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School-based mindfulness intervention for adolescents with Autism Spectrum Disorder

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School-Based Mindfulness Intervention for Adolescents with Autism Spectrum Disorder

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JAMES MADISON UNIVERSITY

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Abstract

The symptoms of Autism Spectrum Disorder (ASD) have large impacts on the emotional (Samson et al., 2014; Strang et al., 2012) and behavioral (Mayes et al, 2012; Hill et al, 2014; Jahromi, Meek, & Ober-Reynolds, 2012) functioning of children and adolescents diagnosed with the disorder. The difficulties with emotional and behavioral functioning in students with ASD can drastically decrease their academic achievement compared to neuro-typical peers (Ashburner, Ziviani, & Rodger, 2010). Introducing students with ASD to mindfulness may help decrease the frequency of a challenging behavior in the classroom, increase mindfulness, and increase mood and positivity. How mindfulness interventions have benefited children diagnosed with ASD in previous studies will be described. The results of a current mindfulness intervention program delivered to two students will be shared.

I. Introduction

Autism Spectrum Disorder (ASD) is a group of neurodevelopmental disorders that affects 1 in 68 children 8 years old in the United States as of 2012 (Christensen et al., 2018). It is much more prevalent in males with 1 in 42 boys being diagnosed to 1 in 189 girls. The prevalence rate has been on the rise. In 2000, 1 in 150 children were affected by ASD and in 2008, the rate increased to 1 in 88 (Center for Disease Control and Prevention, 2016). ASD encompasses a group of disorders, with each subtype characterized by difficulties in social exchanges, verbal and nonverbal communication, and unordinary, repetitive behaviors (Tchaconas & Adesman, 2013). In the *Diagnostic and Statistical Manual of Mental Disorders, Fourth Edition (DSM-4)*, there is autistic disorder, Asperger's disorder, childhood-onset disintegrative disorder (CODD), Rett syndrome, and PDD-Not Otherwise Specified (PDD-NOS). These 5 disorders fall under the Pervasive Developmental Disorders (PDDs) category. In May 2013, the DSM-5 established Autism Spectrum Disorder, which includes autistic disorder, Asperger's, CODD, and PDD-NOS to minimize diagnostic ambiguities and reduce inconsistent diagnoses (Tchaconas et al., 2013).

Symptoms

In the *Diagnostic and Statistical Manual of Mental Disorders, Fifth Edition (DSM-5)*, there are two sets of symptoms that are characterized by individuals with ASD. The first set includes persistent deficits in social communication and social interaction, including symptoms such as deficits in social-emotional reciprocity (e.g. lack of reciprocal conversation, not initiating or responding in social interactions), deficits in nonverbal communicative behaviors in social interactions (e.g. lack of eye contact, abnormal body language, lack of facial expression), and deficits in developing and maintaining relationships (e.g. difficulties in adjusting behavior appropriately to social situations, engaging in imaginative play with peers). The second set

includes restricted, repetitive patterns of behavior, interests, or activities, including symptoms such as stereotyped or repetitive motor movements, use of objects, or speech (e.g. hand-flapping, echolalia), insistence on sameness with an inflexibility in daily routines and ritualized patterns of behavior (e.g. distress in small changes to routine, rigid thinking patterns), highly restricted, fixated interests (e.g. perseverative interests, strong preoccupation with certain objects), and hyper- or hyporeactivity to sensory stimuli (e.g. adverse response to specific sounds or textures, excessive touching of certain objects; American Psychiatric Association, 2013).

Problem Statement

The symptoms of ASD can have a large impact on the overall functioning of a child or adolescent and can lead to emotional difficulties (Samson et al., 2014; Strang et al., 2012) and problems with behavior (Mayes et al., 2012; Hill et al., 2014; Jahromi, Meek, & Ober-Reynolds, 2012). Students with ASD tend to have difficulties regulating their emotions and behaviors in school. A study that utilized teacher ratings found that students with ASD exhibit behavioral and emotional difficulties, such as inattentiveness, anxiety, depression, opposition, and aggression, significantly higher than typically developing classmates (Ashburner, Ziviani, & Rodger, 2010). These participants had average level cognitive functioning and were in general education classrooms. These difficulties can also have a drastic academic impact. In the same study, it was found that 54% of students diagnosed with ASD were under-achieving in their academics compared to 8% of their typically developing classmates (Ashburner et al., 2010). The students with ASD were reported to be struggling more than the typically developing population, despite the range of special education services that were provided.

