moving with the streamers, she would often sing the words to the song. She also enjoyed “Fireflies” and “I Gotta Feelin”. She was able to move to the beat and dance to the music. At times she needed to be encouraged to copy the current researcher or the Education Assistant to move to the music. For Jennifer, listening and moving to music helped her to express herself and enjoy how the music made her feel. Often Jennifer would smile and look around at her Education Assistant and researcher during this activity.
The last area of musical activities involved playing instruments such as the drums, rhythm sticks, guiro, xylophone, and piano. Figures 11 and 12 displayed the trend of Jennifer’s response to playing instruments.

Figure 11. Researcher Results: Jennifer’s Response to Playing Musical Instruments

![Figure 11](image1.png)

Figure 12. Education Assistant Results: Jennifer’s Response to Playing Musical Instruments

![Figure 12](image2.png)
The final area of music was playing musical instruments. Similar to Bryan, Jennifer was introduced to a variety of instruments such as the drums, triangles, rhythm sticks, sand scrapers, cabasa, xylophone, and piano. When looking at the two graphs for trends, Jennifer did not demonstrate a level 2 response until Day 3. The first 2 days there was limited engagement. Jennifer showed some discomfort and resistance in playing certain instruments such as the xylophone. She would hit the xylophone bars hard and needed constant reminders as to how to play the instruments properly. By Day 5 Jennifer was feeling more settled and ready to play instruments. She was participating willingly and taking extra care with the instruments. On Day 8 Jennifer was introduced to the piano. She showed a level 2 response on Day 8 as she played “Hot Cross Buns” on the piano, appearing to concentrate on the song. She only wanted to play it once and did not want to experiment with the different piano notes. By the end of the sessions, Jennifer was showing a medium to high level of response. When looking at the current researcher’s quantitative and qualitative data, such as on Day 14, she was very engaged in playing the piano and concentrated on playing all her notes correctly. She also learned other songs on the piano similar to Byran: “Mary Had a Little Lamb,” “Twinkle Twinkle,” and “Happy Birthday.” At times Jennifer had to be encouraged to play the piano and to follow along with playing all the notes. She depended on the current researcher to point to each note in order to play them correctly. Jennifer was content with playing the songs she was taught but did not seem to want to go further than that.

Overall, the results of working with Bryan and Jennifer over a four month time span showed continual improvement in the level of response to musical activities. They both demonstrated individual differences and interests in what they enjoyed doing. When the current researcher provided consistency and routine, Jennifer and Bryan were able to relax and
experience success with various musical activities. Furthermore, trust was developed between the current researcher and children which allowed for greater learning.
Chapter 5: Summary and Conclusions

Research Summary

The purpose of the current study was to investigate how two children on the Autism Spectrum responded to different elements of music such as singing, playing instruments, and responding to music through movement. The number of children being diagnosed with autism is on the rise. Furthermore, there is limited research on how children with autism respond to music. Taking these two factors into consideration, as well as the personal interest of the current researcher who is a music teacher, the study of how autistic children respond to music was established.

The current study was conducted over a four month period, from September through December 2011, where two students, Bryan and Jennifer, met with the present researcher twice a week for individual twenty minute sessions. Parental consent was given to work with both children and an introductory interview with the parents took place to obtain a full scope of each student’s background with autism, musical history, and communication preferences. With the suggestion of the parents and the Education Assistants, the current researcher used a pictorial activity board to map out activities that would be completed each music session, as children with autism thrive on predictability and need structure and routine (Iseminger, 2009). Structured music activities were planned for each session.

Each session started out with a good morning song, followed by singing with picture books. Bryan and Jennifer were often asked to sing to the music while also doing actions or using manipulatives to act out the story of each song. The second activity involved moving to music using streamers, drums, and/or rhythm sticks. The final activity consisted of learning the
names of various instruments and experimenting with the different sounds and vibrations. Further into the sessions this transpired into learning songs to play on the piano.

Anecdotal notes were recorded after each session and the music response scale (Appendix A) was completed by the current researcher, assessing how each child responded to the various musical activities using the scale from no response to high response. The Education Assistant also completed the response scale when possible. The quantitative data was graphed and qualitative data was analyzed for themes and trends in the way the children responded positively to and experienced success with music. The graphs of the present researcher and Education Assistant were compared for similar trends and patterns as to the musical responses for each child.

