Music Therapy as a Behavior Modification for Students with Severe Behavior

by

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Abstract

Current research shows the effects of music are varied. Research also suggests that music therapy for students with disabilities is varied. This study investigated the effects of the music therapy technique of listening that was applied to classrooms for students who display severe behavior. This music therapy intervention was administered by the classroom special education teachers for 30 minutes during academic class time. The data were also collected by the teachers working in the classroom. Data were collected using teacher completed behavior rubrics which rated the level of student behavior before and during the intervention phase. Teachers collected data for each student at a set time, observing the student for two minutes during music therapy. Results indicated there were statistically significant differences in the levels of intensity, duration, and frequency of certain behaviors.

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Chapter I: Introduction

Special education teachers have largely been ill-prepared for the types of behaviors and severity of behaviors that have become commonplace in our schools (Gut & McLaughlin, 2012). University teacher preparation programs for special education teachers have largely focused on preparing their students for instructional strategies rather than behavioral strategies (Flower, McKenna, & Haring, 2017; Gall & Acheson, 2011). These instructional strategies were intended for students who have struggled with learning academic material as opposed to students who have struggled with a behavioral disorder. The teacher preparation issue has been combined with the realization that about ten percent of special education teachers do not have a degree in special education and are not licensed to teach (Rosenberg, Boyer, Sindelar, & Misra, 2007). This has created a serious issue for schools and special education programs. One quarter of the special education profession has been made up of teachers who studied in another content area during their college career (Rosenberg et al., 2007). These teachers came into the profession as a second choice. These latecomers came into the field of special education due to the availability of positions as opposed to an original desire at the start of their special education careers. The lack of training, combined with the growing behavioral issues seen in the school system, has created an incredible burden both for teachers, but also for students, parents, and administrators.

Along with the lack of qualifications of many special education teachers, there are other serious issues with those who have been qualified and certified to teach. Among these special education teachers, many leave the profession at more than twice the rate of regular education teachers (McLeskey & Billingsley, 2008). Current research shows that teacher burnout among special education teachers has been higher and the trend shows that it may be getting worse (Sweigart & Collins, 2017). Sweigart and Collins suggest that the leading issue with beginning

special education teachers is the lack of continuity between research and practice. Many new special education teachers are not given the necessary tools so that they can take evidence-based practices in teaching and transfer it over into practical application for their classrooms. One solution for assisting new special education teachers was a teacher mentor system (Gall & Acheson, 2011; Sweigart & Collins, 2017). Although the mentoring model has been researched at length and has shown a positive effect for novice teachers, budget shortfalls have kept this solution from taking root (Gall & Acheson, 2011).

The special education population has seen the greatest increase in overall behavioral issues within the public-school according to the National Center for Educational Statistics [NCES] (2017). Thirteen percent of all students served within a public-school setting has qualified under the special education category. Of this population, the most severe behavior has been seen in students diagnosed with an emotional or behavioral disorder which has made up about five percent of the special education population. These students have made up a small percentage of a school's average population but are linked to the cause of a high percentage of school incidents (NCES, 2017). This figure has been still more staggering because the highest percentage of students with an emotional or behavioral disorder (EBD) have been removed from a regular school setting (Buchanan, Nese, & Clark, 2016). This means that the smallest minority of students have been responsible for the highest rate of school violence and other behavioral issues.

Due to the behavioral issues that have become commonplace in our schools and due to the lack of adequately trained staff to address these behavioral issues, new techniques have been shown to be needed to create behavior change in students at all levels of education. One promising technique that has lacked adequate research in the field of behaviorism has been music

therapy (Clements, 2010). Music therapy has been a growing field (Humpal & Kern, 2012; McFerran, 2010). Most of the research done by music therapists have not focused on behavior modification for students within a classroom setting (Gold, Voracek, & Wingram, 2004; Humpal & Kern, 2012;). A review of the literature has indicated some music therapy techniques that could be applied to the classroom setting (Gold et al., 2004). Many of the case studies collected by Clements (2013) have also indicated music therapy techniques that may be a useful resource for educators within the classroom setting. This author's study focused on music therapy techniques that may be easily applied to a variety of classroom settings.

One limitation for many new methods designed for the public-school setting has been the financial cost. New, elaborate methods have come with excessive costs, which can place a burden on school systems. School districts have been under financial stress as tax revenues have fallen in light of the economic downturn which began in 2008 (Hammel & Hourigan, 2011). School districts have spent the majority of their budgets on personnel expenses. Much of the current music therapy research involving adolescents has been conducted by certified music therapists, which can be expensive (Gold et al., 2004; Humpal & Kern, 2012). Any newly proposed method needs to be at a low financial cost for the school district to ensure the viability and accessibility to all school districts. This study intended to make a recommendation for methods, grounded in music therapy, which would be free for teachers to use within their classrooms.

Another limitation to quality adopted methods has been the number of other professional trainings that teachers have been expected to attend. Teachers and administrators have been exposed to a significant level of professional development and training (IDEA, 2004). A lot of these training sessions have a low rate of use after the training is over (Overstreet, 2017).

Teachers seem to have too many other responsibilities. They have been unable or unwilling to integrate difficult to use techniques in their classroom settings. If teachers have been unable or unwilling to use the new methods because of the impracticality of use, then the training has had no effect on student behavior or learning. Techniques need to be easy to implement for both regular education and special education teachers.

The techniques should be able to be used across all school settings. Behavior techniques have been needed in regular education settings as well as pull-out and resources classrooms. Special education students have been served at all levels of classroom settings. Students with an emotional or behavioral disorder (EBD) have been also being placed in general education settings. Due to these placements, a technique has been needed that can be used across all educational settings and by all types of teacher and educational staff professionals.

One important consideration has come from an ethics principle. For counselors and medical doctors, the first rule of treatment has been to "do no harm" (Wheeler, 2015). This same rule should be considered and held firm when it comes to treatment options for the student population. The techniques used for behavior modification should never cause harm to any student who may experience it. Undoubtedly, the technique or set of techniques in question have been used for all students across all settings. Students have been exposed to the treatment, so it is important to consider the positive and, more importantly, any negative effects that the treatment may have had on students.

Music therapy can provide education professionals with several viable techniques that have been shown to affect behavior positively. Within the purpose of music and music therapy, several key roles have been noted. Music has been used to express emotion, create group association, integrate social organization, symbolize representative beliefs and ideas, and support

educational purposes (Thaut, 2008). Although much of music therapy has been geared toward individual treatment plans or small group treatment plans, many techniques can be adapted to the classroom. These techniques can be used for teachers who do not have an affinity for music or for teachers who do enjoy music. Many teachers might have used some of these techniques within their classrooms already without realizing what they have done or how the effects of their practices might be labeled (Birkenshaw-Fleming, 1993; Ott, 2011; Ramey, 2011). Many teachers have played music for their students while they have worked or have had free-time within the classroom. Still, many other teachers may have rewarded students by allowing them to listen to music on their own (Birkenshaw-Fleming, 1993; Humpal & Kern, 2012). Teachers have used headphones connected to student cell phones, MP3 players, iPods®, tablets, laptops, or desktop computers. These types of reinforcers have often been used within Cognitive Behavior Music Therapy (CBMT) and Applied Behavior Analysis (ABA).

In this study, music therapy techniques were investigated and reported to the end that they may be a pragmatic solution to a growing behavioral concern seen throughout our public schools. Data were collected from one program in Georgia that has worked with students with severe emotional and behavioral disorders. One music therapy technique was used with the participants. Data were recorded on the overall effect of their behavior before and during the treatment. Data were then analyzed to determine the effect the music therapy intervention had across the population. After data were collected, analyzed, and discussed, recommendations were made as to the best way forward for this important area of student behavioral intervention.

Statement of the Problem

Students with an emotional and behavioral disorder have been seen across all settings in our public-school system. Many students with an EBD have been served at separate schools.

These schools or programs have had the benefit of being self-contained. They have had an additional benefit of being well funded in comparison with school systems (Gupta, 2015). This funding has allowed for extra staff members and intense training for these staff members. However, when these students return to their least restrictive environment (LRE), the behaviors often return at a level that exceeds what the LRE can accommodate. These disruptive and often dangerous behaviors have not been adequately addressed which has caused the offending students to digress academically. It has also created a classroom environment that has not been conducive for students, who are non-disabled, to learn. The focus of this study was the lack of information related to the effects of music therapy on off-task behaviors, elopement behaviors, verbally aggressive behaviors, and physically aggressive behaviors on the population of students with a documented history of severe behavior.

Even within the least restrictive environment, there have been many levels of possible settings that may serve students with an emotional or behavioral disorder, autism, and other health impairments. These students may have been served within a self-contained classroom, a resource classroom, a pull-out classroom, a co-taught classroom, or a general education classroom. Behavior issues have often arisen when these students return to their least restrictive environment. The goal of these special education programs, who have served students with these disorders, has been to serve students within their LRE as outlined in the Americans with Disabilities Act 1990. Although this has been different for each student and determined by their Individual Education Plan (IEP), there has been increased pressure brought on by various lawsuits and court cases to make sure students have been served in an appropriate environment (Hammel & Hourigan, 2011). These new pressures have created a need for new behavior

modifications that can be used with the population who have had severe behavior and that can be used easily and effectively across all school settings.

Purpose of the Study

The purpose of this study was to explore effects of the music therapy strategy of listening to Baroque style music played for the entire class during academic class time and how it might have affected off-task behavior, elopement behavior, verbal aggression behavior, and physical aggression behavior of students with an EBD or a severe behavior disorder. This study considered the available research and selected one technique that was believed to have had the greatest potential for positive behavior modification for students with an emotional and behavioral disorder within the classroom setting. This research focused on the extent that music therapy affected the overall behavior of students with an EBD or severe behavior disorder. Results of this study revealed recommendations for future research and the overall effectiveness of the music therapy technique of listening for the population of students who have an emotional or behavioral disorder or severe behavior.

Research Question

The following research question guided this study: To what extent does the music therapy strategy of listening affect off-task behavior, elopement behavior, verbally aggressive behavior, and physically aggressive behavior of students with an emotional or behavioral disorder or severe behavior disorder?

The following null hypothesis was tested at the .05 level.

- H_0 1: There is no statistically significant difference in the a. frequency, b. intensity, and c. duration for off-task behavior of students with an emotional or behavioral

disorder or a severe behavior disorder before and during the music therapy strategy of listening.

- H_0 2: There is no statistically significant difference in the a. frequency, b. intensity, and c. duration for elopement behavior of students with an emotional or behavioral disorder or a severe behavior disorder before and during the music therapy strategy of listening.
- H_0 3: There is no statistically significant difference in the a. frequency, b. intensity, and c. duration for verbally aggressive behavior of students with an emotional or behavioral disorder or a severe behavior disorder before and during the music therapy strategy of listening.
- H_0 4: There is no statistically significant difference in the a. frequency, b. intensity, and c. duration for physically aggressive behavior of students with an emotional or behavioral disorder or a severe behavior disorder before and during the music therapy strategy of listening.

Design

This was a pretest/posttest experimental research design using an intervening measure. During the pre-test phase of the experiment, students were exposed to no additional musical stimulation for five, thirty-minute periods for one period per day. The following five days, students were exposed to the musical therapy strategy of listening to Baroque style music played just above the hearing threshold. For both the pretest and posttest periods, staff collected behavior data using a rubric on the following dependent variables: off-task behavior, elopement behavior, verbally aggressive behavior, and physically aggressive behavior.

Although not all of the students may have been identified with all of these behaviors, it was important to track all of these behaviors for all students to determine an overall effect of the treatment. The statistical analysis investigated the change in behavior from baseline data and data collected during the listening phase.

Instrumentation. Data were recorded with the use of a behavioral rubric filled out by staff throughout the data collection period. Staff was provided tablets in which to collect data through the Qualtrics software platform. A five-day baseline data collection period occurred before the music phase began. This allowed a comparison between the student's usual level of behavior and the level of behavior experienced during the intervention phase. Staff was asked to complete a behavior rubric on each student they had during the allotted time once a day for each day of the experiment.

Rubrics instructed staff to collect frequency, intensity, and duration data on the individual student's behaviors of off-task behavior, elopement behavior, verbally aggressive behavior, and physically aggressive behavior, for each day of data collection. The ratings for frequency were assessed using a six-point Likert-type scale with a minimum of zero and a maximum number is five or more occurrences. Intensity rating was collected on a five-point Likert-Type scale where one was the least intense and five was the most intense. Duration data were collected using a slider bar where zero seconds was the minimum and 120 seconds was the longest possible duration that behavior might occur.

To ensure the reliability of the survey, questions were constructed using the simplest terms. Teachers were asked to rate each student's behavior within the following four categories: off-task behavior, elopement behavior, verbally aggressive behavior, and physically aggressive behavior. These behaviors were defined as follows:

- Off-Task Behavior – Any refusal to begin or complete a task as directed by the teacher. This may include task avoidance by deflection, distraction, silence, or sleeping.
- Elopement Behavior – Any movement that takes place outside a defined parameter by the teacher. Leaving his or her desk, assigned area, classroom, or school grounds without the expressed consent of the teacher.
- Verbally Aggressive Behavior – Any directed profanity, yelling, screaming, teasing, threats to harm others or threats to harm self.
- Physically Aggressive Behavior – Any act where a student harms or attempts to harm themselves or others. This may include throwing objects, flipping desks, punching, kicking, spitting, grabbing, or biting.

These ratings took into account the three defining characteristics of describing behavior: frequency, duration, and intensity. Rubric responses were intended to report the teacher's direct observation of every instance of student behavior. This was done to ensure ease of use as well as to ensure the data were a representative view for the entire period.

Population. The population under investigation were students enrolled in a public school who had been diagnosed with an emotional or behavioral disorder (EBD) or who have a record of a severe behavior disorder. The students in this study were also diagnosed with a psychological disorder and were served within a self-contained classroom setting. This study investigated students enrolled in a program for students with an EBD and severe behavior disorder. Due to the small population of students with an EBD, a specialized center was used to ensure an appropriate number of students could participate in the study. The setting for the study took place in a program for students with an emotional or behavioral disorder or severe behavior

disorder. All students enrolled in the program from ages five to twenty-one were invited to participate in this study. All students were enrolled in a Georgia Network of Educational and Therapeutic Supports (GNETS) program. The GNETS program consists of 24 sites statewide. This study investigated students at one of these 24 sites. The local GNETS program where the research was conducted was housed in two separate sites. One site housed all students within grades K-8th. The second site was housed at a local high school within a self-contained classroom.

The students in the study were de-identified. Student names were coded. The codes were kept on a paper legend that was locked within a safe within the researchers locked office.

No student information was used. Student records were not accessed, and student personal information was not gathered or referenced in any way — this study adhered to all federal, state, and local laws, as well as all school district policies and procedures.

The interventions were not different than what the students were ordinarily exposed to throughout the normal course of their day. Students were not exposed to any dangerous or risky interventions or procedures. Students might have benefited from the use of calming music. These interventions were not punitive, only positive for students. These same interventions have been used throughout the education field by teachers all over the world (Cooper, 2017).

Procedures. Professional staff participating in the study completed a four-hour training session with the researcher to ensure that the staff understood the behavior rubric, how to access the rubric, how to measure the items, how to record their responses, and how to complete and submit completed rubrics. This training session helped to ensure inter-rater reliability. Staff members were given the procedures of the study and how it should be administered. Staff also received a musical mp3 file to play the music during the music session. Students were aware of

the research being conducted. Staff read a prepared statement to the students in order to let them know about the study and why they will hear music. Some students might have been bothered by the music and might have acted out because the music was taking place. The music was Baroque style music played slightly above the hearing threshold. The music therapy was designed in such a way as to elicit usual classroom activities that students may otherwise be exposed to. The experiment occurred over ten days. Each data collection period lasted for thirty minutes. Baseline behavior data were collected for the first five days before the intervention began and was collected through teacher completed behavior rubrics. The baseline data was collected using the same questions as the music intervention phase. However, no music therapy occurred during the baseline period.

Data Analysis

Statistical procedures were conducted to review the differences in behaviors of participants from one condition (no music therapy) to the second condition (music therapy) where participants acted as their control group. Attention was paid to the mean values of all cases for the pre-intervention and the mean values for all cases for the post-intervention. An alpha level less than .05 was used to identify values that are statistically significant. This statistical test was conducted for each of the following behaviors: off-task behavior, elopement behavior, verbally aggressive behavior, and physically aggressive behavior. A dependent samples *t*-test was conducted on summarized scores for the pretest and posttest scores. The summarized scores for pre-music therapy and the summarized scores for post music therapy was compared for each of the behaviors in order to determine which behaviors were affected or which behaviors showed a statistically significant difference between the two sets of scores.

The data were analyzed using a Qualtrics and IBM - SPSS version 25 software. A dependent samples *t*-test procedure was conducted to track the change over time among the sample population where the music therapy intervention was the categorical variable, and the teacher survey of student behavior was the dependent variable. This statistical test was conducted for all cases combined. The dependent samples *t*-test helped to determine if any significant difference occurred and, if so, which behavior yielded the greatest difference in rating scores on the behavior rubric.

A Pearson Product Moment Correlation procedure was used to determine the relationship among behavior rating scores for the four different behaviors. The Pearson Product Moment Correlation Coefficient assessed the degree that quantitative variables were linearly related. This allowed the researcher to assess the extent that the pre and post behavior ratings were related. The musical intervention may have created a linearly related change in behavior rating scale scores across all individual cases.

Limitations

There were several limiting factors within this study. The first being the small population size. The population of students who have been diagnosed with an emotional or a behavioral disorder was quite low. According to the National Center for Educational Statistics (2018), about five percent of students identified within special education have an emotional or behavioral disorder. Only seven tenths of one percent of the entire population of school-age children have had an EBD. A second limitation for this study was the condensed duration. This study was conducted for ten days. Of that time, students were exposed to the music intervention for five of those days. The literature suggested a longitudinal study was needed to determine the

long-term effects of music therapy techniques and this study did not address this particular need (Gold et al., 2004).

Another limitation is the use of teachers as data recorders. Teachers are often overworked, and this study asked them to collect further data on student behavior which might have resulted in unreliable results (Rosenberg et al., 2007). However, preferred or recognized staff was better than having someone who was unfamiliar to the student enter the room to collect data when working with the population of students with an EBD (Sausser & Waller, 2006).

Another limitation is the lack of inter-rater reliability tests. Teachers served as the primary data collectors for this study. There was not an appropriate time for teachers to observe the same participants, so scores could be compared using standard inter-rater reliability tests. This could be a limitation because the behavior measurement tool was created for use in this study only and was not tested for reliability.

Assumptions

The theoretical assumptions of this study were rooted in the type of pragmatism advocated by John Dewey. Pragmatism has had a focus on the problem being considered and has explored possible solutions for these problems. This study sought to uncover strategies rooted in the music therapy profession. The goal of this study was to explore one of these strategies which the literature suggested may be the easiest to implement within a classroom setting and the strategy which yields the greatest benefit for positive behavior change in students with mental health disorders.

A second theoretical assumption of the study was found in the psychological domain of behaviorism. Behaviorism was explored through the work of psychologists such as B.F. Skinner, Ivan Pavlov, and John Watson. Their work has developed into the evidence-based

practice used by behavior analysts know as Applied Behavior Analysis. This science has also been used within the music therapy profession and has been referred to as Behavioral Music Therapy.

Another assumption was that teachers used the data collection instrument correctly and accurately. Data output assumed that teachers recorded data with fidelity throughout this study and that all ethical procedures and training was followed. There was an assumption that the behavior measurement instrument was valid and reliable. The time limitation for this study required that testing the instrument be forgone. Also, using an experimental group was not realized due to the small number of participants. A final assumption was that teachers knew how to recognize and identify student behavior accurately. The researcher conducted a training session for all staff to address this assumption. The training outline is listed in appendix C.

Need for the Study

The subject of this study has not been fully explored. Music therapy for youth who have sufferied from mental health disorders, particularly, behavioral disorders has not yet been explored (Gold et al., 2004). There are still many unknown effects and benefits from the field of music therapy. The potential benefits from the exploration of this study are still unknown. Researchers have needed to explore the effects of music therapy interventions with this target population.

The population of students with an EBD is largely underserved (Buchanan et al., 2016). This population has been seen, even in the special education profession, as an undesired and even undeserving population of students (Buchanan et al., 2016). The nature of their disability has been such that they have been unappreciative of teacher's efforts, even to the point of violence (Billingsley & McLeskey, 2004). The behaviors that these students demonstrate has

made it difficult for adults to want to work with them and certainly to help them (Billingsley & McLeskey, 2004). Their behaviors often lead to rejection and often, abandonment by their parents (Billingsley & McLeskey, 2004).

The students being targeted in this study have been in the greatest need for positive interventions. The teachers who work with this population have been in the greatest need for strategies and practical, easy-to-use, interventions that may help alleviate the day-to-day turmoil of the EBD classroom. Further research is needed to find ways to curb the negative behavior exhibited by these students with an EBD and severe behavior disorders. Music therapy may be one option.

Significance of the Study

The study explored important areas relating to students, parents, teachers, administrators, the field of special education, music therapists, counselors, and in particular, those working with at-risk youth. This study added to the growing body of work within music therapy for students with behavior disorders. This study discussed potential, practical behavioral solutions that sought to meet the holistic needs of the target student population as well as the professional staff who work with them. Results of this research could lead to further research in the field of special education as well as music therapy.

Definition of terms

- Adjustment Disorders – A stress-related condition. An abnormal and excessive reaction to a stressful situation in a person's life.
- Anxiety Disorders – a Psychiatric disorder that may cause feelings of constant or reoccurring anxiety in a person.

- Applied Behavior Analysis (ABA) – The study of behavior and learning. This process examines how biological and environmental factors affect changes in behavior. The applied science of studying and modifying behavior to promote desired change (Humpal & Kern, 2012).
- Autism Spectrum Disorder – A group of lifelong developmental disabilities that share similar characteristics in various degrees of severity. May include impairments in social interaction, communication, and language development; there may be the presence of repetitive, restricted, or stereotypic behaviors.
- Behavior modification – A measurable change in behavior brought on by some stimulus. The new stimulus would be considered the modification, or thing that was changed in order to produce a more desirable behavior.
- Behavioral Music Therapy – This approach to music therapy is rooted in the traditional behaviorist school of thought. B.F. Skinner, Ivan Pavlov, and John Watson were the most notable psychologist who progressed these ideas. Today, ABA therapy is an evidence-based practice which is strongly founded within the behavioral approaches. The music therapy profession is no different. They use these same behaviorist principals of task analyze, prompts, errorless learning, chaining, reverse chaining, shaping modeling, generalized conditioned reinforcer, group contingencies, negative reinforcement, differentiated reinforcement, extinction, response cost, time out, overcorrection, positive-practice overcorrection, and negative practice.
- Bonny Method of Guided Imagery and Music – Music centered exploration of consciousness, which use specific sequenced classical music programs to stimulate and sustain a dynamic unfolding of inner experiences (Darrow, 2008).

- Cognitive Behavioral Music Therapy – Cognitive behavior therapy is defined as "Cognitive-behavioral therapy is an action-oriented form of psychosocial therapy that assumes that maladaptive, or faulty, thinking patterns cause maladaptive behavior and "negative" emotions. The treatment focuses on changing an individual's thoughts (cognitive patterns) in order to change his or her behavior and emotional state." (National Association of Cognitive-Behavior Therapists [NACBT], 2017). For music therapist, this approach would be to use music as a tool for administering this type of therapy to change the thought process.
- Committee on Special Education (CSE) – Consists of a team of knowledgeable people who decide what related services a child needs to receive that will support the academic progress of a student receiving special education services (Sobol, 2008).
- Connection classrooms – Also referred to as an elective class. Any subject taught in a school that is not one of the following courses: Reading, English Language Arts, Math, Science, or Social Studies.
- Co-taught classroom – These classrooms have become quite common in public education. This classroom model involves a general education teacher and a special education teacher in the same classroom. The class usually takes place in a general education classroom; however, the class can be split up into various differentiated groups as long as the groups are not removed from the room for instruction time and they have been grouped solely on special education and non-special education status. Students may be separated for testing accommodations. The special education teacher is supposed to teach as often as the general education teacher and both

teachers are supposed to teach the entire class, regardless of special educational needs.

- DIR®/ Floortime™ Model - This model states for Developmental, Individual Difference, Relationship-based / Floortime™ Model. The goal of this approach to music therapy is to build healthy foundations for social, emotional, and intellectual capacities for children.
- Due Process – The timeline that starts when you suspect a child may need special services. This timeline requires testing before a meeting with the CSE. This timeline is designed to protect the rights of the child with disabilities.
- Educational-oriented Music Therapy – A therapy program that uses music therapy techniques to grow student achievement in the areas of emotional, social, and academic skills.
- Elopement Behavior – Any movement that takes place outside of a defined parameter by the teacher if a student leaves their desk, assigned area, classroom, or school grounds without the expressed consent of the teacher.
- Emerging Practice – Although some studies suggest that treatment produces favorable outcomes, there is not enough evidence to meet the research criteria for being truly effective (National Autism Center [NAC], 2017).
- Emotional or Behavioral Disorder – A disorder that produces a level of behavior that inhibits a student's learning. The behavior must be measurable regarding frequency, intensity, and duration.

- Evidence-Based Practice (EBP)– Sufficient evidence is available to confidently determine that treatment produces favorable outcomes; therefore, the treatment is established as effective (NAC, 2017).
- Exceptionality – A term used concurrently with the phrase "special learners" to define those children whose school performance shows a significant discrepancy between ability and achievement and who, as a result, require special instruction, assistance, or equipment (Sobol, 2008).
- General education classrooms – These classrooms are designed to accommodate regular education students with no significant modifications or accommodations. That being stated, some special education students may be in a general education classroom. If a student receiving special education services because of their deficits in reading, they may be perfectly equipped to function within a general education math class.
- Georgia Network of Educational and Therapeutic Supports – A statewide program for students with severe EBD symptoms. Students enrolled within this statewide program are served at one of 24 sites or through consultation by GNETS staff. Each 159 counties in Georgia are assigned a GNETS program in which to enroll students who meet strict criteria. GNETS staff are offered additional training to serve students with severe behavior issues.
- Impulse Control Disorders – A Psychiatric disorder where the affected person is unable to control their reactions to events. A failure to resist a strong urge which may lead to harm to the person with the disorder or to another.

- Ineffective / Harmful Practice – Sufficient evidence is available to determine that a treatment is ineffective or harmful for individuals on the autism spectrum (NAC, 2017).
- Individual Education Plan – This is a plan that is written by the special education case manager. Every student who receives special education services has an IEP. This plan includes the present levels of academic and behavioral progress of the student. It also includes a psychological that must be conducted every three years. The IEP should include any information related to the academic success of the student.
- Least Restrictive Environment – The classroom setting that allows for the greatest possible access to the "typical" regular education setting that a student who is non-disabled would also have access too. As the student requires greater levels of intervention, the educational setting may need to be more restrictive. In most cases, the student is removed from the regular education setting because greater academic education intervention is required. This would mean that the student would be taken out of the regular education classroom for a portion of the day and would enter into a smaller group setting for learning intervention. Another common reason why the student may be required to leave the regular education setting is due to extremely aggressive behavior. In these cases, students are removed to ensure safety for themselves and their classroom peers. Examples of LRE, in order of least restrictive to most restrictive, are as follows: General education classroom, co-teaching classroom, pull-out classroom, resource room, self-contained classroom, separate school, homebound instruction, and residential facility.

- Local Education Agency (LEA) – The government organization that is financially responsible for a student's education within the public-school system. This is usually a school district that receives money from the federal and state governments on a per-student basis. A dollar amount is dependent on the level of disability the student has. If a student has no disabilities, there would be a flat rate. A student who had a single, moderate disability would have a higher dollar amount to ensure the LEA had the funds to provide an appropriate education for that student. Still, other students may have multiple diagnoses, and they would receive the highest level of funding because their disabilities require more services.
- Music therapy – Music therapy is defined by the American Music Therapy Association (2017) as, "the clinical and evidence-based use of music interventions to accomplish individualized goals within a therapeutic relationship by a credentialed professional who has completed an approved music therapy program." For this research study, music therapy was defined in a more general way. Music therapy is the evidence-based use of music interventions to accomplish individual and group goals within a public-school classroom setting. For this study also focused on those goals of adolescent students with an emotional and behavioral disorder. Those goals which we focused on included behaviorally measurable goals which took place within the public-school setting.
- Nordoff-Robbins Music Therapy – This approach to music therapy has a universal mindset. This model operates under the assumption that all children have internal and innate musical abilities. The goal, then, of this music therapy model is the uncover

the musical potential in each child to the end where they might live more fulfilled lives.

- Off-Task Behavior – Any refusal to begin or complete a task as directed by the teacher. This may include task avoidance by deflection, distraction, silence, or sleeping.
- Personality Disorders – A maladaptive pattern of behavior which may impair a person's social life.
- Physical Aggression – Any act where a student harms or attempts to harm others as well as themselves. This may include throwing objects, flipping desks, punching, kicking, spitting, grabbing, or biting.
- Positive Behavior Intervention Supports (PBIS) – A range of preventative and positive interventions designed to create a supportive and successful environment for students who exhibit social or academic problems.
- The psychodynamic approach in Music Therapy – This approach derives from Freudian psychoanalytic theory. It seeks to uncover psychological elements of a client's past experiences in order to explain current psychological phenomenon stemming from the client. This approach is extremely well developed with 49.2 % of music therapists reporting that they use the psychodynamic approach, although not exclusively.
- Pull-out classroom – These classrooms take students out of their normal learning environment to work with special education teachers on the IEP goals. These goals usually center around reading, writing, and math. Students may only be pulled out of

their regular education classrooms for thirty minutes, or it could be for several hours of the school day.

- Related Services – The services that go beyond the students' academic, special education program. These services may include in-school counseling, speech or language therapy, physical and occupational therapy, art therapy, adaptive physical education, music therapy, services for hearing impairment, or sign language services (Sobel, 2008).
- Resource classroom – A classroom where students are taken to receive intervention services. These may be rooms for Speech Language Pathologist, Occupational therapist, School Psychologist, or even reading or math intervention teachers. Teachers and staff who use this model usually have a smaller number of students, maybe two or three, in the room at a time.
- School District – A school district would usually be the same as the LEA as defined above. This could be under the jurisdiction of a city or county government. In some cases, the school district is under the control of a state or even a federal agency like in the case of the department of defense schools. The school district is accountable for the budget and governance of each of their school and all of the students who reside within that district or who are assigned to that school district for another purpose.
- School settings – This term is often referring to the LRE of the student. It may be any of the classroom environments described below.
- Self-Contained classroom – Any classroom whose students remain for all subjects or who have the option of remaining in the classroom for all subjects. These classrooms are housed within a regular school. Students in these classrooms may have

opportunities for elective courses or even academic courses located in other classrooms depending on the disability of the child and the progress they have made. These classrooms are most commonly seen for students who have a severe or profound intellectual disability or for students who have extreme behavioral issues.

- Situational / Reactive Disorders – A type of adjustment disorder brought on by stress when a person experiences a larger amount of stress when presented with an unexpected or stressful event. Usually seen as disrupting events at home or school.
- Special Education – The service that is provided to students who need accommodations and modifications in order to be successful and progress academically.
- Stress – A feeling of pressure or tension in a person.
- Unestablished Practice – There is little or no evidence to indicate a firm conclusion about the treatments' effectiveness (NAC, 2017).
- Verbal Aggression – Any directed profanity, yelling, screaming, teasing, threats to harm others or threats to harm self.

Summary

This study focused on the research questions relating to music therapy as behavior modification for students with a severe behavior within a classroom setting. Once these research questions were addressed, recommendations were made as to the next steps that should be taken by Local Education Agencies and other government agencies as well as by the National Autism Center and other parental rights organizations. The population who have an EBD or severe behavior are in need of practical solutions that will ease the daily behavioral struggles and

increase their educational outcomes. Teachers and parents of these students are also in need of solutions. Music therapy may be one solution to help accomplish this difficult task.

Chapter II: Literature Review

There has been broad interest in the area of music and the effects it can have on the human body and mind. Although much research has been done in these areas, there are still many unanswered questions. Throughout this literature review, there is a focus on the following question: how music therapy can affect the overall behavior and long-term therapeutic growth of students with Emotional and Behavioral Disorders in school-based classrooms. The author has an invested interest in this question as he is an educator of students with emotional and behavior disorders and as he is an educator with a music education background. This same area of research has been neglected and could yield significant benefits for teachers, students, parents, and administrators.

Music Therapy Defined

In order to understand the type of child and the type of therapy being deliberated, it is necessary to define key aspects being discussed. Emotional and Behavioral Disorder can basically be defined as an inability to learn that is not due to intellectual, sensory, or health factors. Students with an EBD show little interpersonal relations, display inappropriate behavior or feelings under normal circumstances, are typically unhappy, and may develop physical symptoms or fears associated with school problems (Sausser & Waller, 2006; Schaberg, 1988). Students with an EBD are often diagnosed with: depression, schizophrenia, anxiety, ADHD, autism, and other sustained disturbances in conduct (Sausser & Waller, 2006).

Music therapy is specified as a related service under IDEA (2017). Although it is possible to use the Federal Department of Education money through grant allocation to implement music therapy techniques, school systems often do not implement this method of therapy for their EBD student population. A large reason for this is due to the lack of research in

this area and the lack of clear expected outcomes (Gold et al., 2004; Humpal & Kern, 2012). Although there have been as many as 140 music therapy studies involving adolescents, the lack of rigor in the research methods has presented doubt among experts as to the value of the limited research (McFerran, 2010). Music therapy goals should include work on concentration, teamwork, self-control, discipline, and release of energy and tension (Sausser & Waller, 2006). These goals can easily be adapted to serve students with an EBD and perhaps conduct disorder within the school setting.

The Diagnostic and Statistical Manual of Mental Disorders defines conduct disorder as a repetitive and persistent pattern of behavior in which the basic rights of others or major age-appropriate societal norms or rules are violated (Evans, 2010). Symptoms of conduct disorder tend to be consistent throughout the child's life. Eighty-eight percent of children with conduct disorder are re-diagnosed within three years (Evans, 2010). Most students with conduct disorders are first diagnosed with oppositional behavior disorder (Evans, 2010). Students with conduct disorder also are commonly diagnosed with another disorder such as ADHD. Major depressive disorders are found in up to half of children with conduct disorders (Evans, 2010). Students with conduct disorder can continue into adulthood and be diagnosed with an antisocial personality disorder (Evans, 2010). If students show symptoms early, they will often keep them for longer periods. If students develop symptoms later in life, they often overcome their diagnosis (Evans, 2010). Symptoms must have been present for one year in order for a diagnosis of conduct disorder to be given (Evans, 2010). Symptoms of conduct disorder include aggression to people and animals, destruction of property, deceitfulness, theft, and serious violations of rules (Evans, 2010). Conduct disorder is often considered untreatable by most traditional counseling or therapeutic methods. Conduct disorder is not considered an Emotional

Behavior Disorder due to the lack of an emotional component. Children with Conduct Disorder are considered to be socially maladjusted (Evans, 2010).