Intervention

The most popular form of intervention for students with ASD focuses on behavior, communication and social responsiveness (Tchaconas et al., 2013). The most well supported treatments are Applied Behavior Analysis and the Early Start Denver Model. However, a full review of these treatments is beyond the scope of this literature review. According to Applied Behavioral Strategies (ABS, 2010), Applied Behavior Analysis “is the process of systematically applying interventions based upon the principles of learning theory to improve socially significant behaviors to a meaningful degree, and to demonstrate that the interventions employed are responsible for the improvement in behavior”. Essentially, Applied Behavior Analysis is used to increase or decrease specific behaviors that inhibit the daily functioning of a person with ASD. Some of the practices may include things such as modeling, behavioral treatment, peer training, and comprehensive intervention (ABS, 2010). These Applied Behavior Analysis techniques have a large body of research supporting their ability to improve communication, social relationships, play, self care, school functioning, and employment (Autism Speaks, 2018). The Early Start Denver Model is used for young children with ASD, ages 12 to 48 months. It is an individualized program that focuses on increasing development in areas of functioning that kids with ASD struggle with and decreasing symptoms that may interfere with their daily functioning. When the program was developed, it integrated teaching practices from Applied Behavior Analysis and a relationship-focused developmental model. The Early Start Denver Model requires teaching from a qualified practitioner as well as teaching from the parents of the child while at home (Autism Speaks, 2013). In general, school-based interventions including antecedent manipulations, changes in instructional context, differential reinforcement, or self-

management have seen decreases or complete elimination of challenging behaviors for students with ASD (Machalicek, O'Reilly, Beretvas, Sigafoos, & Lancioni, 2007).

Medication may be used to help manage symptoms, but there are no FDA-approved drugs specifically designed for children with ASD. There are some drugs that may be used to decrease symptoms such as aggression or irritability. Some children are also prescribed stimulants for ADHD that may help with hyperactivity. However, these medications can have harmful side effects and should be prescribed on a case-by-case basis (Tchaconas et al., 2013).

Mindfulness

Mindfulness teaches individuals to stay in the present moment and approach the current experience with nonjudgmental awareness; in turn, these individuals tend to have an increased tolerance to negative emotions and an improved well-being (Farb, Anderson, & Segal, 2012). Mindfulness is often associated with ancient religions and spiritual systems such as Buddhism, Hinduism, and Taoism (Stahl & Goldstein, 2010). However, mindfulness can be practiced with a detachment from its religious origins. John Kabat-Zinn (2005), the creator of the Mindfulness-Based Stress Reduction (MBSR) program, defines mindfulness in *Wherever You Go, There You Are* as:

having everything to do with waking up and living in harmony with oneself and with the world. It has to do with examining who we are, with questioning our view of the world and our place in it, and with cultivating some appreciation for the fullness of each moment we are alive. Most of all, it has to do with being in touch. (p. 3)

Mindfulness embraces two forms of practice: formal and informal. The first is withdrawing from one's daily routine in order to participate in formal mindfulness techniques, including deep breathing techniques and progressive muscle relaxation. The second practice is

integrating what the individual learned during formal practice into his or her daily activities.

These daily activities can be simple things throughout the day, such as getting ready for school, cleaning the bedroom, or eating a meal (Keenan-Mount, Albrecht, & Waters, 2016).