Results of the quantitative data showed that both students, Bryan and Jennifer, responded positively to most musical activities. Bryan showed a medium to high response when singing with picture books, ranging on average a score of 2.5 out of 3. Bryan started off at a medium level of response when playing musical instruments. Once he was familiar with playing instruments, he was consistently at a high level of response (3). Bryan was immediately engaged and interested in making different sounds on the various instruments. He was fascinated with playing the piano and experimenting with high and low sounds. Bryan also scored consistently high in the area of musical movement. He started off with a medium response due to developing a comfort level of trust with the current researcher and expectations set out for him. Each day Bryan came to sessions, he showed enthusiasm and enjoyment listening and moving to music.

Jennifer, similar to Bryan, demonstrated a medium to high response to singing with picture books. She started off the first session with a low response. This was due to her being afraid of the unknown, not knowing the present researcher as well, and not knowing the lyrics
and melody of the songs. Over time, she felt more familiar with the songs and with encouragement and familiarity, sang out very beautifully. The current researcher discovered that she had a lovely voice and that she enjoyed singing songs, especially Disney songs from her favourite movies. Jennifer showed on average, a medium level response to playing musical instruments. She appeared to concentrate on playing different instruments and songs on the piano correctly, but did not show much enthusiasm or initiative to experiment with various instruments. The area of musical movement was one of Jennifer’s strengths. After Day 1, she was consistently showing a medium high (2.5) to high (3) level of response. She enjoyed listening and moving to “Kiss the Girl” from the “Little Mermaid.” Her face would light up when the music was played and it was very evident that listening to music was an area that Jennifer enjoyed.

Jennifer and Bryan were able to accurately demonstrate their musical skills and capabilities in a one on one setting. Jennifer later showcased her singing by performing “Kiss the Girl” for her class. Her classmates were amazed at how she was able to sing and knew all the words. Bryan performed “Twinkle Twinkle Little Star” on piano for the talent show and demonstrated his skill and talent. It appears that through the small group instruction these children gained and developed the confidence to perform in front of their peers.

Overall, when analyzing the music responses for each child based on the present researcher and Education Assistant’s data, the music sessions appeared to be a positive experience in both Bryan and Jennifer’s lives. Both children were very engaged and interested in musical activities. Through the sessions, they were able to experience success, enjoyment, and relaxation with all the musical activities.
Discussion

The author of this present study wanted to determine how music can play an important role in the lives of children who have autism. In order to find out about how music can positively affect students with autism, it was important to find out first, the different ways in which these children respond to music.

In the past, music classes with the two children who participated in the current study have not been met with success. When in the regular music classroom with classmates, Bryan would occasionally act out in order to be removed from the classroom, often not engaging in music songs or activities. Jennifer would act out and cover her ears every time she entered the music classroom and heard any kind of music. Her Education Assistant was unsure as to why Jennifer acted out. The researcher of the current study had many questions as to why Jennifer and Bryan were not as engaged as they should be. Was it that they did not enjoy music? Was the pace too fast? Did some sounds scare them? Many questions were asked but there were no answers. Thus, Jennifer stopped participating in music classes and Bryan would attend periodically.

The current study suggested some important answers as to not only how children with autism respond to music, but what kind of environment is needed to be built for children with autism. This environment included one that incorporated much routine, predictability, and repetition. It is also involved trust, which needed to be built between the teacher and children with autism. Furthermore, it also involved using a pictorial board system that laid out the activities for each class so that the children knew what was expected of them. In a regular music class, it was hard to adapt activities for students who were on the Autism Spectrum who thrived on predictability. Shore’s (2002) study showed how using an activity time board helped a boy on the Autism Spectrum experience success in music by breaking down the tasks into smaller
sequences. So it was with Jennifer and Bryan. The fear of the unknown was removed when they knew what was expected of them, and thus they participated in the music tasks successfully.

Research by Carnahan’s et al. (2009a) study that supported how special needs children show a high level of engagement to books set with music. This was very applicable to the current study because Bryan and Jennifer were very engaged and responded well to singing with picture books, such as “Five Little Ducks.”