History of Music Therapy

Music therapy has been used throughout world history. In ancient hunting and gathering cultures, music was used in chant, repetitive drumming, and rattling, and in healing songs for all illnesses (Crowe & Colwell, 2007). It has been used in tribal medicine and healing rituals, mythology, Greek medical practice, bible stories, and Egyptian hieroglyphics (Crowe & Colwell, 2007; Hargreaves & North, 2004). "The Old Testament account of David playing the harp for King Saul during attacks of melancholy shows that the Hebrew people believed music had the power to affect emotions and feelings" (Boxberger, 1962, p.125-166). "The ancient Egyptian, Babylonians, Sumerians, and other great cultures of the ancient world also used music as part of medical practice" (Boxberger, 1962, p.125-166).

Within the temples of Aesculapius, the ecstatic experiences used to awaken the power of the human soul was created through the use of chant and instrumental music in order to cure nervous disorders (Crowe & Colwell, 2007). The Roman physician, Asclepiades treated the insane through the use of harmonious sounds (Boxberger, 1962). The Greek and Roman writers: Asclepiades, Xenocrates, Celsus, Caaelius Aurelians, and Boethius all wrote about the effects of music as a treatment for mental and nervous issues in their patients (Crowe & Colwell, 2007). Throughout recorded history, as far as research can tell us, music has always been a part of human culture and in the use of healing.

The middle ages saw more documented accounts of music being used as a form of treatment. During the middle ages in Europe, music was widely used as a remedy for despair, melancholy, and madness (Crowe & Colwell, 2007). The middle ages also saw music as a

preventative cure for emotional health (Crowe & Colwell, 2007). Crowe & Colwell (2007) write that Shakespeare mentioned the healing benefits of music in some of his published work. Shakespeare wrote about music calming King Lear and soothing King Henry IV. Crowe & In 1651, Burton wrote, "Anatomy of Melancholy" which advocates for the use of music as a treatment option for those suffering from what we may now refer to as depression. Another text was published in 1789 entitled, "Music Physically Considered," which discussed the influence and regulating powers of music on human emotion (Crowe & Colwell, 2007).

These scientific publications came about after the advent of equal temperament in music. This equal temperament allowed musical tones to be measured in a standardized way. More papers were published over time that also advocated the use of music as a form of medicine: "Music as Medicine" by Whittaker (1874), "Music as Mind Medicine" by Edwards (1878), "The Medical use of Music" by Deardsley (1882). Blumer wrote about the use of musicians playing for patients in his article in "The American Journal of Insanity" (1890), and "The use of Musical Vibratio before and during Sleep" by James L. Corning (1899). A well-known psychiatrist of the age, Benjamin Rush, used music to treat mental diseases (Crowe & Colwell, 2007). By the 1900s, music was well established in hospitals, although these were almost exclusively mental hospitals (Crowe & Colwell, 2007). Willem Van de Wall pioneered the use of music in mental hospitals during the 1920s (Crowe & Colwell, 2007).

The profession emerged in western culture in the middle 20th century, but it has been around for hundreds, some would argue thousands, of years (Hargreaves & North, 2004). Music therapy has always been used in our nation's history. The first full music therapy degree program was established at the University of Michigan in 1944 (Thompson, 2015). The U.S. led the way for music therapy throughout the 1940s. The National Association of Music Therapy

(NAMT) was founded in only 1950. Music therapy experienced a large amount of focus after WWII. Music therapist was employed full-time to work with the soldiers when they returned from war (Hargreaves & North, 2004). Music therapy is developing in over 30 countries around the world (Hargreaves & North, 2004). These gains have occurred in a relatively short amount of time. This field has grown quickly, and there are now over 3000 practicing music therapists in the United States alone (Hargreaves & North, 2004). Locally, the Rutland Psychoeducational Center, a part of the Georgia Network of Educational and Therapeutic Supports (2015) in Athens, Georgia employs one board-certified music therapist. This person is responsible for supervising the program, operates on a treatment team, and offers consultation with students and staff (Sausser & Waller, 2006).

Beauty is essential to the mental wellbeing of all people. Experience has taught the author that many students, in both general and special classes, are sorely in need of some kind of beauty. Quite often music will fill that void. (Roter, 1981)

Lack of Research

There are currently 230 different approaches to psychotherapeutic treatments (Gold et al., 2004). Music therapy techniques for students with an Emotional and Behavioral Disorder, however, have not been explored adequately enough to know how effective they may or may not be. There have been a growing number of studies exploring the effects of music therapy with teenagers. Those studies have been attempting to help to find these answers. There were eleven studies in the 1970s, twenty-five in the 1980s, thirty-seven in the 1990s, and already sixty-seven in the 2000s (McFerran, 2010). There are many music therapy assessments that can be administered to determine the potential benefit for "typically" developing children, however, there are limited assessments to determine the potential for students who are emotionally

disturbed. The Beech Brook Music Therapy assessment for children who are severely emotionally disturbed is one example of an assessment, and it is often used to assess potential benefit for music therapy in this population (Sausser & Waller, 2006). In an article by Reva Klein (1998), a case study, this lack of knowledge of music therapy for adolescents with an emotional or behavioral disorder was depicted.

Sample case study. A teacher of students with an EBD was experiencing difficulty with her class. She was unable to reach her students despite all her attempts. She had given up and decided she would allow them to watch TV in the classroom. When she turned on the TV, a program was on that had classical music playing. She noticed an immediate behavior change in her students and decided to research her observations. The teacher began trying out different types of music in different settings and times with her students. She noticed that music by Mozart, played in the background, had the largest impact on her students. In her research, a control group of typically coordinated children did not show an effect with the same background music (Klein, 1998). Her students, when tested had lower blood pressure and all other physiological measurements were lowered when background music was playing (Klein, 1998). Her students have coordination problems possibly due to the limbic part of the brain not fully developing in the first two years of life (Klein, 1998). Other non-orchestral pieces by Mozart, piano and choral and other pieces by other composers, did not have the same effect for her students (Klein, 1998). Her experience is not unique. Philosophers and scholars have noted the intrinsic power of music throughout human history.

Philosophical Perspectives

Pythagoras wrote about music as therapy in ancient times (Capurso & Music Research Foundation, 1952). Cassiodorus attributed to music the power to expel the greatest griefs and

said, “it doth extenuate fears, furies, appeaseth cruelty, abateth heaviness, and to such as are watchful it causeth quiet rest; it takes away spleen and hatred – it cures all irksomeness and heaviness of soul” (Capurso & Music Research Foundation, 1952, pg. 26). Aristotle ascribed the beneficial and medicinal effects of music to “emotional catharsis,” a view subscribed to by many psychiatrists today (Capurso & Music Research Foundation, 1952, pg. 26). Plato stated that health in body and mind which controls and improves the body is to be obtained through music and gymnastics and should continue throughout life (Capurso & Music Research Foundation, 1952). Confucius not only loved music but ascribed to its social virtues. He believed that ritual and music were the clues to harmonious living (Capurso & Music Research Foundation, 1952). Despite this “harmonious living,” there is still much debate as to the exact power music must possess over humans.

Music is embodied and its aesthetic power lies in the expectations it creates in the listener (Thompson, 2015). Meyer (1956) believes that we experience emotion through music because of our past experiences with the music. He believed that humans ascribe meaning to the music, the music does not have a genetic power to force humans to feel a particular emotion. There is much debate on whether music holds a meaning of emotion for listeners or if music creates emotion in the listener. This argument is known as the “cognitivist vs. emotivist position” (Thompson, 2015, pg. 194 - 195). Meyer believes that if a sequence of musical events is experienced many times, listeners learn to expect that sequence. Moreover, when they do, they feel good about it (Thompson, 2015).

Thompson believed that we should not link language to emotional music. He felt that by attempting to attribute language to music only limited the non-verbal, communicative power of the music. He believed in the “Morphology of feeling,” where there is a natural resemblance

between music patterns and the kinds of emotions we experience (pg. 179-180). Cook stressed the importance of musical intervals (Thompson, 2015, pg. 176-178). He felt that all emotional experiences felt by the listener could be traced back to what interval was being emphasized. Kivy believed the same as Cook but did not limit himself to intervals. He also explored other musical characteristics such as tempo, mode, melodic patterns, and structure (Thompson, 2015, pg. 179). Empirical evidence suggests, however, that musical interventions do provide benefits to both parents and children (Register & Hilliard, 2008).

Empirical studies have shown that many people feel emotions from music and that they significantly agree on what emotion is felt by what music (Thompson, 2015). Some studies point to just the use of tempo to create an emotional effect. Just by using a change in tempo, emotion can change (Thompson, 2015). A study of 20,000 people looked at the effects of 290 musical records on their moods. The conclusion was that music creates a uniform mood change for most people (Music Research Foundation, 1952). Most physicians believe that music exerts a strong influence on the higher cerebral centers. Through this, music can affect other portions of the body (Music Research Foundation, 1952).

"Sounds come from outside the body, but the sound itself is near, intimate: it is an excitation of the organism; we feel the crash of vibrations throughout the whole body… A foot-fall, the breaking of a twig, the rustling of underbrush may signify attack or even death from hostile animal or man… Vision arouses emotion in the form of interest… It is sound that makes us jump." - John Dewey (Thompson, 2015, pg. 175)

Music and the Brain

Music is experienced in many ways, most of which have not been explained. Emotions and cognition may be tied deeply together regarding human decision making (Darrow, 2008;

Thaut, 2008, Thompson, 2015). Music is the product of the human brain (Thaut & Hoemberg, 2014). Music affects emotion, but it also affects physical aspects of the human body as well. The human brain contains neural circuitry dedicated to music (Baker, Tamplin, & Kennelly, 2006). The physical make-up of the human brain contains areas specific to music and its functions (Baker et al., 2006; Darrow, 2008; Thaut 2008). This brain make-up can be distressed, however. Musical neurological disorders such as amusia, do occur and disrupt musical processing in the brain (Colwell & Webster, 2011; Sacks, 2008).

The brain is made up of neurons and Glial. Glial are involved in the nervous system. Neurons send messages and help the human brain communicate with each part (Baker et al., 2006). Each neuron has a dendrite and an axon. The dendrites send the message from the neuron while the axon receives the message for the neuron. Neurons are connected by synapses. These synapses are the greatest variable when discussing human learning and mental health (Baker et al., 2006). These synapses can be damaged through drug use and brain injury (Baker et al., 2006). After the brain has fully developed, the neurons and synapses that connect them cannot be repaired (Baker et al., 2006). New research is discovering ways in which medical staff can use the Glial cells to help in brain development (Baker et al., 2006).

Most hospitals use music in some way, either as a direct medical intervention or simply as a means to lift their patient's spirits (Hanson-Abromeit & Colwell, 2008). When they do not have a music therapist, doctors may use methods called "music medicine" (Hanson-Abromeit & Colwell, 2008; Thompson, 2015). Music was always played in hospitals because it was believed to boost patient moral (Hanson-Abromeit & Colwell, 2008; Hargreaves & North, 2004). Music is experienced in the form of sound waves that carry various frequencies to the person hearing it (Baker et al., 2006). Music enters the ear at the cochlea, sound frequencies travel to the auditory

cortex, to the temporal lobe, and the brain cells respond to those frequencies (Baker et al., 2006; Thompson, 2015). These musical frequencies contain nonreferential embodied meaning as a care function in musical communication (Thaut, 2008). These frequencies can be seen as a map across the brain (Baker et al., 2006; Thompson, 2015). We don't understand all of how music affects our bodies and our brains but much of the research shows that we are affected in some way (Adamek & Darrow, 2010; Baker et al., 2006; Colwell & Webster, 2011; Crowe & Colwell, 2007; Darrow, 2008; Hanser, 1999; Hanson-Abromeit & Colwell, 2008; Thompson, 2015).

When your brain works with music, it gets better at processing musical systems. Musicians' auditory cortex is 130% larger than non-musicians (Thompson, 2015; Baker et al., 2006). When music is performed, all areas of the brain are engaged (Thaut, 2008). The brain responds to melody, harmony, tonality, rhythm, and timbre in varying ways. Music identifiers are located on the right side of the brain mostly, but both sides experience music in ways we do not yet know (Baker et al., 2006; Thompson, 2015). Imagining music uses the same activity in the brain as actually listening to it (Baker et al., 2006; Thompson, 2015).

Striated muscles tense or relax to music requiring no thought from the person hearing it (Baker et al., 2006; Hanson-Abromeit & Colwell, 2008; Roter, 1981). Muscles can either contract or relax depending on the style of music. The process of tension and relaxation was written about by Meyer (1956) in his seminal work, "Emotion and Meaning in Music." Meyer writes that "The process of tension release in the perception of music has been mentioned by many theorists as the basis for the affective experience in music" (Thaut, 2008, p.5) Slow rhythm with a minor key can relax muscles to the point of ceasing entirely (Baker et al., 2006; Capurso & Music Research Foundation, 1952; Thompson, 2015).

Music and rhythm sounds have been found to improve vision by 25%. Consonant and dissonant chords, major and minor intervals, all produce changes of pulse and respiration. Breathe rate and heart rate change with music. The rhythm of respiration tends to adapt itself to the rhythm of the pulse. Singing is often used because it helps with articulation, breath control, improved oxygen saturation rate, and to stimulate language in other regions of the brain. Blood flow and respiration vary directly with the intensity of the experienced emotion through music. Music therapy is a tool to help patients with high blood pressure, headaches, or other internal psychological functions. Music therapy is a common use for the treatment of pain, for relaxation, and is often used to help ease anxiety and depression. Playing instruments can improve fine and gross motor control, facilitate cooperation and attention, and enhance joint mobility, the range of motion, rhythm, balance, strength, and self-esteem. Music and language are closely related and connected within the human brain (Baker et al., 2006; Hanson-Abromeit & Colwell, 2008; Music Research Foundation, 1952; Thompson, 2015; Thaut & Hoemberg, 2014; Thaut, 2008). The research on the effects of music and the body are extensive but are still in need of much more concentrated study by the medical and music communities.

Rhythm. In Michael H. Thaut's (2008) book *Rhythm, Music and the Brain*, he explains the various aspects of music and how it interacts and is received by the human brain. Thaut (2008) explains how out of all of the aspects and domains found within music, rhythm is the most foundational and the most tied to brain interaction. Thaut (2008) writes that "Music unfolds only in time, and the physical basis of music is based on the time patterns of physical vibrations transduced in our hearing apparatus into electrochemical information that passes through the neural relays of the auditory system to reach the brain." This happens with the greatest effect when the rhythm is involved (Thaut & Hoemberg, 2014). Rhythm is predictable

(Thaut & Hoemberg, 2014). It is usually repeated throughout a piece of music. John Dewey (1934) wrote about the effects of predictability in his theories of emotion and meaning-making. Meyer (1956) also connects the predictability of rhythm as a key aspect to its successful application with various therapies.

Thaut (2008) made a point about rhythm and the aesthetics of art. He wrote that "Every work of art possesses rhythm" (p. 4). He did not limit the idea of rhythm to just music. He noted how rhythm could be found in all aspects of visual art as well as choreography and theatre. This notion of rhythm as space and time is not a new one. The ancient Greeks had separate words for this concept. They referred to chronological time as *Chronos* while the temporal dimension of meaning was referred to as Kairos. Rhythms are the most foundational of all musical domains and are able to imprint itself on the human brain in ways that other domains are not able to achieve (Thaut & Hoemberg, 2014). Pamela Ott (2011) also writes about how rhythm is present in everyday speech and movement. Ott writes that "We are exposed to rhythm even before we are born, through the gentle rhythmical pulsations of our mother's heartbeat." The artwork in general and music, in particular, have a key effect on the brain and behavior function (Berlyne, 1971).

Music and emotion. There are many benefits of music therapy. It stimulates reward centers in the brain, promotes cooperation and a sense of accomplishment, and engages a range of cognitive-motor functions (Baker et al., 2006; Thompson, 2015). Music uses the same part of the brain that deals with sex, drugs, and eating chocolate. Pleasurable music can release dopamine in the body (Baker et al., 2006; Thompson, 2015). Music can change a person's mood (Adamek & Darrow, 2010; Thaut & Hoemberg, 2014). Music does elicit emotions in the brain, making us feel happy, sad, or whatever (Baker et al., 2006; Thompson, 2015). This musical

effect is referred to as the Hedonic tone (Thaut, 2008). The Hedonic tone refers to the state of pleasure or reward experienced in the stimulus of music. The limbic system within the human brain controls mood and emotions. For students with an EBD, this area of the brain can be impaired (Baker et al., 2006).

Emotions can come from music psychophysical cues and expectancy mechanisms. Emotions can also come from music indirectly (Thaut & Hoemberg, 2014; Thompson, 2015). Psychophysical cues are genetic and of biological significance. These are the primitive reflexes of humans. Expectancy mechanisms are events that you predict will happen based on the information you receive from your senses (Thompson, 2015). Happiness can be elicited by a fast tempo, bright timbre, and exaggerated rhythmic contrasts (Thompson, 2015). Sadness can be elicited by a slow tempo, soft dynamic level and slow deep vibrato (Thompson, 2015). Anger can be elicited with a rapid tempo, loud dynamic level, and harsh timbre (Thompson, 2015). Fear can be elicited by irregular tempo, soft dynamic level, and staccato articulation (Thompson, 2015). The amygdala is the part of the brain that deals with fear. Music makes people more afraid than visual stimulation where that is the goal (Thompson, 2015). To cause excitement, the best musical element to change is tempo (Music Research Foundation, 1952). Slow music in a store makes customers walk more slowly (Music Research Foundation, 1952). Fast music in the background increases attention (Hargreaves & North, 2004). Melody, interestingly, is the least important regarding emotional effect for humans (Music Research Foundation, 1952). Musical context matters more than the actual musical pitches (Colwell & Webster, 2011). Most studies agree that music affects mood (Adamek & Darrow, 2010; Baker et al., 2006; Colwell & Webster, 2011; Crowe & Colwell, 2007; Darrow, 2008; Hammel & Hourigna, 2011; Hanson-Abromeit &

Colwell, 2008; Hargreaves & North, 2004; Music Research Foundation, 1952; Thompson, 2015; Thaut, 2008; Meyer, 1956; Kant, 1914).

Music and the child's brain. Music as a conditioning model, like that employed by Skinner and that is often used in advertising, can be used effectively in children (Hargreaves & North, 2004). According to Epstein's (2007) research, teenager's neurological capacity peaks at around the age of fourteen or fifteen. This means that adolescents can learn things more easily than adults. Treatment for mental health is important at this age because of the great effect it can have in correcting and rehabilitating the adolescent (Crowe & Colwell, 2007). Trainor, Shahin, and Roberts (2009) state that musical participation further enhances learning and performance access cognitive domains. Music therapy, then, should be on the forefront of treatment for these adolescents in their mental health programs.

Infants can hear auditory stimulation as early as 19 weeks of gestation (Hanson-Abromeit & Colwell, 2008; Thompson, 2015). They will respond to auditory stimulation at 28 weeks (Thompson, 2015). Infants can discriminate directed singing (Hansen-Abromeit & Colwell, 2008). This means that, when someone sings intentionally to an infant, that infant can recognize and respond to it. This type of directed singing helps to facilitate communication at an early age (Hansen-Abromeit & Colwell, 2008). Researchers believe there is a link between family relationships and symptomatic behavior of children (Hanser, 1999; Oldfielt, Bell, & Pool, 2009; Strom & Strom, 2012). These are closely related to and inspired by attachment theories (Meyer, 1956; Oldfield, Bell, & Pool, 2009; Strom & Strom, 2012). War affects the psychological state of children ages 10-14 significantly and has been studied as an attachment disorder (Uguak, 2001). There are several theories as to the cause of EBDs and other similar diagnoses in

children. However, a common theme is an estranged relationship with parents or guardians (Crowe & Colwell, 2007; Uguak, 2001).

Children need to form a close attachment with someone early on in their life. They have to have feelings of safety, security, and they have to feel like their needs are going to be met (Oldfield et al., 2009; Strom & Strom, 2012). According to Oldfield et al. (2009), these needs are genetic. This can be demonstrated through, what researchers call, the Alpha Function. The Alpha Function is when the parent receives, contains, and interprets emotions from her infant. Children need this from their parent in order to process their own difficult emotions later on (Oldfield et al., 2009). Without this type of bonding from the child to an adult and from an adult to the child, many disorders can be expected in the child's later years. Ineffective parenting practices have also been consistently associated with conduct problems (Evans, 2010; Strom & Strom, 2012). Ineffective parenting practices include punitive hard discipline practices, inconsistency, low parental warmth, physical and verbal aggression, and poor supervision (Evans, 2010).

Emotional disorders are difficult to diagnose because there are so many similarities in the symptoms. Students experiencing grief are often misdiagnosed, for example. They will show signs of ADHD as defined as impulsivity, lack of forethought, cognitive deficiencies, and avoidance (Register & Hilliard, 2008; Thaut, 2008). Behaviors seen in children going through the grief process show the following themes: developmental regression, tantrums, or acting out behaviors, complaints of somatic concerns, engagement in caregiving behaviors, and a decline in school performance (Register & Hilliard, 2008). They will also show signs of disorganized thinking and strong emotional outburst (Crowe & Colwell, 2007; Register & Hilliard, 2008).

Grief is experienced by everyone eventually, but it is particularly difficult for young children. Children under five are typically unable to grasp the permanency of death (Uguak, 2001). Children, eleven and up, act more like adults in this regard (Register & Hilliard, 2008). Posttraumatic stress disorder (PTSD) can be caused by separation from parents because of some of the following events: earthquake, tsunami, war, death, and even divorce and parental deprivation (Uguak, 2001). Symptoms of PTSD include recurrent fear, lack of emotional stability, poor concentration, avoidance of certain social situations, dropping out of schools, and poor academic performance (Uguak, 2001). Displaced children can often have PTSD. Symptoms can be more extreme than what is seen in adults (Uguak, 2001). More PTSD is seen in children in countries that experience a lot of natural disasters and war.

Universalities

Studies have found some link between music and emotion universally from one culture to another (Hanser 1999; Humpal & Kern, 2012; Meyer, 1956; Ramey, 2011; Thaut, 2008; Thompson, 2015). This is a foundational principle in the Nordoff-Robbins Music Therapy model. People from different cultures can listen to music and determine the emotional intent of their music (Hanser, 1999; Meyer, 1956; Thompson, 2015).

Lullabies are another example of universalities in music. Lullaby singing is universal and has persisted for centuries (Hansen-Abromeit & Colwell, 2008). Some music researchers and philosophers state that music is an emotion or that music is the language of emotion (Thaut, 2008; Thompson, 2015). Music has an inherent social nature and is often used as a tool for memory establishment and recall (Ramey, 2011). Using a framework from the work of Noam Chomsky, language is hardwired into the human brain. Thaut (2008) writes that "Music is not a referential associative language – it is initially a perceptual language whose intrinsic pattern

structure conveys meaning to the human brain" (p. 3). Spoken language works similarly as musical language (Thaut, 2008). This emotive process has the potential to help the population struggling with an EBD.

These students find it difficult to identify their own emotions and to understand the emotions of others (Ott, 2011). All cultures throughout history have used music and still use it for various reasons (Thompson, 2015; Ramey, 2011). As far as recorded history is capable of ascertaining, music as an art form has existed in all known cultures throughout human history (Thaut, 2008). There is a connection, universally, between intervals, consonant vs. dissonant, and direction of motion (Thaut, 2008). Studies show that people around the world use music in their daily lives to alter their mood (Thompson, 2015). An example would be whistling or singing while you do chores. The link between music and human emotions remains unclear. However, there seems to be a clear link for a universal understanding of music (Adamek & Darrow, 2010; Baker et al., 2006; Darrow, 2008; Meyer, 1956; Hansser, 1999).

One universal principle for music behavior modification is the "Iso Moodic Principle" (Roter, 1981, pg. 170). The Iso Moodic Principle is important when trying to implement behavioral change in people. Iso is the Greek word for equal, so translated it would mean "equal mood" (pg. 254). This principle states that one should match the existing mood in a given environment first (Hargreaves & North, 2004). Then once the music has matched the given mood, music can be slowly changed and the behaviors of the people hearing the music will also change. If this principle is not followed, then a resulting backlash from the population will be seen (Roter, 1981). To alter the mood of a person or group of people, the existing mood must first be established then music chosen to match the existing mood (Roter, 1981). Students with internalized behaviors became more expressive when treated through the Iso Moodic Principle

(Hyun & Soo, 2010). Internalized behaviors are defined as withdrawn, depressed, and anxiousness. This can be treated with active listening and singing (Hyun & Soo, 2010). Externalized behavior is demonstrated as hyperactivity and aggressive behavior. This can be treated by playing instruments and sound projection through the Iso Moodic Principle (Hyun & Soo, 2010). This principle and others have been researched and are embedded into several of the Music therapy models.

Related Music Therapy Studies

As pointed out by McFerran (2010), Gold et al. (2004), the NAC (2017), and Jennifer Whipple's meta-analysis published in *Early Childhood Music Therapy and Autism Spectrum Disorders*, research into the effects of music therapy for adolescents is limited (Kern & Humpal, 2012). Of this research, about twenty-one percent takes place in an educational setting. About twenty-six percent takes place in a residential setting (McFerran, 2010). These two settings only make up about half of the settings that may be beneficial for teachers. This is a problem for policy-makers because much of the research is not aimed at the public-school sector at all. Of this research, fifty-nine percent is aimed at individual treatment. This is a limitation due to the financial practicalities of the education system (Hammel & Hourigan, 2011). The Autism Center, for example, will not rate music therapy in their top category, Evidence-Based Practice, of techniques that are proven to work because there is a lack of quality research, particularly for students who are served within a public school. Currently, the Autism Center rates music therapy within their second category, Emerging Practice, due to this lack of research.

Another issue with current music therapy research has been that the research is conducted sporadically (McFerran, 2010). There has been little research into the long-term effects of music therapy for students. Of the research that exists dealing with the adolescent population, only

nine percent deals with behavioral approaches. There is an emerging branch of music therapy that uses Cognitive Behavioral Therapy (McFerran, 2010). This new branch could develop further into more research findings that may support music therapy interventions. There have been a few studies which warrant discussion, however.

The Educational-oriented Music Therapy (EoMT) model sought to enhance educational goals such as cognitive skills and task accomplishing skills that will lead to academic learning. EoMT's therapeutic goals include sublimating repressed energy through musical output and promoting self-expression which leads to interpersonal skills (Hyun, & Soo 2010). The Educational-oriented Music Therapy pre- and post-test did not find academic gains in the prominent study, however. Hyun and Soo's (2010) study did find an increase in positive behavior and social skill. Psychosocial Functioning Inventory for Primary school children (PRI-PSC) was also used as a pre and posttest, and it yielded positive initial results (Keen, 2008). The Educational-oriented Music Therapy study is considered to be limited. The author suggested that with further structured instruction, students would show academic gains because pre-requisite skills would have already been learned (Hyun & Soo, 2010). Another limitation of the study was that it was carried out by music therapists who are more therapists than they are educators. This may account for the limited academic growth in the study (Hyun & Soo, 2010).

The largest study of the effects of music therapy of young people with behavioral and emotional disorders was based in Northern Ireland (Porter et al., 2011). This study will offer insight and hopefully answer many lingering questions in regards to music therapy with young people who are diagnosed with emotional and behavior disorders. Although its results have not been published yet, they did offer a harsh critique of all other studies of music therapy with children to date. The authors reported that most studies on the effects of music therapy are not

reliable because of their poor quality of evidence, biased participant selection, small numbers of participants, and short follow up (Porter et al., 2011). They also wrote that some studies suggested that the effects that are seen in autistic participant's verbal abilities would rapidly wash out over time (Porter et al., 2011). There is still no literature on music therapy programs that focus on working with students with emotional behavior disorders (Sausser & Waller, 2006). They did, however, agree with, and attempt to, corroborate the work of Gold and colleagues.

Gold et al. (2004) was cited within most of the articles about best practices. The Gold article can, therefore, be considered a seminal work in the field of music therapy for adolescents with disabilities. The Gold et al. analysis advocated for an eclectic approach to music therapy interventions. Gold et al.'s (2004) study showed how the most significant results were yielded when the methods allowed for a music therapist to use any technique at their disposal for a given client in a given setting. When a study only focused on one pre-selected music therapy technique, the benefits for the clients were not as significant. These findings from the Gold et al. Analysis found wide support within many articles which focus on music therapy techniques for adolescents (Armstrong & Ricard, 2016; Crane, 2016; Kim & Stegemann, 2016; Lawendowski & Bieleninik, 2017; Pavlov et al., 2017; Rahmani, Saeed, & Aghili, 2016; Salvador & Pasiali, 2017; Schiltz, 2014; Shuman, Kennedy, Dewitte, Edelblute, & Wamboldt, 2016; Smetana, 2017; Venuti et al., 2017).

Gold et al. (2014) conducted the first meta-analysis of music therapy for students with psychopathology. The Gold study shows significant music therapy effects (medium to large positive effects) on participants (Gold et al., 2004). Gold and colleagues conducted a separate study over 25 weeks that showed no significant effect on the participants. Overall, the average effect size of all participants included in the effective Gold study at posttest was d=99 (SE = .13).

This is a large overall positive effect (Gold et al., 2004). Despite his research and his results, Gold did refer to music therapy as nothing more than a "placebo therapy." Despite these difficult critiques by music therapy researchers on themselves, much work will still be done to further this method of therapy.

There was no agreement about the overall effectiveness of music therapy, however. According to Zhang et al. (2017), music therapy techniques lacked a statistically significant result for any of the articles analyzed. It is important to note one limitation of Zhang et al.'s analysis. The Zhang study did not use an adolescent population such as the other articles. Her meta-analysis only looked at studies dealing with dementia patients but was included in this literature review because it contained formidable counter-evidence on the benefits of music therapy. Zhang et al.'s meta-analysis used different criteria to show statistical significance for the articles she selected for her research. The analysis only showed a statistically significant difference in patients' levels of anxiety. Zhang et al. noted that all symptoms were not affected in a significant way except for short-term lower levels of anxiety within the meta-analysis.

Most other studies used within this literature review showed evidence of positive benefits for symptoms of anxiety and behavior regulation (Armstrong & Ricard, 2016; Crain, 2016; Gold et al., 2004; Kim & Stegemann, 2016; Lawendowski & Bieleninik, 2017; Pavlov et al., 2017; Rahmani et al., 2016; Salvador & Pasiali, 2017; Schiltz, 2014; Shuman et al., 2016; Smetana, 2017; Venuti et al., 2017). No research was found by the author that contradicted this theory when adolescents were the target population. One limitation in the current research was discussed in the Pavlov et al. (2017) article. She identified a limitation of longitudinal benefits for adolescents receiving music therapy services. After identifying the limitation, she tested the longitudinal effect on positive anxiety reduction and behavior modification. Pavlov found that

music therapy appears to only have an effect on patients' symptom levels for a short duration of time. Hours after the treatment the patients continued to have the same, preexisting anxiety and behavioral levels.

According to the articles discussed, music therapy appears to have a positive impact on adolescents with various disabilities who also suffer from anxiety and behavioral locus of control. However, these positive effects may have short durations for the population. Further research needs to be conducted in the area of long-term effects of music therapy for adolescents with disabilities.

When music therapists can choose from a variety of music therapy techniques to match the client's needs, a greater impact is achieved. This is in contrast to music therapists using a more fixed treatment practice (Gold et al., 2004). One study by Uguak (2001) paired music therapy with drawing therapy, computer games, collective sports, talk, theatre, constructive play, puzzles, and other activities. This study showed greater gains for students than that of the control group of students who only had one fixed music therapy model. Eclectic approaches to music therapy showed the largest effects according to the Gold study as well. Behavioral approaches to music therapy alone showed the smallest gains (Gold et al., 2004). Free improvisation therapy is a more eclectic music therapy approach, and it shows higher gains when compared to control groups (Gold et al., 2004). One aspect not addressed in these studies, however, is of the methods the researchers used in the selection of their participants.

Some studies have focused on determining which children would benefit from music therapy. These studies have come out of countries where war, starvation, and natural disaster are prevalent. Children in these countries are exposed to difficult life situations, and the child is not able to handle the stress, so it manifests itself in the form of bad behavior (Keen, 2008).

Children traumatized through these scenarios were recommended music therapy. This therapy would consist of songs, dances, and drama. There are many types of music therapy that are used, and they are classified by a philosophical approach. These music therapy approaches have been shown to improve symptoms associated with grief (Baker et al., 2006).

Recently, Jennifer Whipple published an updated meta-analysis involving adolescents with psychological disorders. Her work was published under *Early Childhood Music Therapy and Autism Spectrum Disorders* (Kern & Humpal, 2012). The goal was to add new research to the meta-analysis for future work in the area of music therapy. Her data showed a medium to large effect (d = .76) of music therapy studies on their intended population. Her main focus was the outcome of students who were on the ASD.

Music Therapy Applications

Music therapy does not seek to improve music in patients like that of the speech-language therapist. The goal is to work more on therapy through music (Hargreaves & North, 2004). Studies show positive effects that music therapy has on patients particularly in the medical and dental fields (Hargreaves & North, 2004). The listener responds to music unconsciously because it enters the body at the subcortical level and over the autonomic nervous system. Studies show that music therapy benefits women more than men, and children and adolescents more than adults or infants (Hargreaves & North, 2004). The National Association for Music Education recommends using minimal verbal instruction when working with the population who have an EBD (Schaberg, 1988). They also recommend that the instructor provide space for the student's expression as much as is possible. They also cite the well know music behaviorist, Clifford Madsen, and suggest that instructors use music as a reward system where it is possible

(Schaberg, 1988). Music therapy may be more limited for some students, but nearly all people enjoy music for one reason or another (Ramey, 2011).

There has been a surge of music therapy techniques for adolescents in recent years. These techniques have different behavioral aims, and the following research shows that some are better at treating certain behaviors than others. Neurologic music therapy (NMT) assists with attention and has worked well with students who are on the Autism spectrum (Thaut & Hoemberg, 2014). The Melodic Intonation Therapy (MIT) assists with emotional stability, a facility for self-correction, and attention span (Thaut & Hoemberg, 2014). Associative Mood and Memory Training (AMMT) works as a memory enhancer (Thaut & Hoemberg, 2014). Cognitive Reorientation has been shown to help with mood control and depression (Thaut & Hoemberg, 2014).