The effectiveness of mindfulness-based therapy (MBT) has been well researched and has excellent evidence-based research. In 2013, a group of researchers conducted a meta-analysis of studies that involved MBT to treat a wide variety of people suffering from various physical or mental disorders, as well as the non-clinical population (Khoury, et al., 2013). The goal was to find if MBT could effectively reduce stress, anxiety, and depression that accompanied these disorders. After calculating the effect estimates, the researchers found that MBT did not differ from traditional cognitive behavioral therapy, other behavioral therapies, or medication. However, it was concluded this was an effective treatment for a variety of psychological disorders. It has also been found that mindfulness interventions are positively associated with increased psychological health, including effects such as increased well-being, reduced psychological symptoms, reduced emotional reactivity, and increased behavioral regulation (Keng, Smoski, & Robins, 2011). Specifically, there is research that found mindfulness-based cognitive therapy reduced attention and behavior problems and anxiety in children (Semple, Lee, Rosa, & Miller, 2010). Other research has supported Mindfulness-Based Stress Reduction as a supplemental form of treatment to help significantly decrease anxiety, depression, somatization, and improve self-esteem and sleep quality in adolescents (Biegel, Brown, Shapiro, & Schubert, 2009).

Mindfulness and ASD

There has been limited, but positive research of MBT being used to help individuals with ASD. One study focused on adults with ASD and saw a reduction in symptoms of depression,

anxiety, and rumination as well as an increase in positive affect (Spek, Ham, & Nyklicek, 2013). A later study on adults with ASD also found an increase in positive affect and a reduction in depression, anxiety, and rumination, as well as a reduction in symptoms of agoraphobia, somatization, interpersonal sensitivity, sleeping problems, and inadequacy in thoughts and behavior. (Kiep, Spek, & Hoeben, 2015). While little research has been done on mindfulness interventions for school-aged children with ASD, the evidence does support its efficacy for a variety of challenges. Nirbhay N. Singh conducted extensive research on MBT and published two studies on adolescents with ASD. He and his colleagues were interested in mindfulness practices that could reduce the frequency of aggressive or disruptive behavior. The practice they utilized, *Meditation on the Soles of the Feet* (SoF), is used by individuals to calm themselves from stress. When individuals experience an emotionally distressful situation or thought, they can divert their attention to the soles of their feet because it is an emotionally neutral part of the body. This allows individuals to focus on their body, calm themselves, and then make a decision about how they should react to the original situation or thought (Singh et al., 2011a; Singh et al., 2011b).

The first study involved three adolescent boys, aged 14, 16, and 17. All three boys required interventions due to their aggressive behaviors, which included hitting, biting, and kicking. Each of the three families had previously attempted interventions, including behavioral training and medication, but neither had a long term effect. SoF was taught by the mother of each adolescent; each mother practiced the technique a month before teaching it. The initial training consisted of 30 minutes training sessions for 5 consecutive days. The mother would then softly give the instructions of SoF to her son in order to divert his attention from the negative emotion he was experiencing, focus on the soles of his feet, and then decide on the

appropriate way to react to the thought or situation that provoked him. After the adolescents learned the basics of SoF, they were given an audiotape of the same instructions that they could listen to on their iPods and continue to practice. This phase required the adolescents to practice at a minimum of twice a day with their mothers or whenever they encountered a trigger for an episode. Once each adolescent had avoided an episode for four consecutive weeks, their formal training was discontinued. At baseline, the adolescents exhibited 14, 20, and 16 aggressive acts per week. During the mindfulness training, their aggressive acts were reduced to an average of 6.3, 4.1, and 4.7, respectively. In the final 4 weeks of the mindfulness training, there were 0 episodes amongst all three boys. The treatment was effective for years after the intervention. Although it took 23 to 30 weeks for there to be no aggressive acts in 4 consecutive weeks, each adolescent engaged in aggression only 3 to 4 times over the three year span post-treatment (Singh et al., 2011a).

