

Spring 2018

# The Impact of Listening to Preferred Music on Behavior for Students with Disabilities

Angela Telles

*California State University, Monterey Bay*

Follow this and additional works at: [https://digitalcommons.csumb.edu/caps\\_thes\\_all](https://digitalcommons.csumb.edu/caps_thes_all)

---

## Recommended Citation

Telles, Angela, "The Impact of Listening to Preferred Music on Behavior for Students with Disabilities" (2018). *Capstone Projects and Master's Theses*. 289.

[https://digitalcommons.csumb.edu/caps\\_thes\\_all/289](https://digitalcommons.csumb.edu/caps_thes_all/289)

This Master's Thesis (Open Access) is brought to you for free and open access by the Capstone Projects and Master's Theses at Digital Commons @ CSUMB. It has been accepted for inclusion in Capstone Projects and Master's Theses by an authorized administrator of Digital Commons @ CSUMB. For more information, please contact [digitalcommons@csumb.edu](mailto:digitalcommons@csumb.edu).

Running head: STUDENTS WITH DISABILITIES USE OF MUSIC

The Impact of Listening to Preferred Music on Behavior for Students with Disabilities

Angela Telles

Thesis Submitted in Partial Fulfillment of the Requirements for the  
Degree of Master of Arts in Education

California State University, Monterey Bay

May 2018

©2018 by (Angela Telles). All Rights Reserved

# STUDENTS WITH DISABILITIES USE OF MUSIC

The Impact of Listening to Preferred Music on Behavior for Students with Disabilities

Angela Telles

APPROVED BY THE GRADUATE ADVISORY COMMITTEE

---

Kerrie Lemons Chitwood, Ph.D.

Advisor and Program Coordinator, Master of Arts in Education

---

Erin Ramirez, Ph.D.

Advisor, Master of Arts in Education

---

Kris Roney, Ph.D. Associate Vice President

Academic Programs and Dean of Undergraduate & Graduate Studies

## STUDENTS WITH DISABILITIES USE OF MUSIC

### **Abstract**

Students with disabilities often struggle to stay in their seats during time allocated for independent work. Students who do not pay attention during class time may require additional instruction and suffer academically. The use of music can create a classroom setting that allows teachers to capture interest and attention when learning new course content. This study implemented a multiple baseline line across participants design with four participants to measure the changes of in seat behavior from baseline where no music is being used to intervention where music is being used. The four students with disabilities used headphones to listen to preferred music during time allocated for independent work. Results across participants demonstrated an increase of in seat behavior with the use of music. This indicates that students with disabilities may be likely to stay in their seats with the use of headphones listening to preferred music during time allocated for independent work.

*Keywords: special education, specific learning disabilities, emotional disturbance, in seat behavior, preferred music.*

# STUDENTS WITH DISABILITIES USE OF MUSIC

## Table of Contents

Abstract.....	iii
Literature Review.....	1
Method Section.....	6
Design.....	6
Independent Variable.....	7
Dependent Variable .....	7
Setting and Participation.....	7
Measure.....	9
Intervention.....	10
Data Collection.....	11
Fidelity.....	13
Results.....	14
Discussion.....	16
References.....	19
Appendix A.....	22
Appendix B.....	23
Appendix C.....	24

## The Impact of Listening to Preferred Music on Behavior for Students' with Disabilities

### **Literature Review**

Motivating and engaging students in the required curriculum can be challenging for teachers (Jones, 2009). However, the use of music can create a classroom setting that allows teachers to capture interest and attention when learning new course content (Jones, 2009). Furthermore, research has shown that listening to music may positively impact student behavior (Davidson & Powell, 2001; Hallam & Price, 1998; Jones, 2009). For example, Hallam and Price (1998) found that playing music in the classroom reduced student stress, increased productivity, and enhanced the academic achievement in reading, language, and mathematics (Hallam & Price, 1998). Therefore, incorporating the use of music within a classroom may improve student's behavior and academic performance.

### **On Task Behaviors in The Classroom**

Teachers must ensure students are engaged during instruction for optimal academic performance (Davidson & Powell, 2001; Hallam, 2010). Engagement in on task behaviors includes paying attention to the teacher, having materials needed for instruction, and participation in class activities. Furthermore, when students are engaged during a lesson they are participating by answering questions and staying in their seats (Davidson & Powell, 2001; McFerran & Rickson, 2007). In seat behavior is essential for students to comprehend the lessons being taught and to avoid falling behind their classmates (Bloor, 2009; Davidson & Powell, 2001).

In seat behavior is essential to academic success; conversely, out of seat behavior is a common disruptive behavior in the high school classroom (Bloor, 2009; Hill, Brantner, & Spreat, 1989). Students who leave their seat and wander around the classroom will likely distract other

students and potentially disrupt the learning environment (Bloor, 2009). Students who do not pay attention during a lesson often need additional instruction and suffer academically, because the students only learn part of the concepts being taught or do not learn any concepts at all (Davidson & Powell, 2001; Ockelford et al., 2001). Attention to task is an essential skill for learning new concepts and providing an engaging academic environment for high school, students regardless of ability, may be beneficial.