Sample case study. One case tells the story of one troubled adolescent in Africa. He had a troubled life and was showing intense symptoms of an undiagnosed behavior disorder. The therapist assigned to him was trying everything he knew to build a relationship with the boy when he learned the boy had a passion for music. The student expressed an interest in rap music in particular and shared that he considered himself an artist. The therapist encouraged the student to share his composed music during the therapy sessions (Evans, 2010). The boy, over time, became close to the therapist and true gains were made. The author of this case study suggests that this was because music has a unique effect to communicate for a child who has had bad experiences communicating in a non-traditional way using words (Evans, 2010). Music allowed the child to have positive interactions with an adult and these interactions met the primal need to have a relationship with an adult, the same needs that were not met when the child was

an infant (Evans, 2010). Music was this child's top leisure activity and knowing that led to the positive interactions capitalized on by his therapist.

Practical approaches. Music therapy techniques, in general, can be classified as active vs. receptive and improvisational vs. structured (Gold et al., 2004; Thaut & Hoemberg, 2014). Active and improvisational music therapy would be more client involved. Clients would be physically engaged in the process. They would sing and dance and always have some active role to play. The Nordaff / Robbins approach to music therapy is improvisational and creative music making. This type of music therapy helps specifically with communication (Sausser & Waller, 2006). Creative music therapy and Orff music therapy both use improvisation but in a more structured form (Gold et al., 2004). The Orff model of music teaching is useful for students with emotional issues because it encourages creative, active music making which leads to expression (Register & Hilliard, 2008). Creative music therapy uses musical improvisation in a non-threatening, creative way also (Thompson, 2015). Active music therapy involves creative participation in music making by patients (Thompson, 2015). Client-centered therapy and Perls' Gestalt therapy use musical improvisation to highlight experiences in the "here and now" and to enable awareness of emotions (Gold et al., 2004). Analytical music therapy (AMT) uses improvisational techniques to express inner moods and associations (Gold et al., 2004). Cognitive-behavioral music therapy (CBMT) deals directly with cognitive information processing and helps problem solve emotional and social/interpersonal issues. Cognitive-behavioral music therapy uses action-oriented interventions (Register & Hilliard, 2008).

Receptive and structured music therapy would be more reflective for the client. Clients would listen to music and talk out their complex emotions. Music therapy techniques help with attention, depression, anxiety, frustration, aggression, and emotional adjustment needs (Baker et

al., 2006). Music therapy can allow students to use verbal language to rationalize what they cannot address emotionally. This therapy uses non-verbal and verbal communication (Gold et al., 2004). Group music therapy, which is seen in this approach, can help facilitate self-expression and can also help with communication skills. Cognitive-behavioral music therapy and Orff have similarities in that they are structured and in that the patient can act and create safely through their thoughts, behaviors, social interactions, and emotions (Register & Hilliard, 2008). Orff uses a method of call and response or initiative vs. imitation with client-therapist interactions. This is a good medium to build trust and to learn a structure where the patients can express themselves (Register & Hilliard, 2008). Orff-based music therapy is similar to CBMT because it allows emotional expression and validation. Students are socially supported by engaging in action-oriented experiences where they can discuss behavior and thought patterns (Register & Hilliard, 2008). Cognitive-behavioral music therapy and Orff create a more equalized environment where all participants can feel successful, comfortable and at ease (Register & Hilliard, 2008). Orff-based music therapy programs offer emotional healing, building positive social relationships, cognitive reframing, and decreasing behavioral problems (Register & Hilliard, 2008). Behavioral music therapy is based on Skinner's behaviorist theory. It uses forms of playing and singing music or listening to music as a contingent reinforcement or stimulus cue to modify behavior (Gold et al., 2004). Contextual support model of music therapy is a child-centered approach that supports expression, identification, and decision making (Register & Hilliard, 2008).

It is important to know which strategies under the domain of music therapy may help when students are diagnosed or are having various behavior issues. Cassity & Cassity (2006) suggest several strategies in their book. For students with ADD, it may help to gradually

lengthen the time of musical engagement. An instructor could also structure short breaks during a session with the student to ensure they can maintain longer intervals. These students may also benefit from the use of art therapy combined with music listening. Students with ADD can benefit by working on an art project while also listening to music. If the student is hyperactive, it may be best to have the student focus on one song or one task while increasing the time gradually. These interventions may work to increase their focused time on task.

Cassity & Cassity (2006) go on to suggest that if a student display's uncooperative behavior, it is often best to assign those students additional responsibilities. Those students often crave control over their environment and will work to assert their control. Instructors can also offer opportunities for shared leadership. This will bridge the gap between gaining total control and partial control. Of course, music as a contingent reinforcement is also a popular tool which has been discussed in many behavioral works. The contingent reinforcement is also a good model for students who are unwilling to follow directions (Cassity & Cassity, 2006).

If a student lacks self-control, relaxation techniques can often help (Cassity & Cassity, 2006). Relaxation training with musical and keyword responses have been shown to be effective in establishing self-control. Self-control is a prerequisite for performing on various instruments. Teaching piano is a good strategy for improving self-control. Another classroom technique that is effective for students who lack self-control is for the instructor to reduce or eliminate negative peer comments (Cassity & Cassity, 2006). If the student exhibits anger, drums are the preferred instrument. Drum playing allows the student to maintain control while they are performing and, over time, increase the time of the control. Cassity & Cassity (2006) also suggest that students who exhibited signs of rage may also benefit from the use of musical conversations. These "conversations" are non-verbal instrumental improvisations which elicit emotional information

which can be observed by the instructor. Students who exhibit anger would also benefit from the use of group music making (Cassity & Cassity, 2006). Participation in a group helps students learn to communicate effectively with their peers through modeling and practice.

Students who cannot express their feelings can also benefit from music therapy techniques. These students can conduct a lyric analysis of emotionally charged music or they can make "mood cards" with the mood of the music (Cassity & Cassity, 2006). The students could also select songs that represent themselves in various settings or various relationships (Cassity & Cassity, 2006). Many of these students experience high levels of anxiety and depression. The lyric analysis also benefited students who experience depression (Cassity & Cassity, 2006). When these students can express the feelings from the music, they are often able to relate it to themselves and may be able to discover new feelings within themselves. Guided imagery exercises can be used for students who experience anxiety (Cassity & Cassity, 2006). Students may be able to develop specific musical interests that can then be used to replace their fears and worries (Cassity & Cassity, 2006). There is one other approach that warrants discussion and is tied to all of the approaches to music therapy we have already considered.

Community music therapy. A contemporary approach has been debated in the recent history of the music therapy profession. This new approach was officially debated and accepted during the tenth World Congress of Music Therapy which took place in Oxford, U.K. The new approach is referred to as Community Music Therapy. There has been much debate because many music therapists believe that the community model has already been taking place within the regular music therapy sessions around the world. The emphasis of community music therapy is that the therapy should extend beyond the sessions themselves and out into the world in which the child lives. The idea behind this new name and arguably new approach is that long-term

effects can only be felt if the therapists take into account the community in which the student is coming. It is difficult to convince a student with an EBD to take part in therapy. Music therapy is no different in this regard. Adults who work with the population with an EBD may agree that their students cling to what they know. "The young person is committed to the systems he or she is familiar with – family and street life. No amount of talking will convince him or her that these systems are shackles" (McFerran, 2010). This does not mean that no amount of therapy will make a difference for these students, however. One of the great benefits of music therapy is that talking is not required. All approaches have their merit and can be useful in different situations and for different personality types. If used correctly, music therapy can be beneficial for all involved.

Counseling music therapy. One counseling technique that is greatly assisted by music therapy is the family therapy model. Research suggests that therapists should focus first on the child's difficulties and then on the family relationship for a holistic approach to therapy (Oldfield et al., 2009; Thaut & Hoemberg, 2014). Parents should form a bond with their child beginning from birth. Parent and child should experience preverbal loving, holding, and handling. This will prepare their relationship for the child's adolescents where the child tends to pull away from the parental relationship (Oldfield et al., 2009). Often, in children with an EBD, this relationship was never formed. McFerran (2010) writes about the psychodynamic approach. This is a way of interpreting the student's behaviors as they are rooted in past experiences. The choice of music selected for listening, the instrument choice, or the style of music can all help to determine the emotion the student is feeling. This can be an opening to talk about the student's past experiences. In these instances, music therapy techniques can help to build up these damaged relationships. This can be done in the form of a lyric analysis as well (Adamek & Darrow, 2010;

Thaut & Hoemberg, 2014). Looking into the lyrics of the selected song can also shed light into the inner thoughts of the young client. Non-verbal, playful music therapy helps to build attachment between child and therapist and between child and parents. This is often used for children who are adopted later in life (Oldfield et al., 2009). Music therapy has been documented as having positive effects when working with families (Oldfield et al., 2009).

It helps to define the family unit and roles of family members (Oldfield et al., 2009; Thaut & Hoemberg, 2014). Music therapists work with families on non-verbal, improvised music making and playful musical exchange. These seem to be key components in facilitating family interactions (Oldfield et al., 2009). Several programs have targeted parents for education so that lasting effects can be experienced. Parent training courses are being used as the first line of treatment. However, fifty percent of parents drop out of these types of training (Evans, 2010). These high dropout rates for parents are specifically prevalent when their child has a conduct disorder (Evans, 2010). Conduct disorders are difficult to treat. The cycle of issues seen in the child is often seen in the parents as well. Family histories of similar mental health problems are common and help to explain the problem with parents not taking ownership (Evans, 2010). One therapeutic strategy for combating this is the use of letter writing. Writing letters to estranged parents and family has been effective in healing family relationships (Keen, 2008).

Music therapy enables parents to gain a fresh insight into aspects of their relationships with their children (Oldfield et al., 2009). Music therapy uses non-verbal methods to communicate between children and their parents. When a previously poor relationship has been experienced, the child will often hear anything the parent has to say as negative. The same can also happen to the parent; everything the parent hears the child says is misinterpreted as being negative because of past experiences. There are ways, through music therapy, that inferences

into emotions can be made without speaking. This is an important benefit because young men are often uncomfortable with the expectation that they might articulate their emotional response (McFerran, 2010). In sessions, when a child takes a fast tempo with an instrument, it may mean that the child is excited (Hargreaves & North, 2004). If a child and parent cannot articulate their emotions, allow them to improvise on instruments. The child may play louder than the parent; what the child could be communicating through this musical gesture is a feeling of wanting to be heard (Oldfield et al., 2009) "Music is a familiar and therefore a safe medium to most adolescents" (Keen, 2008, p. 366). When verbal communication fails, use music.

Music Therapy in the Classroom

Music therapy allows students to regard their teacher as a positive adult who in turn builds relationships and other interpersonal skills (Keen, 2008). Students who study music do better on a standardized test and other academic assessments (Hyun & Soo, 2010). Educational-oriented Music Therapy, as discussed earlier, works in schools and focus' on music therapy techniques while fostering education goals (Hyun & Soo, 2010). Music therapy increase "on-task" behavior specifically through background music (Sausser & Waller, 2006). Better behavior among boys has been noted where ongoing background music was applied (Sausser & Waller, 2006). This same use of selected background music also works on school buses. Group cohesion increased on buses where music was playing (Sausser & Waller, 2006). Music therapy is effective in affecting the mood of the listeners. This practice has been converted by entrepreneurs into albums (i.e., music for dining, music for romancing). Functional music is also heard at pep rallies, football games, and in church. These are testaments to the power of music and the effect this has on all of our moods. If this topic is studied further, we could reach a point

in the public-school setting where music therapy strategies are incorporated to the end that all students and staff are experiencing higher levels of enjoyment in the learning-teaching process.

School-based, group interventions show benefit for students in a variety of ways. Students experiencing grief have been documented as having positive experiences with school-based and group interventions (Keen, 2008). Music therapy techniques help to reach the child, facilitate self-expression, project personal thoughts and feelings into a discussion, enhance self-awareness, stimulate verbalization, provide a pleasurable non-threatening environment, relaxation, and help to reduce tension and anxiety (Keen, 2008). Music is ubiquitous, emotional, engaging, distracting, physical, ambiguous, social, communicative, manipulative, and personal (Thompson, 2015). For these reasons, music therapy can help children who have previously been difficult to reach with traditional school-based interventions. Early intervention is better for making a change in behavior in the child (Register & Hilliard, 2008).

The warning signs for emotional, behavioral, and other disorders are seen early on in the child's life. Infants who are temperamental often display behavior problems in preschool (Evans, 2010). Adolescents suffering from one of these disorders may display poor academic performance, aggressiveness or withdrawal, lack of enjoyment towards activities and hobbies, use drugs, have sex, show signs of irritability, excessive rebelliousness at home, insomnia, and other somatic symptoms such as weight loss, headaches, general aches and pains (Keen, 2008). When working with this type of student, it is recommended to avoid a breakdown in the structure of the classroom (Roter, 1981). Students with these disorders crave structure and consistency. When given performance opportunities, students with an EBD can act exactly like regular education students (Roter, 1981). Some music therapist has used impromptu rhythm bands in place of the planned activity when students were showing particularly negative behavior (Roter,

1981). Popular instruments for students were the single-tin bells and the tambourine. Singing popular songs or new songs motivated students as well. Having song leaders, using student names, and having songs with movement in them also encouraged students and worked to achieve one of the primary goals of music therapy, the expulsion of energy (Roter, 1981). Music classroom behavior techniques may include planned ignoring, proximity control, clear, concise directions, structured activities, verbal warnings, redirection, and continual prompts (Sausser & Waller, 2006). Short three to five-minute activities and having transition activates, all help with classroom management for students with an EBD (Sausser & Waller 2006). It is possible to change behavior in students with an EBD in the classroom setting using music or other therapeutic techniques.

Music therapy accommodations in the classroom. Accommodations are used when the teacher believes the student can achieve the same level of participation as his or her peer level classmates but needs additional support (Adamek & Darrow, 2010; Darrow, 2005). These students with an EBD require instructional accommodations to manage their disability (Adamek & Darrow, 2010; Darrow, 2005). Examples of accommodations may include giving clear, uncomplicated direction, use students name, define expectations for classroom behavior, be consistent in administering consequences for misbehavior, make a desirable activity contingent upon a less desirable activity, asking a student to do something is more positive than asking them to not do something, close supervision and monitoring, give multiple opportunities and time for students to respond, administer contingent praise, and reinforce a student who is doing something good as oppose to admonishing one who is doing something bad. Set up occasions where students with an EBD can behave appropriately and feel good about themselves (Darrow, 2005; Hammel & Hourigan, 2011). Adapting the environment, instruction, teacher expectations,

and attitudes can help a student with an EBD achieve (Adamek & Darrow, 2010; Birkenshaw-Fleming, 1988; Darrow, 2005; Hammel & Hourigan, 2011). Students with an EBD behave better when the teacher has close proximity when a model student is sitting with them, and when an activity is engaging and desirable (Adamek & Darrow, 2010; Darrow, 2005). Students with an EBD behave poorly when they are not actively engaged and when the environment prompts their bad behaviors (Darrow, 2005). The easiest music therapy based intervention to implement is the use of selected background music to help modify student behavior.

Suggested music therapy session or in-class activities. Session activities include lyric analysis, song-writing, instrumental improvisation, instrumental ensemble, group singing, group drumming, the movement to music, and musical games. It is recommended to close with a chant of the student's names as they line up (Sausser & Waller, 2006). Session reports state that students with externalized behaviors increased in their level of participation throughout the treatment. Abuse of instruments and overly loud playing decreased as the sessions went on as well (Hyun & Soo, 2010). Session structure may begin with a hello song where the therapist would mention each student by name. CBMT uses the following structure: identification, venting, validation, and problem-solving (Register & Hilliard, 2008). Check-in activities may include students expressing how they feel at that moment. It is important that they become aware of their own and their peer's feelings. The teacher can also assess the class dynamics during this check-in time. All this can be done through the welcome song (Sausser & Waller, 2006).

Other activities include listening to recorded musical compositions to discuss mood and emotions, the composition of stories to background music, and drawing to music. Group singing increases trust and cooperation for all participants (Sausser & Waller, 2006). Spontaneous,

improvised music making was used to achieve non-musical therapeutic objectives nonverbally (Oldfield et al., 2009). Another fantastic activity is to allow one student to conduct without using their hands and, because only facial expressions may be used, students can practice their non-verbal communication. This also gives authority to the conductor positively and appropriately (Oldfield et al., 2009). One interesting activity is to have individuals engage in a kazoo argument. The participants would be sitting back-to-back while others were invited to discuss what the argument had been about (Oldfield et al., 2009). A cello was used during sessions for improvisations because of its rich sounds which are easy to make a pleasant sound on (Oldfield et al., 2009). New instruments, techniques, and games were tried with different degrees of success (Oldfield et al., 2009). It is recommended that 20-25% of songs should contain neutral topics used perhaps at the beginning of the session and perhaps 60-70% of songs should contain happy or optimistic topics (Uguak, 2001). At the end of music, children are emotionally drained but express feelings of warmth, softness, closeness to family, being at peace with themselves and generally a sense of contentment (Keen, 2008).

Music therapy and behavior therapy as operant conditioning, like that modeled after Skinner, is an emerging model (Hargreaves & North, 2004). Empirical evidence suggests that interventions do provide benefits to both parents and children when implemented correctly (Register & Hilliard, 2008). In music therapy, music is used in a way that allows clients to gain insight into their own emotions and is a way that is disarming and new (Thompson, 2015). Music therapy can build self-confidence in depressed clients and expose deeper emotions and offer clients ways to convey their more complex feelings that will lead to lasting healing (Baker et al., 2006; Thompson, 2015). Children with self-blaming cognition need to engage in cognitive reframing exercises to change their thought process (Register & Hilliard, 2008). PTSD in

children can be treated with “I” talk, play, music, story-telling techniques, art, movement, and poetry recitation (Uguak, 2001).

Music therapy is often used with children on the autism spectrum (Thompson, 2015). The Bonny method of guided imagery and music is a process whereby the child can listen and to evoke a dynamic unfolding on inner experiences. Certain music is played in the background as a nature scene, or something similar is displayed visually for the child. Deep breathing and relaxation techniques are used to develop an association with calming music and scenery and that of muscle relaxation and a general sense of peace (Baker et al., 2006). It is a way to capitalize on the mental images created by the client and create calmness in the patient (Thompson, 2015). Guided imagery and music therapy (GIM) involve listening to recorded music as a means of bringing up inner images that can be reflected on (Gold et al., 2004). Music therapy is used to build relationships and can be used as a medium to conduct further counseling techniques (Hargreaves & North, 2004).

Listening. Listening to music helps everyone in the room experience something without disagreement (Roter, 1981). Often in the EBD classroom, students have disagreements about any and everything that occurs. Listening to different types of music that elicit positive behaviors can create a calm environment within an EBD classroom (Adamek & Darrow, 2010). Background music can be used to assist in keeping the noise level down (Ott, 2011). When doing this, the radio or other music playing device, with the volume set slightly above the threshold level, lends a good feeling to a classroom (Roter, 1981). The use of classical music in the background results in reduced instances of aggressive behaviors (Adamek & Darrow, 2010). Music that is unfamiliar culturally to a group may cause issues (Colwell & Webster, 2011). This is not to suggest that classical music is so different culturally that it could not be played for a

class in a western society and cause a problem. These findings suggest that playing western style classical music to calm a class down in a village in Africa may cause issues that are unforeseen due to the cultural differences in the types of music that are consumed in the culture.

In Lucy Green's book, *Music, Informal Learning and the School* (2008), she writes that the students she worked with seemed to deepen as the listening task went on. The longer they listened, the better they got at listening. This is important because most adolescent students do not like classical music. Background music should be mostly instrumental when academic work is being done except Christmas tunes. Studies show that Christmas music is so well known to students that they do not use the part of their brain that may distract them from academic work (Roter, 1981). The arrangements of the instrumental music should be simple, and the tempo should be around 60 to 70 beats per minute (Ott, 2011; Baker et al., 2006). Breaks from music, leading to total silence in midmorning and midafternoon, are also recommended (Roter, 1981). Music immerses one in sound, reducing feelings of aloneness (Roter, 1981).

When students with an EBD listen to music, it may involve the moving of limbs, jumping around, and dancing or singing loudly (Green, 2008). Music can be used for resocialization between any damaged relationships within the classroom. Students with disabilities typically have lower levels of self-esteem and higher levels of stress (Hammel & Hourigan, 2011; Ott, 2011). Music listening is a great way to correct these levels in students with disabilities. Music can elicit tender emotions and make "disturbed students" feel more positive toward their immediate environment (Roter, 1981). Bad music, then, can hurt the therapeutic process. Music poorly performed will not work to be therapeutic (Roter, 1981). Group interventions work to provide structure, positive social interactions, and afford opportunities for expressing emotions,

learning basic educational concepts, reframing thoughts, and changing behaviors. This works well in music therapy group interventions and the EBD classroom (Register & Hilliard, 2008).

Use slow classical music such as Bruch's Violin Concerto No. 1 in G minor, Opus 26 – Adagio during the imagery process for calming background music that will engage the brain during academic work (Keen, 2008). It is important to use the same piece of music when going to their "special personal place" particularly in the imagery process discussed earlier (Keen, 2008). Background music for emotional discussions may include acoustic guitar like that heard in Cavatina by Myers. Children will become tuned-in to the music they hear (Keen, 2008). This is important because many students with disabilities are anxious and tense (Hammel & Hourigan, 2011). Particularly, for students with an EBD, music represents a neutral nonauthoritative force that allows them to relax and participate without fear (Birkenshaw-Fleming, 1988). They will block out other distractions and will be able to focus more clearly. This emphasis on focus is important because many students with disabilities can only focus for about twenty to thirty seconds when listening to recorded music (Birkenshaw-Fleming, 1988).

Listening to music can be an organizing force because it sets up a kind of inner control (Birkenshaw-Fleming, 1988). Music by Mozart, Vivaldi, Scarlatti, and even marches are effective for creating order (Birkenshaw-Fleming, 1988). Recorded music such as *Afternoon of the Faun* by Debussy, *Morning mood* by Grieg, *The Lonely Shephard* by Zamfir, *Symphony Number 5's second movement* by Tchaikovsky, and meditation tapes can all help with relaxation (Birkenshaw-Fleming, 1988). Deep muscle relaxation can be used to help create a special personal place like that experienced in the imagery process (Keen, 2008). Relaxation techniques accompanied by soothing music helps focus your mind on the relaxation. Harp, ocean, and nature sounds are particularly effective in this (Keen, 2008).

Listening to music is the top leisure activity for most adolescents over 16 (Hargreaves & North, 2004). They mostly listen to music in solitude which is characteristic of the age (Hargreaves & North, 2004). Teenagers turn to music more when they are unhappy (Roe, 1987). Authors have argued that rap music can be used as a culturally appropriate therapeutic tool to connect with troubled youth and assist them in engaging in therapy as was discussed in the case study above (Evans, 2010; Roe, 1987). Rap music worked to build a relationship between child and therapist. The child was able to reflect critically on negative behavior and improve his behavior (Evans, 2010). This case study points to research that suggests therapist should choose from all known methods that might meet the patient's needs.

There is an overwhelmingly negative, however popular, opinion on the use of rap music with young people. Many believe that music with violent or suggestive lyrics harm adolescents. Research shows this not to be true, however (Adamek & Darrow, 2010). This research suggests that adolescents do not listen closely to the lyrics and therefore are not affected by the lyrics (Adamek & Darrow, 2010). If rap lyrics are analyzed through a responsible process such as with a therapist or teacher, important life lessons can be learned for the student.

In McFerran's book (2010), she writes about the effects of listening to music on the adolescent brain. Albert Bandura would argue that if a student listens to violent music that they may be more likely to do violence themselves. This is in contrast to what McFerran writes. She states that "adults concerned about the influence of music can result in a lack of acknowledgment of the young person's identity and youth culture in general." She argues that adults should not take a literal reading of rap lyrics, for example. She argues that students do not hear the lyrics in the same way an adult does. She writes that "[adults] do not account for the metaphoric and personal meaning being communicated." McFerran states that "musical preferences offer insight

regarding the internal state of the teenager" and cites Eric Erickson's research into identity formation. Keith Roe (1987) also writes about how adolescents do not listen and then become changed in some way. Roe writes that adolescents listen because they wish to identify with a group or culture. This argument does make sense when compared to the theories of development. Michael Thaut (2008) would also agree with this argument. He would argue that music can express extra-musical ideas and concepts but only through a process of learned association. Adolescents do place a larger importance on peer relationships during this stage.

Reinforcement and Motivation. Music can be used as a motivational tool for students. According to a meta-analysis conducted by Standley & Jones (1996) and cited in the MENC Handbook of Research on Music Learning, music as a reinforcement does work to alter student's behavior and learning. This includes students with disabilities (Hanser, 1999; Colwell & Webster, 2011). Preferred music can be used as, what behaviorists refer to as, a positive reinforcer (Hanser, 1999). This means that a student's preferred music would be played for the student once they have accomplished the goal that was given to them. This is also referred to as a contingent reinforcer (Adamek & Darrow, 2010).

An example of this could be that, after a student finishes their assignment, they will be allowed to listen to their favorite song on their iPod. Music can also be used as a "Negative Reinforcer." This just means that music would be taken away if a student did not accomplish their goal. Music can be used as a reward for completing educational objectives. Students may choose to listen to music as an earned free time activity. This is a common strategy for school use (Adamek & Darrow, 2010; Hargreaves & North, 2004). There are several important considerations when using music as a reinforcement tool.

It is important to be clear when setting up the relationship between the goal or target behavior and the musical reinforcement. Suzanne Hanser (1999) offers five important considerations. If a student does not make the connection, then no advancement in the goal will take place. Secondly, the target behavior or goal must have a high likelihood of occurring. This is important because you want the student to be able to reach the goal easily in this process. This is desired even if the behavior is not acceptable. The teacher would need to use successive approximations of the behavior until the desired outcome was achieved. This process is also referred to as shaping. Another consideration for using music as a reinforcement strategy is to ensure that the reinforcement is administered immediately after the goal is achieved or after the target behavior has occurred. The immediacy of the reinforcement is a critical factor in the success of this process. There should also be a positive and direct relationship between the goal being targeted and the desirability of the musical reward. If the goal is difficult for the child to achieve, then the musical reinforcement should be that much greater and enticing for the student. Lastly, the musical reinforcement should only be available after the goal is accomplished or the target behavior has occurred. The reinforcement should not be available at other times throughout the day. This knowledge would make the reinforcement less desirable for the student because they know that they would be able to have access to the reinforcement if they can wait out the teacher.

It is recommended that teachers shape behavior through successive approximations to the desired behavior. They can accept and reinforce behaviors that come close to the appropriate behavior (Darrow, 2005) and use peers as role models whenever possible. Teachers are also encouraged to work to facilitate conversation to allow students to work through an argument on their own. They can then analyze problem situations as they relate to antecedents and

consequences (Darrow, 2005). If a teacher can determine what caused the problem in the first place, a plan for future interventions can be developed and implemented. It is important to avoid labeling students and reserve teacher emotions by choosing your battles (Darrow, 2005). Often, students with an EBD want to see a reaction from their teacher or any adult. They will "push-buttons" until they see a teacher lose their temper. They may also be agitating adults to gain attention. Many times, students with an EBD crave attention so desperately that they will invite negative attention such as yelling, just to receive any attention from another person. In all cases with students with an EBD, accommodations are necessary for successful work in any capacity.

It is interesting to note that musical behaviors are not compatible with undesirable behaviors (Adamek & Darrow, 2010). A student cannot participate musically and have poor behavior. For example, a student cannot strum a guitar and hit their peer at the same time. A student cannot sing and yell obscenities at the same time. A student cannot be listening to music with the use of headphones and also be engaged in an argument with another student or be distracted by other goings-on within the classroom. Learning a musical instrument requires prerequisite behavior. A student cannot participate fully in learning and exploring music and participate in negative behavior at the same time (Adamek & Darrow, 2010).

Music can be used for other educational purposes. Ice breaking activities at the beginning of the year could include pop music that the child is interested in. The teacher could have pop music playing in the background when talking to child depending on the topic and the mood the teacher wanted to convey (Keen, 2008). This works well because the issues surrounding words and literacy are circumvented with music therapy (Oldfield et al., 2009). Often, music as an auditory cue helps with transitions during a class day (Hanser, 1999). A teacher could use a song to teach letters or multiplication tables. Mnemonics are a classical way

for teachers to teach certain academic ideas (Baker et al., 2006). The lyric analysis could be used to help with reading comprehension, phonics, meaning, interpretation, and correcting grammar (Sausser & Waller, 2006). When listening to music, students will often become lost in the music and begin to hum (Roter, 1981). This kind of humming is ok as long as the child is not distracting others. Another strategy is for each child to have their type of "theme song" that they listen to each session.

An example of this would be Mariah Carey's "The Hero" (Keen, 2008). It is important to use songs that have limited range, use lots of repetition, and to use songs that can be easily memorized where singing is the goal (Sobel, 2008). Music therapy can be used effectively as a group tool to foster interpersonal skills (Hargreaves & North, 2004; Hanser, 1999). This is often referred to as a group contingency.

Other techniques that work well within music therapy can be song discussion, listening, writing lyrics, composing music, and performing music (Keen, 2008). Singing can help improve student behavior and will instill self-confidence, self-expression, and creativity in a child (Uguak, 2001). Rap music that is composed by the child sheds light into their inner emotions while building relationships and self-confidence (Evans, 2010). Adolescents listen to music created by adolescents. Examples of some popular topics of adolescent music include love music and music that addresses rebelliousness against authority (Hargreaves & North, 2004). It can be a good idea for a teacher to ask students to bring music from home to share. When their music is played in the new environment, it helps students feel at home (Keen, 2008). This should always be our goal as teachers of students with an EBD, to make the students feel as though our room is a safe, home-like environment where they can be safe to explore their educational opportunities and their internal emotional state.

Unfortunately, students with a behavior disorder are often seen simply as troubled students vying for attention and not as students with a disability who are deserving of the same educational provisions as students with physical, cognitive, or sensory disabilities (Darrow, 2005).

One limitation for reinforcement is that students risk losing their intrinsic motivation. Reinforcement is a type of extrinsic motivation. When extrinsic motivational strategies are used, particularly for adolescents, students often become reliant of the physical motivating factors (Colwell & Webster, 2011). This may make them less likely to perform for intrinsic reasons. Extrinsic motivation is a way to motivate students who lack intrinsic motivation, however. One could argue that the population of students with an EBD do lack this form of motivation.

Movement. Music and movement are intricately related. Moving to music is fundamental to humans. People spontaneously move to music (Colwell & Webster, 2011). Music and movement are linked in the brain (Colwell & Webster, 2011). The use of musical movement has been shown to relieve stress (Hanser, 1999). There are music education philosophies that are primarily concerned with the movement involved with music. The main musical approach to movement is known as the Dalcroze method (Colwell & Webster, 2011). This approach uses movement and music in a variety of ways. Although the Dalcroze method is primarily known for its use of movement, it also uses other strategies as well. The primary goal of the Dalcroze method is to develop students musically for musical goals. This contrasts with music therapy goals which seek to develop students and client's non-musical goals through the use of music. Dalcroze is one of the three main approaches to primary music education. The other two approaches are the Kodaly Method and the Orff Method. Each of these three methods is aimed at developing musical

goals. One of the best ways to incorporate music as movement is during a listening task (Colwell & Webster, 2011).

Conclusion

Students with an Emotional and Behavior Disorder exhibit unacceptable patterns of behavior. They make everyday things extremely difficult for teachers, peers, and even parents (Darrow, 2005). Conduct disorder students are at risk for peer rejection, parental abuse, and poor school adaptation (Evans, 2010). Poor parenting can be directly related to students with an EBD and conduct disorders. Most teachers have negative feelings about teaching "problem students." Teachers need to if faced with working with this population, talk themselves into a new way of thinking about this population of students (Darrow, 2005). Teachers often have a misguided expectation of students with an EBD. Teachers often expect students with an EBD to suppress their disability (Darrow, 2005). Would they expect the same for a blind or deaf student? Music therapy techniques show a benefit for students with an EBD regarding their behavior and possibly their academics. According to a study based on after-school programs, students receiving direct music therapy sessions showed significant growth regarding their behavior (Hyun & Soo, 2010). Other case studies had documented positive behavior change for students with an EBD when the teacher simply allowed them to listen to music. The EBD class was difficult to manage until teacher played Mozart instrumental classical music (Klein, 1998). Certainly, the intrinsic and extrinsic power of music can be credited for positive physical and behavioral change in many people. Although there are still many unanswered questions, there can be little doubt about the effect of music therapy for the many people that have been afforded the opportunity to be immersed in the awesome power of music.

"In order to have a large number of values in common, all members of the group must have equable opportunity to receive and take from others. There must be a large variety of shared undertakings and experiences. Otherwise, the influences which educate some into masters, educate others into slaves" (Dewey, 1916, Pg. 98).

Chapter III: Methods

Students with an Emotional or Behavioral Disorder (EBD) and severe behavior have been notoriously difficult to work with (Sweigart & Collins, 2017). Collecting certain types of data from these students could be equally as difficult. This population often yields questionable results due to the nature of the student disability. Observation from a familiar person was, therefore, the preferred method of data collection with this population (Cooper, 2017). The most familiar people for these students within the school setting was their teachers. The data for this study were collected using observations of teachers of students with an EBD. The data were collected in real time during the school day and were based on teachers' observations of the student behavior.

It is best to use the least intrusive interventions when working with students with an EBD and severe behavior (Cooper, 2017). This study used interventions that could be used with students in the course of their regular classroom time. Students are often exposed to various types of music while working on assignments during their school day. Students are often rewarded with the use of preferred music during their normal classroom activities as well. Within an EBD classroom, students often dance and move to music in various ways. These interventions are not unique. This research study sought to analyze the differences in behavior before and during music interventions for this population.

Statement of the Problem

Behavior modifications have been needed for students, particularly students with special needs, within the public-school setting (Billingsley & McLeskey, 2004). Behavior modifications are needed to be safe, easily implemented, conscious of cost, and effective across various educational settings. Students who have an emotional or behavioral disorder (EBD) have seen

the greatest need for classroom interventions (Billingsley & McLeskey, 2004). Students with an emotional and behavioral disorder have been seen across all settings in the public-school system (Billingsley & McLeskey, 2004). There has been a need for more effective and proven behavior modifications for the population of students who have an EBD. Many students with an EBD or severe behavior have been served at separate schools (Buchanan et al., 2016). These schools, or programs, have had the benefit of being self-contained. They have had an additional benefit of being well-funded in comparison with school systems (Gupta, 2015). This funding has allowed for extra staff members and intense training for staff members. However, when students with an EBD return to their least restrictive environment (LRE), their behaviors often return at a level that exceeds what the least restrictive environment can handle. These disruptive and often dangerous behaviors have not currently been adequately addressed. Such behaviors have caused the offending student to regress academically. Disruptions have created a classroom environment that has not been conducive for students without an EBD to learn.