The second study maintained the same methodology and intervention, however the participants were three adolescents diagnosed with Asperger syndrome, which is now classified under ASD. At baseline, the adolescents exhibited an average of 2.67, 2.50, and 3.17 aggressive acts per week. During the mindfulness training, their aggressive acts were reduced to an average of 0.94, 1.09, and 0.75, respectively. The participants were able to attain the criterion of zero aggressive acts for three weeks. The treatment was effective long-term for these adolescents as well. During the 4-year follow-up, no aggressive behaviors were observed (Singh et al., 2011b)

Another recent study highlighted the benefits of training parents in mindfulness in order to help mothers decrease challenging behaviors from their children with ASD. The study was comprised of 6 mothers who each had a child with ASD. There were 5 boys and 1 girl within the age range of 8 to 15. Each child was exhibiting problem behaviors, including physical and

verbal aggression, self-injury, and breakage. The intervention consisted of 2 stages. In Stage 1, the mothers were given an 8-week mindfulness training course, with 2.5-hour group sessions each week. There were 5 mindfulness techniques taught to the mothers; while the techniques were similar to those found in MSBR, they were derived from the early Nikayas of the Buddha's teachings. The primary difference is that the training was taught in a way that allowed the mothers to individualize mindfulness practices for their children. Following the training period, the mothers were given a 2-month period to self-practice mindfulness as well as prepare for Stage 2 (in which the mothers would train their children; Hwuang, Kearney, Klieve, Lang, & Roberts, 2015).

In Stage 2, the children began mindfulness training, which was parent-mediated and consisted of three weekly home visits and online meetings. The children were taught the same 5 mindfulness techniques the mothers previously learned. After formal training was complete, the mothers utilized online sessions to discuss possible modifications that would benefit their children. The mothers continued to regularly practice with their children for the rest of Stage 2, which lasted 12 months. Of the 6 mother-child pairs, 5 completed Stage 2 (Hwuang et al., 2015).

After Stage 1, 5 of the 6 mothers reported less parental stress. They also reported that their children with ASD experienced less anxiety and thought problems, as well as a reduction in problems behaviors. The quality of life for the mothers or their children did not increase after the first stage. However, this is likely due the mothers and the children reporting a high quality of life before the training began. After Stage 2, the mothers reported a further reduction in anxiety and thought problems for their children after the parent-mediated training and practice took place. Furthermore, 4 mothers found a decrease in aggressive behaviors displayed by the

adolescents. Overall, the mothers' levels of parental stress were significantly reduced, and each family's quality of life was significantly increased (Hwang et al., 2015).

Another study focused on the effects of parallel mindfulness training for parents and their children with ASD. Twenty-three adolescents, including 17 boys and 6 girls aged 11 to 23 years, participated in this study. Every adolescent had ASD, but 4 had autistic disorder, 8 had Asperger Syndrome, and 11 had either Pervasive Developmental Disorder or did not specify. Many of the parents were included as well; there were 18 mothers and 11 fathers. The intervention lasted 9 weeks and consisted of weekly group sessions that lasted 1.5 hours. The mindfulness training was structured by the *MyMind* protocol, which had been used prior for children with ADHD. Each session paid special attention to how the adolescents could apply their mindfulness to a stressful situation. While following the *MyMind* protocol, the adolescents learned meditation techniques based off MSBR and MBCT. They were required to practice the techniques at home, as well as write in a journal for personal reflection and reading handouts. During the same 9 weeks, the parents attended weekly group sessions that lasted 1.5 hours as well. Most of the training consisted of meditation techniques from MSBR and MBCT as well, but also focused on mindful parenting, stressing things such as giving unbiased attention to their child and accepting their difficulties (de Bruin, Blom, Smit, van Steensel, & Bogels, 2015).

Measurement of variables were conducted 1 week before the program, immediately after the program, and 9 weeks after end of the program. While there was not a reduction in ASD core symptoms or levels of anxiety of the adolescents, adolescents reported decreased levels of rumination, an increase in flexibility with their thought patterns, and an overall increase in their quality of life. The parents reported an increase in their children's social responsiveness. They felt as though their children were better at expressing their feelings, understanding the feelings of

others, and able to socialize better (making eye contact, holding conversations, etc.). The parents also reported a higher quality of life after the program; however, the increase was not as robust as reported by their children. Furthermore, the parents felt like their parenting style had improved and they were able to parent in a more accepting, calm manner (de Bruin et al., 2015).