### **Special Education**

All students, regardless of ability level, are required to be included in the general education classroom to the greatest extent possible (IDEA, 2004). However, this is often challenging as students with disabilities tend to engage in off task behavior, and thus, may be disruptive to the classroom environment. High school students with Specific Learning Disabilities (SLD) or Emotional Disturbance (ED) are often included in at least one general education classroom. SLD is a disorder in one or more of the basic psychological processes involved in understanding or in using language, spoken or written, imperfect ability to listen, think, speak, read, write, spell, or to do mathematical calculations (IDEA, 2007). Individuals diagnosed with ED often exhibit inappropriate types of behavior or feelings under normal circumstances over a long period of time and to a degree that effects educational performance (IDEA, 2007). The learning characteristics of individuals with SLD and ED can lead to challenging classroom behaviors.

Challenging behaviors in the classroom is one of the most serious issues for educators (Breeze, 2000). Most teachers are willing to try new instructional strategies to address challenging behaviors for students with disabilities (Breeze, 2000; Jones, 2009). Therefore, incorporating new instructional strategies that will assist with challenging behavior will benefit

the students and educator. For example, students' attention, motivation, comprehension, in-seat behaviors, and oppositional behavior improved significantly after the use of music was utilized within the special education classroom (Chalmers et al., 1999; IDEA, 2007; McFerran & Rickson, 2007). Therefore, listening to music in the classroom is associated with positive emotions that can improve students' activity level, social skills, comprehension, in seat behavior, and academic skills (Linnemann et al., 2015; McFerran & Rickson, 2007).

A learning environment that includes music in the curriculum may be helpful for all students (Bloor, 2009; Sze, 2006). Special education teachers have an increased responsibility for students with disabilities and music can play an important role in their individual education plan (IEP; Sze, 2006). According to Ockelford, Welch, and Zimmermann (2002), music can play a role in special education as a specialized instructional strategy. Recent research indicated that there is a positive impact on student's cognitive development with the use of music (Ockelford et al., 2001; Sze, 2006). For example, music has been utilized to improve the effectiveness of academic achievement for students with SLDs by improving students reading and writing skills (Davidson & Powell, 2001; McFerran & Rickson, 2007). These skills may improve when students listen to music as information can be simultaneously processed, which then may enhance the students reading and writing development (Davidson & Powell, 2001; McFerran & Rickson, 2007; Sze, 2006). Overall, the available research suggests that music is a significant component in learning of pupils with SLDs.

Students that are developmentally delayed showed that using music within the classroom made learning easier, faster, and students were more focused during lessons (Breeze, 2000). Overall, music is an essential tool to use in the classroom with students who have disabilities, because of the positive effect it has on students' academic achievement and in seat behavior. In



addition, music was beneficial when targeting behaviors and academic performance for students with emotional and behavioral difficulties (Hallam & Price, 1998). Music can stimulate the brain emotionally, which can cause students to display calmer behaviors than without the use of music (Chalmers et al., 1999). Furthermore, music can decrease students' oppositional behaviors and increase on-task performances within the classroom (Chalmers et al., 1999). Therefore, music can be utilized within the classroom when desiring certain behaviors.

Hill, Brantner, and Spreat (1989) researched the positive effects music had on in seat behavior for a blind young woman. Results indicated that music had a beneficial effect on in seat behaviors when used contingently as a reinforcer (Hill et al., 1989). Similarly, music had a positive impact on in seat behaviors for students on a school bus (Chalmers et al., 1999). Therefore, when music is used as a reinforcer out of seat behavior decreases and in seat behavior increases (Chalmers et al., 1999; Hill et al., 1989). In addition to music helping to increase in seat behavior, different types of music have been found to have differential impact on students.

### **Music Preference**

Different types of music have varying impact on student behavior. For example, Jiang and colleagues (2016) found that listening to music is a non-invasive intervention that influences students' behavior and emotions. In addition to varying the types of music, providing students with opportunities to choose the music has been an effective strategy (Jiang et al., 2016; Laiho, 2004; Sze, 2006). Empowering students means giving them some control in developing or implementing class activities and providing a rationale for the direction for a given task within the classroom (Jones, 2009). Music preference has a positive correlation with relaxation and happiness (Jiang et al., 2016; Laiho, 2004). The more preference students have for the music,

the more the student feels happiness and peace (Jiang et al., 2016; Laiho, 2004; McFerran & Rickson, 2007).