Before this research project started, the Education Assistants of the children in the current study were doubtful that the children would respond positively to musical activities. It was concluded that Bryan did not like music, partly due to the fact that he would usually ask to be excused from music classes last year. After the research was completed, the Education Assistants had a complete mind change about the power of music in the lives of autistic children. They also saw a positive difference music made in each child’s life. They saw the importance of using music in a one on one or small group setting where the specific needs of each child was met. For example, Jennifer was very visual and required everything to be mapped out for her for upcoming activities. To change the routine of something, such as switching a song last minute, would set her back and result in frustration.

Parents were informed of their child’s strengths in musical areas. Suggestions were given as to further musical growth, such as in taking piano lessons.

Implications and Recommendations for Future Practice

It is through the current research project that the current researcher saw the need for change in how we address music classes in our education system for children with special needs. Children with autism learn differently and require special adaptations that are not always possible in a regular music class. How we teach music to children with autism needs to change
and thoughtful reflection and discussion needs to take place amongst educators who care about meeting the needs of children who have special needs.

Based on the results of this current study, the present researcher believes that music programs need to be supported to provide smaller groups where children with special needs, such as autism can thrive. Ideally, the smaller groups would contain two to four children who are at similar levels in terms of interests, capabilities, and communication. The Education Assistants would join the children to provide extra assistance in musical activities. Research shows that predictability and routine are very important for children with autism (Iseminger, 2009). Yet, providing consistency and routine in the regular music classroom is not always possible. Music educators also need to be aware of how important visuals are for children on the autism spectrum. This may mean using a pictorial board system for the more visual learners. It could be something as simple as drawing the pictures on the chalkboard or printing out pictures with the words underneath to help ease any anxiety for children with autism. The current study demonstrated how Bryan and Jennifer responded well to the pictorial board system established for them.

As a result of the current study, the present researcher planned to have Bryan and Jennifer, along with their Education Assistants, meet in a small group once a week to further along the continuum of musical growth and progress. It would be a time when they can relax, express themselves, and experience enjoyment, as shown in the research by Krikeli et al. (2010).

The current research project has resulted in the researcher exploring further opportunities to use music to work with children with special needs. The current researcher would like to establish smaller music groups for students who have special learning needs, such as autism.
The purpose of these groups would be to help children with communication, relaxation, enjoyment, and experiencing success in music.

Learning more about how two students with autism, who were the participants of the present study, responded to music helped the current researcher in planning for musical instruction for these students with autism. Furthermore, the present researcher provided information to Education Assistants, special education teachers, and music teachers as to how music was experienced positively for children with autism. The current researcher hoped to present the findings of this current study at an upcoming Professional Development Day, as music has not played an important role in the district for children with autism. Most importantly, the research obtained could possibly help the families of the autistic children with understanding how their child responded positively to music and provide strategies for using music as a communication tool.

**Limitations**

It is important that the following limitations are taken into consideration when looking at this present study. One of the main limitations for the present study was the small sample size which involved two children on the Autism Spectrum. There was a possibility of having up to three students for the study but consent was only given to work with two students.

Furthermore, the sample was not random, as the students were chosen based on the current researcher’s place of work which allowed for easier access to music sessions during the day. While the findings show a positive musical response from two children on the Autism Spectrum, the results cannot be generalized to all autistic students. Thus, the current study was very limited in its generalizability.
Another limitation was that the present study was conducted over a short period of time. The number of sessions varied between both children due to the students’ absences, professional development days, and holidays. In total, Bryan completed 21 sessions. Jennifer had 17 music sessions. The study would have benefited from a longer time span to see a broader trend.

The attitude and motivation of subjects can also be considered a limitation. It is not known if the children participated and completed in the activities to please the current researcher and Education Assistants. While the children were encouraged to participate in the musical activities, they were not coerced into anything that they did not want to do.

The final limitation included a potential for the current researcher and Education Assistants to be biased in their interpretation of each child’s response to musical activities. To help eliminate data bias, a rubric (Appendix D) was established for each musical activity to determine what constituted a high versus low level of response to the musical activities.