A similar study was conducted that also used the *MyMind* protocol as a mindfulness intervention for children with ASD. In total, 45 children with ASD (ages 8 to 19 years) and their parents participated in the study. The intervention was consisted of 9 weekly sessions, each session 1.5 hours long. The children in the study reported improvements in emotional and behavioral functioning, as well as a decrease in social communication problems and ruminations (Ridderinkhof, de Bruin, Blom, & Bogels, 2018).

The delivery of mindfulness curriculums to support children and adolescents with ASD has seemingly become more popular. Turner (2016) utilized the *Learning to BREATHE* curriculum to increase executive functioning skills, specifically staying on task, in adolescent students with ASD. Three students participated; each displayed an increase in executive functioning skills and a decrease in prompts required to complete a task. Boon (2017) adapted the *Mindful Schools* curriculum to decrease anxiety and rigidity in adolescents with ASD in an outpatient clinical setting. Boon adapted the curriculum by including longer, yet less frequent sessions, utilizing “check-in” times before each session, and allowing time for review. Boon also placed an emphasis on more concrete, practical mindfulness techniques that could be utilized by the adolescents during times of stress. Fourteen adolescents, placed into three groups, participated in the 9-week program. The study found that while it was feasible to implement an adapted mindfulness-based intervention for adolescents with ASD, there was no decrease in anxiety or rigidity nor was there an impact on mindfulness (Boon, 2017).

Current Study

This study introduced a school-based mindfulness curriculum for adolescent students with ASD who display challenging behaviors in the classroom due to poor emotional and/or behavioral control. The goal of the study was to investigate an intervention that may be used by school-based mental health practitioners as an option for behavioral management for students with ASD. The study was also interested in the students' responsiveness to mindfulness and how mindfulness can improve other aspects of their daily functioning. The curriculum was taught in a one-on-one format to target a specific challenging behavior. It was hypothesized that the mindfulness curriculum would (1) decrease the frequency of the challenging behavior, (2) increase mindfulness, and (3) positively impact aspects of the student's overall functioning in school.

II. Methods

Participants

After special education teachers and school counselors were consulted and informed of the study, multiple students from a middle and high school were referred. Once the referred students were considered, a file review was completed to determine their eligibility for the study. Two students from the middle school met the criteria that is described below, and the primary investigator called their parents to inquire their interest. Afterwards, a meeting was held between the primary investigator, a school administrator, and one of each students' teachers where the behavior was being demonstrated frequently. After deeming the intervention appropriate for each student, each teacher completed a consent form. The two students were asked to participate in the mindfulness curriculum through student assent and parental consent.

The criteria for participants was that they must have either an educational or medical diagnosis of ASD, have at least average cognitive and verbal ability, and be demonstrating challenging behaviors that interfere with their ability to perform well in the classroom. Two students in a rural middle school in Virginia were selected to participate in the mindfulness program. Each student had at least average cognitive ability and verbal ability, and both had been previously diagnosed with Autism Spectrum Disorder. All identifying information has been changed in order to protect the confidentiality and privacy of the participants. One student, Thomas, is in the 7th grade and has been receiving Special Education services since age 4 due to a Speech-Language Impairment (due to delays in social communication), and was found eligible for additional services under Autism at age 8. The other student, Peter, is in the 8th grade and receives accommodations from a 504 plan. Both students met criteria for demonstrating challenging behaviors in class, and also had other difficulties that seemed appropriate for the mindfulness curriculum.

Research Design

This research utilized an A-B-A single subject design for each of the two participants (Johnston & Pennypacker, 1993). The single subject design was used to offer a detailed account of the delivery of the mindfulness curriculum and its effect on the students. The design consisted of quantitative and qualitative measures.

Quantitative Measures

Mindful Student Questionnaire (MSQ)

The MSQ is a self-report behavior rating scale for measuring youth's mindfulness within the school setting consisting of 15 items (Renshaw, 2016; Appendix A; original format is no longer available online). Mindful Attention and Mindful Acceptance are

two subscales used to measure core aspects of mindfulness that can be combined to create a Mindful Student Scale composite. The measure also includes an Approach and Persistence subscale to assess a behavior change process guided by mindfulness. Each item is answered on a 4-point scale (1= Almost Never, 2= Sometimes, 3= Often, 4= Almost Always). Preliminary findings provide a solid level of structural and convergent validity and an adequate internal reliability of .77 after using a target sample of 278 adolescents in grades 6 through 8 (Renshaw, 2016). The MSQ was administered pre-intervention, during intervention, post-intervention, and 1 month following the completion of the intervention.