Students who listened to preferred music were less anxious and calmer, which had a positive effect on students' stress levels (Jiang et al., 2016). Furthermore, another study indicated that when listening to music in the presence of others, the amount of stress lowered (Linnemann, Strahler, & Nater, 2016). Listening to music is a non-invasive intervention that has a close correlation with emotions, which may reduce stress (Linnemann et al., 2016).

Linnemann, Ditzen, Strahler, Doerr, and Nater (2015) examined the stress reducing effect of listening to music, which showed that music may enhance students' ability to cope with stress, regulate emotions, and positively affect students' behavior. Students who experience less stress and can personally regulate emotions, are in a better state to learn and engage in academic tasks.

According to Laiho (2004) music is used as a tool help build personal and social identity. Students have preferences for music they consider popular, which plays an important role on behavior and emotional, social, and mental health (Laiho, 2004). Overall, when the students' music is preferred it can induce positive emotions for students and stress can be reduced (Jiang et al., 2016). Ultimately, the type of music has a different impact on students' behavior and academics (Chamers et al., 1999). In addition, music can help students remember information, become emotionally involved in learning, ignite inner creativity, conscious of material being taught and learned (Hailat et al., 2009). The use of music in the classroom setting has been a useful tool to increase a variety of positive classroom behaviors.

### **Gap in Current Research**

The use of background music in the classroom setting has demonstrated a positive impact on student's behavior (Hallam & Price, 1998; Linnemann et al., 2016; Ockelford et al., 2002;

McFerran & Rickson, 2007; Uhlig et al., 2016). However, there is limited research on students with disabilities individually listening to preferred music and the impact this may have on classroom behavior (Hallam & Price, 1998; Jiang et al., 2016). Furthermore, student's music preference and the role this plays on student behavior has not been well researched (Hallam & Price, 1998; Jiang et al., 2016; Laiho, 2004; Linnemann et. al., 2016). Future research needs to consider the use of providing students with disabilities the opportunity to individually listen to preferred music as this may result in an increase of in seat behaviors (Linnemann et al., 2016).

## **Methods**

### **Research Question**

Does listening to preferred music increase in seat behaviors in the classroom for high school students with Specific Learning Disability while independently working?

### **Hypothesis**

Based on research examining the impact of music on student behavior (Ockelford et al., 2002), as well as research on students with disabilities, I hypothesized that giving students with SLDs the opportunity to listen to preferred music while they worked independently in the classroom, would increase in seat behavior.

### **Research Design**

A multiple-baseline-across-participants was used to determine the impact of music on in seat behaviors with four students. During the study, baseline measurements of students' in seat behaviors were taken until student performance stabilized and were moving in a nontherapeutic direction. Stability was determined when a student displayed in seat behavior with five consecutive points with a score of one or below (see Appendix A). Each student's baseline performance acted as his or her own control. Once baseline was established, the first student

began the intervention while the other students remained in the baseline condition. When the first student's intervention data was moving in a therapeutic direction the second student began intervention. The third student remained in baseline and started the intervention after the second student's intervention data was moving in a therapeutic direction (Harvey, May, & Kennedy, 2004).

**Independent variable.** The independent variable in this research was music playing in the classroom to enhance student behavior and performance (Hallam & Price, 1998). When music was playing students became calmand cooperative (Hallam & Price, 1998). Familiar musicmade listeners less anxiousandmore relaxed, which was used as a stimulus to improve in seat behavior (Chamers et al., 1999; McFerran & Rickson, 2007). Therefore, students active involvement with music helped develop discipline and concentration during class time (Hallam, 2010).

**Dependent variable.** Bitgood, Peters, Jones, and Hathorn (1982) defined in seat behavior as when a person's posterior was in contact with the seat during class sessions. Hill and colleagues (1989) operational definition of in seat behavior was when a student posterior was in contact with the chair, all four legs of the chair touched theground in a straight backed wooden chair. Students in this study displayed in seat behavior in a plastic chair, posterior in contact with the chair, both feet touching the ground, and four legs of the chair touching the ground.

### **Setting & Participants**

This study was conducted at a local high school in Central California that has 2,517 students and 106 teachers. The school is 85.7% Latino/Hispanic, 1.0% Asian, 0.9% African American, 2.8% Filipino, 0.2% Pacific Islander, 8.5% White, and .9% of students with two or

more races. Furthermore, 60.7% of students receive free/reduced lunches, 549 students are English Language Learners, and 87.11 % of students completed the requirements to earn a high school diploma (School Accountability Report Card, 2016).

The specific class used for this study was housed in a resource room during an Individual Studies class. The class is composed of one special educator, two paraeducators and 21 students with disabilities. There are seven Resource Specialist teachers and four moderate-severe self-contained classrooms within the Special Education department. The students with disabilities within the class included in the study consisted of 18 students with Specific Learning Disabilities, one student with Speech Impairment and two students with Emotional Disturbance. The sample used in this study included four students. The students were selected using purposeful convenience sampling; and each student exhibited specific needs related to the study. That is, the students within the sample had difficulty staying in their seats during time allocated for independent work. Pseudonyms were given to all four participants to protect their confidentiality.