**Recommendations for Further Research**

Based on the current research project, music made a difference in the lives of two children on the Autism Spectrum. Because of the study’s limited generalizability, it would be useful for future research to build on the current study by including a larger sample size to get a broader range of results to discover how children with autism respond to music. Second, it would be useful to have a broader music response scale. Instead of including a scale of no response, low, medium, and high response, a scale may include a one to ten system to show a greater range in the level of response to musical activities. Finally, to make the research more in depth and inclusive, follow up interviews could be conducted with the parents of the children after the research project has been completed with the purpose of assessing their perception of how music had affected their children since the music sessions started. Pre and post interviews
could also be conducted with the Education Assistants, who work closer with the children who have autism, to gain further insight as to the influence of music.

One final suggestion that would be worth pursuing to build on the current research project would be to discover how children with autism respond to music in a regular music classroom versus one on one or small group instruction. Again, the sample size would need to be larger than two students. Activities would need to be controlled in order to accurately compare music responses.

Addressing these considerations would help give future studies a fuller and more comprehensive report as to how children with autism respond to various musical activities and the effect of smaller group instruction.

**Conclusion**

It is clear from evidence presented in the current research project that music can be a positive experience for children who have autism. Bryan and Jennifer were given the opportunity to participate in various musical activities in a safe, controlled environment. When the current researcher planned activities according to their level of understanding and took their needs into consideration, such as the need for visuals, Bryan and Jennifer showed a medium to high level of response to all musical activities. Furthermore, when the present researcher provided repetition and routine, Bryan and Jennifer thrived and experienced music in ways they hadn’t ever before. Based on the positive results of the current study, the present researcher would like to continue to help children with special needs, such as autism, have the opportunity to experience success with music.
References


Waterhouse, L., Morris, R., Allen, D., Dunn, M., Fein, D., Feinstein, C., … Wing, L.
Appendix A

**Music Response Scale**

Indicate the quality of the student’s participation/response to the following music activities by placing an X anywhere along each line.

1. Level of engagement with picture book paired with music (Eye contact, may or may not sing, follow simple instructions of activity to go along with book)

   * ___________________ * ___________________ * ___________________

   NO RESPONSE LOW MEDIUM HIGH

2. Level of engagement when asked to respond to music using body movement or streamers/scarves and/or body percussion/instruments to keep a steady beat to music.

   * ___________________ * ___________________ * ___________________

   NO RESPONSE LOW MEDIUM HIGH

3. Level of engagement and interest in playing instruments, sometimes along with music.

   * ___________________ * ___________________ * ___________________

   NO RESPONSE LOW MEDIUM HIGH
Dear Parents/Guardians,

RE: Music and Autism Research

Attached is a participant consent form outlining a research project I am conducting as part of my Masters in Educational Leadership that I am undertaking at Vancouver Island University. The purpose of this study is to find out ways that autistic students respond to music. There is vast research that states the positive implications music has on autistic children such as improving communication, allowing for relaxation, and improving social well being. My goal is to discover areas that your child responds positively to music with the hope that I will be able to use many of these strategies in my music teaching, as well as to provide you and your family with areas that your child responds to music.

Please review the attached consent form and discuss the research with your child. Please be assured that the privacy of your child and family will be respected and that all information will be kept confidential. You can read in further detail the confidentiality section on the consent form.

If you agree to allow your child to participate in this research, please sign the consent form, place it in a sealed envelope and deliver it to the school. It can either be handed directly to me or given to the school secretary to put in my mailbox.

If you choose to consent, I will contact you to set up an interview at your convenience to discuss your child’s background and history with autism. The importance of the interview is to let me know how your child best communicates, any challenges that your child has, and their likes/dislikes. Most importantly, it will be an opportunity for you to ask any questions you may have for me about the research project.

Thank you for your interest in my research and feel free to contact me with any further questions you might have.

Sincerely,

Mrs. Elizabeth Platz,
Student, Masters in Educational Leadership Program
Vancouver Island University
Tel. (250) 723-3280
Participant Consent Form for “How do children with autism respond to elements of music?”

Principal Investigator: Elizabeth Platz, BEd., B.A., Masters in Educational Leadership Program, Vancouver Island University; University Supervisor: Dr. Rachel Moll (250) 723-3245 ext. 2161

Purpose:
You are being asked to provide consent for your child to participate and for you to provide information about your child to be used in a research project about how children with autism respond to music. The research conducted shows the positive benefits of music in the lives of children with autism and how it can help in areas such as communication, social interaction, relaxation, and overall sense of well being. Thus, I am interested in finding out ways that music can benefit children with autism. Observational data as well as a behaviour checklist will be collected by me and with the help of your child’s Education Assistant.