Even within the LRE, there have been many levels of possible settings that may serve students with an emotional or behavioral disorder or severe behavior (Buchanan et al., 2016). For example, these students may have been served within a self-contained classroom, a resource classroom, a pull-out classroom, a co-taught classroom, or a general education classroom. Behavior issues often arise when students with an EBD return to their LRE (Buchanan et al., 2016). The goal of these special education programs, who have been serving students with an EBD, has been to serve students within their LRE. Although this has been different for each student and determined by their Individual Education Plan (IEP), there has been increased pressure brought on by various lawsuits and court cases to make sure students have been served in an appropriate environment (Hammel & Hourigan, 2011). New pressures have created a need

for new behavior modifications that can be used with the population of students who have an EBD that can be used easily and effectively across all school settings. The focus of this study was the lack of information related to the effects of music therapy on off-task behaviors, elopement behaviors, verbally aggressive behaviors, and physically aggressive behaviors of the population of students with an EBD or a severe behavior disorder.

Purpose of the Study

The purpose of this study was to explore effects of the music therapy strategy of listening to Baroque style music played for the entire class during academic class time and how it might have affected off-task behavior, elopement behavior, verbal aggression behavior, and physical aggression behavior of students with an EBD or a severe behavior disorder. This study considered the available research and selected one technique which was believed to have had the greatest potential for positive behavior modification for students with an emotional and behavioral disorder within the classroom setting. This research focused on the extent that music therapy affected the overall behavior of students with an EBD or severe behavior disorder. Results of this study revealed recommendations for future research and the overall effectiveness of the music therapy technique of listening for the population of students who have an emotional or behavioral disorder or severe behavior.

Research Question

The following research question guided this study: To what extent does the music therapy strategy of listening affect off-task behavior, elopement behavior, verbally aggressive behavior, and physically aggressive behavior of students with an emotional or behavioral disorder or severe behavior disorder?

The following null hypothesis was tested at the .05 level.

- H_0 1: There is no statistically significant difference in the a. frequency, b. intensity, and c. duration for off-task behavior of students with an emotional or behavioral disorder or a severe behavior disorder before and during the music therapy strategy of listening.
- H_0 2: There is no statistically significant difference in the a. frequency, b. intensity, and c. duration for elopement behavior of students with an emotional or behavioral disorder or a severe behavior disorder before and during the music therapy strategy of listening.
- H_0 3: There is no statistically significant difference in the a. frequency, b. intensity, and c. duration for the verbally aggressive behavior of students with an emotional or behavioral disorder or a severe behavior disorder before and during the music therapy strategy of listening.
- H_0 4: There is no statistically significant difference in the a. frequency, b. intensity, and c. duration for the physically aggressive behavior of students with an emotional or behavioral disorder or a severe behavior disorder before and during the music therapy strategy of listening.

Design

This was a pretest/posttest experimental research design using an intervening measure. During the pre-test phase of the experiment, students were exposed to no additional musical stimulation for five, thirty-minute periods for one period per day. The following five days, students were exposed to the musical therapy strategy of listening to Baroque style music played just above the hearing threshold. For both the pretest and posttest periods, staff collected

behavior data using a rubric on the following dependent variables: off-task behavior, elopement behavior, verbally aggressive behavior, and physically aggressive behavior.

Although not all of the students may have been identified with all of these behaviors, it was important to track all of these behaviors for all students to determine an overall effect of the treatment. The statistical analysis investigated the change in behavior from baseline data and data collected during the listening phase.

Instrumentation. Data were recorded with the use of a behavioral rubric filled out by staff throughout the data collection period. Staff was provided tablets in which to collect data through the Qualtrics software platform. A five-day baseline data collection period occurred before the music phase began. This allowed a comparison between the student's usual level of behavior and the level of behavior experienced during the intervention phase. Staff was asked to complete a behavior rubric on each student they had during the allotted time once a day for each day of the experiment.

Rubrics instructed staff to collect frequency, intensity, and duration data on the individual student's behaviors of off-task behavior, elopement behavior, verbally aggressive behavior, and physically aggressive behavior, for each day of data collection. The ratings for frequency were assessed using a six-point Likert-type scale with a minimum of zero and a maximum number is five or more occurrences. Intensity rating was collected on a five-point Likert-Type scale where one was the least intense and five was the most intense. Duration data were collected using a slider bar where zero seconds was the minimum and 120 seconds was the longest possible duration that behavior might occur.

To ensure the reliability of the survey, questions were constructed using the simplest terms. Teachers were asked to rate each student's behavior within the following four categories:

off-task behavior, elopement behavior, verbally aggressive behavior, and physically aggressive behavior. These behaviors were defined as follows:

- Off-Task Behavior – Any refusal to begin or complete a task as directed by the teacher. This may include task avoidance by deflection, distraction, silence, or sleeping.
- Elopement Behavior – Any movement that takes place outside a defined parameter by the teacher. Leaving his or her desk, assigned area, classroom, or school grounds without the expressed consent of the teacher.
- Verbally Aggressive Behavior – Any directed profanity, yelling, screaming, teasing, threats to harm others or threats to harm self.
- Physically Aggressive Behavior – Any act where a student harms or attempts to harm themselves or others. This may include throwing objects, flipping desks, punching, kicking, spitting, grabbing, or biting.

These ratings took into account the three defining characteristics of describing behavior: frequency, duration, and intensity. Rubric responses were intended to report the teacher's direct observation of every instance of student behavior. This was done to ensure ease of use as well as to ensure the data were a representative view for the entire period.

Population. The population under investigation were students enrolled in a public school who had been diagnosed with an EBD or who have a record of a severe behavior disorder. The students in this study were also diagnosed with a psychological disorder and were served within a self-contained classroom setting. This study investigated students enrolled in a program for students with an EBD and severe behavior disorder. Due to the small population of students with an EBD, a specialized center was used to ensure an appropriate number of students could

participate in the study. The setting for the study took place in a program for students with an emotional or behavioral disorder or severe behavior disorder. All students enrolled in the program from ages five to eighteen were invited to participate in this study.

The students in the study were de-identified. Student names were coded. The codes were kept on a paper legend that was locked within a safe within the researchers locked office.

No student information was used. Student records were not accessed, and student personal information was not gathered or referenced in any way — this study adhered to all federal, state, and local laws, as well as all school district policies and procedures.

The interventions were not different than what the students were ordinarily exposed to throughout the normal course of their day. Students were not exposed to any dangerous or risky interventions or procedures. Students might have benefited from the use of calming music. These interventions were not punitive, only positive for students. These same interventions have been used throughout the education field by teachers all over the world (Cooper, 2017).

Procedures. Professional staff participating in the study completed a four-hour training session with the researcher to ensure that the staff understood the behavior rubric, how to access the rubric, how to measure the items, how to record their responses, and how to complete and submit completed rubrics. This training session helped to ensure inter-rater reliability. Staff members were given the procedures of the study and how it should be administered. Staff also received a musical mp3 file to play the music during the music session. Students were aware of the research being conducted. Staff read a prepared statement to the students in order to let them know about the study and why they will hear the music. Some students might have been being bothered by the music and might have acted out because the music was taking place. The music was Baroque style music played slightly above the hearing threshold. The music therapy was

designed in such a way as to elicit usual classroom activities that students may otherwise be exposed to. The experiment occurred over ten days. Each data collection period lasted for thirty minutes. Baseline behavior data were collected for the first five days before the intervention began and was collected through teacher completed behavior rubrics. The baseline data was collected using the same questions as the music intervention phase. However, no music therapy occurred during the baseline period.

Data Analysis

Statistical procedures were conducted to review the differences in behaviors of participants from one condition (no music therapy) to the second condition (music therapy) where participants acted as their control group. Attention was paid to the mean values of all cases for the pre-intervention and the mean values for all cases for the post-intervention. An alpha level less than .05 was used to identify values that are statistically significant. This statistical test was conducted for each of the following behaviors: off-task behavior, elopement behavior, verbally aggressive behavior, and physically aggressive behavior. A dependent samples *t*-test was conducted on summarized scores for the pretest and posttest scores. The summarized scores for pre-music therapy and the summarized scores for post music therapy was compared for each of the behaviors in order to determine which behaviors were affected or which behaviors showed a statistically significant difference between the two sets of scores.

The data were analyzed using a Qualtrics and IBM - SPSS version 25 software. A dependent samples *t*-test procedure was conducted to track the change over time among the sample population where the music therapy intervention was the categorical variable, and the teacher survey of student behavior was the dependent variable. This statistical test was conducted for all cases combined. The dependent samples *t*-test helped to determine if any

significant difference occurred and, if so, which behavior yielded the greatest difference in rating scores on the behavior rubric.

A Pearson Product Moment Correlation procedure was used to determine the relationship among behavior rating scores for the four different behaviors. The Pearson Product Moment Correlation Coefficient assessed the degree that quantitative variables were linearly related. This allowed the researcher to assess the extent that the pre and post behavior ratings were related. The musical intervention may have created a linearly related change in behavior rating scale scores across all individual cases.

Limitations

There were several limiting factors within this study. The first being the small population size. The population of students who have been diagnosed with an emotional or a behavioral disorder was quite low. According to the National Center for Educational Statistics (2018), about five percent of students identified within special education have an emotional or behavioral disorder. Only seven tenths of one percent of the entire population of school-age children have had an EBD. A second limitation for this study was the condensed duration. This study was conducted for ten days. Of that time, students were exposed to the music intervention for five of those days. The literature suggested a longitudinal study was needed to determine the long-term effects of music therapy techniques and this study did not address this particular need (Gold et al., 2004).

Another limitation is the use of teachers as data recorders. Teachers are often overworked, and this study asked them to collect further data on student behavior which might have resulted in unreliable results (Rosenberg et al., 2007). However, preferred or recognized

staff was better than having someone who was unfamiliar to the student enter the room to collect data when working with the population of students with an EBD (Sausser & Waller, 2006).

A final limitation is the lack of inter-rater reliability tests. Teachers served as the primary data collectors for this study. There was not an appropriate time for teachers to observe the same participants, so scores could be compared using standard inter-rater reliability tests. This could be a limitation because the behavior measurement tool was created for use in this study only and was not tested for reliability.

Assumptions

The theoretical assumptions of this study were rooted in the type of pragmatism advocated by John Dewey. Pragmatism has had a focus on the problem being considered and has explored possible solutions for these problems. This study sought to uncover strategies rooted in the music therapy profession. The goal of this study was to explore one of these strategies which the literature suggested may be the easiest to implement within a classroom setting and the strategy which yields the greatest benefit for positive behavior change in students with mental health disorders.

A second theoretical assumption of the study was found in the psychological domain of behaviorism. Behaviorism was explored through the work of psychologists such as B.F. Skinner, Ivan Pavlov, and John Watson. Their work has developed into the evidence-based practice used by behavior analysts know as Applied Behavior Analysis. This science has also been used within the music therapy profession and has been referred to as Behavioral Music Therapy.

Another assumption was that teachers used the data collection instrument correctly and accurately. Data output assumed that teachers recorded data with fidelity throughout this study

and that all ethical procedures and training was followed. There was an assumption that the behavior measurement instrument was valid and reliable. The time limitation for this study required that testing the instrument be forgone. Also, using an experimental group was not realized due to the small number of participants. A final assumption was that teachers knew how to recognize and identify student behavior accurately. The researcher conducted a training session for all staff to address this assumption.

Need for the Study

The subject of this study has not been fully explored. Music therapy for youth suffering from mental health disorders, particularly, behavioral disorders has not yet been explored (Gold et al., 2008). There are still many unknown effects and benefits from the field of music therapy. The potential benefits from the exploration of this study are still unknown. Researchers have needed to explore the effects of music therapy interventions with this target population.

The population of students with an EBD is largely underserved (Buchanan et al., 2016). This population has been seen, even in the special education profession, as an undesired and even undeserving population of students (Buchanan et al., 2016). The nature of their disability has been such that they have been unappreciative of teacher's efforts, even to the point of violence (Billingsley & McLeskey, 2004). The behaviors that these students demonstrate has made it difficult for adults to want to work with them and certainly to help them (Billingsley & McLeskey, 2004). Their behaviors often lead to rejection and often, abandonment by their parents (Billingsley & McLeskey, 2004).

The students being targeted in this study have been in the greatest need for positive interventions. The teachers who work with this population have been in the greatest need for strategies and practical, easy-to-use, interventions that may help alleviate the day-to-day turmoil

of the EBD classroom. Further research is needed to find ways to curb the negative behavior exhibited by these students with an EBD and severe behavior disorders. Music therapy may be one option.

Significance of the Study

This study explored important areas relating to students, parents, teachers, administrators, the field of special education, music therapists, counselors, and in particular, those working with at-risk youth. This study added to the growing body of work within music therapy for students with behavior disorders. This study discussed potential, practical behavioral solutions that sought to meet the holistic needs of the target student population as well as the professional staff who work with them. Results of this research could lead to further research in the field of special education as well as music therapy.

Summary

This study took place within a day treatment center for students with behavioral and emotional disorders. The population included students with an emotional or behavioral disorder, as well as students who display other severe behavior disorders. The music therapy strategy of listening was administered by certified teachers within the classrooms. Data were recorded by teachers for student behavior five days before the music intervention and five days during each of the music intervention sessions. The teacher generated data were analyzed using the Person Product Correlations procedure and a dependent samples *t*-test to ascertain association and statistical differences in the two sets of mean scores.

Chapter IV: Results

The purpose of this study was to investigate the extent that the music therapy technique of listening would affect the behavior of students with severe behaviors. A review of the relevant literature revealed that there was a lack of information pertaining to music therapy with students with severe behaviors. The literature suggested that the musical style of the Baroque period would be the most beneficial for the young brain. This style was suggested because it has been shown to have the greatest effect for focusing the brain during academic tasks. The Baroque style has a predictable musical structure which is easy for the listener to predict the melodic and harmonic changes. The Baroque style of music has a relatively simple chord structure which focuses around chords which are generally harmonious rather than dissonant. This lack of dissonance is easier for the lay listener to enjoy and relate to the music. Later periods of music typically use more dissonant chords which can confuse the natural order of the musical progression. The tempo suggested by the literature was around 50 to 55 beats per minute, or a Largo tempo. The volume suggested for the music was just at the threshold of hearing. This volume was preferred because it does not distract from the learning task, but the music was still able to be heard and can therefore affect the brain.

The data for this study were analyzed using a pre-test and posttest procedure. Data were collected using a behavior rubric that teachers were trained to complete while observing the participants. The behavior data rubric instructed teachers to rate students on four behaviors: off-task behavior, elopement behavior, verbally aggressive behavior, and physically aggressive behavior. These four behaviors were rated using a Likert-type scale. Each behavior was assessed using the frequency of the behavior, duration of the behavior, and the intensity of the behavior. Data were recorded over a two-minute period for each student.

A frequency count was taken from zero occurrences to five or more occurrences during each two-minute observation period. The frequency question and response categories from the behavior rubric were as follows: How many times did the student engage in off-task behavior? (0, 1, 2, 3, 4, or 5 or more). The same frequency question was presented for each of the four behaviors: off-task behavior, elopement behavior, verbally aggressive behavior, and physically aggressive behavior.

Duration data were taken from zero seconds to 120 seconds using a slider bar feature. The duration question and possible responses from the behavior rubric were as follows: How long did the off-task behavior occur? (0 to 120 seconds). The responses could be selected to represent any second from 0 to 120 with the use of a slider bar. The options were broken up with the following labels to help guide the data collector in finding the appropriate response: 0, 15, 30, 45, 60, 75, 90, 105, 120. Again, any number could have been selected using the slider bar feature. The labels simply made it easier for data collectors to find their exact response. The same duration question was presented for each of the four behaviors: off-task behavior, elopement behavior, verbally aggressive behavior, and physically aggressive behavior.

Intensity data were recorded using a five-point Likert-type scale. The ratings were recorded using the following terms: Not Intense at all, Somewhat Intense, Moderately Intense, Very Intense, or Extremely Intense. The same intensity question was presented for each of the four behaviors: off-task behavior, elopement behavior, verbally aggressive behavior, and physically aggressive behavior.

There were several statistically significant results which were generated from dependent samples *t* - tests. The *t* - test was used to compare the differences in the means of participants' scores before and during the music intervention.

Results

The results of this study indicated that there was a statistically significant difference in several of the behaviors rated by teachers from the pretest phase to the posttest phase. The alpha level was set at .05. The mean score for the level of intensity on the posttest scores for all behaviors was lower during the intervention phase.

Frequency of behavior. The results of this study indicated a statistically significant difference in the frequency of elopement behavior. The elopement behavior was decreased during the intervention phase. This difference was statistically significant at the .029 alpha level. Elopement was the only behavior which showed a decrease in frequency during this study.

Intensity of behavior. The level of intensity was lower during the intervention phase for elopement behavior at the .017 alpha level and verbal aggression was lower during the intervention phase at the .028 alpha level. The intensity of the physical aggression was not found to be statistically significant; however, it is important to note that there was a .08 alpha level of significance and the mean scores were lower during the intervention phase. The lack of statistical significance for physical aggression may be due in part to the lack of data for this behavior; the pretest mean was 1.14 and the posttest mean was 1.01. Off-task intensity showed a lower mean value during the intervention phase where the mean score was 1.75 when compared to the baseline phase where the mean score was 1.56. The difference in mean scores was not statistically significant.

Duration of behavior. The results of this study indicated a statistically significant difference related to the duration for behaviors rated before and during the intervention. The duration of off-task behavior was decreased during the intervention phase. This decrease in off-

task behavior was statistically significant at the .012 alpha level. This was the only behavior that showed a decrease in duration for this study.

Dependent samples *t* – test. A dependent samples *t*- test was conducted for pre and posttest mean scores on each of the measures (frequency, intensity, and duration) for each behavior (off-task behavior, elopement behavior, verbally aggressive behavior, and physically aggressive behavior). Results of the *t* – tests showed a statistically significant difference between pre and post test scores for the duration of off-task behavior ($p = .012$), the frequency of elopement behaviors ($p = .029$), the intensity of elopement behavior ($p = .017$), and intensity of verbally aggressive behavior ($p = .028$).

See table 5 through table 8 for results of the dependent samples *t* – tests.

Bivariant Correlations. Pearson product moment correlations were compared for the frequency, intensity, and duration of each of the behaviors: off task behavior, elopement behavior, verbally aggressive behavior, and physically aggressive behavior. Results of the correlations showed a statistically significant correlation between the pre and posttest scores for only the intensity of the off-task behaviors ($r = .248$, $p = .037$). As the intensity of off-task behaviors increased in the pretest phase, it also increased in the posttest phase. No correlations were statistically significant for any of the measures of the remaining behaviors (elopement behavior, verbally aggressive behavior, and physically aggressive behavior).

See table 1 through table 4 for the correlations of pre and posttest scores and the alpha levels for all behaviors.

Table 1

Correlations of pretest and posttest scores and alpha level for Off-Task Behavior

Occurrence of Behavior	N	correlation	Sig.
Frequency	72	.165	.165
Intensity	71	.248	.037
Duration	30	-.330	.075

Note:

Table 2

Correlations of pretest and posttest scores and alpha level for Elopement Behavior

Occurrence of Behavior	N	correlation	Sig.
Frequency	71	.084	.488
Intensity	70	-.059	.628
Duration	4	.070	.930

Note:

Table 3

Correlations of pretest and posttest scores and alpha level for Verbally Aggressive Behavior

Occurrence of Behavior	N	correlation	Sig.
Frequency	71	.084	.485
Intensity	70	.151	.214
Duration	8	-.288	.489

Note:

Table 4

Correlations of pretest and posttest scores and alpha level for Physically Aggressive Behavior

Occurrence of Behavior	N	correlation	Sig.
Frequency	71	-.028	.820
Intensity	70	-.029	.811
Duration [a]			

Note: [a] No valid pairs

Table 5

Dependent samples t - test of pretest and posttest scores for off-task behavior

Occurrence of Behavior	Mean	t	df	Sig. (2-tailed)
Frequency	.278	1.389	71	.169
Intensity	.183	1.438	70	.155
Duration	35.53333	2.678	29	.012*

Note: * notes statistical significance

Table 6

Dependent samples t -test of pretest and posttest scores for elopement behavior

Occurrence of Behavior	Mean	t	df	Sig. (2-tailed)
Frequency	.338	2.233	70	.029*
Intensity	.329	2.442	69	.017*
Duration	-17.25000	-.571	3	.608

Note: * notes statistical significance

Table 7

Dependent samples t -test of pretest and posttest scores for verbally aggressive behavior

Occurrence of Behavior	Mean	t	df	Sig. (2-tailed)
Frequency	.563	1.736	70	.87
Intensity	.314	2.240	69	.028*
Duration	42.25000	1.799	7	.115

Note: *notes statistical significance

Table 8

Dependent samples t - test of pretest and posttest scores for physically aggressive behavior

Occurrence of Behavior	Mean	t	df	Sig. (2-tailed)
Frequency	.056	1.424	70	.159
Intensity	.129	1.758	69	.083
Duration [a]				

Note: [a] notes not enough cases

Summary

This study took place in one GNETS program. The program was housed at two separate sites. One site was housed the K-8th grade students. The second site was housed within a regular education high school; however, the program had a self-contained classroom. Some of the students also participated with their non-disabled peers for some classes throughout the day. The target population were students who had a diagnosed emotional or behavioral disorder. All students ranged in age from 4 to 21 years. All students were residents of Georgia and were enrolled in the public education system. The data were collected using teacher observations that were recorded using a behavior rubric developed by the researcher. These observations were analyzed for a change from the baseline data period to the intervention period. Results indicated several statistically significant differences in frequency, intensity, and duration of particular behaviors.

There was a statistically significant difference in the pretest and posttest mean scores for the overall frequency of elopement behavior (alpha .29) when comparing the baseline phase and the intervention phase. This was the only behavior which a lower frequency of occurrences from the baseline phase to the intervention phase.

There was a statistically significant difference in the pretest and posttest mean scores for the overall intensity of elopement behavior (alpha .017) and the intensity of verbally aggressive behavior (alpha .028) when comparing the baseline phase and the intervention phase. Physically aggressive behavior also showed a lower mean score for intensity from the baseline phase than for the intervention phase, but the significance level was revealed at the .08 alpha level. All four behaviors (off-task behavior, elopement behavior, verbally aggressive behavior, and physically aggressive behavior) showed a lower mean score for intensity from the baseline phase to the intervention phase.

There was a statistically significant difference in the pretest and posttest mean scores for the overall duration of off-task behavior (alpha .012) when comparing the baseline phase and the intervention phase. This was the only behavior which showed a lower duration of time from the baseline phase to the intervention phase. This finding confirmed findings from other studies (Adamek & Darrow, 2010; Armstrong & Ricard, 2016; Birkenshaw-Fleming, 1993; Cassity & Cassity, 2006; Gold et al., 2004; Hanson-Abromeit & Colwell, 2008; Hanser, 1999; Keen, 2008; Kim & Stegemann, 2016; Klein,1998; Ping-Tao et al., 2016; Roe, 1987; Sausser & Waller, 2006; Schiltz, 2014; Shuman et al., 2016).

The following research question guided this study: To what extent does the music therapy strategy of listening affect the frequency, intensity, and duration of off-task behavior, elopement behavior, verbally aggressive behavior, and physically aggressive behavior for students with an emotional or behavioral disorder or a severe behavior disorder?

The following null hypotheses were tested at the .05 level.

> H_0 1: There is no statistically significant difference in the (a) frequency, (b) intensity, or (c) duration for off-task behavior for students with an emotional or behavioral disorder or a severe behavior disorder before and during the music therapy strategy of listening.

There was a statistically significant difference in the pretest and posttest mean scores for the duration of off-task behavior for participants of this study. There was a statistically significant difference in off-task behavior for the duration, therefore, H_0 1: c. was rejected.

> H_0 2: There is no statistically significant difference in the (a) frequency, (b) intensity, or (c) duration for elopement behavior for students with an emotional or

behavioral disorder or a severe behavior disorder before and during the music therapy strategy of listening.

There was a statistically significant difference in the frequency of elopement, therefore, H_0 2: a. was rejected. There was a statistically significant difference in the intensity of elopement, therefore, H_0 2: b. was rejected.

H_0 3: There is no statistically significant difference in the (a) frequency, (b) intensity, or (c) duration for verbally aggressive behavior for students with an emotional or behavioral disorder or a severe behavior disorder before and during the music therapy strategy of listening.

There was a statistically significant difference in the intensity of verbally aggressive behavior, therefore, H_0 3: b. was rejected.

H_0 4: There is no statistically significant difference in the (a) frequency, (b) intensity, or (c) duration for physically aggressive behavior for students with an emotional or behavioral disorder or a severe behavior disorder before and during the music therapy strategy of listening.

Chapter V: Conclusion

This study investigated to what extent the music therapy technique of listening to music in the Baroque style had on the behaviors of off-task behavior, elopement behavior, verbally aggressive behavior, and physically aggressive behavior. The behaviors were rated by the regular teaching staff at the center for students with behavior disorders. The teachers observed the students for one thirty-minute segment of time for each day. The first five days served as baseline data with no music. During the following five days, students were exposed to music during the same thirty-minute segment of time. The teachers observed each student during the music therapy treatment for approximately two minutes. During the two-minute observation, the teacher recorded the exact occurrences of each behavior. The behavior rubric rated each of the four behaviors for the frequency of the behavior, the intensity of the behavior, and the duration of the behavior. Data were generated in the Qualtrics system online. The behavior rubric was constructed by the researcher and can be viewed in its entirety in Appendix 5.

The participants were students enrolled in the public-school system and served at a day treatment program for students with severe behavior. The program was a part of the GNETS program within the state of Georgia. The program where this study was conducted was housed within two sites. One site housed all students grade K-8th grade. The second site was housed within a regular education high school. The program consisted of one high school self-contained classroom. Each student had a psychological disorder and was served through the school system under the disability categories of EBD, other health impairment (OHI), Autism (AU), and some also received speech services and occupational therapy. All students at the treatment center were served by a board-certified behavior analyst (BCBA), licensed clinical social workers (LCSW), councilors, as well as school psychologists for cognitive testing purposes. Each student was

under the care of a psychiatrist outside the school system. The psychiatrist prescribes medicine and makes official diagnoses from a medical standpoint.

Participants had various diagnoses. These diagnoses included bipolar disorder, oppositional defiant disorder, mood disorder, intermittent explosive disorder, autism spectrum disorder, post-traumatic stress disorder, depression, anxiety, and attention deficit disorder. Many of these disorders were served through the public-school system through the area of EBD. If the student was only diagnosed with ADHD, the school might have categorized them as having an OHI. If the student primarily had Autism as a diagnosis, the school may have categorized them as AU. No matter the diagnosis, each student at the program where the investigation took place displayed intense behavior to the point where they were no longer able to participate in a regular school environment. This was sometimes due in part to physical aggression toward staff or peers. This may have also been in part because their verbal aggression was so intense that they were unable to learn or that their general education peers were unable to learn. Another reason for a student to be assigned to a GNETS program would be for extreme elopement where they were placing themselves in danger by running into traffic or running away for long periods.

The results of this study were combined and run through statistical dependent samples *t*-tests. Correlations were also reported to determine the strength and robustness of the data results. The dependent samples *t*-test was conducted to review the differences of participants from one condition (no music therapy) to the second condition (music therapy) where participants acted as their control group. These statistical tests were conducted for each of the following behaviors: off-task behavior, elopement behavior, verbally aggressive behavior, and physically aggressive behavior. A dependent samples *t*-test was conducted on the summarized pretest and posttest scores. The results from the dependent samples *t*-test helped to determine

whether significant differences occurred. The summarized scores for pre-music therapy and the summarized scores for post music therapy were compared for each of the four behaviors.

Research Question. The following research question guided this study: To what extent does the music therapy strategy of listening affect off-task behavior, elopement behavior, verbally aggressive behavior, and physically aggressive behavior for students with an EBD or severe behavior?

This research question guided this study in a way which was different from many other studies of this kind (Gold et al., 2004). Much of the research presented in Christian Gold's meta-analysis consisted of music therapy treatments that took place in a clinical setting as opposed to a school setting such as this study did. This is an important difference between this study and other foundational research that has been conducted with students with disabilities. Another key difference between this study and previous research with this population is that this study focused on an ABA style of data collection (Cooper, 2017). Some of the studies included in the Gold meta-analysis (2004), did use Behavioral Music Therapy which did use foundational ABA procedures and philosophies (Wheeler, 2015). This study was different from any other in that various levels of behavior were measured. This study investigated the frequency, intensity, and duration of off-task behavior, elopement behavior, verbally aggressive behavior, and physically aggressive behavior. This more specific focus for each type of behavior was important because it revealed why some of the research showed inconsistent results regarding the level of effectiveness which was outlined in the Gold et al. meta-analysis (2004).

According to the Gold et al. meta-analysis (2004), results of the effectiveness of music therapy for students with behavioral difficulties were mixed, and Gold himself referred to music therapy as having a placebo effect. These inconsistent results may be due in part to how the

behavior was rated and tracked. This study revealed a statistical significance for only certain behaviors. Also, these statistical significances were only revealed for certain categories of behavior measurement. For example, because this study investigated separate areas of measurement, to include frequency, intensity, and duration, behavior results were able to parcel out significance levels for each area. This parceling out of each area of behavior was able to show an overall change in the intensity of all behaviors rated. None of the research which was cited for this dissertation used this same method of data collection — none of the research which was cited for this dissertation collected data on the intensity of the behavior. This study shows a change in the off-task behavior, elopement behavior, verbally aggressive behavior, and physically aggressive behavior from the baseline means to the intervention means. Not all of the four behaviors showed a statistical significance. However, all behaviors did show an improved level of intensity for each behavior. If researchers use a broad tool for assessing behavior, results may not show a level of statistical significance.

Research question

The following research question guided this study: To what extent does the music therapy strategy of listening affect off-task behavior, elopement behavior, verbally aggressive behavior, and physically aggressive behavior for students with an emotional or behavioral disorder or a severe behavior disorder?

This research question was answered in the course of this study. There was a statistically significant difference in pre, and posttest mean scores for the overall intensity of elopement and verbally aggressive behavior for the participants of this study. Also, there was also a statistically significant difference in the pre and posttest mean scores for the frequency of elopement of the

participants of this study. There was also a statistically significant difference in the pre and posttest mean scores for the duration of off-task behavior for participants of this study.

The following null hypothesis was tested at the .05 level.

- H_0 1: There is no statistically significant difference in the a. frequency, b. intensity, and c. duration for off-task behavior of students with an emotional or behavioral disorder or a severe behavior disorder before and during the music therapy strategy of listening.
- H_0 2: There is no statistically significant difference in the a. frequency, b. intensity, and c. duration for elopement behavior of students with an emotional or behavioral disorder or a severe behavior disorder before and during the music therapy strategy of listening.
- H_0 3: There is no statistically significant difference in the a. frequency, b. intensity, and c. duration for the verbally aggressive behavior of students with an emotional or behavioral disorder or a severe behavior disorder before and during the music therapy strategy of listening.
- H_0 4: There is no statistically significant difference in the a. frequency, b. intensity, and c. duration for the physically aggressive behavior of students with an emotional or behavioral disorder or a severe behavior disorder before and during the music therapy strategy of listening.

Limitations

There were several limiting factors within this study. The first being the small population size. The population of students who have been diagnosed with an emotional or a behavioral disorder was quite low. According to the National Center for Educational Statistics (2018),

about five percent of students identified within special education have an emotional or behavioral disorder. Only seven tenths of one percent of the entire population of school-age children have had an EBD. A second limitation for this study was the condensed duration. This study was conducted for ten days. Of that time, students were exposed to the music intervention for five of those days. The literature suggested a longitudinal study was needed to determine the long-term effects of music therapy techniques and this study did not address this particular need (Gold et al., 2004).

Another limitation is the use of teachers as data recorders. Teachers are often overworked, and this study asked them to collect further data on student behavior which might have resulted in unreliable results (Rosenberg et al., 2007). However, preferred or recognized staff was better than having someone who was unfamiliar to the student enter the room to collect data when working with the population of students with an EBD (Sausser & Waller, 2006).

A final limitation is the lack of inter-rater reliability tests (Kraska, 2014). Teachers served as the primary data collectors for this study. There was not an appropriate time for teachers to observe the same participants, so scores could be compared using standard inter-rater reliability tests. This could be a limitation because the behavior measurement tool was created for use in this study only and was not tested for reliability.

Findings

The research findings indicate that the music therapy strategy of listening to Baroque style music in a classroom setting does have a statistically significant difference for the intensity of elopement and verbally aggressive behaviors as well as the frequency of elopement behaviors and the duration of off-task behaviors for students with an EBD and severe behaviors. Additional findings indicate that all behavior scores lowered during the intervention phase for

the intensity. This signifies a dramatic effect of music listening on all types of behavioral intensity. These findings support much of the music therapy literature (Gold et al., 2004). Discoveries in the area of behavior associated with intensity were also added to the literature with results of this study. This study found that students with extreme or severe behavior were affected by the music, however, the music may also effect the behavior of students who do not have a history of extreme behavior as well.

Implications

The implications of this research are varied. Teachers of students with an EBD may use Baroque style music in order to modify the behaviors of their students in a positive way. If teachers wanted to use this intervention with their class, it would be free and easy to use in any situation.

Teachers could use this intervention if they wanted to see less elopement of their students around or outside of their room. The findings suggest that listening to Baroque style music at the threshold of hearing helps students elope less frequently. The findings also suggest that the intensity of the elopement is less as well. For example, a student who was leaving the classroom and running away from campus may only walk around the room if the music is playing. A student who jumps out of windows may only walk out of the door if the music is playing. These behaviors may be less frequent and less intense during the time music is playing in the room.