The total number of points a student can achieve is 60. A higher number of total points indicate the student is more aware of their thoughts, feelings, and behaviors in school. It should be noted that due to the school's spring break period, the MSQ was technically administered 5 weeks after the final session was completed. This was done to ensure the student was actually in school for four weeks following the end of the curriculum. Also, the primary investigator was not able to meet with one participant, Peter, on two occasions. All six sessions were administered, but within an eight-week span instead of six.

Behavioral Monitoring

A behavior chart was given to each teacher who was present during the initial meeting and was willing to monitor the student's progress in the classroom (Appendix B). For each student, one teacher monitored behaviors. Due to the range of behaviors that can be considered challenging, the chart was customized to appropriately measure the target behavior. Regardless of the target behavior, a tallying system was used for the

behavior chart. The teachers monitored target behaviors at least one week pre-intervention, during the six-week intervention, and four weeks post-intervention.

Before the behavior chart was given, the teacher and the primary investigator established the challenging target behavior and how to record each occurrence. The teacher was encouraged to use rubber bands to accurately record each occurrence of the behavior. Each time the student demonstrated the target behavior, the teacher could place a rubber band on their opposite wrist. As stated previously, the students' spring break was during the one-month period of data collection after the curriculum was complete. To compensate, the behavior chart was extended to include four weeks of when the students were in school. Additionally, the primary investigator was not able to meet with one participant, Peter, on two occasions. Therefore, the chart was extended to capture the eight weeks of intervention data.

Qualitative Measures

Student Interview

Each student was interviewed once pre-intervention and then weekly during the intervention. Before the mindfulness curriculum was initiated, an introduction session with a semi-structured interview was conducted individually in order to learn more about the student and build rapport. Throughout the intervention and one month after, the primary investigator conducted short, semi-structured interviews with the students. The interviews were conducted during a time separate of the intervention. These were done in an attempt to understand the effectiveness of the intervention, the students' perception of mindfulness, and what may need to be adjusted within the curriculum to be more appropriate for a student with ASD.

Teacher Interview

The primary investigator met with the participant's teacher before the intervention was implemented. The interview was semi-structured and allowed the teacher to give observations on the student and challenging behaviors in the classroom. There was also an interview following the end of the intervention to record any changes in the students' challenging behavior and any other important observations that may be related to the mindfulness curriculum, such as a change in the students' quality of life.

Classroom Observation

The primary investigator conducted a classroom observation in each students' classroom in which the teacher was participating in the study. The observation focused on the students' behaviors and interactions with teachers and classroom peers. The classroom observation lasted for the duration of the class period.

Procedures

Parental consent and student assent were required before the student participated in the mindfulness intervention. The curriculum was taught to each student individually in a one-on-one format. By implementing the intervention individually, the primary investigator was able to make the intervention more personal, discuss their individual challenges, and talk about how each technique could be beneficial. Following the initial interview from the week prior, the student began participating in weekly 30-minute sessions. After each session (not including the first session), the student was given a script and a practice log to encourage practicing mindfulness techniques for the week. The student was also brought in for a short interview weekly (a separate time from the intervention).

The intervention was comprised of a six-session mindfulness curriculum adapted from Choosing to Be Mindful that is typically used for groups of students (Choosing to Be Mindful, 2018). The primary investigator also called each students' parents to explain mindfulness, the curriculum, and the techniques being used. Each students' parents were contacted on multiple occasions during the curriculum to talk about the techniques being used and check in on their child's progress. At the end of the curriculum, a packet of practice scripts was emailed to parents to encourage and assist continued practice at home. Each students' teacher was given a brief description of mindfulness and the curriculum during the initial interview.