Study Procedures:
In this study, you are being asked to give me your approval to work with your child twice a week for twenty minute blocks. Your child and I will meet for two individual sessions a week in the music room for twelve weeks, starting the second week of September and ending in November. Each music period will consist of structured music activities such as picture books paired with music, playing instruments, learning the names of instruments, moving to music, and singing songs. I will use a visual picture board to show activities that will be happening in each session to allow for predictability and routine. The procedures for the current study will be as follows:

1. With your consent, I would like to meet briefly for a short interview with you (twenty-thirty minutes), to learn about your child’s autistic background/history, communication styles, and interest in music. There will also be time for you to ask any questions you might have. With your permission, I plan to audio record our interview. This will be helpful so that I can go back and review any important information.

2. Music sessions (20 minutes) will take place as stated above in the music room twice a week for 12 weeks. I will record anecdotal notes about your child’s responses to music, as well as a music response checklist rating their level of response to each activity. Your child’s Education Assistant will also complete the music checklist for each session for comparison purposes.

Potential Risks:
There are no known potential risks to this research. I will not coerce your child to do an activity they do not feel comfortable doing. With the use of the Visual Communication picture board for students who are less verbal, symbols on the pictorial board will include emotion faces such as
the feeling of frustration or happiness. If your child does express frustration, he/she will not be required to complete that particular activity.

**Potential Benefits:**
The results will be used to help answer the question of how students with autism respond to music. It may help me in planning for musical instruction in order to effectively teach students with autism, but may also assist teachers, teacher aids, and other music instructors in the district as to how connections can be made to children with autism using music. Most importantly, the research obtained may help the families of children with autism with understanding how their child responds to music and provided strategies for using music as an effective communication tool.

**Confidentiality and Anonymity:**
A pseudonym will be used in place of your child’s name to protect his/her identity. Their name, school grade, and identity, as well as the family will be kept confidential. Furthermore, the name of the school your child is attending and school district will not be revealed in the research. While I am willing to do all I can to make sure that your child is not identified, there is a possibility that your child might be identified by some teachers and staff in the school district and therefore anonymity cannot be completely ensured. Your child will be kept safe and privacy during music sessions will be secured. Your child’s Education Assistant will be in the room at all times with me to help with the behaviour checklist and to help provide accountability. All documents such as consent forms, interview notes, observational notes, and behaviour checklists will be kept strictly confidential. Data will be stored in a locked filing cabinet within my supervisor’s office and all data will be destroyed by shredding five years from the end of the project.

**Contact for the information about the study:**
If you have any questions or desire further information with respect to this study, you may contact me at (250) 723-3280.

**Concerns about your treatment in the research:**
If you have any concerns about your treatment or the treatment of your child as a participant in this research, please contact the Vancouver Island University (VIU) Research Ethics Officer at reb@viu.ca or by telephone at (250) 753-3245 (ext. 2665).

**Consent:**
Your participation in this study and that of your child is entirely voluntary. You or your child may choose not to participate for any reason and there will be no negative consequences. If you and your child do agree to participate, you may still choose to withdraw from this study at any time and for any reason. Your signature below indicates that you have received a copy of this consent form for your own records.
Your signature indicates that you consent for you and your child to participate in this study.

Parent/Guardian Name (Please Print)  Child Name (Please Print)

Parent/Guardian Name

Date

Interview Consent:
Your signature below indicates that you give consent to have the interview audio-recorded for the purpose of allowing myself to go back and review important information. All information given in the interview will help me to work with your child as effectively as possible. Audio tapes will not be shared with anyone else. All audio tapes will be destroyed five years after the research project is completed. An interview time will be set up at a time of your convenience once this consent form has been returned to the school.

Parent/Guardian Name (Please Print)

Parent/Guardian Signature

Date
Appendix C

Interview Questions for parents/guardians of children with autism. Interviews will take place in the music room and will last approximately 20-30 minutes.