Teachers could also use the intervention of music listening if they wanted to see an increase in on-task behavior from their students during academic work periods. This finding from the study corroborates with previous studies in the area of music listening (Adamek & Darrow, 2010; Armstrong & Ricard, 2016; Birkenshaw-Fleming, 1993; Cassity & Cassity, 2006; Gold et al., 2004; Hanson-Abromeit & Colwell, 2008; Hanser, 1999; Keen, 2008; Kim &

Stegemann, 2016; Klein,1998; Ping-Tao et al., 2016; Roe, 1987; Sausser & Waller, 2006; Schiltz, 2014; Shuman et al., 2016). Many studies have investigated the effects of music on child learning and development (Adamek & Darrow, 2010; Cassity & Cassity, 2006; Crowe & Colwell, 2007; Gold et al., 2004; Hanser, 1999; Hargreaves & North, 2004; McFerran, 2010; Porter et al., 2011; Shuman, Kennedy, DeWitt, Edelblute, & Wamboldt, 2016; Thaut, 2008; Thaut & Hömberg, 2016; Thompson, 2015; Wheeler 2015). There have been some variations in the results of some studies; however, this may be accounted for with the results of this study. Perhaps the research that was found to be inconclusive found that the frequency of off-task behavior did not change significantly. Although this was found to be true in this study as well, it does not mean that no change in off-task behavior occurred. This study was able to parcel out the three types of behavior measurement areas, frequency, duration, and intensity. Some studies may have misunderstood the lack of significant gains in frequency as a lack of effect of the music therapy. What may be happening for students is that they can remain on task for longer periods or that they can be off-task for shorter periods during music listening.

The Gold meta-analysis (2004) indicated that the best way for music therapists to effect change in the behavior of students was to use a wide variety of music therapy interventions. This was supposed to change in the moment of a music therapy session based on the feedback the music therapists were receiving from his or her patient. The conclusion of this seminal work was that music therapy techniques can only be administered by a licensed music therapist and that it must take place in a clinical setting where any and potentially all methods and techniques available to music therapists can be implemented with an individual. This study suggests that teachers with no music aptitude may be able to implement one basic intervention with some positive behavioral effects for students with behavioral disorders.

Teachers could use this intervention if they wanted to decrease the levels of intensity of their student's elopement and verbally aggressive behaviors. Verbal aggression can be one of the most challenging behaviors for a teacher to deal with. This study found that verbal aggression did not decrease in frequency or duration. However, some of the most meaningful improvements come from the level of intensity. If the intensity decreases, a lot of the problems associated with verbal aggression may also decrease. For example, if a student uses verbal aggression to threaten peers and staff, they may change and use verbal aggression to simply complain about the academic task they were given. It is difficult to curse someone out when Bach is playing in the background.

This music therapy intervention did have statistically significant effects for students with an EBD throughout this two-week study. It is important to note that research has been divided and somewhat inconclusive regarding the effectiveness of using music listening in modifying the behavior of students of any disability (Gold et al., 2004). In the course of this study, not all students showed an increase in all behaviors observed. The results discussed only apply to overall differences in student behavior.

It is also important to note that not all areas were determined to be statistically significant. Frequency reduction for the behaviors of off-task behavior, verbally aggressive, and physically aggressive were not found to be statistically significant. Duration reduction for the elopement behavior, verbally aggressive behavior, and physically aggressive behavior were not found to be statistically significant. Intensity ratings were not reduced for off-task behavior or physically aggressive behavior during this study at a statistically significant level. When comparing the means, however, no behavior became more apparent or significantly worse due to the music therapy.

Recommendations

It is recommended that teachers of students with an EBD use this intervention as prescribed through the literature review and also in this chapter. Teachers should use the listening intervention for students who display severe behavioral impairments in the areas of off-task behavior, elopement behavior, and verbally aggressive behavior. These behaviors were seen to experience statistically significant differences about their mean scores from pre and posttest phases.

General education teachers who may have students with an EBD in their assigned classroom may also consider using this intervention. Special education teachers may also use the intervention of music listening if they serve students with an EBD. Although this research was conducted with students at a day treatment center for students with severe behavioral disorders, it is certainly reasonable to use these same interventions with any student with an EBD. It may also help students who cannot focus and remain on task for longer periods. There have not been any reports of music listening to harm students or student learning. Recommendations for future research will also be discussed.

Need for further research

Further research is needed in the area of music therapy. More specifically, research is needed for students with an EBD. The current research lacks evidence-based status in educational research for students with Autism and other disabilities. More research is needed in order to advance music therapy as an evidence-based practice in education.

Future research should investigate the differences in off-task behavior for students with ADHD. This may be an effective way to treat or minimize the effects of ADHD, attention deficits, due to the results showing shorter time off-task. Research should also focus on students

with ADHD who are hyperactive. These results suggest that students who are likely to elope, do so less frequently and with less intensity when listening to music. Hyperactive students often experience less educational opportunities due to their lack of ability in sitting down to learn. Music may affect their brain in such a way as to allow them to remain in one place more frequently and to be less intense when they do move around.

Research should also be conducted with students who have an oppositional defiant disorder (ODD). These students are some of the more intense regarding student behavior. Music listening may help them to be less intense in their behaviors. Behaviors associated with ODD are off-task, elopement, verbal, and physical aggression. These behaviors should be tracked to determine what effects music listening has on students with an ODD.

Future research should more specifically focus on Baroque style music at a largo tempo. Popular culture advertises Classical music as being the music of choice for studying and focusing, however, most research does not confirm this. There may be similar characteristics of Classical music which may have some benefit, but Baroque style music should be the music of choice in future research. New research is needed to investigate and confirm the findings reported in this study. New research is needed to add to the existing literature.

It appears that research is divided as to what areas of behavior music listening effects. This study focused on discovering which types of behavior are most affected by music listening. Future research should focus on the behaviors of durational off-task, the frequency of elopement, and the level of intensity of elopement and verbal aggression. New research may also focus on the intensity of physical aggression as that did show a trend of being less intense. However, the data generated in this study were limited on the number of occurrences and therefore were inconclusive.

Conclusions

This research study was conducted with students who have an EBD or who display severe behavior and who attend a day treatment center. All students have an EBD or display severe behavior and are enrolled in a public school. These students display behavior which impedes their learning and the learning of others.

The literature suggested that music listening was an easily implemented music therapy strategy to be used in the public school setting at little to no cost. A review of the literature also suggested that Baroque style music played at a Largo tempo, which is around 50 beats per minute, would result in the most effective behavior modification for students. This research study investigated to what extent the intervention of music listening effected of off-task behavior, elopement behavior, verbally aggressive behavior, and physically aggressive behavior on students with an EBD or on students who display severe behavior.

The results indicated that this intervention lowered the overall intensity of verbal aggression and elopement behavior of students. The results also indicated that the duration of off-task behavior was decreased by the intervention as well. Lastly, the results indicated that the frequency of elopement behavior was decreased by the music therapy intervention of listening to Baroque style music.

These results confirm the hypothesis posed by the researcher and the null hypothesis must be rejected for H_0 1: c. (There was a statistically significant difference in off-task behavior for the duration), H_0 2: a. (There was a statistically significant difference in the frequency of elopement) moreover, b. (There was a statistically significant difference in the intensity of elopement), and H_0 3: b. (There was a statistically significant difference in the intensity of verbally aggressive behavior). This means that the music therapy technique of listening to

Baroque style music at a Largo tempo did affect some aspects of students with disabilities' behavior. This effective intervention was one way for educators to help their students learn academically and behaviorally.

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Appendix A

Permission Letter from the cooperating School District

Knopf Patrick C

Tue 1/30, 10:32 AM

Parker Forrest R

Reply

Trip,

You are approved as written but a final letter will come after IRB at Auburn and any needed changes are made. We always give final approval to ensure we are approving the final project.

Appendix B

IRB Permission Form

Dear Mr. Parker,

Your protocol entitled "Music Therapy as a Behavior Modification for Students with Severe Behavior" has received approval as "Expedited" under federal regulation 45 CFR 46.110(7).

IRB Comments:
"Please provide the site authorization letter from the Muscogee County School District when received."

Official notice:
This e-mail serves as official notice that your protocol has been approved. A formal approval letter will not be sent unless you notify us that you need one. By accepting this approval, you also accept your responsibilities associated with this approval. Details of your responsibilities are attached. Please print and retain.

Informed Consent:
Attached is a scan of your new, stamped informed consent. You must provide a copy for each participant to keep. Also attached is a copy of your approved protocol.

Expiration:
Your protocol will expire on May 10, 2019. Put that date on your calendar now. About three weeks before that time you will need to submit a final report or renewal request.

When you have completed all research activities, have no plans to collect additional data and have destroyed all identifiable information as approved by the IRB, please submit a final report.

If you have any questions, please let us know.

Best wishes for success with your research!

IRB Admin
Office of Research Compliance
115 Ramsay Hall
Auburn University, AL 36849
334-844-5966

Appendix C

Teacher Training Overview

1. Purpose of the study
    a. Music Therapy
    b. Listening
2. Purpose of data collection
    a. Why do we need this data from you
3. Specific Behavior Rubric
    a. Specific Behaviors and guidelines
    b. Description of behaviors
4. Data entry
    a. How to record the data for students
5. Data Submission
    a. How to submit the data online
6. Practice
    a. Staff will watch videos and collect data on the behaviors they see in the videos
7. Ethics Training
    a. IRB overview
    b. Informed Consent
        i. Parental Consent / child assent
    c. Right to withdraw
    d. Privacy
    e. Confidentiality

Appendix D

Teacher Instructions for Data Collection

Data Collection Procedures for “Teacher Name”

1. Ensure the time is between 9:30 and 10:30.
    a. You may collect data during any continues 30-minute period during this time. If you have to change the time for any reason, please do so and record when you collected data and why you needed to change the time. Provide this documentation in written format, preferably email to Mr. Parker during the same day that the change in time occurred. *Data collected during a different time is better than no data or poorly executed data.
2. Ensure that all students have a completely regular and usual day. They can do anything that they would normally do. The data should be collected during a normal academic period. Students can still take breaks and do whatever they normally do during this baseline phase.
3. Open the Behavior Rubric listed here:
    a. https://auburn.qualtrics.com/jfe/form/SV_6mwI4AwcjMOXVUV
4. Identify the student you are observing:
    a. “Student Name” = Student 1
    b. “Student Name” = Student 2
    c. “Student Name” = Student 3
    d. NEW STUDENT NOT OTHERWISE LISTED = Student 4
5. Follow the prompts for the four behaviors.
6. Once you finish one student you will need to return to the original link and repeat steps 2 through 4 until each student who is present has been completed.
    a. Note: Do not record data for students who are absent or who are not present at the time data is being generated by you. I will know a student is absent by their lack of data for that day.
7. If you encounter any issue whatever, please notify Mr. Parker immediately over the staff radio or over the phone if you are responding for Carver. He will then advise you on proper protocol for how to proceed.

Appendix E

Behavior Rubric

Teacher Behavior Rating Observation -

Start of Block: Please select a class

Q22 Please enter todays date (MM/DD/YYYY)

Q3 Select Student

- Student 1
- Student 2
- Student 3
- Student 4
- Student 5
- Student 6
- Student 7
- Student 8

Q30 Now you will answer questions related to the student's potential Off-Task behavior.

Q4 How many times did the student engage in Off-Task behavior?

- 0
- 1
- 2
- 3
- 4
- 5 or more

Q18 What was the overall level of intensity of the Off-Task behavior?

- Not Intense at all
- Somewhat Intense
- Moderately Intense
- Very Intense
- Extremely Intense

Q28 How long did the Off-Task behavior occur? (In Seconds)

	0 15 30 45 60 75 90 105 120
Off-Task	

Q29 Now you will answer questions related to the student's potential elopement behavior.

Q23 How many times did the student engage in elopement?

- 0
- 1
- 2
- 3
- 4
- 5 or more

Q20 What was the overall level of intensity of the Elopement?

- Not Intense at all
- Somewhat Intense
- Moderately Intense
- Very Intense
- Extremely Intense

Q27 How long did the elopement occur? (In Seconds)

0 15 30 45 60 75 90 105 120

Elopement

Q31 Now you will answer questions related to the student's potential verbal aggression.
Q24 How many times did the student engage in Verbal Aggression?

- 0
- 1
- 2
- 3
- 4
- 5
- 6
- 7
- 8
- 9
- 10 or more

Q18 What was the overall level of intensity of the Verbal Aggression?

- Not intense at all
- Somewhat Intense
- Moderately Intense
- Very Intense
- Extremely Intense

Q26 How long did the Verbal Aggression occur? (In Seconds)

	0 15 30 45 60 75 90 105 120
Verbal Aggression	

Q32 Now you will answer questions related to the student's potential physical aggression.
Q25 How many times did the student engage in Physical Aggression?

- ○ 0
- ○ 1
- ○ 2
- ○ 3
- ○ 4
- ○ 5 or more

Q19 What was the overall level of intensity of the Physical Aggression?

- ○ Not Intense At all
- ○ Somewhat Intense
- ○ Moderately Intense
- ○ Very Intense
- ○ Extremely Intense

Q14 How long did the Physical Aggression occur? (In Seconds)

	0 15 30 45 60 75 90 105 120
Physical Aggression	

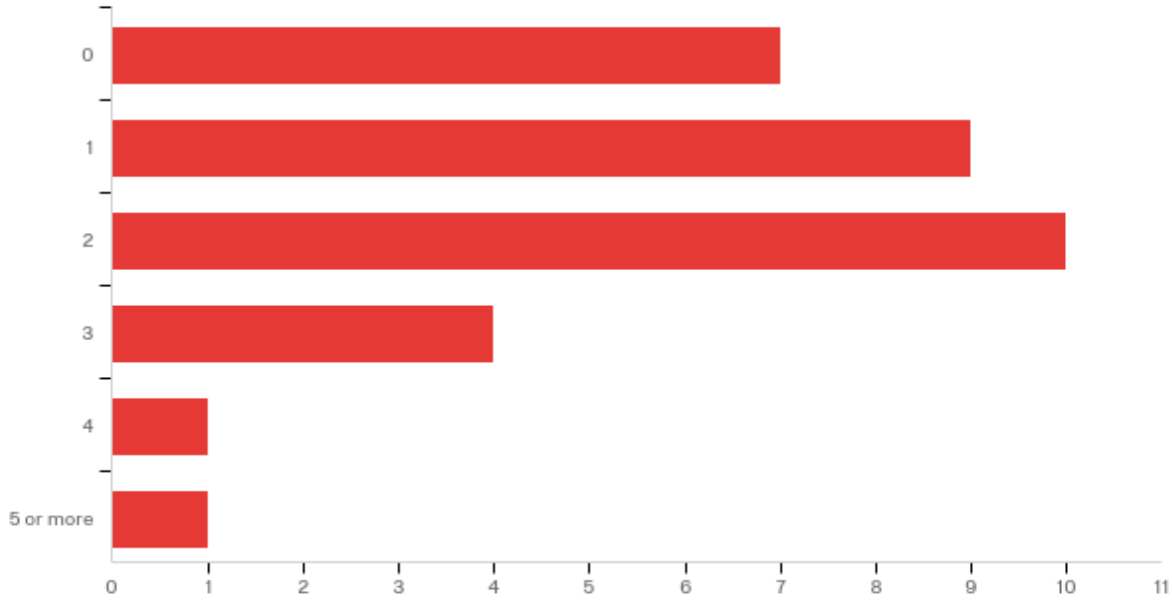
End of Block: Behavior Data

Start of Block: This is the end of the form. Thank you.

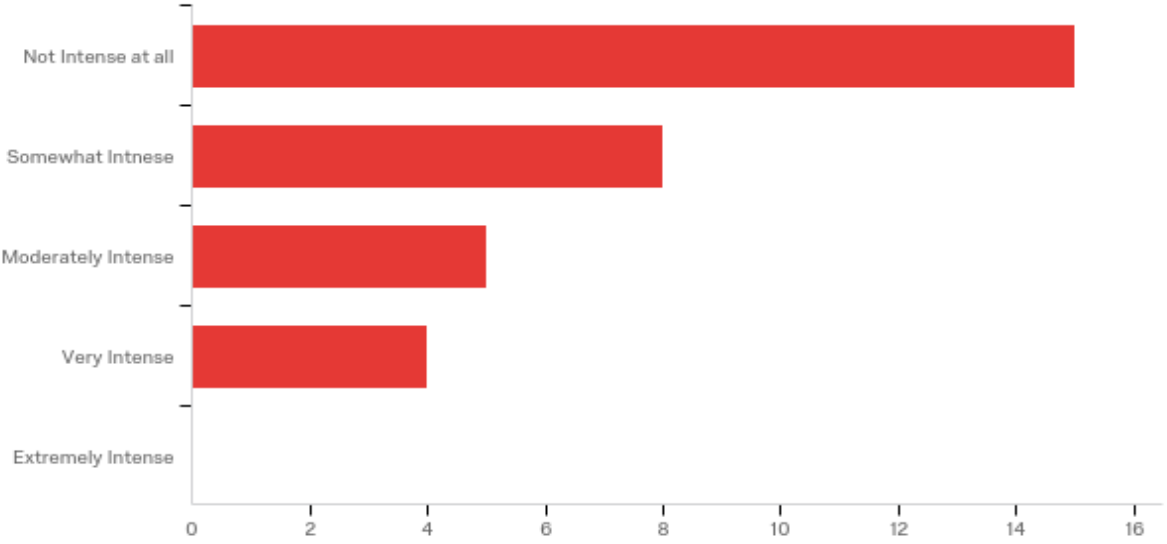
Appendix F

Charter of Teacher Responses – Teacher 1

Q4 - How many times did the student engage in Off-Task behavior?



Q18 - What was the overall level of intensity of the Off-Task behavior?

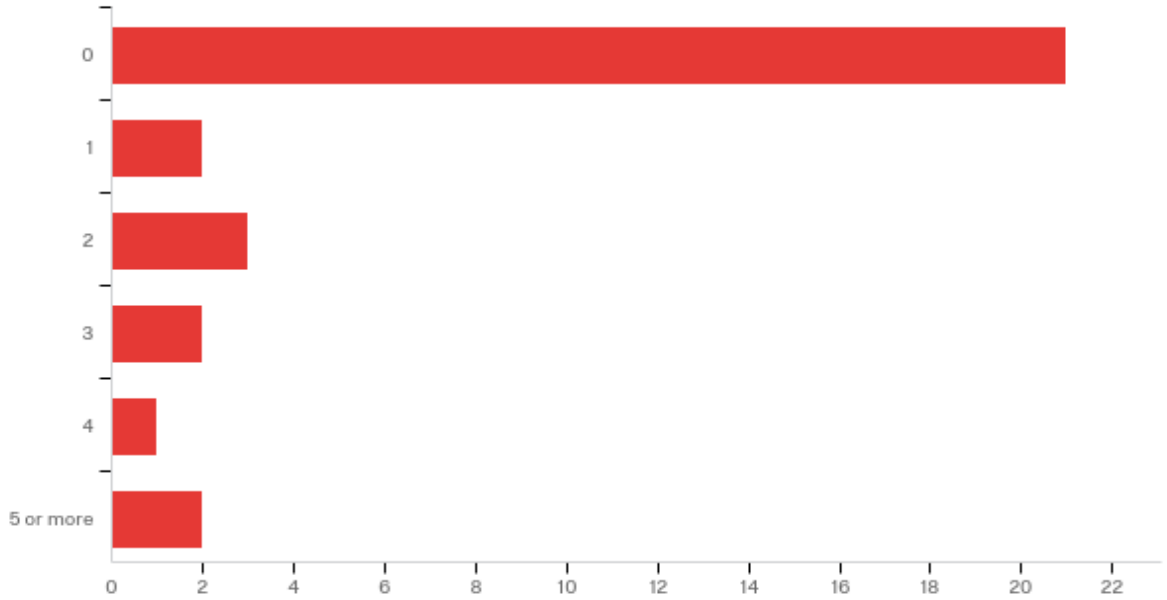


Q28 - How long did the Off-Task behavior occur? (In Seconds)

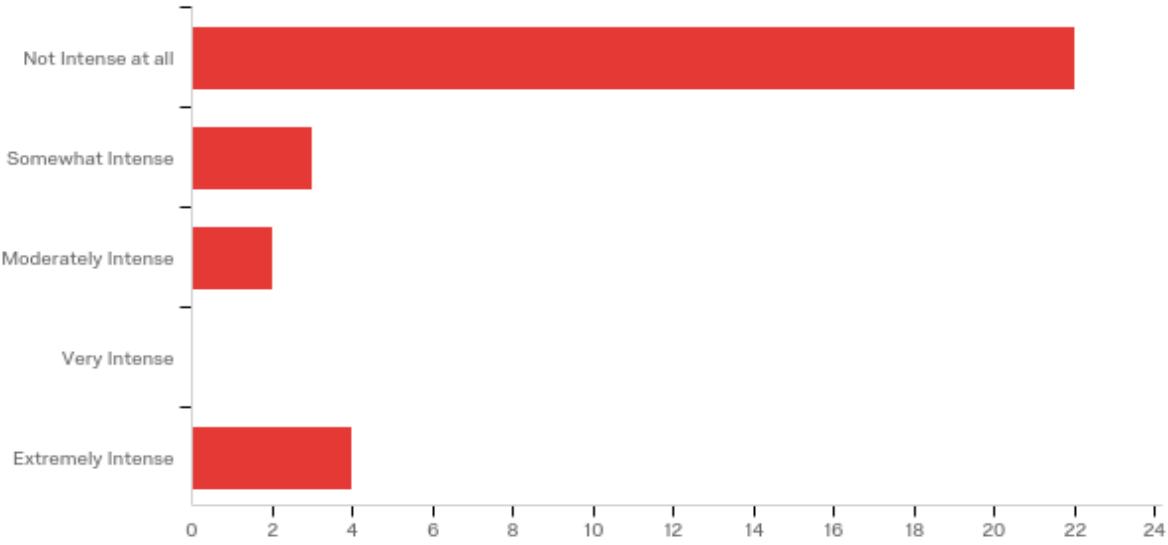
#	Field	Minimum	Maximum	Mean	Std Deviation	Variance	Count
1	Off-Task	1.00	120.00	56.32	49.86	2485.96	31

Teacher Behavior Rating Observation – Teacher 1

Q23 - How many times did the student engage in elopement?



Q20 - What was the overall level of intensity of the Elopement?

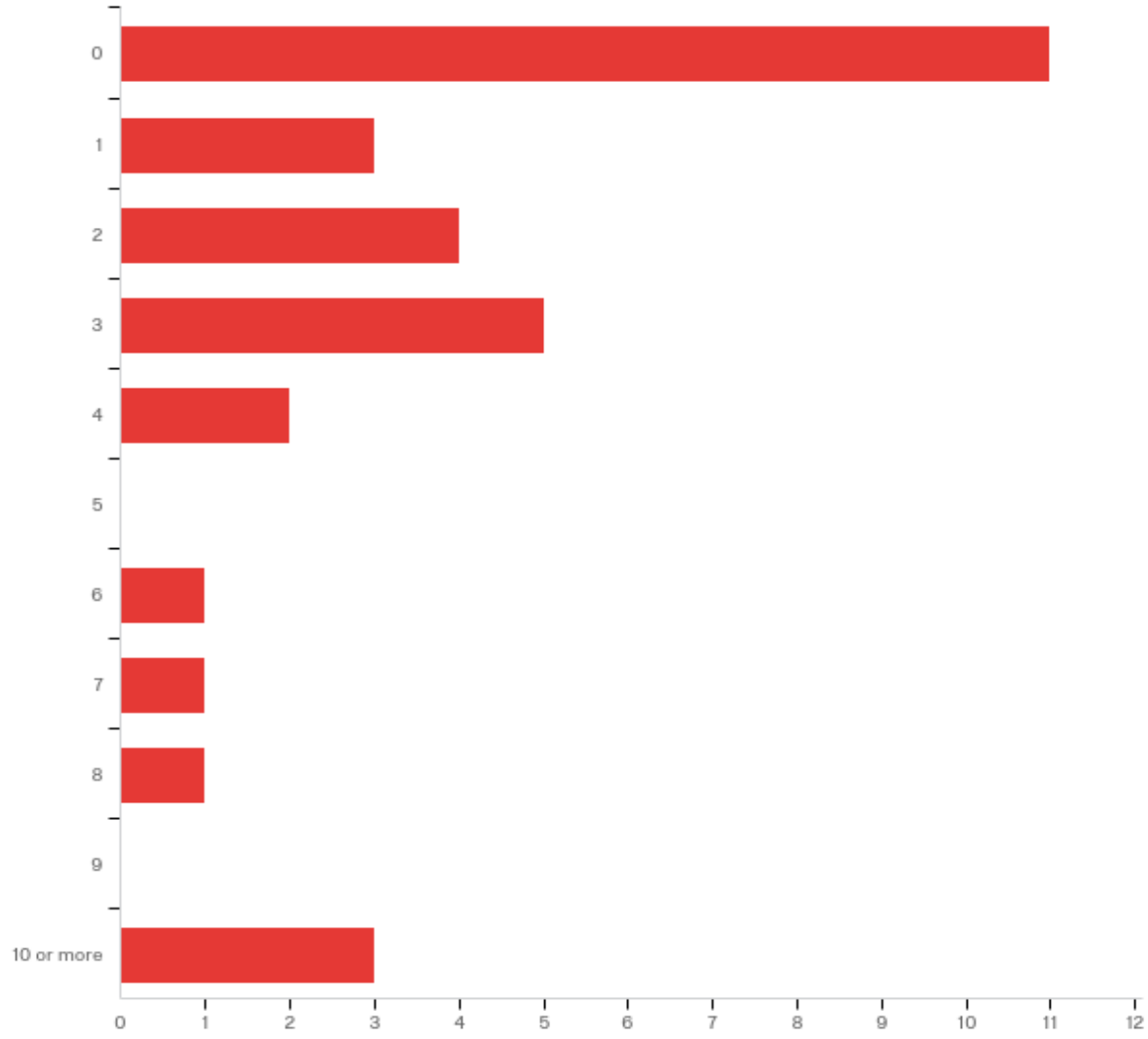


Teacher Behavior Rating Observation – Teacher 1

Q27 - How long did the elopement occur? (In Seconds)

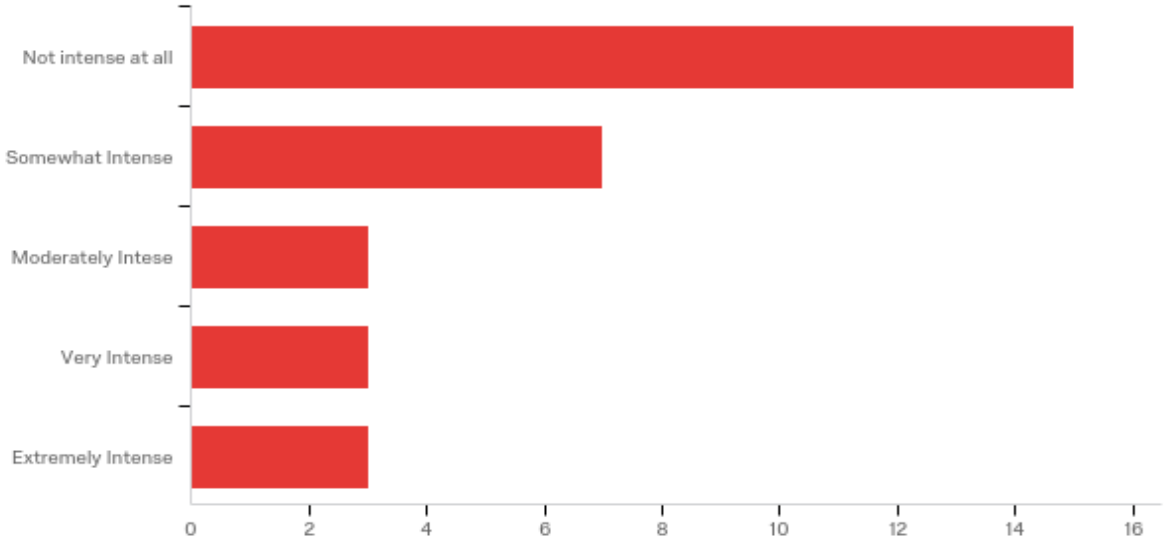
#	Field	Minimum	Maximum	Mean	Std Deviation	Variance	Count
1	Elopement	1.00	120.00	31.76	45.49	2069.23	21

Q24 - How many times did the student engage in Verbal Aggression?



Teacher Behavior Rating Observation – Teacher 1

Q18 - What was the overall level of intensity of the Verbal Aggression?

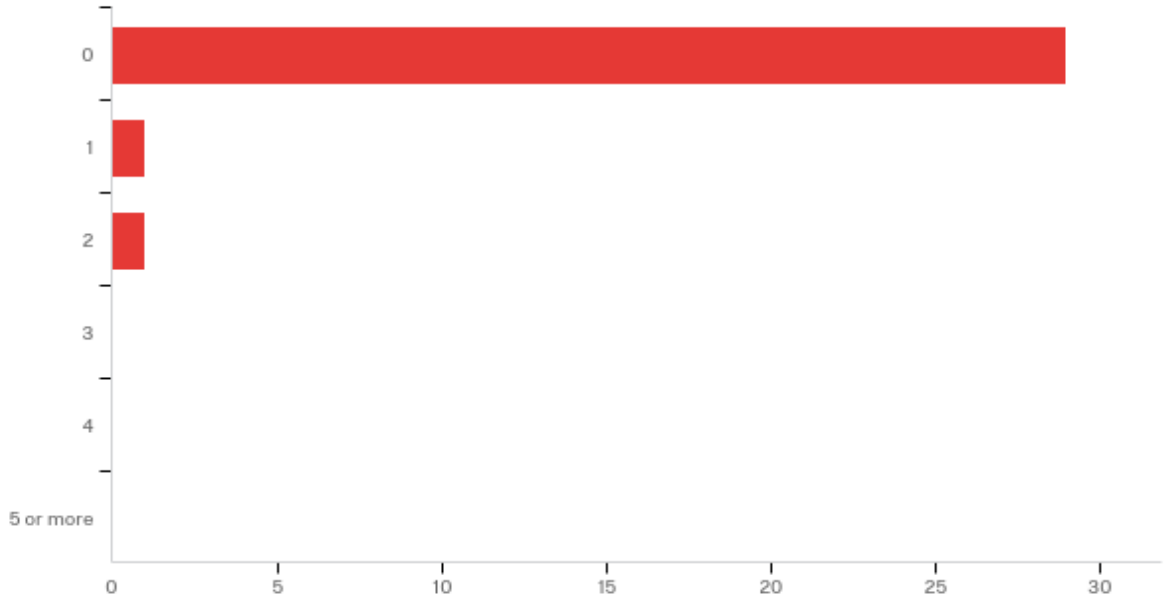


Q26 - How long did the Verbal Aggression occur? (In Seconds)

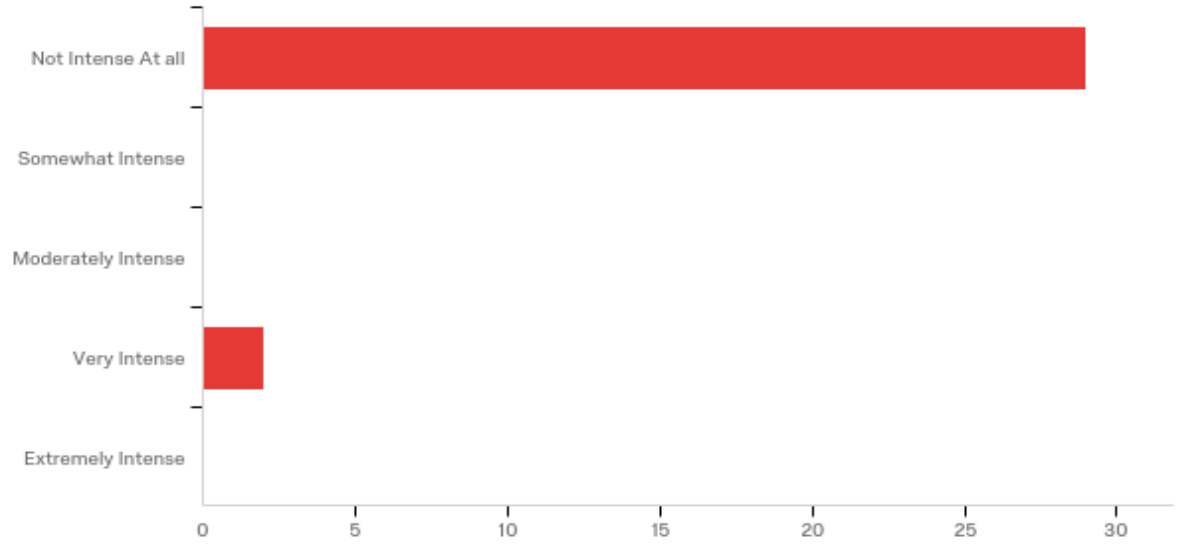
#	Field	Minimum	Maximum	Mean	Std Deviation	Variance	Count
1	Verbal Aggression	1.00	120.00	41.77	49.22	2423.02	26

Teacher Behavior Rating Observation - Teacher 1

Q25 - How many times did the student engage in Physical Aggression?



Q19 - What was the overall level of intensity of the Physical Aggression?