Originally, the order of the curriculum was as listed below:

- **Session 1: Body/Mind/Spirit Connection**
- **Session 2: Mindfulness and Thoughts**
- **Session 3: Mindfulness and Emotions**
- **Session 4: Cultivating Gratitude**
- **Session 5: Mindfulness Self-Care**
- **Session 6 for Visualization for Forward Movement**

However, clinical judgment was utilized and the primary investigator determined that the Mindfulness and Thoughts would be particularly difficult for the students to understand during the second session. Instead, Mindfulness Self-Care took place during the second session, and Mindfulness and Thoughts was pushed to the fourth session. The updated order of the curriculum, as well as its contents, are described below:

Session One: Body/Mind/Spirit Connection

Before every session, the student completed an "awareness meter." The awareness meter was an illustration of a temperature gauge that had a spectrum of green to yellow to red. The green

section meant it was easy for them to be in the session, yellow was neutral, and red meant that it was hard for them to be in the session. Both the student and the primary investigator made a mark on the meter and shared their reasoning. This session focused on the effects of mindfulness on the brain. The “flight-or-flight” response was introduced to the students by using a glitter jar. The students were encouraged to discuss events that cause them stress and how calming down can help them choose a good behavior. After discussing mindfulness and how it can be used to self-soothe, the students were presented the “Getting to Know and Love Your Brain” poster by MindUp (n.d.). The importance and function of the pre-frontal cortex, the amygdala, and the hippocampus were reviewed. The fight-or-flight response was further explained using a hand model that represented the brain, as well as the pre-frontal cortex and the amygdala. The students then practiced a basic mindful listening technique to identify various sounds in and out of the room.

Session Two: Mindfulness Self-Care

The focus of this session was to review the material from Session One, and to introduce the Progressive Muscle Relaxation and Mindful Breathing exercises. After practicing each technique, the students reflected on their experience and how it could be utilized. Following the session, the students were given their first practice scripts and logs to encourage practicing the techniques daily so it becomes automatic and easy for them to utilize.

Session Three: Mindfulness and Emotions

To begin the session, the students were asked to review the glitter jar and hand model metaphors for the “flight-or-flight” response, and practice Progressive Muscle Relaxation and Mindful Breathing. The focus of this session was to build emotional awareness, as well as identify emotions that the students experience in challenging situations. After the students listed as many emotions as they could, there was a discussion about how emotions have varying levels (e.g.

annoyed vs. frustrated vs. angry); additionally, the primary investigator made faces for happy, sad, angry, and worried, and the student had to guess the emotion. The students then practiced a mindful technique, Mindfulness and Emotions, in which they had to remember a time they felt a certain emotion and tried to recognize where they felt the emotion in their body. Once the technique was complete, the students were given an outline of a person and encouraged to draw where they felt worried, angry, sad, and happy.

Session Four: Mindfulness and Thoughts

After reviewing the Progressive Muscle Relaxation, Mindful Breathing, and Mindfulness of Emotions techniques, the focus of the session was about mindfulness of thoughts and how to detach from certain thoughts. To demonstrate the difficulty of ignoring thoughts, particularly unpleasant ones, the students were asked to visualize a white bear, and then completely ignore it. If they thought of the white bear, they were instructed to clap their hands. This is loosely based on Daniel Wegner's research on thought suppression (Wegner, Schneider, Carter, & White, 1987). The students were given a comparison between thoughts and clouds, and how it is possible to let thoughts drift on by. The students were given two blank clouds and asked to write down thoughts they want to let go of. Afterwards, they tried the Mindfulness of Thoughts technique, in which they practiced noticing thoughts as they arise, accepting them, and returning their attention to breathing.

Session Five: Cultivating Gratitude

The students reviewed the definition of mindfulness, practiced either practice Progressive Muscle Relaxation or Mindful Breathing, and practiced Mindfulness of Thoughts. The focus of the session was gratitude for the good parts of the students' lives. In particular, the technique, Mindfulness and Gratitude, encouraged the students to think about what they are grateful for in

school, outside of school, the people in their lives they are thankful for, and their personal qualities they appreciate. After the technique was completed, the primary investigator and the students each wrote four things they are grateful for on individual strips of paper, and taped the strips together to create a chain. Each student was also given a small journal and encouraged to write three things they are grateful for every day.