**Josh.** Josh is a seventeen year old Mexican male student that is eligible for Special Education services under Specific Learning Disability affecting his reading comprehension, math calculations and written language. Josh frequently leaves his seat without permission to speak or distract other students. When instructed to sit in his assigned seat Josh tends to communicate with classmates across the classroom.

**Jade.** Jade is a seventeen year old African American/Mexican female student that is eligible for Special Education services under Specific Learning Disability affecting her math application skills. Jade has a difficult time waiting for help when she doesn't understand a

problem. While waiting for the paraprofessionals or teacher Jade talks across the classroom and when instructed not to talk across the classroom she leaves her seat.

**Marty.** Marty is a sixteen year old Mexican male student that is eligible for Special Education services under Emotional Disturbance affecting his reading application, social, behavioral, and emotional skills. Marty avoids tasks when given independent work by getting out of his seat and walking to the front of the room disrupting students by moving their papers on their desk. When a paraprofessional stands by Marty he will yell or throw paper at other students to grab their attention.

**Tony.** Tony is a fifteen year old Caucasian male student that is eligible for Special Education service under Emotional Disturbance that affects his behavioral, social and emotional skills. Tony will get out of his seat when he gets bored with his assignment. He does not interrupt students' when he is out of his seat, but it is a consistent habit.

### **Measures**

To measure in seat behavior the researcher counted instances of students' posterior in contact with the chair, all four legs of the chair, and feet touching the ground. These behaviors were recorded on a form that was developed to utilize during the study (see Appendix A). Daily collection consisted of six data points collected for one-minute intervals within fifteen minutes of each other, during a period of hour and sixteen minutes. Data was collected during independent work time. The same form was used to collect baseline and intervention data (see Appendix A).

**Validity.** Three inter-rater data collectors were used in this study, two paraeducators and one Resource Specialist. To ensure validity all professionals collecting data were trained

on how to measure in seat behavior (Hallgren, 2012). The recorders practiced collecting data on the form (see Appendix A) before baseline data was collected. The operational definition of in seat behavior was defined as students posterior in contact with the chair, all four legs of the chair and feet touched the ground (Hill et al., 1989).

**Reliability.** To ensure inter-rater reliability among the two paraeducators collecting data the Resource Specialist (primary researcher) also collected data 20% of the time under baseline and intervention intervals. This study took place three times a week and a second rater came into the class to simultaneously collect data at least one day per a week. The second rater used the same data collection sheet as the primary researcher (see Appendix A) and was trained on the specific behavior.

Inter-rater data was collected and compared for 20% of the sessions to ensure inter-rater agreement with at least 80% reliability. Indicating that 80% of the observed variance was due to similarity in ratings between data collectors, and 20% is due to error variance or differences in ratings between data collector (Hallgren, 2012). Upon data analysis, inter-rater agreement for this study was measured at 100%.

### **Intervention**

The intervention occurred during an Individual Studies class where students were provided with a mini lesson and the remainder of the period was allocated for independent work. The intervention included individual headphones (provided by the teacher if the student did not have headphones) and preferred music with the volume loud enough for the individual student to hear, but not loud enough for classmates to hear. To minimize the effect of external factors the study was done at the same time each class session. On each intervention session students were allowed to listen to preferred music at their desk while independently working.

The intervention data was collected for one-minute intervals every fifteen minutes while students were independently working. A total of six data points was collected every session. The intervention measured in seat behavior, which was counted as instances of students' posterior in contact with the chair, all four legs of the chair, and feet touching the ground.

### **Procedures**

Baseline data was collected on all four students included in the study. The data was collected each day after lunch. Measuring the amount of time within one minute intervals the students were able to demonstrate in seat behavior. Students were provided with work to be completed at their desk, which is a routine procedure. Students were asked to begin working without music when baseline data was collected and instructed to take out their headphones and listen to their preferred music while independently working during the intervention. Students that did not have head phones were provided with some during the intervention part of this study.

**Data collection.** Data was collected in the same classroom at the same time for baseline and intervention. Data was collected for one-minute intervals every fifteen minutes. For those one-minute intervals the inter-rater data collectors and primary data collector marked a + sign when the given behavior was exhibited and a - sign when the behavior was not exhibited (see Appendix A). This process was completed for baseline and intervention.

**Baseline.** Baseline data on the four participants was collected. Standard of care was provided during baseline, meaning there were no changes to classroom procedures and no individual use of music was implemented. Five stable data points were collected displaying in seat behavior for each participant.



**Intervention.** Intervention data was collected. Familiar music can make listeners less anxious and more relaxed, which was used as a stimulus to improve in seat behavior (Chamers et al., 1999; McFerran & Rickson, 2007). Students used individual headphones (provided by the teacher if the student does not have headphones) and preferred music with the volume loud enough for the individual student to hear, but not loud enough for classmates to hear.