Teacher Behavior Rating Observation – Teacher 1

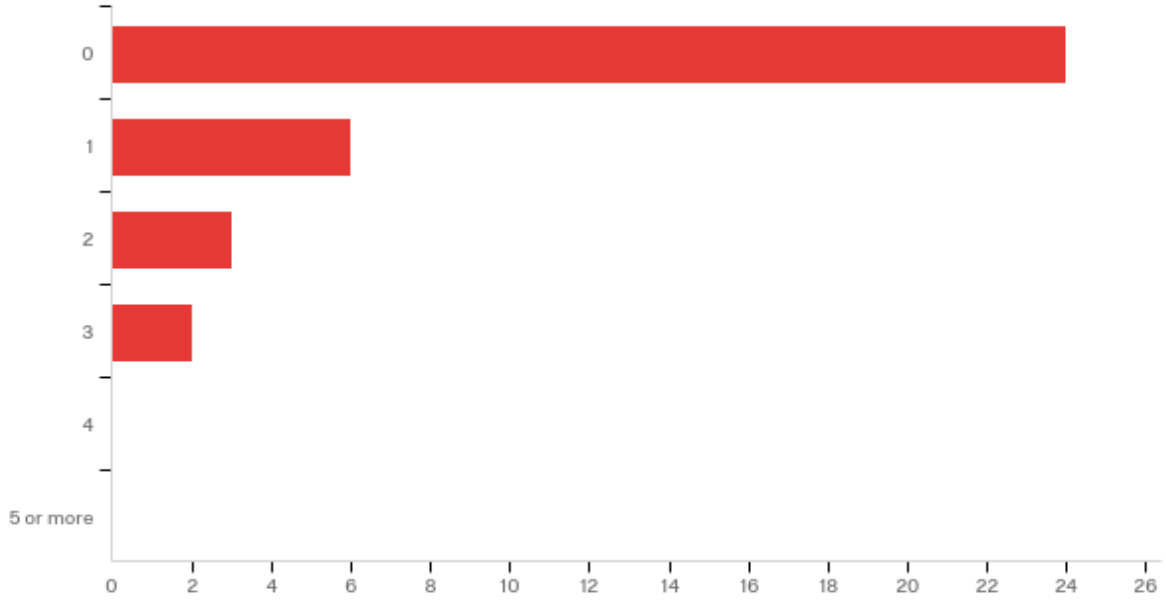
Q14 - How long did the Physical Aggression occur? (In Seconds)

#	Field	Minimum	Maximum	Mean	Std Deviation	Variance	Count
1	Physical Aggression	1.00	120.00	10.00	30.56	934.00	14

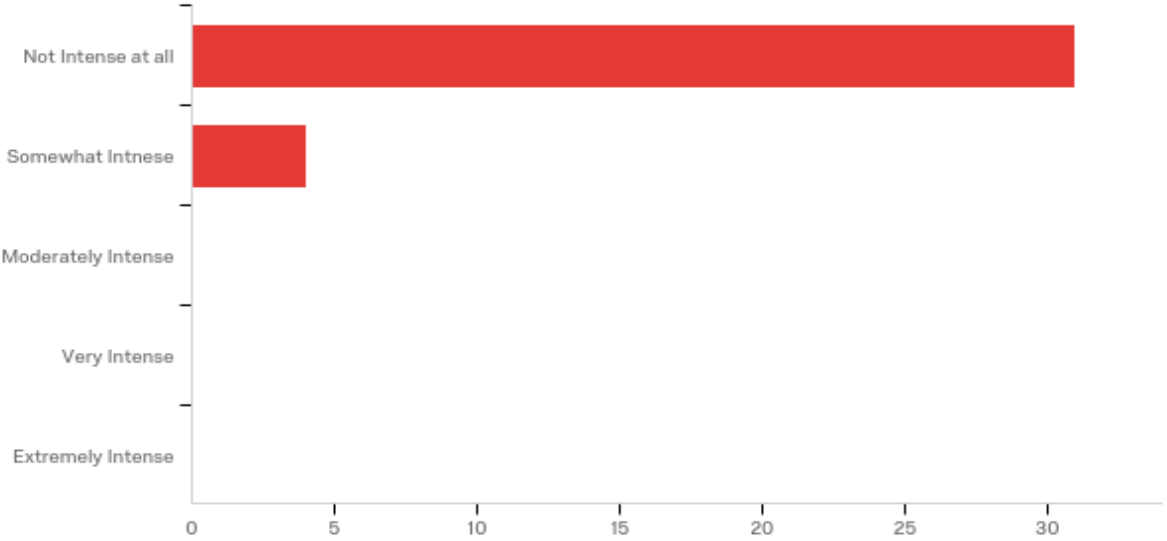
Appendix G

Chart of Teacher Responses – Teacher 2

Q4 - How many times did the student engage in Off-Task behavior?



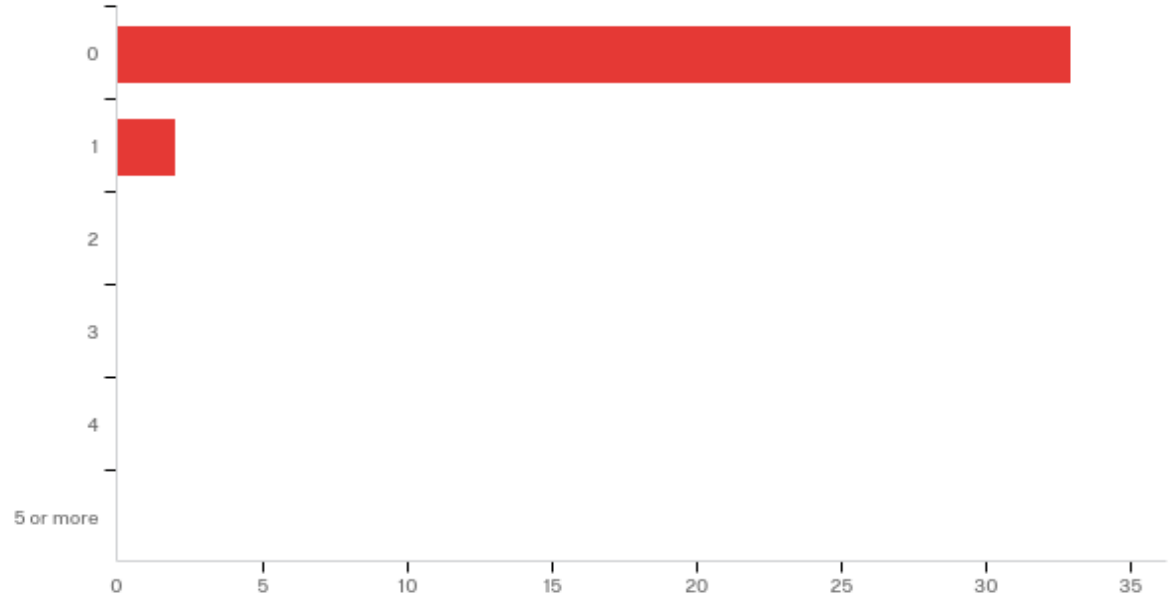
Q18 - What was the overall level of intensity of the Off-Task behavior?



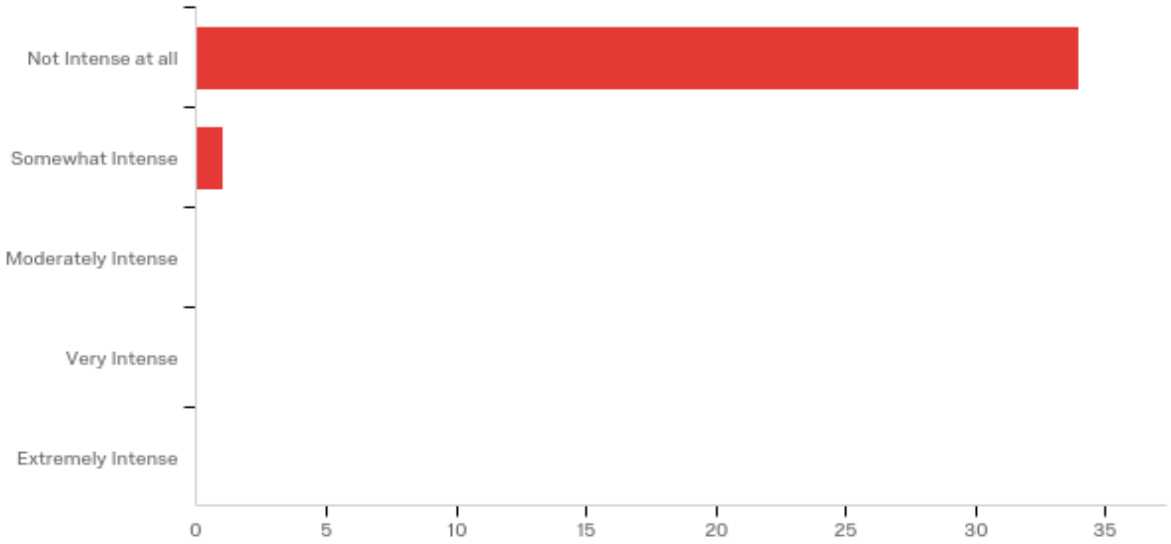
Q28 - How long did the Off-Task behavior occur? (In Seconds)

#	Field	Minimum	Maximum	Mean	Std Deviation	Variance	Count
1	Off-Task	46.00	120.00	97.45	30.12	907.16	11

Q23 - How many times did the student engage in elopement?



Q20 - What was the overall level of intensity of the Elopement?



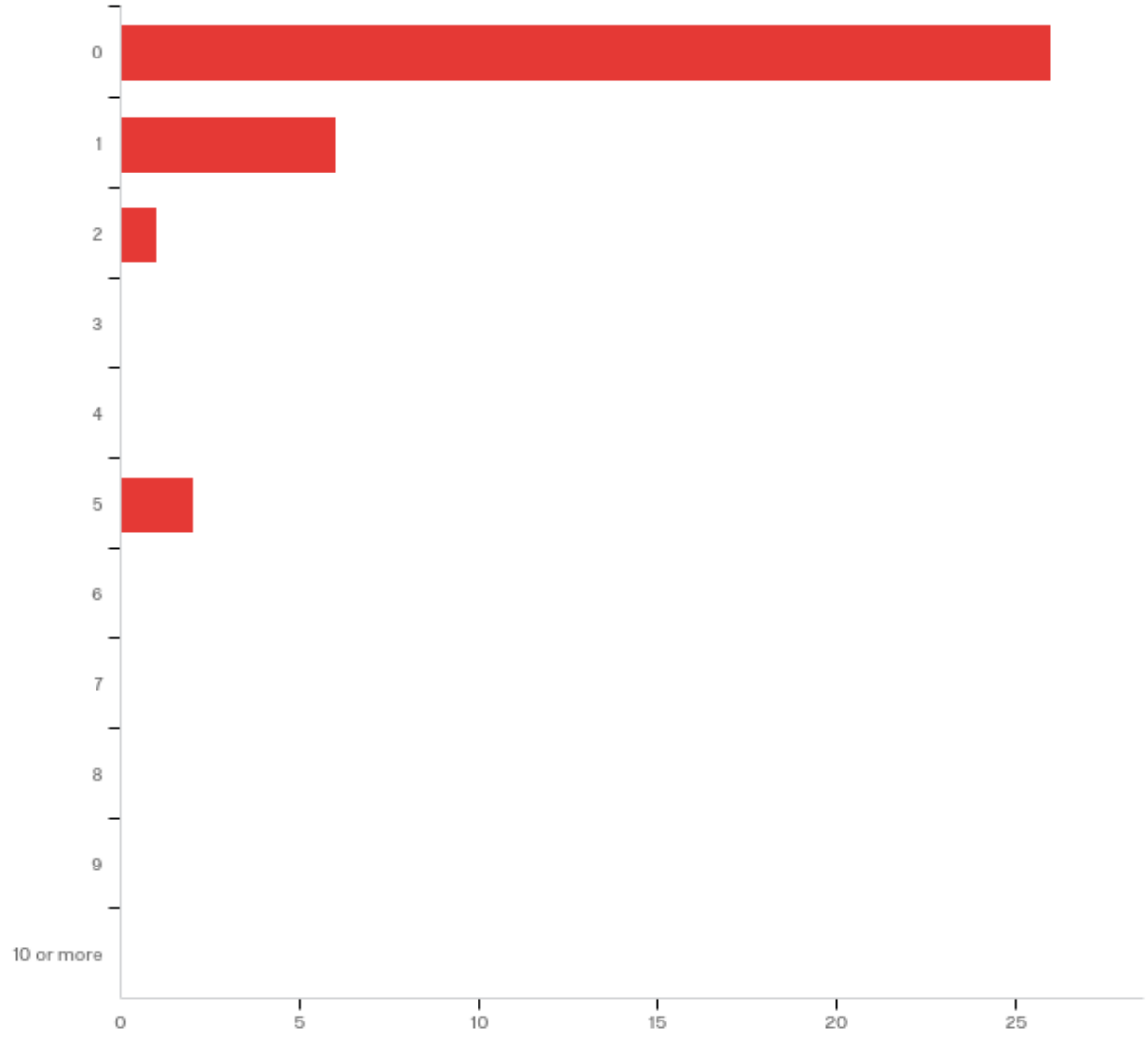
Teacher Behavior Rating Observation – Teacher 2

Q27 - How long did the elopement occur? (In Seconds)

#	Field	Minimum	Maximum	Mean	Std Deviation	Variance	Count
1	Elopement	63.00	120.00	91.50	28.50	812.25	2

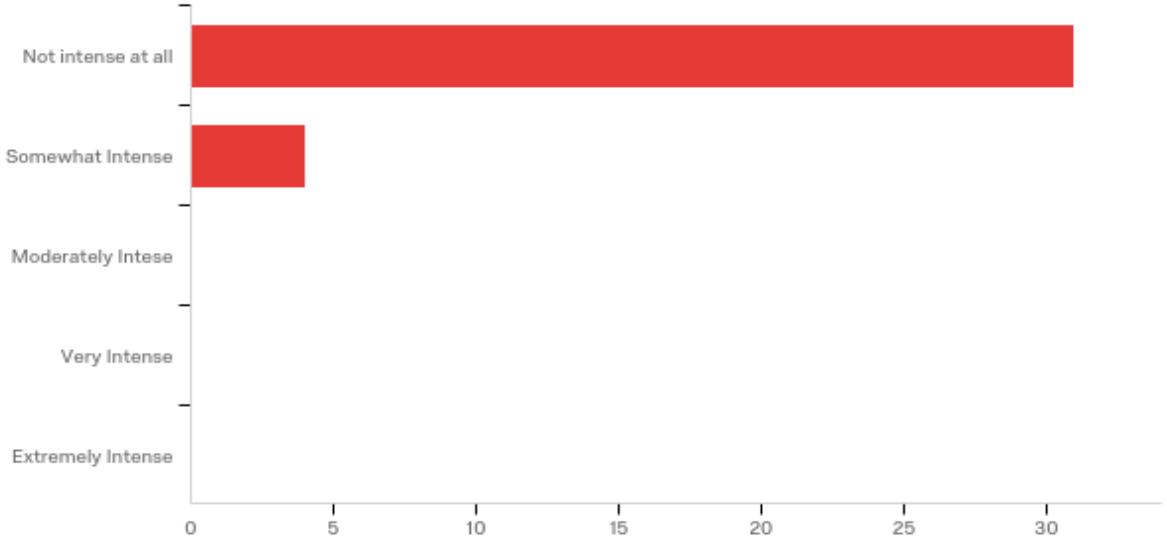
Teacher Behavior Rating Observation – Teacher 2

Q24 - How many times did the student engage in Verbal Aggression?



Teacher Behavior Rating Observation – Teacher 2

Q18 - What was the overall level of intensity of the Verbal Aggression?

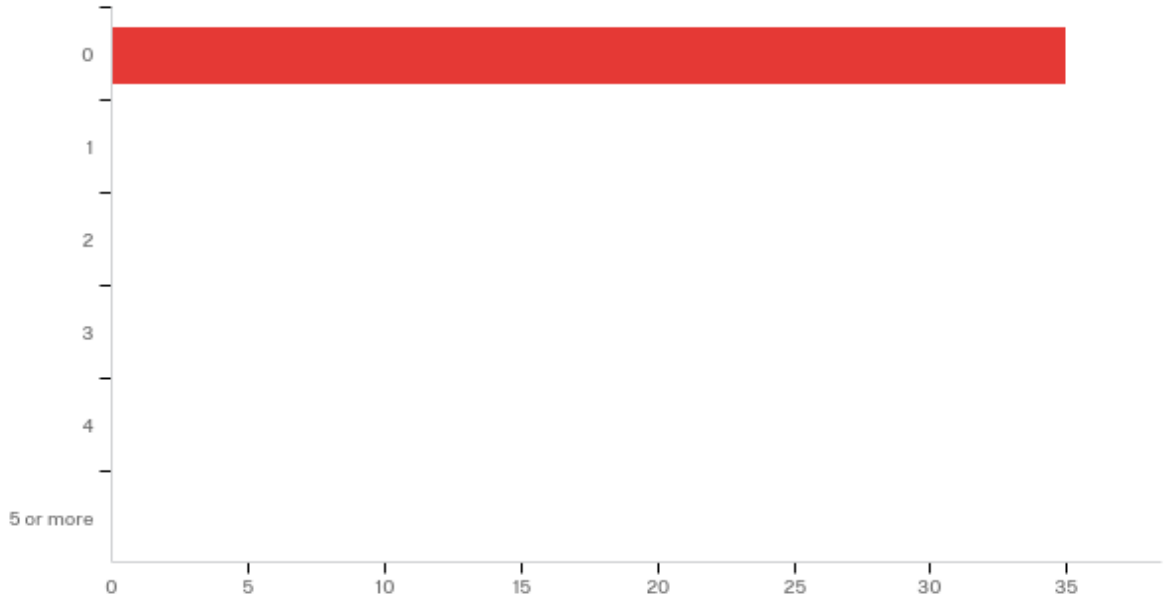


Q26 - How long did the Verbal Aggression occur? (In Seconds)

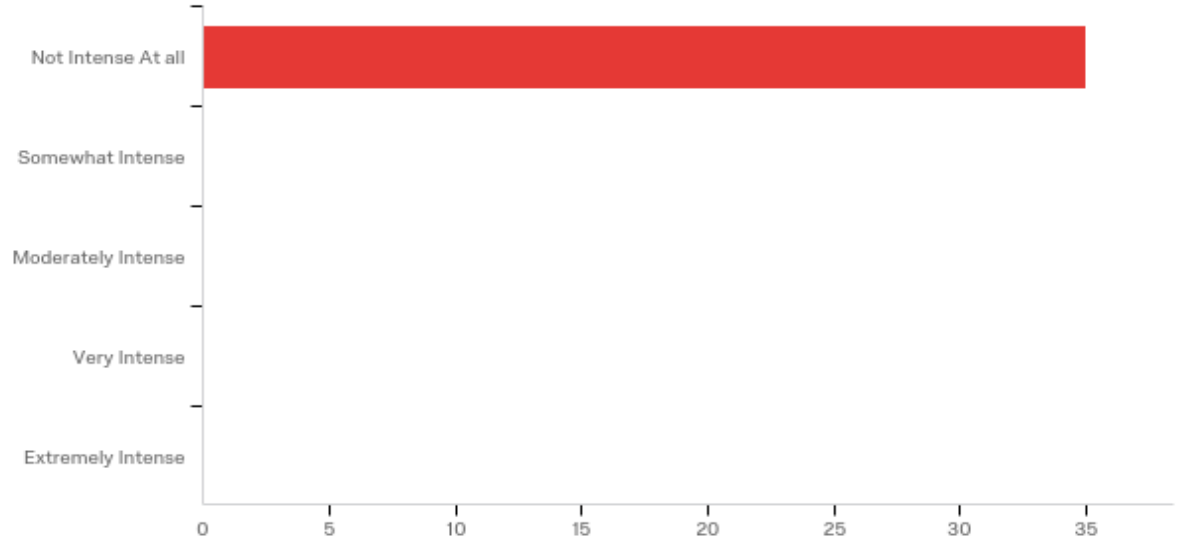
#	Field	Minimum	Maximum	Mean	Std Deviation	Variance	Count
1	Verbal Aggression	29.00	120.00	77.00	40.15	1611.78	9

Teacher Behavior Rating Observation – Teacher 2

Q25 - How many times did the student engage in Physical Aggression?



Q19 - What was the overall level of intensity of the Physical Aggression?



Teacher Behavior Rating Observation – Teacher 2

Q14 - How long did the Physical Aggression occur? (In Seconds)

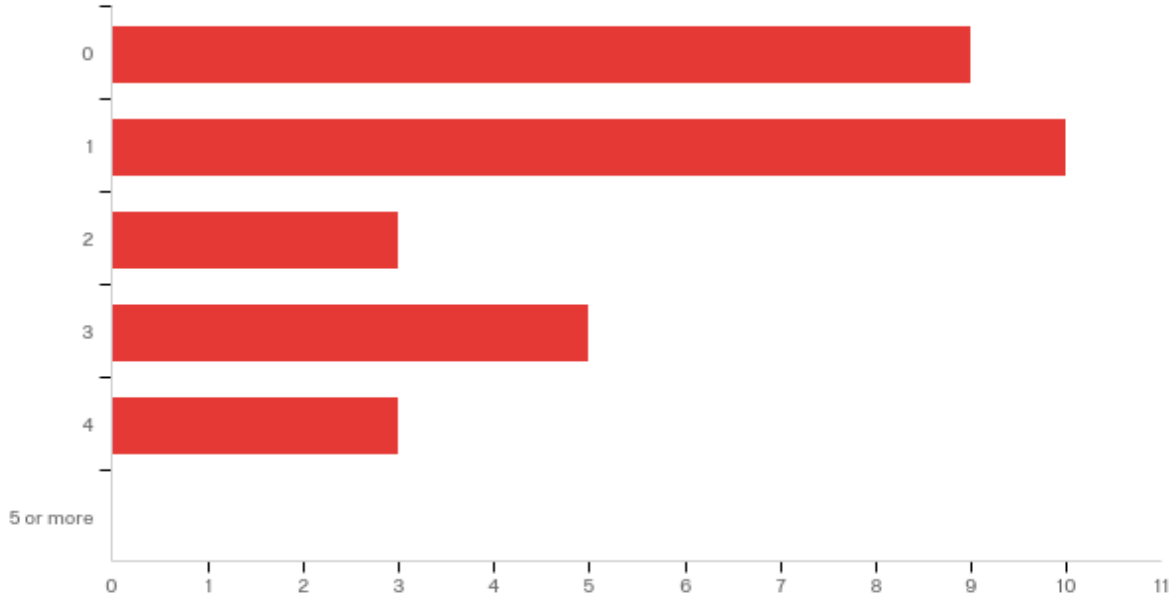
#	Field	Minimum	Maximum	Mean	Std Deviation	Variance	Count
1	Physical Aggression	0.00	0.00	0.00	0.00	0.00	0

Appendix H

Chart of Teacher Responses – Teacher 3

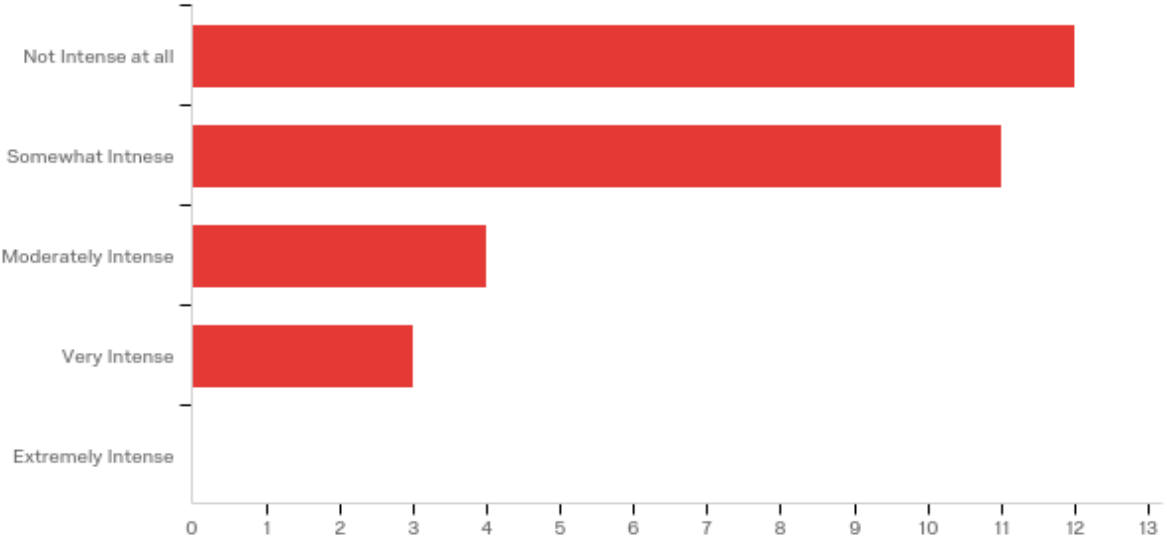
Teacher Behavior Rating Observation – Teacher 3

Q4 - How many times did the student engage in Off-Task behavior?



Teacher Behavior Rating Observation – Teacher 3

Q18 - What was the overall level of intensity of the Off-Task behavior?

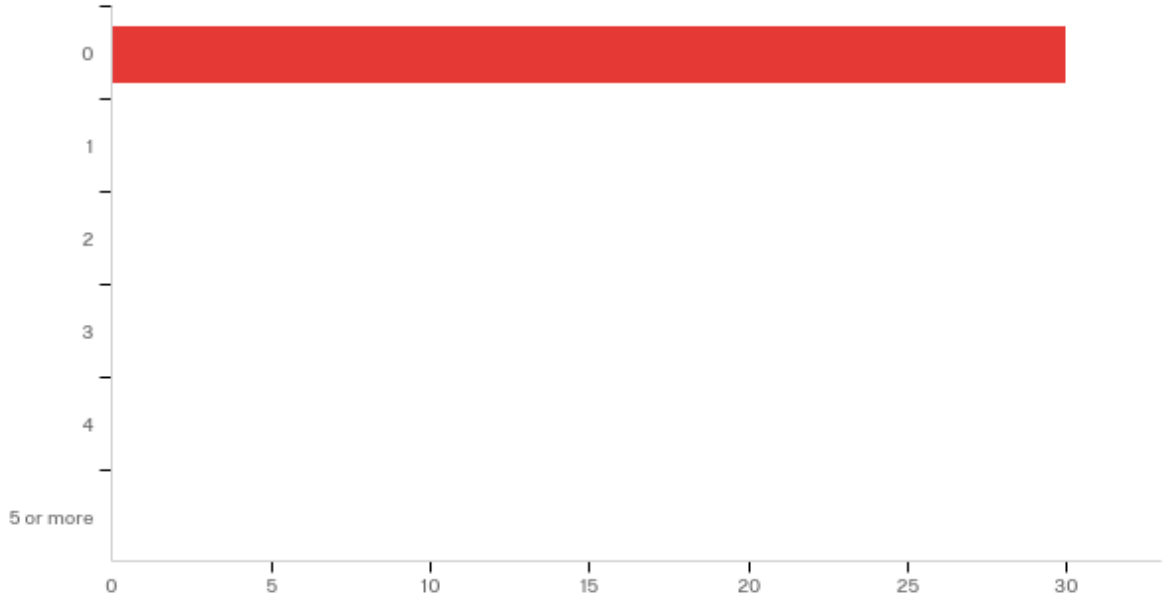


Q28 - How long did the Off-Task behavior occur? (In Seconds)

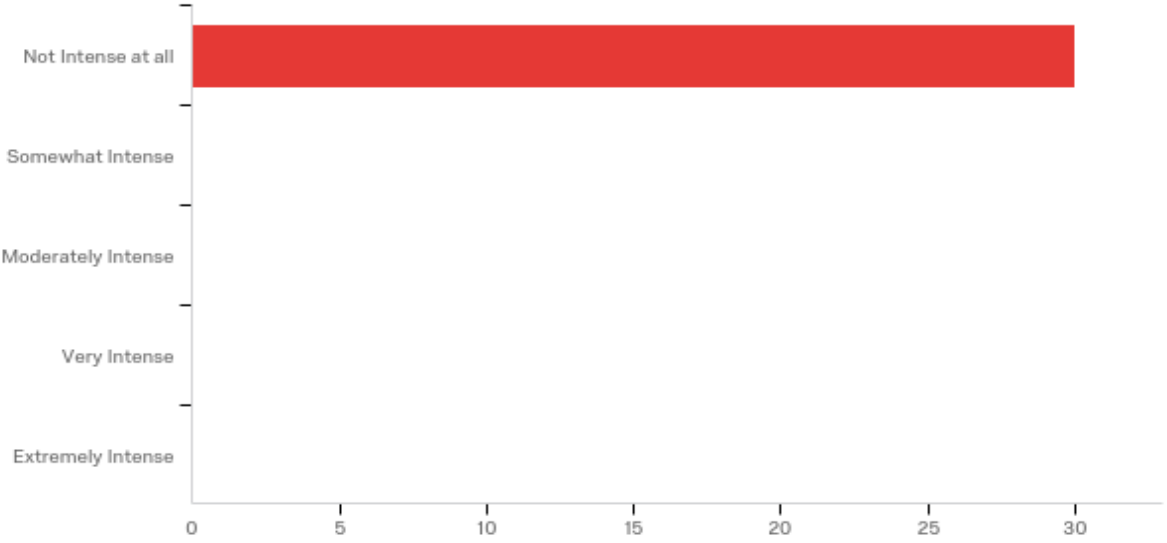
#	Field	Minimum	Maximum	Mean	Std Deviation	Variance	Count
1	Off-Task	0.00	90.00	28.86	25.84	667.66	22

Teacher Behavior Rating Observation – Teacher 3

Q23 - How many times did the student engage in elopement?



Q20 - What was the overall level of intensity of the Elopement?

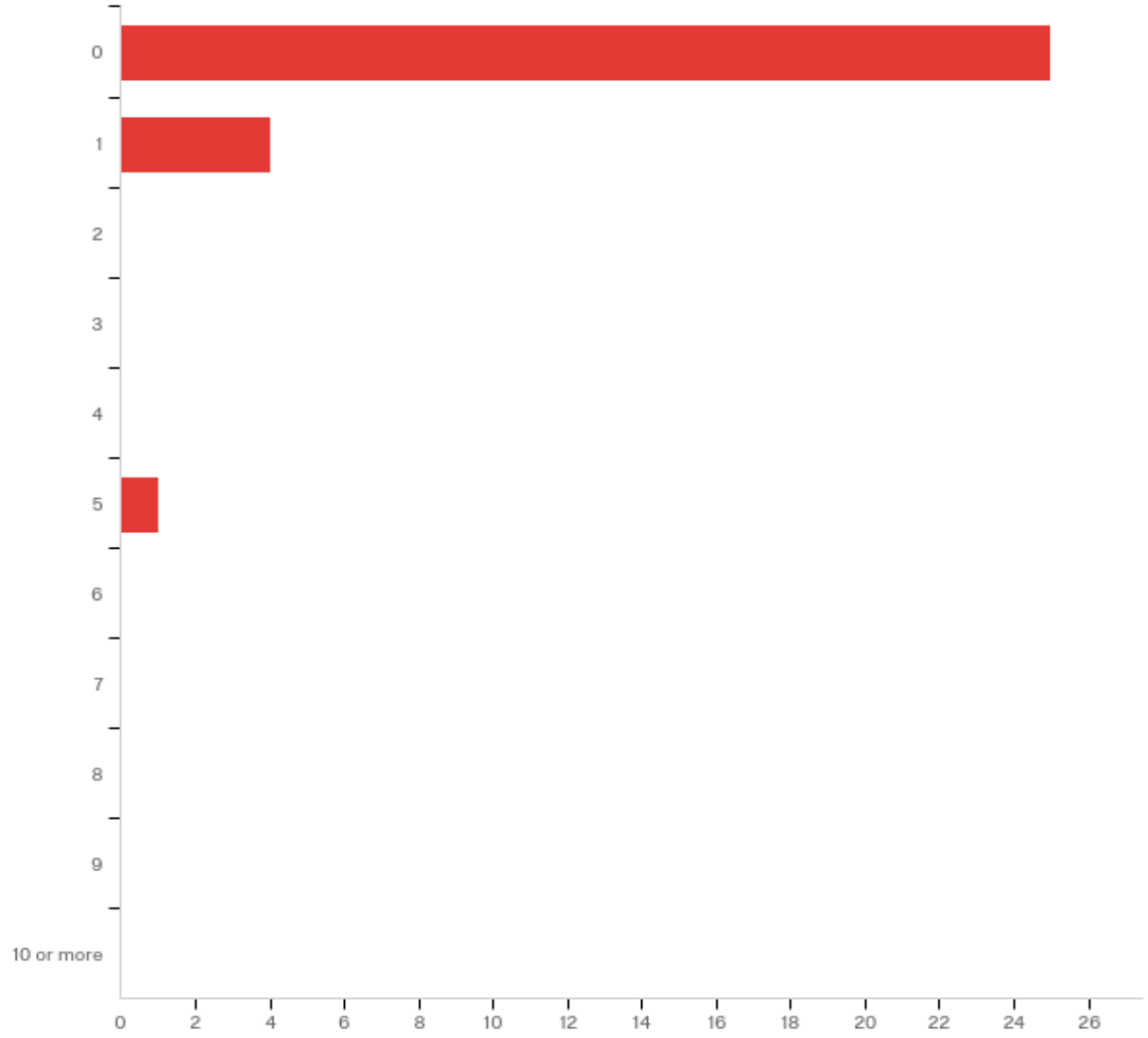


Teacher Behavior Rating Observation – Teacher 3

Q27 - How long did the elopement occur? (In Seconds)

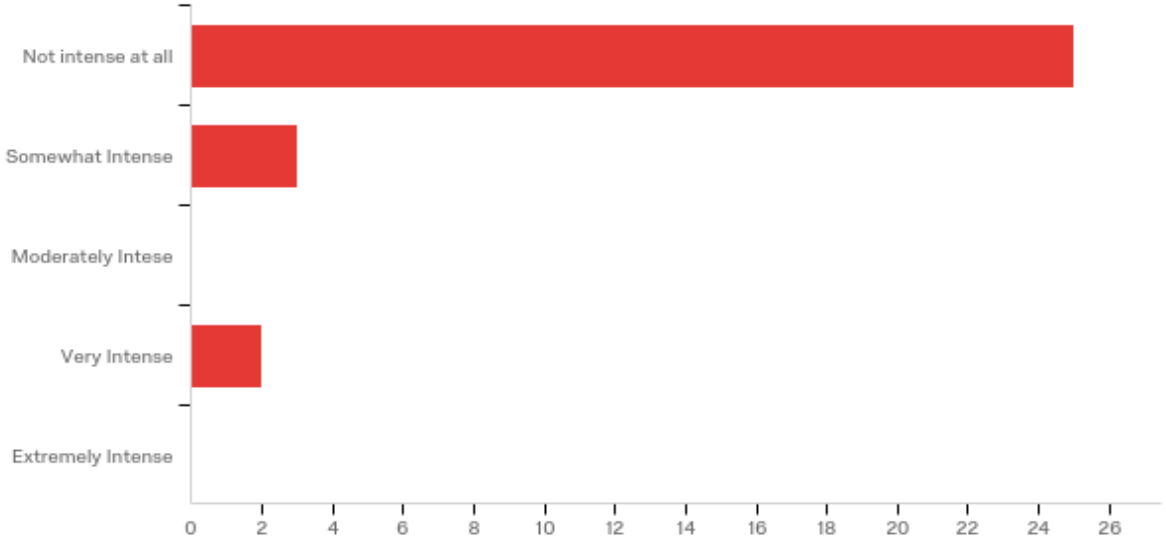
#	Field	Minimum	Maximum	Mean	Std Deviation	Variance	Count
1	Elopement	0.00	0.00	0.00	0.00	0.00	0

Q24 - How many times did the student engage in Verbal Aggression?



Teacher Behavior Rating Observation – Teacher 3

Q18 - What was the overall level of intensity of the Verbal Aggression?