Introduction Script: Thank you for coming to this interview. I hope that after our meeting I will understand more about your child and how I can best work with them. The purpose of this research is to see how students with autism respond to music. I have designed some lessons working with your child to see what areas of music they respond positively to. I will be working with your children for twelve weeks in total with the sessions occurring twice a week for twenty minute intervals. The privacy of you and your family is important and confidentiality will be ensured. Everything that is said in this interview will be kept confidential. With your permission, I will audio-record the interview so that I can go back and review any important information. I have several questions to work through with you, which should take between twenty and thirty minutes. You can refuse to answer any questions for any reason. At the end, please feel free to ask any questions you may have about my research project.

1. Please explain your child’s autistic background. When was your child first diagnosed with autism?

2. How do you feel your child communicates with you? How do you best communicate with your child? What communication strategies do you use to help your child?

3. How do you perceive your child views music? Do they enjoy music and/or listening to music? How do you view your child’s response to music that they have heard?

4. Is there anything else important about your child that you think is important for me to know in order to effectively work with them? (Ex. Behaviors, likes/dislikes)
Appendix D

Rubric for Jennifer and Bryan in determining the characteristics of no response, low, medium, and high response to musical activities

<table>
<thead>
<tr>
<th>ACTIVITY</th>
<th>NO RESPONSE</th>
<th>LOW RESPONSE</th>
<th>MEDIUM RESPONSE</th>
<th>HIGH RESPONSE</th>
</tr>
</thead>
<tbody>
<tr>
<td>PICTURE BOOK PAIRED WITH MUSIC</td>
<td>-No singing</td>
<td>-Little or no singing</td>
<td>-Some singing with the book</td>
<td>-Able to sing songs and follow along with song</td>
</tr>
<tr>
<td></td>
<td>-No eye contact with book</td>
<td>-Little to no eye contact with book</td>
<td>-Mostly maintains eye contact on book</td>
<td>-Frequent eye contact with book</td>
</tr>
<tr>
<td></td>
<td>-Not interested in activity</td>
<td>-Participates with little enthusiasm in activities that go along with the book (such as actions, using fingers to count, using objects), mostly maintains eye contact on book</td>
<td>-Mostly participates in activities to go along with the book (such as actions, using fingers to count, using objects)</td>
<td>-Fully participates in activities to go along with book (such as actions, using fingers to count, using objects)</td>
</tr>
<tr>
<td></td>
<td>-No response to activities along with the books</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>RESPONDING TO MUSIC</td>
<td>-Not able to or is uncomfortable responding to music</td>
<td>-Some or little response to music movement through the use of streamers or instruments</td>
<td>-Mostly responds to music either through the use of streamers or instruments</td>
<td>-High response to music showing comfort using streamers or instruments</td>
</tr>
<tr>
<td>(Body movement, streamers,</td>
<td>-Shows no movement to music</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>instruments to music, listening</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>to sounds/songs)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>PLAYING INSTRUMENTS</td>
<td>-Does not play instruments and shows no interest in playing</td>
<td>-Does not play instruments with ease, having trouble with instrument names, showing some or no interest in the sound</td>
<td>-Mostly plays instruments with ease, learning most instrument names, showing an interest in the sound.</td>
<td>-Plays instruments with ease, learning instrument names and showing interest in the sound.</td>
</tr>
<tr>
<td></td>
<td>-Is not interested in copying or learning song patterns</td>
<td>-Is not always able to copy or learn song patterns</td>
<td>-Is mostly able to copy or learn song patterns</td>
<td>-Is always able to copy or learn song patterns</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Debriefing Form/Feedback for Jennifer’s parents

**Title of Study:** How do children with autism respond to elements of music?

**Statement of Thanks:** Thank you for giving consent for your child to participate in this important research of discovering how students with autism respond to different elements of music.

**Summary of Study (purpose of study, what was done, and why it was done):** The purpose of this study was to discover how students with autism responded to different musical elements. As children with autism often struggle with communication, I designed an action research study using music as a strategy to connect with autistic students and help them express themselves. The question of how students with autism respond to music may not only help me in planning for musical instruction for autistic students, but may also assist teachers, teacher aids, and music instructors in the district as to how connections can be made to autistic children. Most importantly, the research obtained can help the families that have children with autism with understanding how their child responds to music and provided strategies for using music as a communication tool. The research conducted shows the positive aspects of music in the lives of children with autism and how it benefits in areas such as communication, social interaction, relaxation, and overall sense of well being. It has been very interesting finding out ways that music can benefit children with autism.