**Fidelity.** To ensure fidelity, music was only used by students during the intervention. The two paraprofessional and primary researchers were present within the classroom 100% of the time when the baseline and intervention data was collected. This ensured that music was not used by students during the baseline time period and music was used only during intervention. A second rater came into the class and collected data 20% of time, which is four class sessions (see Appendix B). Two sessions were when baseline data was collected, and two sessions were during intervention to ensure that music was not used by students during the baseline time period and music was used only during intervention.

### **Ethical Consideration**

Ethical considerations were evaluated during this study. Students with disabilities were given a pseudonyms to protect their confidentiality. The effect and influence of using headphones and listening to music was evaluated by the primary researcher and the two inter-raters. The level of distraction the headphone would be to students was considered and monitored as well. Two inter-raters were also utilized within this study to limit the bias from the primary researcher. The bias being that the use of preferred music will increase in seat behavior.

**Validity threats.** There are several threats to the validity of this study. One was the researcher bias, as the research was being conducted within the researcher's classroom.

Students distracting one another with the use of music and attempting to use the headphones during baseline periods could have pose a threat to the results.

### **Data Analyses**

Data was graphed for each participant in the study displaying and comparing the results from baseline to intervention. Data was analyzed to determine the number of times the students in seat behavior remained the same, increased or decreased from baseline data to intervention. Visual analysis of the data along with calculations for the percentage on non-overlapping data was used. The results presented on the graph showed if the intervention was a success, no changes were made, or decreased the in-seat behavior by the student.

### **Social Validity**

At the completion of the study, two inter-raters completed a four-point Likert scale (i.e., 1 = strongly disagree to 4 = strongly agree) social validity questionnaire (see Appendix C). The questionnaire, adapted from Berger, Manston and Ingersoll (2016), consists of nine questions designed to understand the perceived usefulness, significance and satisfaction with the implemented intervention (Kennedy, 2005). Both inter-raters strongly agreed that this treatment was effective and quickly improved the student skills. The inter-raters agreed that this treatment was acceptable for increasing the student skills and that they would be willing to implement this treatment if they wanted to increase this specific skill. Although, both inter-rater disagreed that this treatment improved family functioning. Participant responses were kept confidential and descriptive statistics were conducted to gain insights regarding the intervention.

## Results

Data was graphed for each participant (See Figure 1). The horizontal x-axis displays the data collection sessions and the vertical, y-axis, displayed the number of times the student displayed in seat behavior for each session.

### **Josh.**

During the baseline phase Josh remained in his seat an average of .88 times with a range of 0-3 per session. Josh entered intervention first. During intervention Josh remained in his seat 5.5 times with a range of 4-6 per session. Josh had 100% of non-overlapping data point from baseline to intervention.

### **Jade.**

During the baseline phase Jade's average in seat behavior was 0.1 with a range of 0-1 per session. In the intervention phase Jade's average in seat behavior was 5.5 with a range of 5-6 per session. Jade had 100% of non-overlapping data points from baseline to intervention.

### **Marty.**

During the baseline phase Marty's average in seat behavior was .93 with a range of 0-4 per session. In the intervention phase Marty's average in seat behavior was 5.3 with a range of 4-6. Marty had 90% of non-overlapping data points from baseline to intervention.

### **Tony.**

During the baseline phase Tony's average in seat behavior was 1.2 with a range of 0-6 per session. In the intervention phase Tony's average in seat behavior was 5.6 with a range of 5-6 per session. Tony had 76% of non-overlapping data points from baseline to intervention.