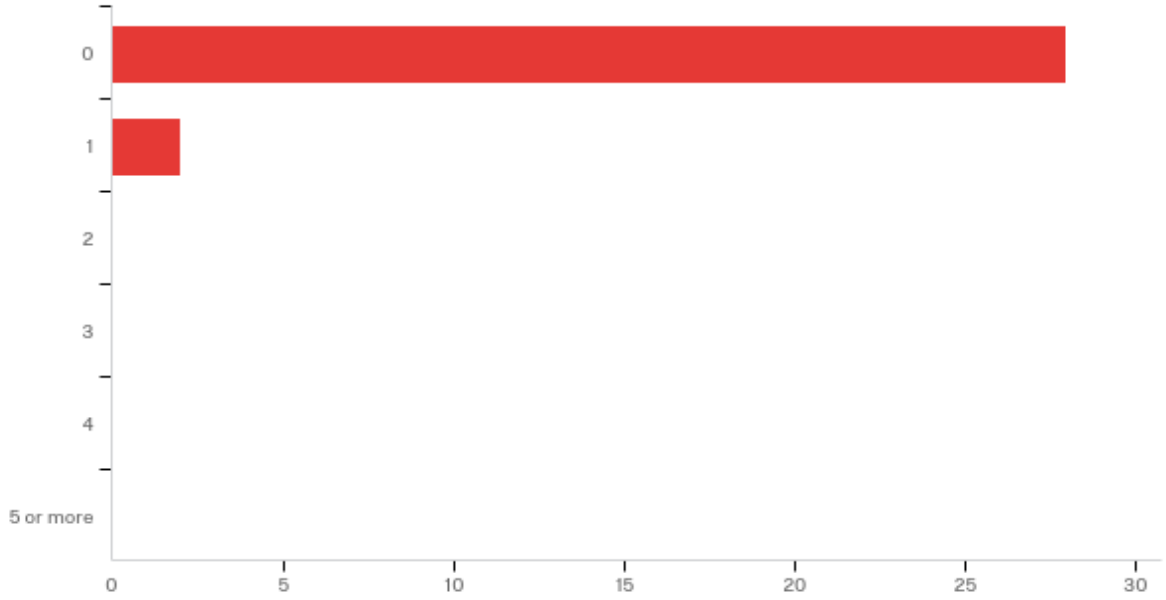


Q26 - How long did the Verbal Aggression occur? (In Seconds)

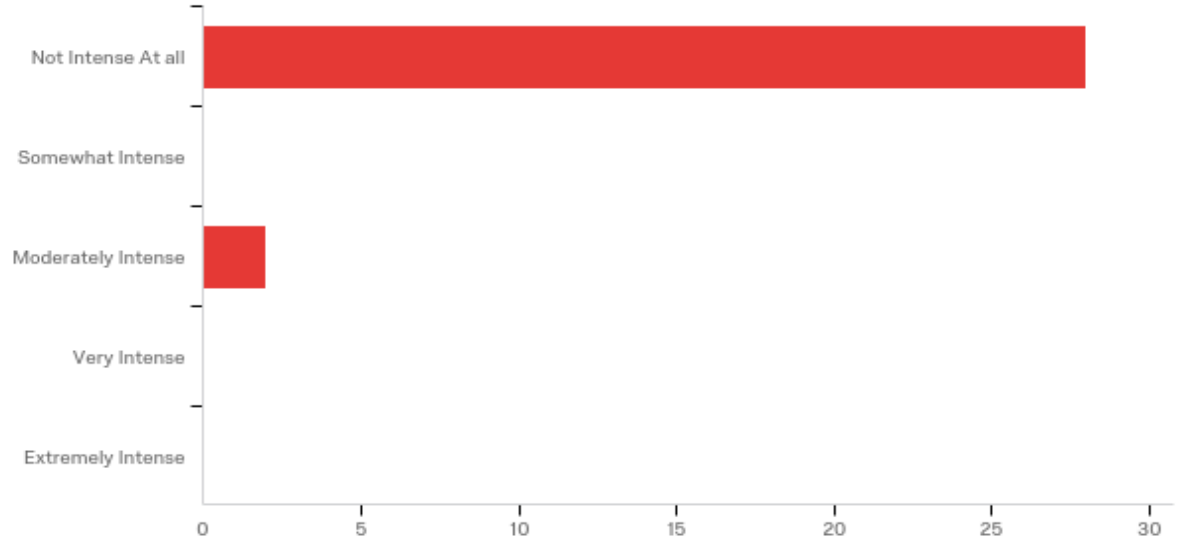
#	Field	Minimum	Maximum	Mean	Std Deviation	Variance	Count
1	Verbal Aggression	5.00	90.00	27.40	32.70	1069.04	5

Teacher Behavior Rating Observation – Teacher 3

Q25 - How many times did the student engage in Physical Aggression?



Q19 - What was the overall level of intensity of the Physical Aggression?



Teacher Behavior Rating Observation – Teacher 3

Q14 - How long did the Physical Aggression occur? (In Seconds)

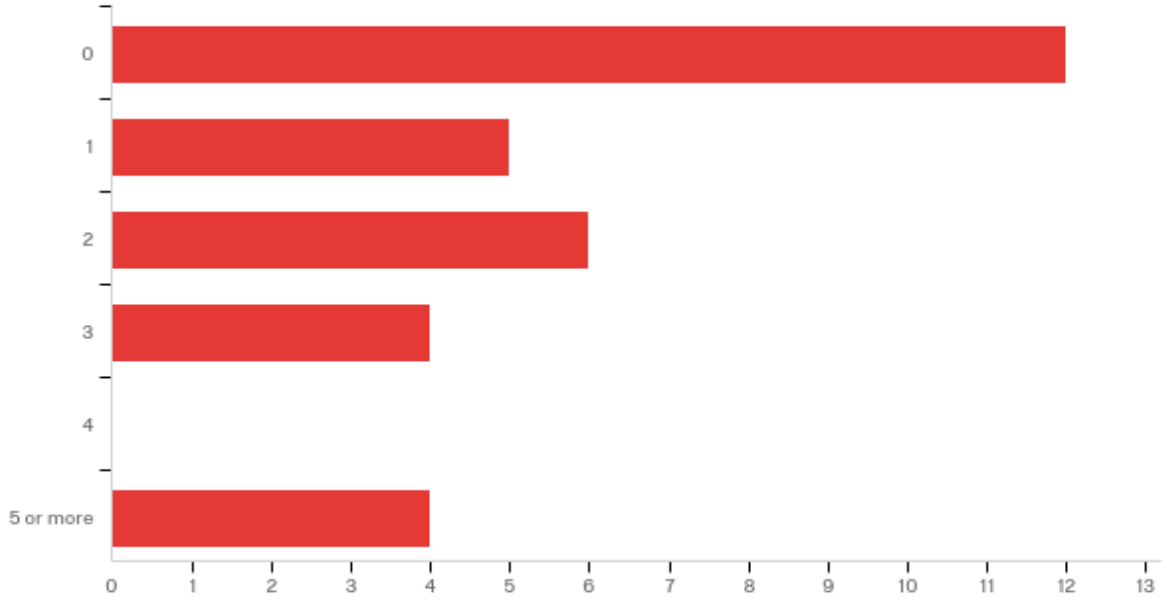
#	Field	Minimum	Maximum	Mean	Std Deviation	Variance	Count
1	Physical Aggression	10.00	20.00	15.00	5.00	25.00	2

Appendix I

Charter of Teacher Responses – Teacher 4

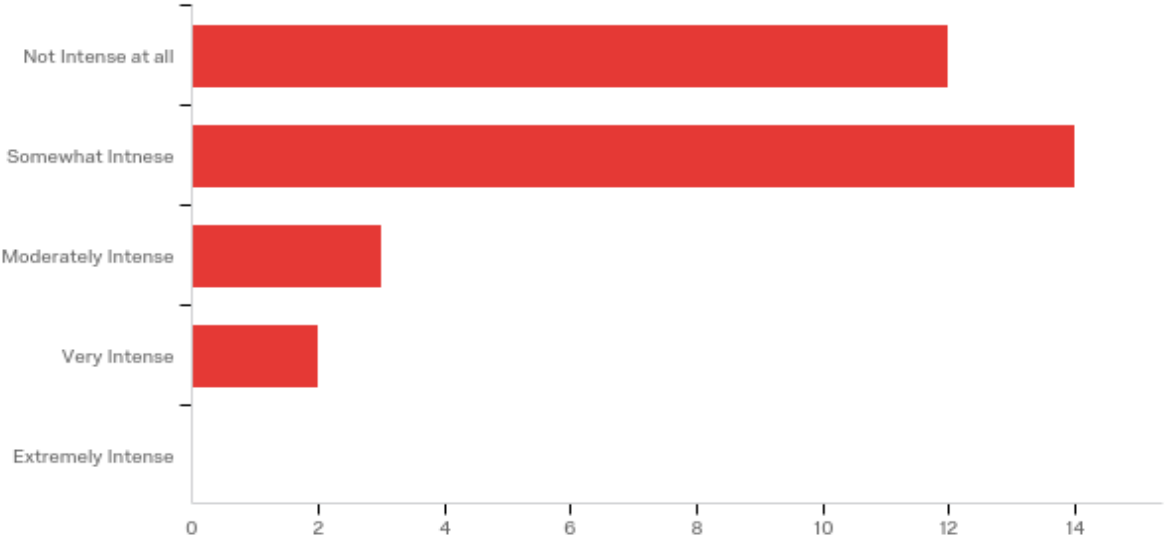
Teacher Behavior Rating Observation – Teacher 4

Q4 - How many times did the student engage in Off-Task behavior?



Teacher Behavior Rating Observation – Teacher 4

Q18 - What was the overall level of intensity of the Off-Task behavior?

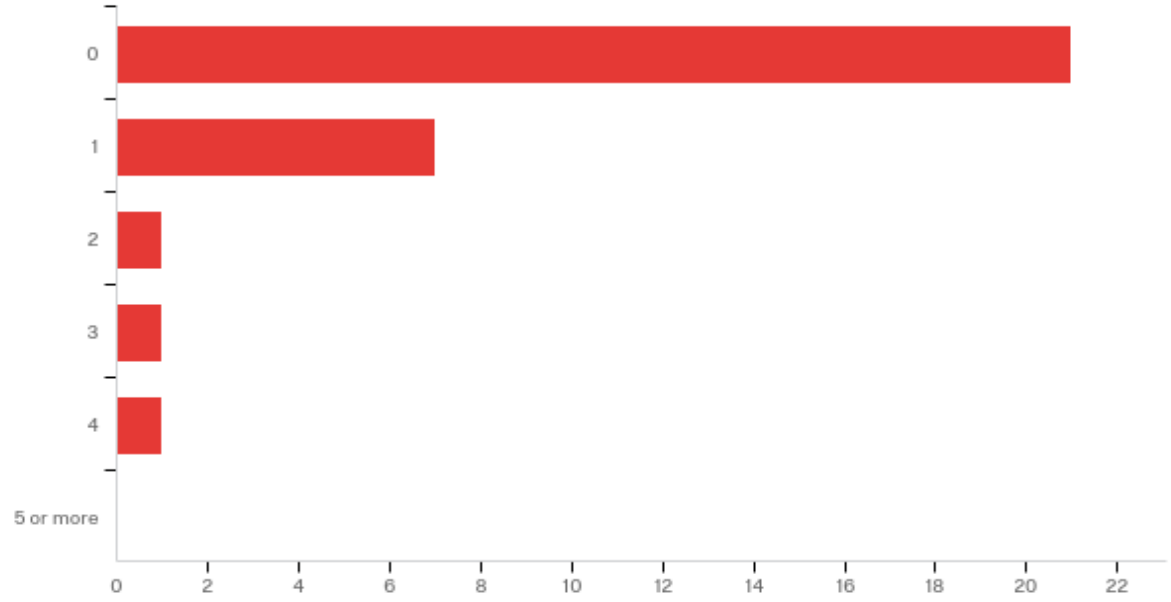


Q28 - How long did the Off-Task behavior occur? (In Seconds)

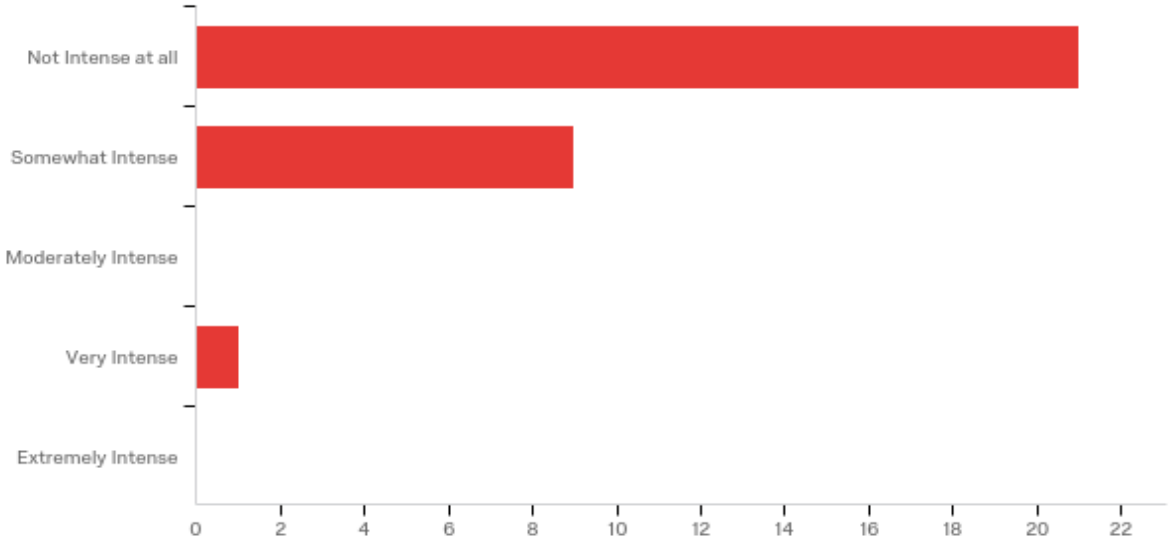
#	Field	Minimum	Maximum	Mean	Std Deviation	Variance	Count
1	Off-Task	3.00	120.00	78.32	43.13	1860.53	19

Teacher Behavior Rating Observation – Teacher 4

Q23 - How many times did the student engage in elopement?



Q20 - What was the overall level of intensity of the Elopement?

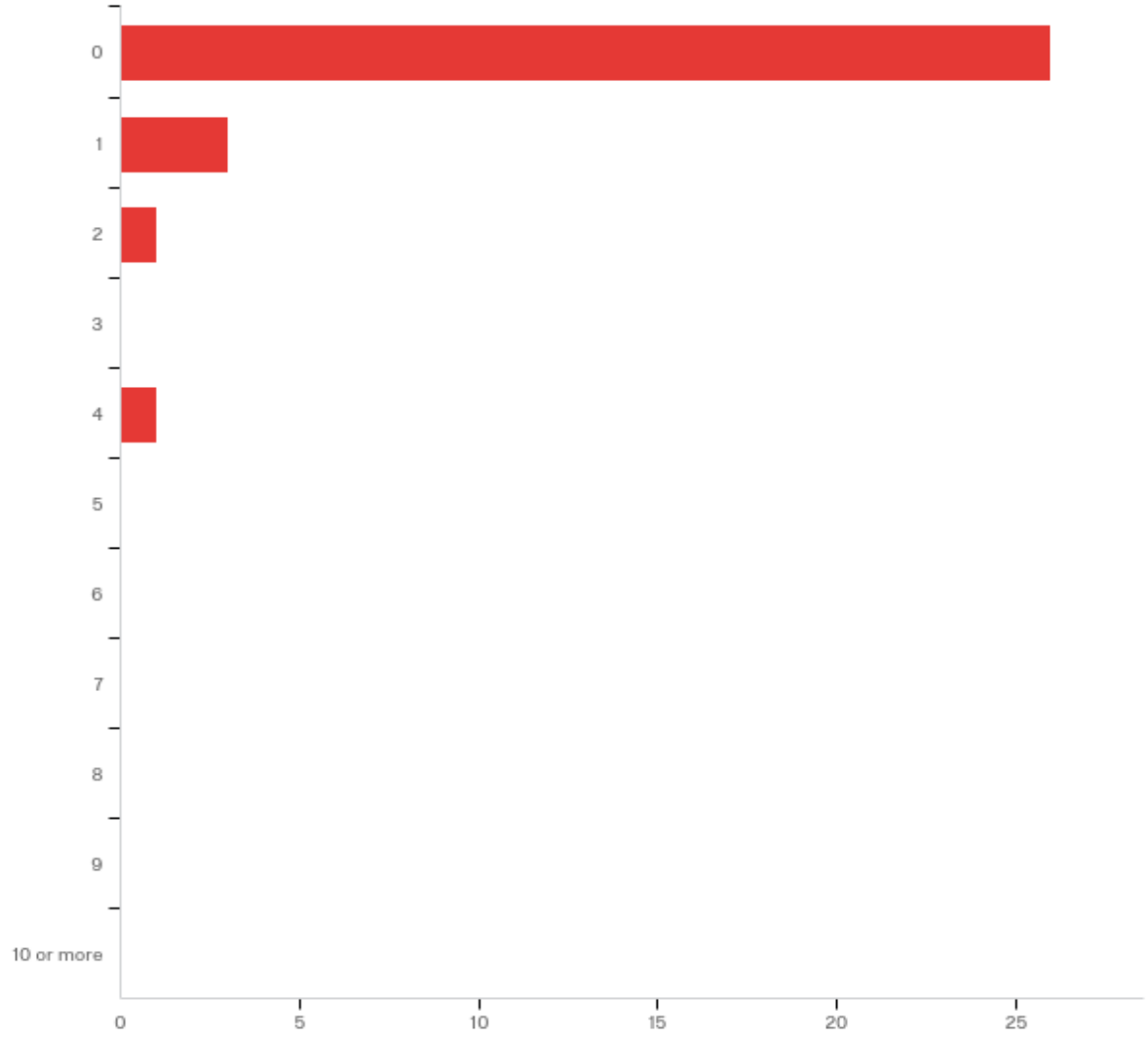


Teacher Behavior Rating Observation – Teacher 4

Q27 - How long did the elopement occur? (In Seconds)

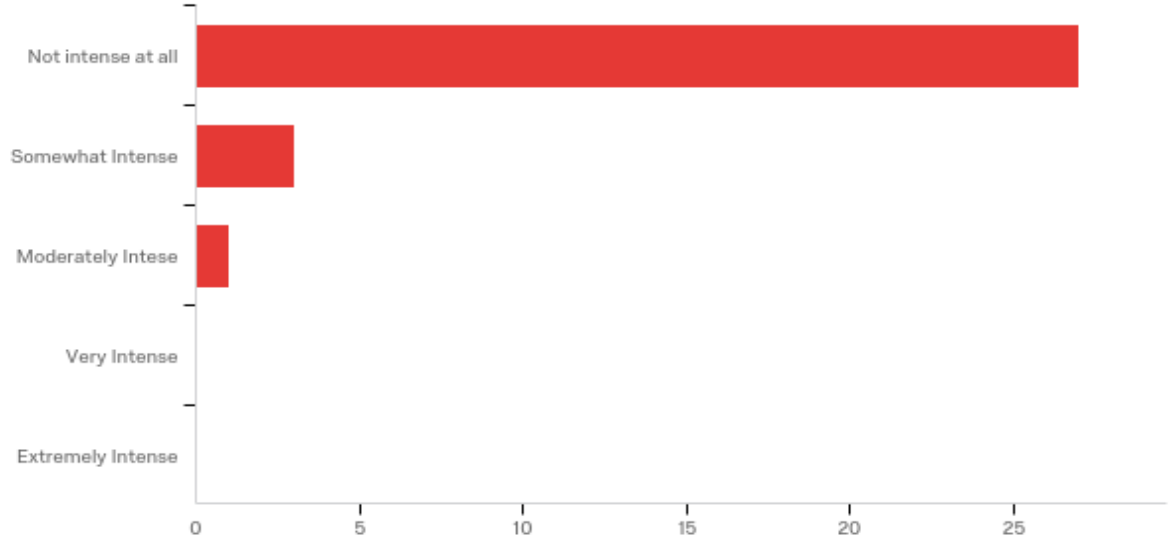
#	Field	Minimum	Maximum	Mean	Std Deviation	Variance	Count
1	Elopement	15.00	120.00	60.11	36.06	1300.10	9

Q24 - How many times did the student engage in Verbal Aggression?



Teacher Behavior Rating Observation – Teacher 4

Q18 - What was the overall level of intensity of the Verbal Aggression?

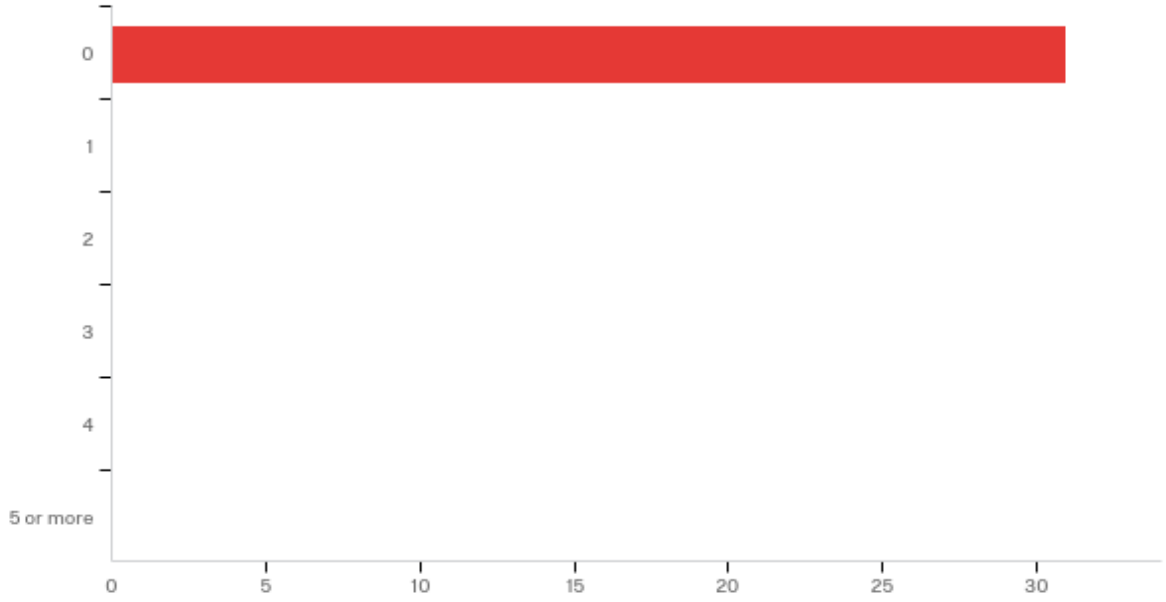


Q26 - How long did the Verbal Aggression occur? (In Seconds)

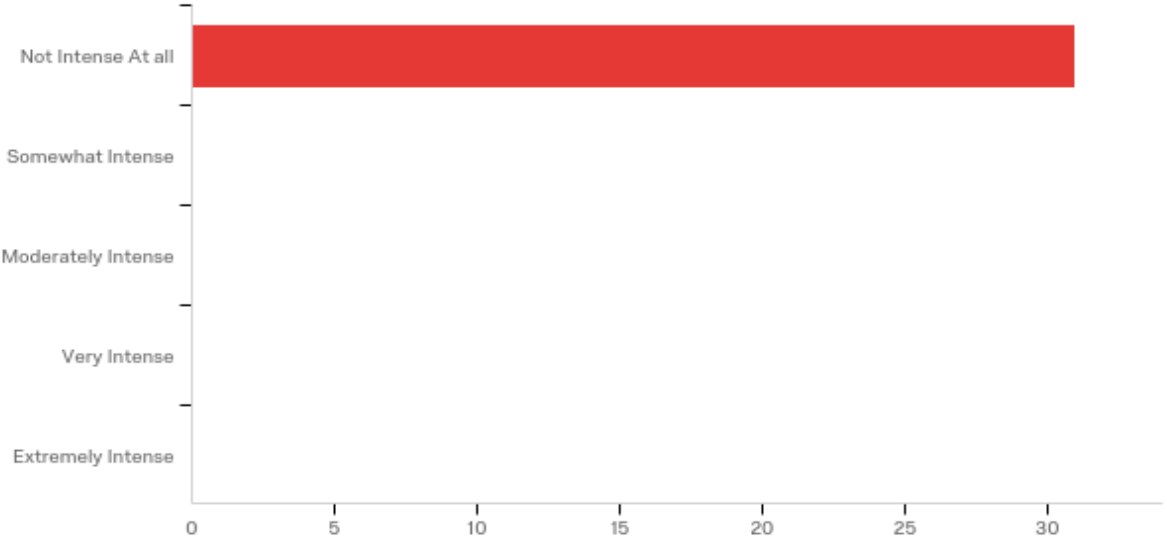
#	Field	Minimum	Maximum	Mean	Std Deviation	Variance	Count
1	Verbal Aggression	15.00	103.00	38.80	32.75	1072.56	5

Teacher Behavior Rating Observation – Teacher 4

Q25 - How many times did the student engage in Physical Aggression?



Q19 - What was the overall level of intensity of the Physical Aggression?



Teacher Behavior Rating Observation – Teacher 4

Q14 - How long did the Physical Aggression occur? (In Seconds)

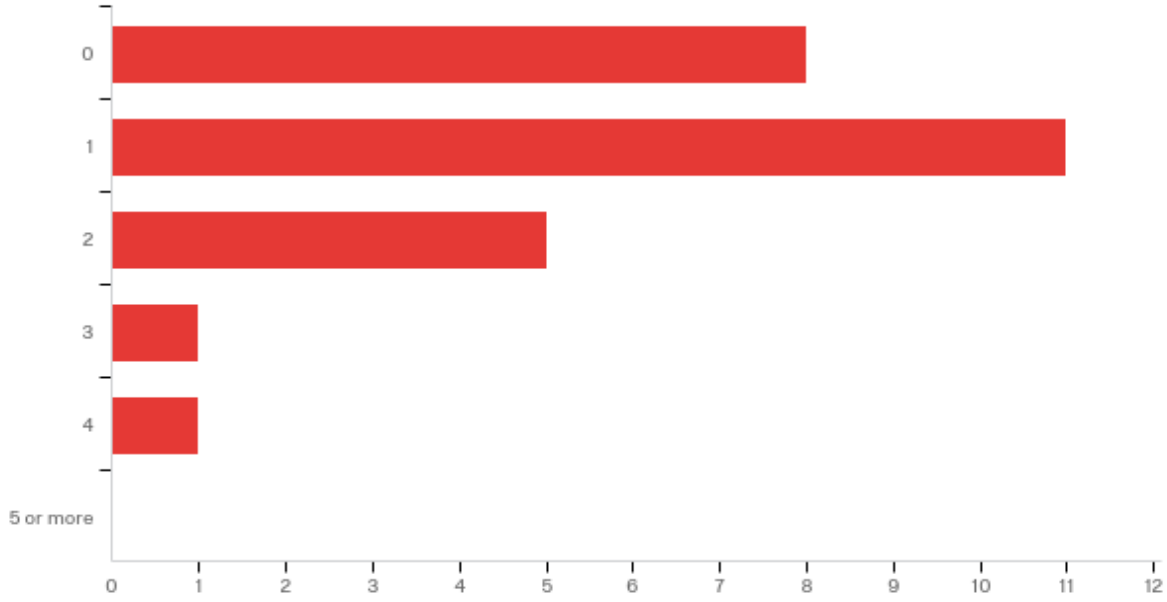
#	Field	Minimum	Maximum	Mean	Std Deviation	Variance	Count
1	Physical Aggression	0.00	0.00	0.00	0.00	0.00	0

Appendix J

Chart of Teacher Responses – Teacher 5

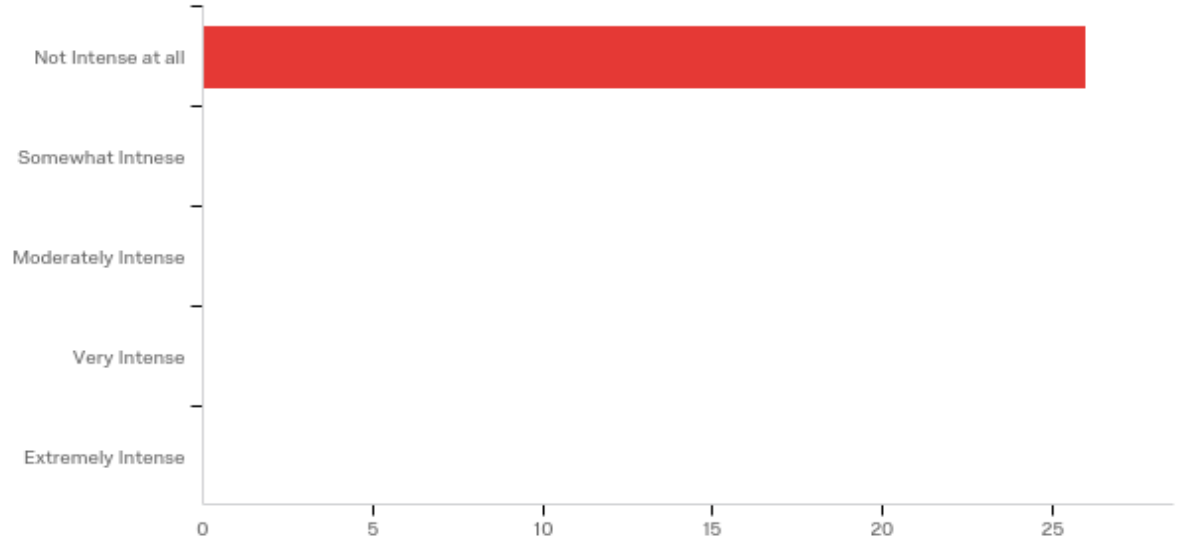
Teacher Behavior Rating Observation – Teacher 5

Q4 - How many times did the student engage in Off-Task behavior?



Teacher Behavior Rating Observation – Teacher 5

Q18 - What was the overall level of intensity of the Off-Task behavior?

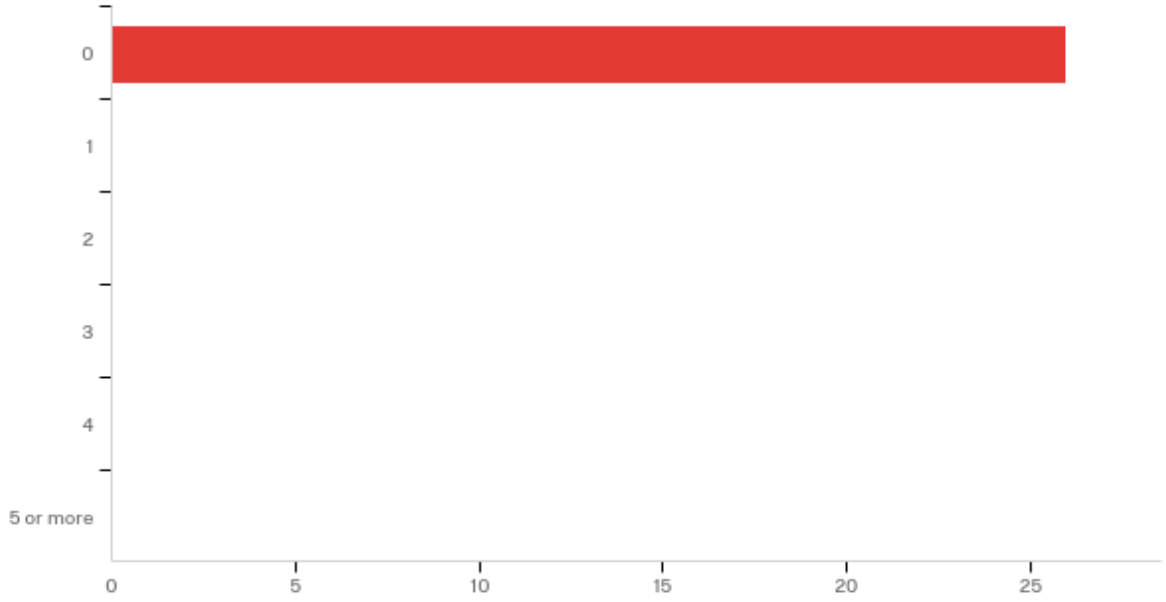


Q28 - How long did the Off-Task behavior occur? (In Seconds)

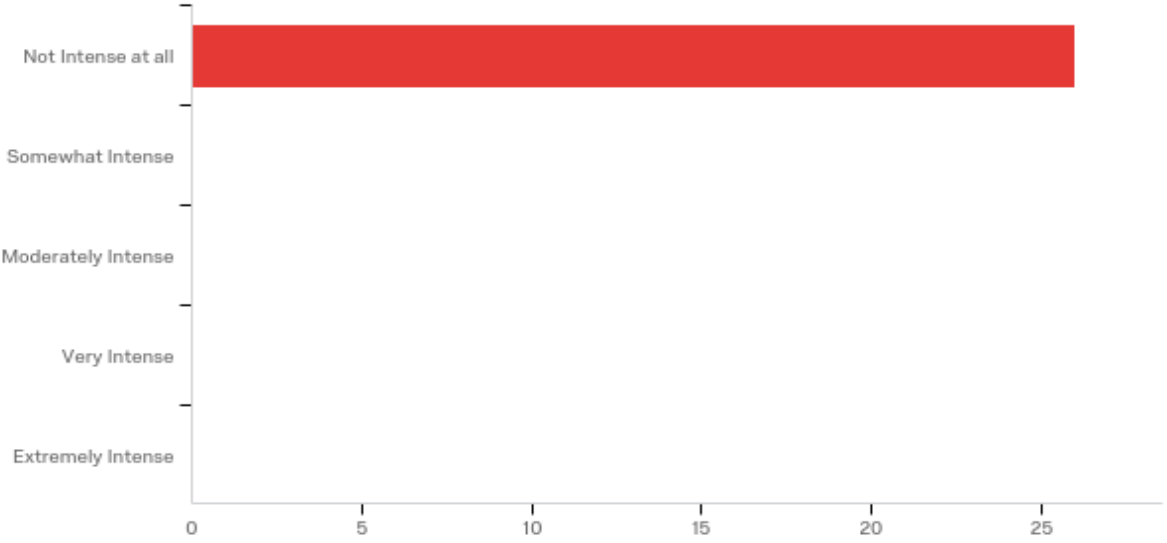
#	Field	Minimum	Maximum	Mean	Std Deviation	Variance	Count
1	Off-Task	5.00	38.00	18.67	10.16	103.16	15

Teacher Behavior Rating Observation – Teacher 5

Q23 - How many times did the student engage in elopement?



Q20 - What was the overall level of intensity of the Elopement?