**Results of the Study:** Your child responded very positively to music in general, showing appreciation and excitement to be there every day. She especially enjoyed picture books with music. She started off singing quietly and slowly gained confidence to where she felt comfortable singing out loudly. Near the end of the sessions, she was able to participate in the Christmas concert with the other students and sang out without hesitation. She enjoys the pictures books “Five Little Ducks,” “Twinkle Twinkle Little Star,” and “The Itsy Bitsy Spider.” Your child responded very high to musical movement. She enjoyed using the streamers and moving to the beat of various songs including “Kiss the Girl,” “I Gotta Feeling,” and “Fireflies.” These movement activities helped her express enjoyment, work off some energy, and move creatively. Finally, your child responded medium-high in the area of playing instruments. She was exposed to a variety of pitched and non-pitched instruments such as the shaker, drum, cymbal, xylophone, and piano. She showed enjoyment and interest in playing the piano, especially the large upright piano in the music room, as the vibrations are louder and sustain longer. She learned songs such as “Hot Cross Buns”, “Mary Had a Little Lamb”, and “Twinkle Twinkle.” She was able to sing “Twinkle Twinkle” at the same time as playing the piano. Overall, I was very impressed and happy that your child enjoyed all the music activities and responded very positively to music. I hope that she is able to continue in this exciting journey of music. For the months of January-June, I will be working with her once a week to continue her music exploration.
Whom to Contact For More Information: If you have questions about this study or if you would like to receive a summary report of the research when it is completed, please contact: Elizabeth Platz, Principal Investigator, (250) 723-3280, eplatz@sd70.bc.ca

Whom to Contact About Your Rights in This Research:
If you have any concerns about your rights in this research, please contact the Vancouver Island University (VIU) Research Ethics Officer at reb@viu.ca or by telephone at (250) 753-3245 (ext. 2665).

If you are interested in learning more about the topic of this research project you may want to consult: BC Autism Society or Music Therapy Association of British Columbia

Thank you again for your participation!

Sincerely,

Elizabeth Platz
Title of Study: How do children with autism respond to elements of music?

Statement of Thanks: Thank you for giving consent for your child to participate in this important research of discovering how students with autism respond to different elements of music.

Summary of Study (purpose of study, what was done, and why it was done): The purpose of this study was to discover how students with autism responded to different musical elements. As children with autism often struggle with communication, I designed an action research study using music as a strategy to connect with autistic students and help them express themselves. The question of how students with autism respond to music may not only help me in planning for musical instruction for autistic students, but may also assist teachers, teacher aids, and music instructors in the district as to how connections can be made to autistic children. Most importantly, the research obtained can help the families that have children with autism with understanding how their child responds to music and provided strategies for using music as a communication tool. The research conducted shows the positive aspects of music in the lives of children with autism and how it benefits in areas such as communication, social interaction, relaxation, and overall sense of well being. It has been very interesting finding out ways that music can benefit children with autism.

Results of the Study: Your child responded very positively to music in general, showing appreciation and excitement to be there every day. He especially enjoyed playing instruments. He was exposed to a variety of pitched and non-pitched instruments such as the shaker, drum, cymbal, xylophone, and piano. He showed enjoyment and interest in playing the piano, especially the large upright piano in the music room, as the vibrations are louder and sustain longer. He learned songs such as “Hot Cross Buns”, “Mary Had a Little Lamb”, and “Twinkle Twinkle.” We are hoping to have him work on playing “Twinkle Twinkle” for the talent show. He continues to work on singing out loud and enjoyed pictures books paired with music such as the songs “Five Little Ducks,” “The Wheels on the Bus” and “The Itsy Bitsy Spider.” Your child responded very high to musical movement. He enjoyed using the streamers and moving to the beat of various songs including “I Gotta Feeling,” and “Fireflies.” These movement activities to music helped him express enjoyment, work off some energy, and move creatively. Overall, I was very impressed and happy that your child enjoyed all the music activities and responded very positively to music. I hope that he is able to continue in this exciting journey of music. For the months of January-June, I will be working with him once a week to continue his music exploration.
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