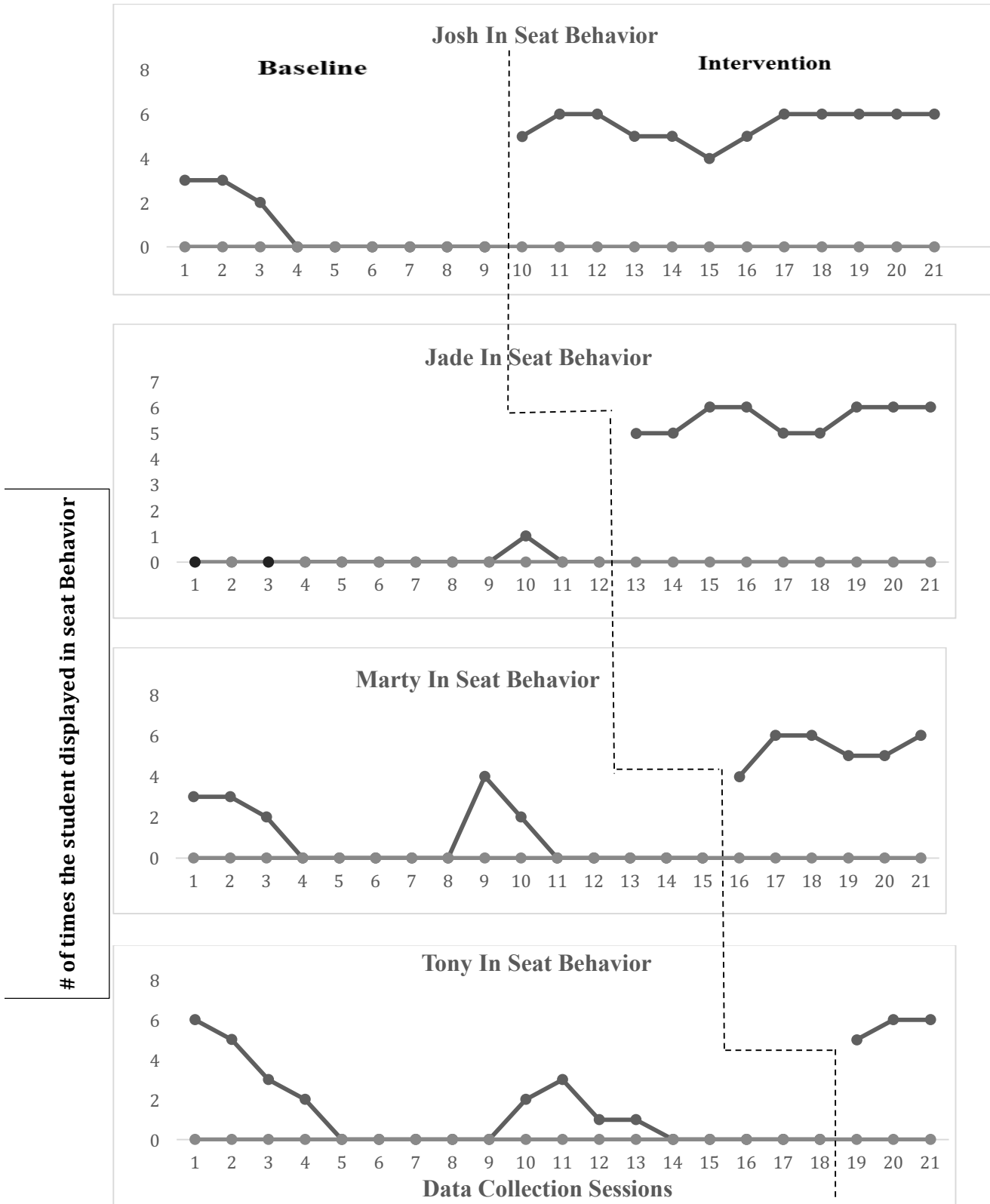


Figure 1. Number of times the student displayed in seat behavior each session

### **Discussion**

The purpose of this study was to measure the impact of preferred music had on in seat behavior for high school students with disabilities. Previous research has found that in seat behavior is essential for academic success (Bloor, 2009; Hill et al., 1989). Initial results from this study suggest that the study worked better for some students than others when students used individual headphones listening to preferred music during time allocated for independent work, which indicates more research is necessary. Although, as previously researched different types of music have a varying impact on student behavior within the classroom (Jiang et al., 2016; Laiho, 2004; Sze, 2006). For example, all four participants did show improvements in the ability to regulate out of seat behavior to some degree. This was displayed in the increase of in seat behaviors from baseline to intervention phase.

In general, a positive trend from baseline to intervention was noted across participants. Baseline data across participants indicated frequent out of seat behavior. For example, Josh's average in seat behavior increased from .88 to 5.5 per session, displaying the amount of times he was able to stay in his seat during time allocated for independent work. Jade's average in seat behavior increased from 0.1 to 5.5 per session displaying the amount of times she was able to stay in her seat during time allocated for independent work. Marty's average in seat behavior increased from .93 to 5.3 per session displaying the amount of times he was able to stay in his seat during time allocated for independent work. Lastly, Tony's average in seat behavior increased from 1.2 to 5.6 displaying the amount of times he was able to stay in his seat during time allocated for independent work. Similar, to previous studies oppositional behavior improved after the use of music was utilized within the special education classroom (Chalmer et al., 1999; McFerran & Rickson, 2007). With the use of music, participants were observed to stay

on task, working on the given assignment. Furthermore, the use of individualized music was not distracting to other students in the class.

The percentage for non-overlapping data was 100% for Josh and Jade indicating the intervention was highly effective. The intervention was moderately effective for Marty and Tony who had 90% and 76% non-overlapping data respectively. Furthermore, the data indicate a functional relation between the use of headphones to individually listening to preferred music during time allocated for independent work and an increase of in seat behavior among all four participants.

### **Limitation and Future Research**

There were several limitations to this study. The first limitation was that the participants were chosen through purposeful convenience sampling. This was due to the time constraints and the need for accessible participants within the primary researcher's classroom. Also, due to time constraints one participant was unable to be moved from baseline to intervention and was dropped from the study. Additionally, this study was limited to twenty-one days, which is short a time-frame for an intervention study.