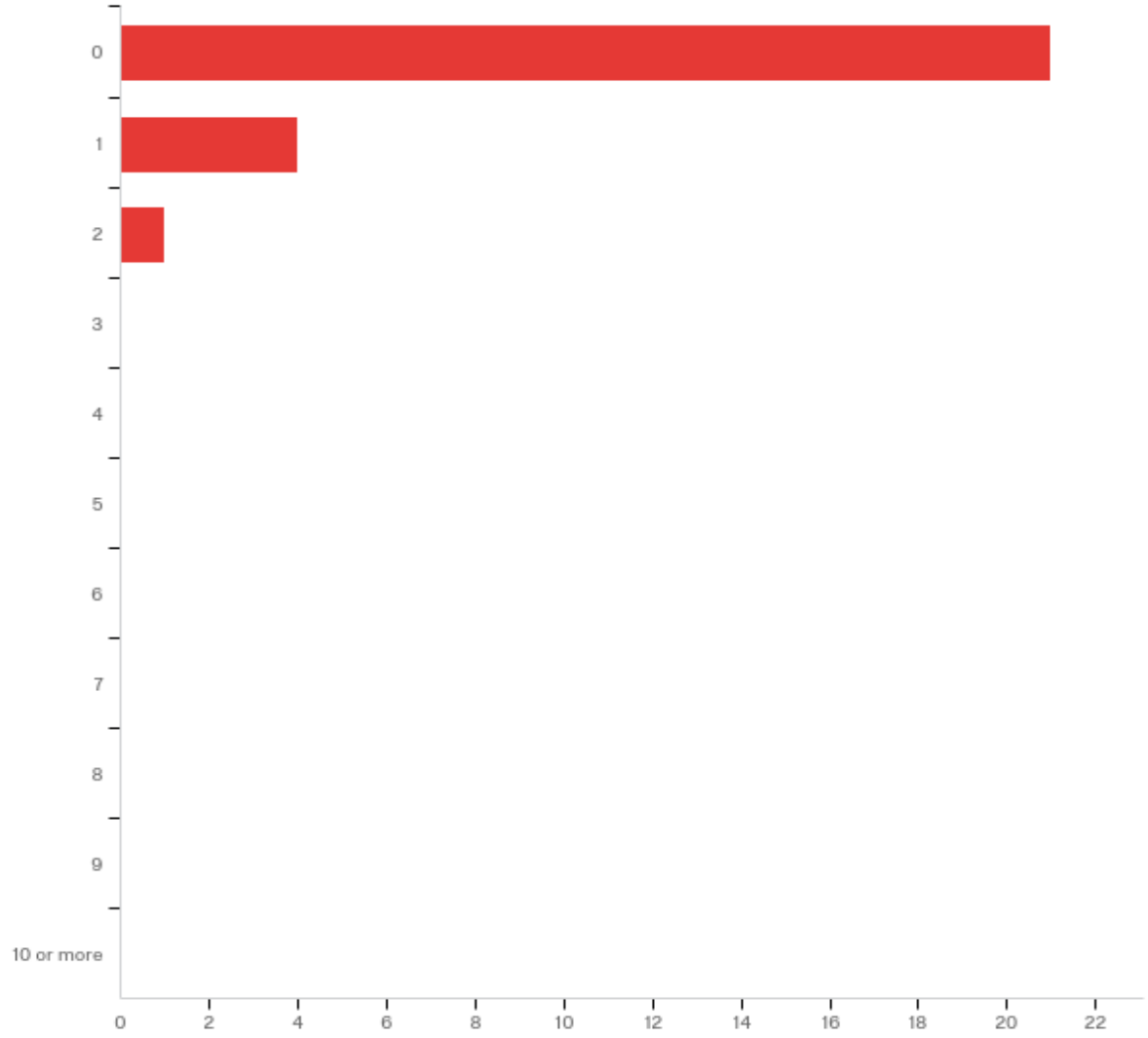


Teacher Behavior Rating Observation – Teacher 5

Q27 - How long did the elopement occur? (In Seconds)

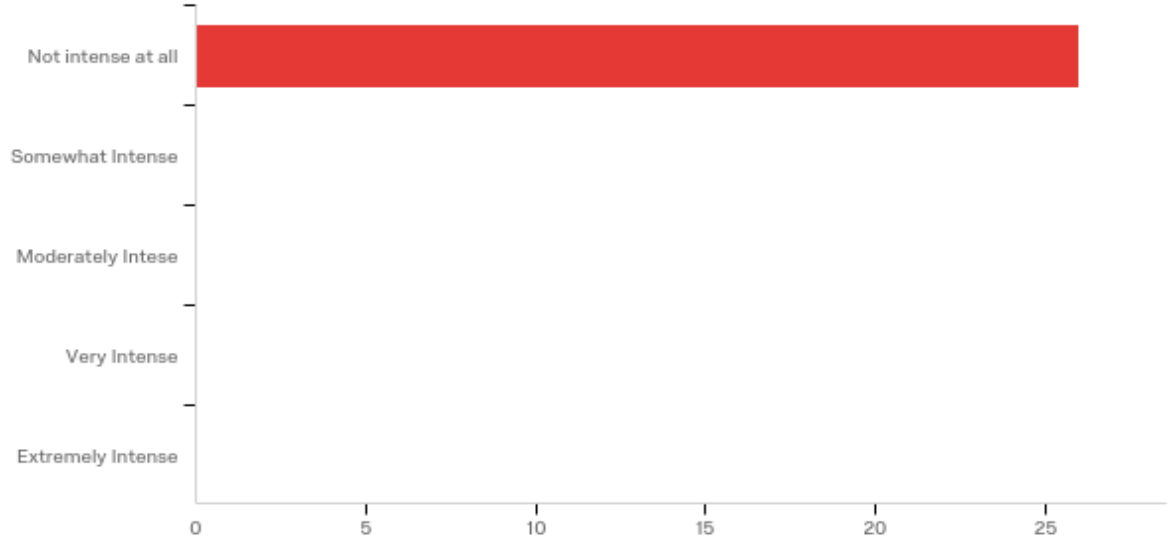
#	Field	Minimum	Maximum	Mean	Std Deviation	Variance	Count
1	Elopement	0.00	9.00	4.50	4.50	20.25	2

Q24 - How many times did the student engage in Verbal Aggression?



Teacher Behavior Rating Observation – Teacher 5

Q18 - What was the overall level of intensity of the Verbal Aggression?



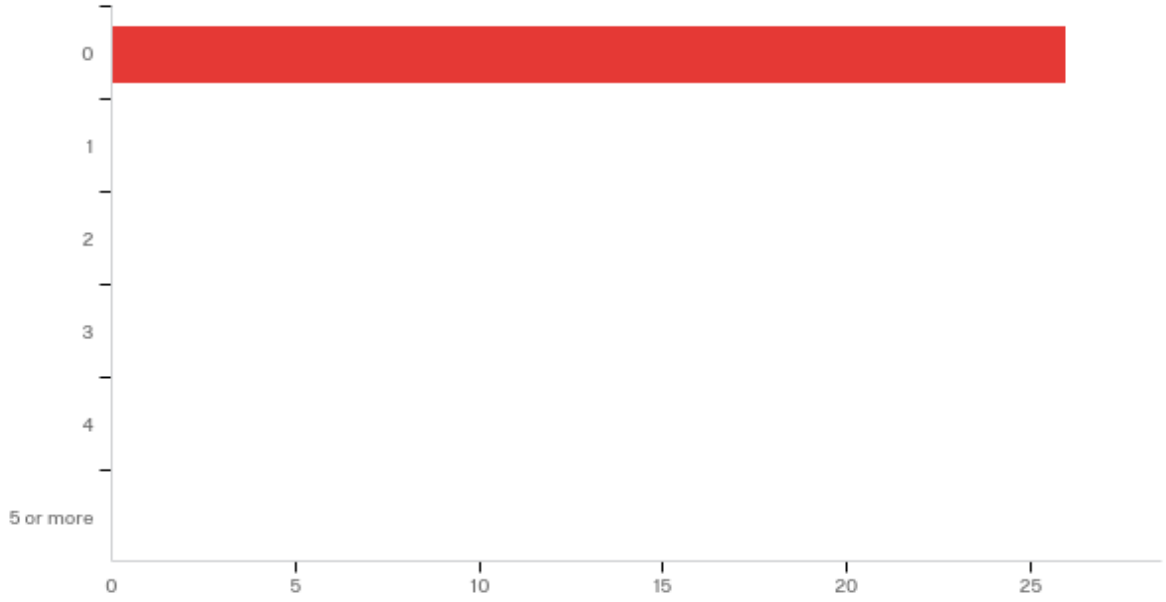
Teacher Behavior Rating Observation – Teacher 5

Q26 - How long did the Verbal Aggression occur? (In Seconds)

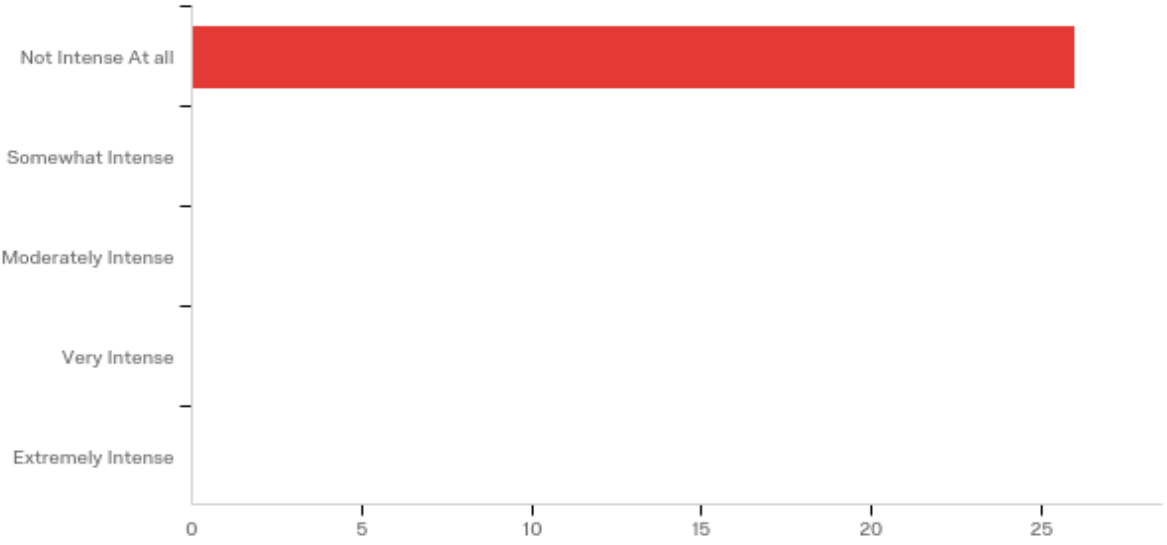
#	Field	Minimum	Maximum	Mean	Std Deviation	Variance	Count
1	Verbal Aggression	0.00	11.00	5.00	3.70	13.71	7

Teacher Behavior Rating Observation – Teacher 5

Q25 - How many times did the student engage in Physical Aggression?



Q19 - What was the overall level of intensity of the Physical Aggression?



Teacher Behavior Rating Observation – Teacher 5

Q14 - How long did the Physical Aggression occur? (In Seconds)

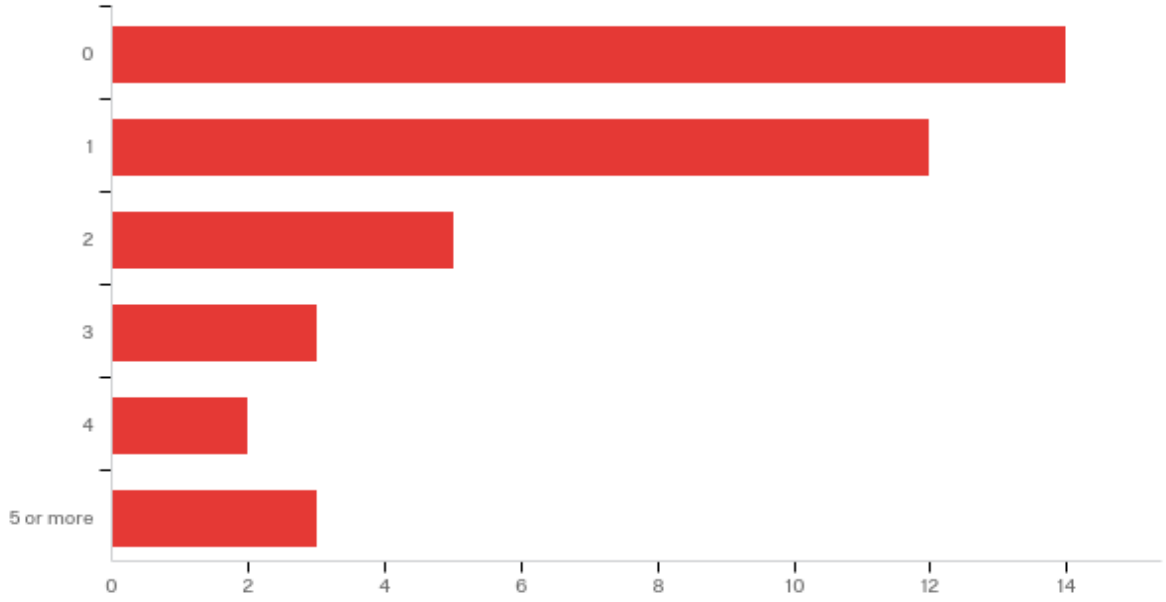
#	Field	Minimum	Maximum	Mean	Std Deviation	Variance	Count
1	Physical Aggression	9.00	9.00	9.00	0.00	0.00	1

Appendix K

Chart of Teacher Responses – Teacher 6

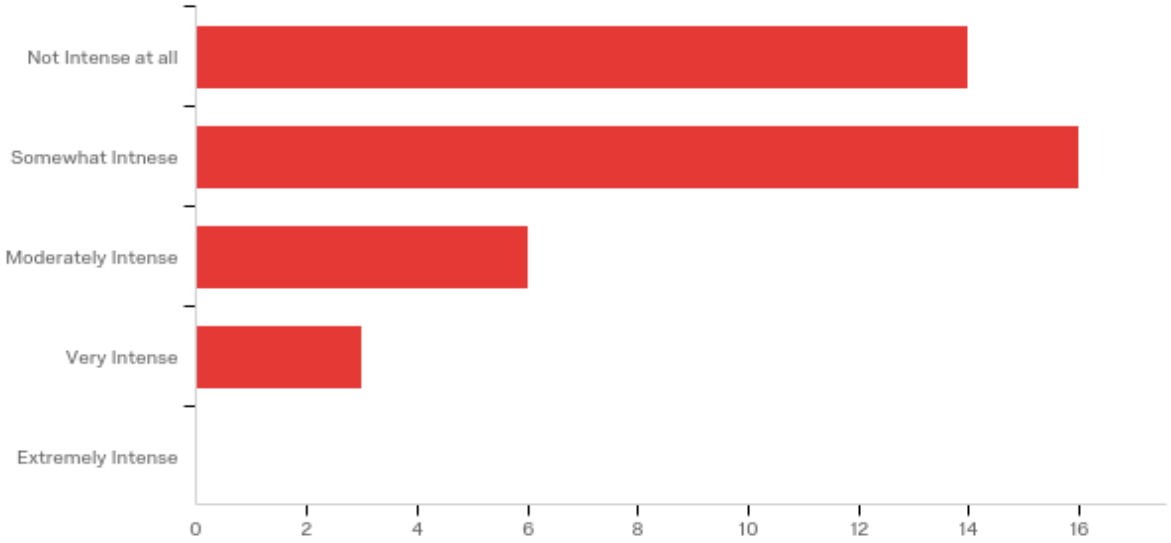
Teacher Behavior Rating Observation – Teacher 6

Q4 - How many times did the student engage in Off-Task behavior?



Teacher Behavior Rating Observation – Teacher 6

Q18 - What was the overall level of intensity of the Off-Task behavior?



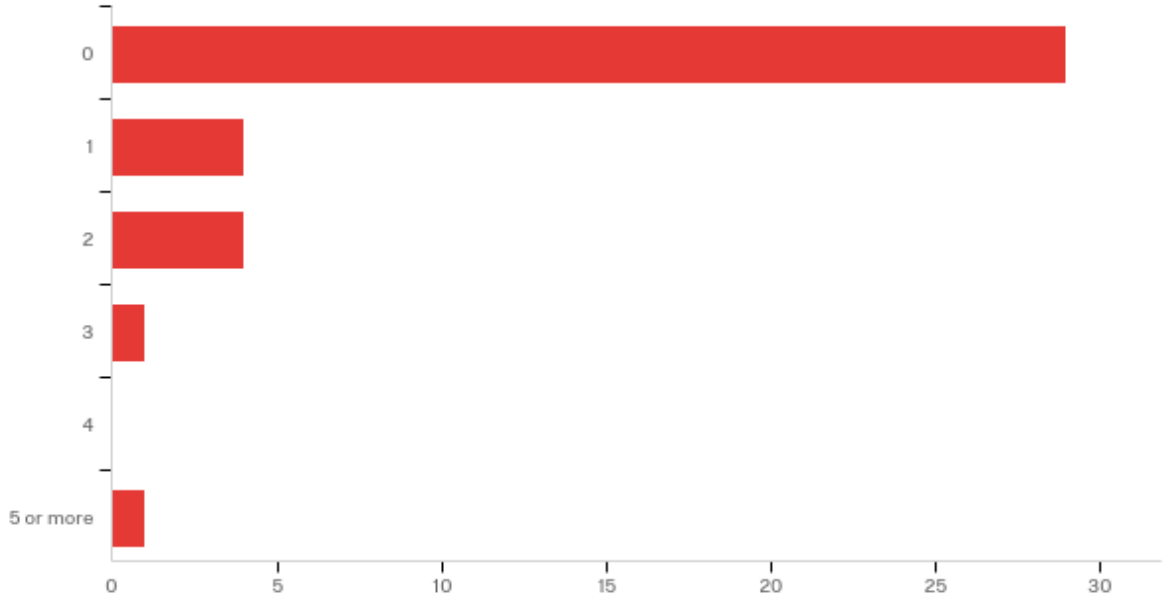
Teacher Behavior Rating Observation – Teacher 6

Q28 - How long did the Off-Task behavior occur? (In Seconds)

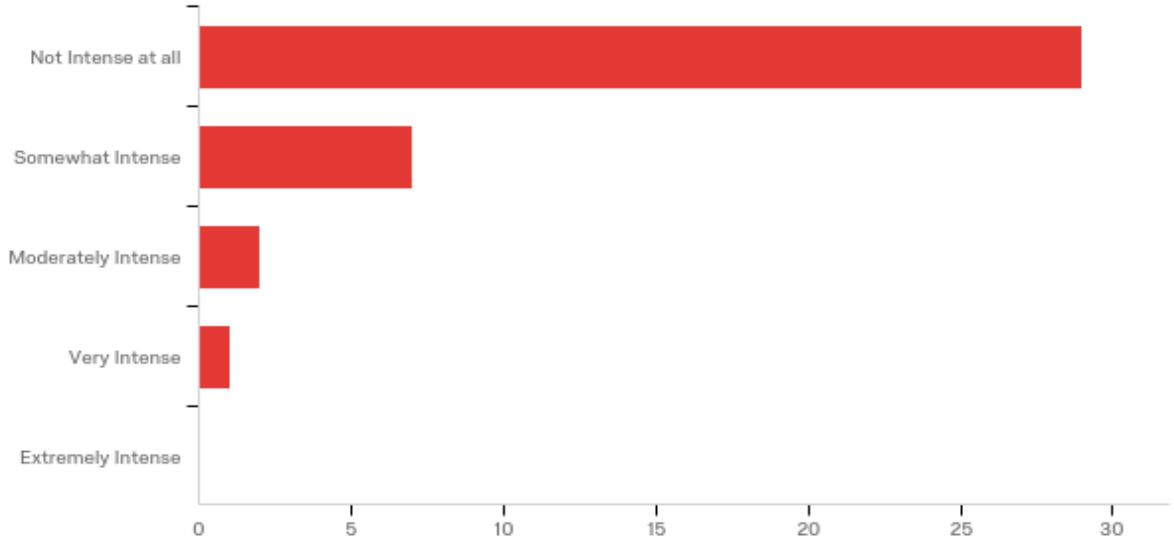
#	Field	Minimum	Maximum	Mean	Std Deviation	Variance	Count
1	Off-Task	3.00	120.00	42.68	44.40	1970.93	28

Teacher Behavior Rating Observation – Teacher 6

Q23 - How many times did the student engage in elopement?



Q20 - What was the overall level of intensity of the Elopement

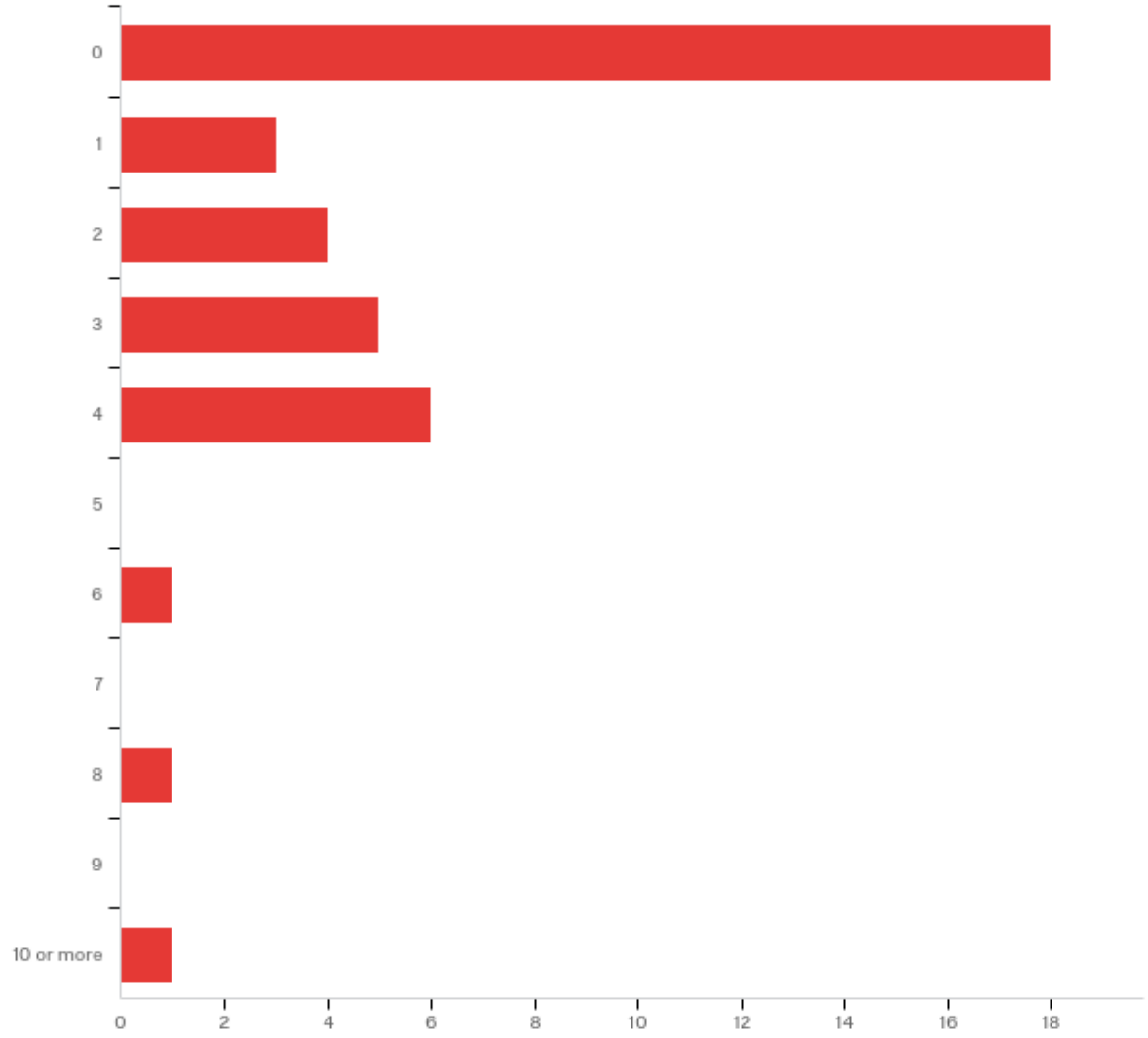


Teacher Behavior Rating Observation – Teacher 6

Q27 - How long did the elopement occur? (In Seconds)

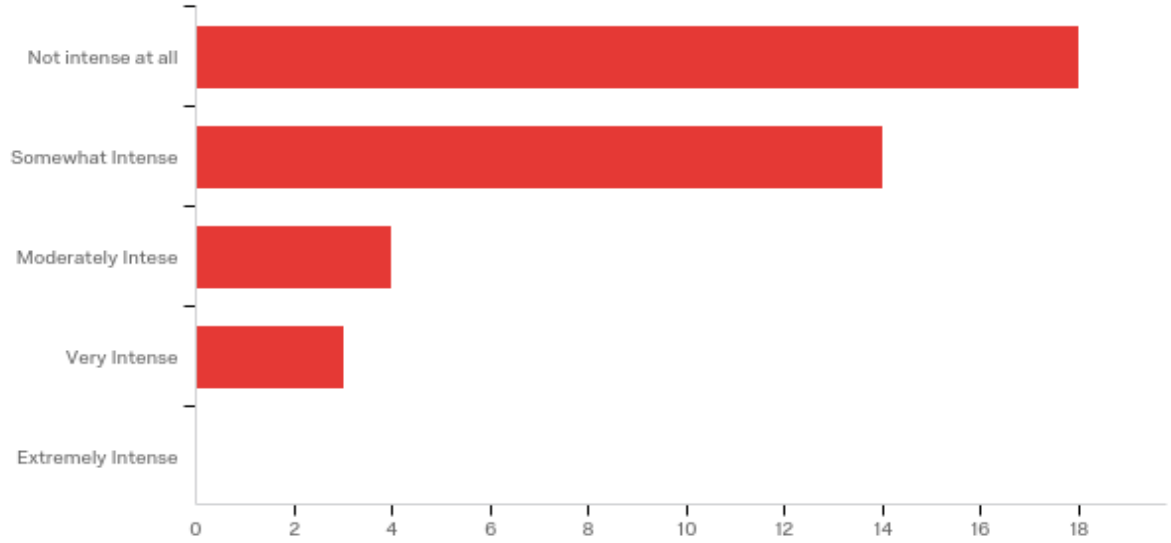
#	Field	Minimum	Maximum	Mean	Std Deviation	Variance	Count
1	Elopement	2.00	120.00	30.46	34.46	1187.33	13

Q24 - How many times did the student engage in Verbal Aggression?



Teacher Behavior Rating Observation – Teacher 6

Q18 - What was the overall level of intensity of the Verbal Aggression?

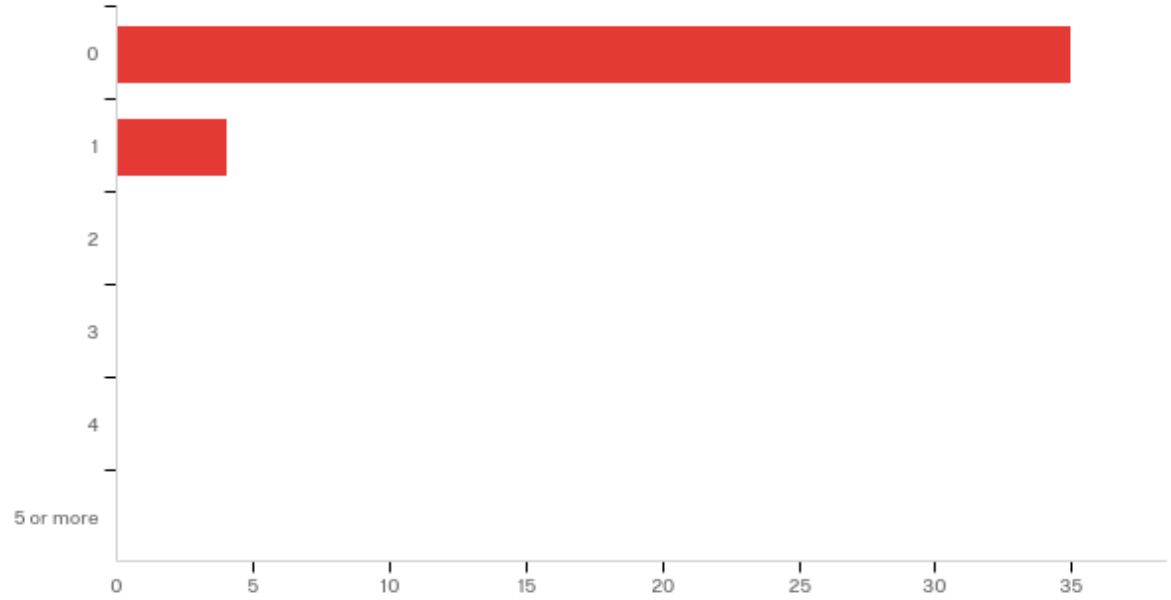


Q26 - How long did the Verbal Aggression occur? (In Seconds)

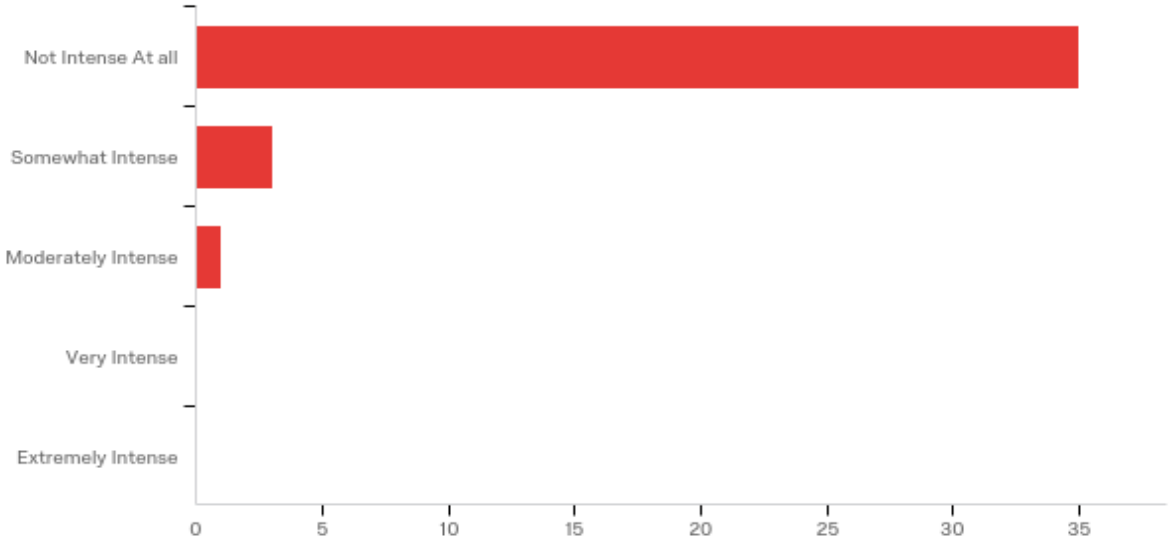
#	Field	Minimum	Maximum	Mean	Std Deviation	Variance	Count
1	Verbal Aggression	0.00	120.00	34.00	35.09	1231.17	24

Teacher Behavior Rating Observation – Teacher 6

Q25 - How many times did the student engage in Physical Aggression?



Q19 - What was the overall level of intensity of the Physical Aggression?



Teacher Behavior Rating Observation – Teacher 6

Q14 - How long did the Physical Aggression occur? (In Seconds)

#	Field	Minimum	Maximum	Mean	Std Deviation	Variance	Count
1	Physical Aggression	1.00	4.00	2.75	0.83	0.69	8

Appendix L

Parental Permission/Student Assent Letter

PARENTAL PERMISSION/CHILD ASSENT

for a Research Study entitled

"Music Therapy as a Behavior Modification for Students with Severe Behavior"

Your son or daughter is invited to participate in a research study to determine the extent to which music therapy techniques effect the behavior of students with an emotional or behavioral disorder. The study is being conducted by Forrest Parker (Ph.D. candidate at Auburn University) under the direction of Dr. Paris Strom in the Auburn University Department of Educational Foundations. Your son or daughter is invited to participate because he or she is a student at the Woodall Program. Since he/she is age 18 or younger we must have your permission to include him/her in the study.

What will be involved if your son/daughter participates? If you decide to allow him/her to participate in this research study, he/she will be asked to listen to Baroque style music while completing their usual classroom assignments. Your son's/daughter's total time commitment will be approximately thirty minutes a day for four days.

Are there any risks or discomforts? The risks associated with participating in this study are an escalation of undesired behavior, distraction, or an inability to accomplish academic tasks. To minimize these risks, we will limit the volume of the music, allow students to use all usual replacement behaviors, and minimize the number of days the music therapy will be implemented.

Are there any benefits to your son/daughter or others? If he/she participates in this study, he/she can expect to enjoy music, focus clearly during work sessions, and experience a greater control of their negative behaviors. We/I cannot promise you that your son/daughter will receive any or all of the benefits described.

If you (or your son/daughter) change your mind about his/her participation, he/she can be withdrawn from the study at any time. His/her participation is completely voluntary. If you choose to withdraw your son/daughter, his/her data can be withdrawn as long as it is identifiable. Your decision about whether or not to allow your son/daughter to participate or to stop participating will not jeopardize your or his/her future relations with Auburn University, the Department of Educational Foundations or the Woodall Program.

Your son's/daughter's privacy will be protected. Any information obtained in connection with this study will remain *confidential*. The data collected will be protected by Forrest Parker. Information obtained through his/her participation may be used to fulfill an educational requirement, published in a professional journal, or presented at a professional conference.

If you (or your son/daughter) have questions about this study, *please ask them now or* contact Forrest Parker at (706) 527-0415 or Dr. Paris Strom at (334) 844-3077. A copy of this document will be given to you to keep.

If you have questions about your child's rights as a research participant, you may contact the Auburn University Office of Research Compliance or the Institutional Review Board by phone (334)-844-5966 or e-mail at IRBadmin@auburn.edu or IRBChair@auburn.edu.

HAVING READ THE INFORMATION PROVIDED, YOU MUST DECIDE WHETHER OR NOT YOU WISH FOR YOUR SON OR DAUGHTER TO PARTICIPATE IN THIS RESEARCH STUDY. YOUR SIGNATURE INDICATES YOUR WILLINGNESS TO ALLOW HIM OR HER TO PARTICIPATE. YOUR SON'S/DAUGHTER'S SIGNATURE INDICATES HIS/HER WILLINGNESS TO PARTICIPATE.

_____ _____

Participant's signature Date Investigator obtaining consent Date

_____ _____

Printed Name Printed Name

_____

Parent/Guardian Signature Date

_____

Printed Name