Future research should include students that are randomly chosen to measure if the use of preferred music can be effective on in seat behavior. Further research can also benefit from gathering data over a longer period to see the long-term effect music has on the student behavior. Music is a tool teacher can utilize to encourage and teach the importance of students staying in their seats during class time. The current study measured student's in seat behavior; however, future studies would benefit from also measuring the quantity and quality of independent work students are able to complete while listening to music.

Music is a tool to use in the classroom with students who have disabilities, because of the positive effect it has on students' academic achievement and in seat behavior (Breeze, 2009).

Data from the current study suggest music was highly effective for two of the four students and moderately effective for the other two students as an increase in student's in seat behavior was noted. The implementation of individual use of music in the classroom is an inexpensive and readily available strategy that could be easily implemented into the classroom.

### References

- Berger, N. I., Manston, L., & Ingersoll, B. (2016). Establishing a scale for assessing social validity of skill building interventions for young children with autism spectrum disorder. *Journal of Autism and Developmental Disorders, 46*, 3258-3269.  
doi: 10.1007/s10803-016-2863-9
- Bitgood, S., Douglas, P., Jones, M., & Hathorn, N. (1982). Reducing out-of-seat behavior in developmentally disabled children through brief immobilization. *Education and Treatment of Children, 5*(3), 249-260.
- Bloor, A. J. (2009). The rhythm's gonna get ya'—background music in primary classrooms and its effect on behavior and attainment. *Emotional and Behavioral Difficulties, 14*(4), 261-274. <http://dx.doi.org/10.1080/13632750903303070>
- Breez, C. (2000). *The effect of music on learning with developmentally delayed children*. Retrieved from ProQuest Digital Dissertations. (AAT 1401676).
- Chalmers, L., Olson, M., & Zurkowski, J. (1999) Music as a Classroom Tool. *Intervention in School and Clinic, 35*(1), 43-34. doi:10.1177/105345129903500108
- Davidson, C. W., & Powell, L. A. (2001). The effects of easy-listening background music on the on-task-performance of fifth-grade children. *The Journal of Educational Research, 80*(1), 29-33.
- Fergusson, D. M., Lynskey, M. T., & Horwood, L. J. (1997). Attentional difficulties in middle childhood and psychosocial outcomes in young adulthood. *Journal of Child Psychology and Psychiatry, 38*, 633-644. doi:10.1111/j.14697610.1997
- Hailat, S., Khasawneh S., Shargawi, S., Jawarneh, M., Al- Shudaifat, S. (2009). Human Resource Education: Does Listening to Music during Instruction Affect Jordanian



- Secondary Students' Academic Achievement, International. *Journal of Applied Educational Studies (IJAES)*. 2 (1), 1-12.
- Hallam, S. (2010). The power of music: Its impact on the intellectual, social and personal development of children and young people. *International Journal of Music Education*, 28(3), 269-289. doi.10.1177/0255761410370658
- Hallam, S., & Price, J. (1998). Research section: Can the use of background music improve the behavior and academic performance of children with emotional and behavioral difficulties? *British Journal of Special Education*, 25(2), 88-91. doi: 10.1111/1467-8527.t01-1-00063.
- Hallgren, K. (2012). Computing inter-rater reliability for observational data: An overview and tutorial. *Tutorials in Quantitative Methods for Psychology*, 8(1): 23–34. doi: 10.20982/tqmp.08.1. p023
- Harvey, M., May, M., & Kennedy, C. (2004). Nonconcurrent multiple baseline design and the evaluation of educational systems. *Springer*, 13(4), 267-276.  
<https://doi.org/10.1023/B:JOB.0000044735.51022.5d>
- Hill, J., Brantner, J., & Spreat, S. (1989). The effect of contingent music on the in-seat behavior of a blind young woman with profound mental retardation. *Education and Treatment of Children*, 12(2) 165-173.
- Individuals with Disabilities Education Act, 20 U.S.C. § 1400 (2004)
- Individuals with Disabilities Education Act, 20 U.S.C. § 1400 (2007)
- Jones, B. (2009). Motivating students to engage in learning: The MUSIC model of academic motivation. *Virginia Tech*, 21 (2), 272-285.
- Jiang, J., Rickson, D., & Jiang, C. (2016). The mechanism of music for reducing psychological

- stress: Music preference as a mediator. *The Arts in Psychotherapy*, 48, 62-68.
- Kennedy, C. H. (2005). *Single-case designs for educational research*. Boston, MA: Allyn and Bacon.
- Laiho, S. (2004). The Psychological function of music in adolescence. *Nordic Journal of Music Therapy*, 13(1), 47-63. doi.10.1080/08098130409478097
- Linnemann, A., Ditzen, B., Strahler, J., Doerr, J., & Nater, U. (2015). Music listening as a means of stress reduction in daily life. *ScienceDirect*, 60, 82-90.
- Linnemann, A., Strahler, J., & Nater, U., (2016). The stress-reducing effect of music listening varies depending on the social context. *Psychoneuroendocrinology*, 72, 97-105.
- Ockelford, A., Welch, G., & Zimmermann, S. (2002). Focus of practice: Music education for pupils with severe or profound and multiple difficulties. *British Journal of Special Education*, 29(4), 178- 182. doi10.1111/1467-8527.00266
- Olson, K. (2005). Music for community education and emancipatory learning. *New Directions for Adults & Continuing Education*, 107, 55-64. doi.10.1002/ace.189
- McFerran, K., & Rickson, D. (2007). Music therapy in special education: Where are we now? *Kairaranga: The New Zealand Journal of Education* 8(1), 40-47.
- School Accountability Report Card. (2016). Sarc.org/sarcpdfs17/.pdf
- Sze, P. M. (2006). Developing students' listening and speaking skills through ELT podcasts. *Education Journal-Hong Kong-Chinese University of Hong Kong*, 34(2), 115.
- Uhlig, S., Dimitriadis, T., Hakvoort, L., & Scherder, E. (2016). Rap and singing are used by music therapists to enhance emotional self-regulation youth: Results of a survey of music therapists in the Netherlands. *The Arts in Psychotherapy*, 53, 44-54. doi.10.1016/j.aip.2016.12.001

**Appendix A**

Recording Sheet For In-Seat Behavior

**Data Form:** 1-minute intervals every 15 minutes (six different intervals per a session)

Student: \_\_\_\_\_ Date: \_\_\_\_\_

Behavior: During Baseline (without music) \_\_\_\_ Intervention (with music) \_\_\_\_\_

+ Student exhibited in seat behavior in class during the entire 1-minute interval

- Student did not exhibit in seat behavior in class during the entire the 1minute interval

<p><b>Type 1:</b></p> <p>In seat behavior</p> <p>Feet touching the ground</p> <p>four legs of the chair touching the ground</p> <p>Posterior is in contact with the chair</p> <p>NO MUSIC</p>	<p><b>Type 2:</b></p> <p>In seat behavior</p> <p>Feet touching the ground</p> <p>four legs of the chair touching the ground</p> <p>Posterior is in contact with the chair</p> <p>WITH MUSIC</p>
-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------	-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------

Day 1	+ or -	Day 2	+ or -	Day 3	+ or -
1:30-1:31		1:30 -1:31		1:30 -1:31	
1:46 1:47		1:46 -1:47		1:46 -1:47	
2:02-2:03		2:02-2:03		2:02-2:03	
2:18-2:19		2:18-2:19		2:18-2:19	
2:34-2:35		2:34-2:35		2:34-2:35	
2:50-2:51		2:50-2:51		2:50-2:51	

**Appendix B**

## Fidelity Check List

Date: \_\_\_\_\_

**Data Form:** 1-minute intervals every 15 minutes (six times total per a session)

Behavior: During Baseline (without music) \_\_\_\_\_ Intervention (with music) \_\_\_\_\_

<b>Type 1: Students behaviors during baseline</b>	<b>Type 2: student behaviors during Intervention</b>
In seat behavior	in-seat behavior
Feet touching the ground	Feet touching the ground
four legs of the chair touching the ground	Four legs of the chair touching the ground
Posterior is in contact with the chair	Posterior is in contact with that chai
NO MUSIC	WITH MUSIC
Inter-rater behaviors: Marking a + Student exhibited in seat behavior in class during the entire one-minute interval on the data collection sheet every fifteen minutes. Inter-rater behaviors: Marking a - if Student did not exhibit in seat behavior in class during the entire one-minute interval on the data collection sheet every fifteen minutes.	Inter-rater behaviors: Marking a + Student exhibited in seat behavior in class during the entire one-minute interval on the data collection sheet every fifteen minutes. Inter-rater behaviors: Marking a - if Student did not exhibit in seat behavior in class during the entire one-minute interval on the data collection sheet every fifteen minutes.
Check and initial if inter-rater was delivering in a manner consistent with the intervention data plan as described _____.	Check and initial if inter-rater was delivering in a manner consistent with the intervention data plan as described _____.

### Appendix C

#### Social Validity Questionnaire

Questions:		1	2	3	4
		Strongly disagree	Disagree	Agree	Strongly Agree
1	This treatment was effective				
2	I found this treatment acceptable for increasing the student's skills				
3	Using the treatment improved skills across multiple contexts (home, classroom, community)				
4	I think the student's skills would remain at an improved level even after the treatment ends				
5	This treatment improved family functioning				
6	This treatment quickly improved the student's skills				
7	I would be willing to carry out this treatment myself if I wanted to increase the student's skills				