Session Six: Visualization for Forward Movement

The focus of this session was to review the definition of mindfulness, the techniques that were taught throughout the curriculum, and how the students may use them in the future. Each student was given a packet with scripts for each technique; the packets were emailed to each parent as well. The students were encouraged to think of future challenges in which they could use certain techniques. Afterwards, their knowledge of mindfulness was “cemented”. In other words, it was enforced that the students’ understanding and utilization of mindfulness was automatic and always available for them, especially in challenging situations.

III. Case Analysis

The quantitative and qualitative data was analyzed to evaluate the effectiveness of the intervention. To evaluate any change or maintenance of the target behavior, the primary investigator analyzed the behavior chart, as well as responses from the teacher and student interviews. The interviews were critical in gaining insight on the intervention and its influence on the target behavior, but to also gain insight on other consequences the intervention may have had. For example, if the student finds certain techniques to be helpful when they become overwhelmed with a group activity or when they become frustrated after receiving a less than desired score on a test. Additionally, the teachers may observe certain changes in the students’ behavior, such as an increase in socialization. The qualitative methods of the research may also

help guide school-based mental health professionals who want to use a mindfulness-based intervention to help a student with ASD. This research can help guide what may or may not work when teaching mindfulness to students with ASD. Additionally, to evaluate any changes in mindfulness within the classroom, the results of the MSQ and the teacher/student interviews were analyzed as well.

Thomas

Background and Initial Teacher Interview

Thomas is in the 7th grade and has been receiving Special Education services since age 4 due to a Speech-Language Impairment for delays in social communication, and was found eligible for additional services under Autism at age 8. The primary investigator interviewed Mr. Smith, a special education teacher who taught Thomas in a collaborative Language Arts classroom and summarized the following.

Strengths

- Friendly
- Smart
- Creative
- Diligent when interested in a task
- Has plenty of academic potential

Needs

- Makes noises during class
- Talks out of turn
- Demonstrates negative attitude towards school
- Struggles with peer relationships

Target Behavior

- Inattentive when disinterested in task and requires frequent redirections

*Initial Student Interview***Overall Mood**

- Friendly
- Eager to participate
- Negative affect due to 7th grade instruction, social isolation, and parental divorce

Identified Needs

- Focusing during non-preferred tasks
- Improving mood

*Classroom Observation***Observed Strengths**

- Engaging with teachers
- Focused during task after instructions

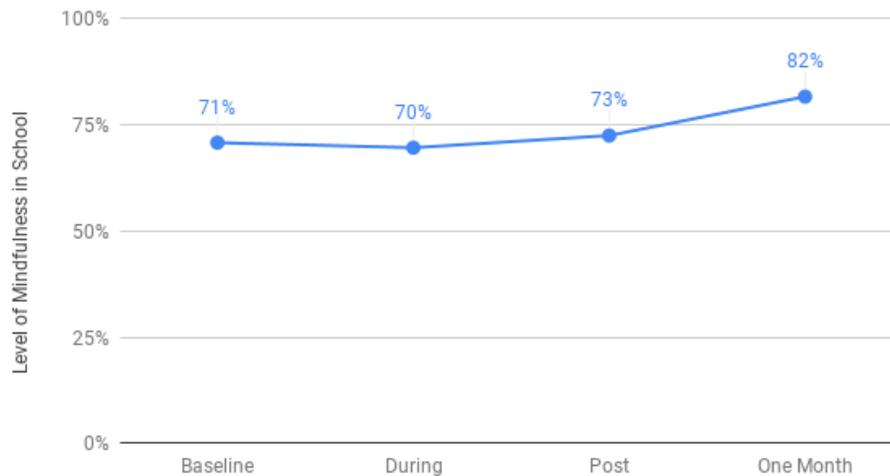
Identified Needs

- Requires multiple prompts to follow instructions and focus
- Speaks out of turn in class
- Has low tolerance for disappointment

Mindful Student Questionnaire

The following line graph displays Thomas' scores on the Mindful Student Questionnaire:

Thomas: MSQ Score

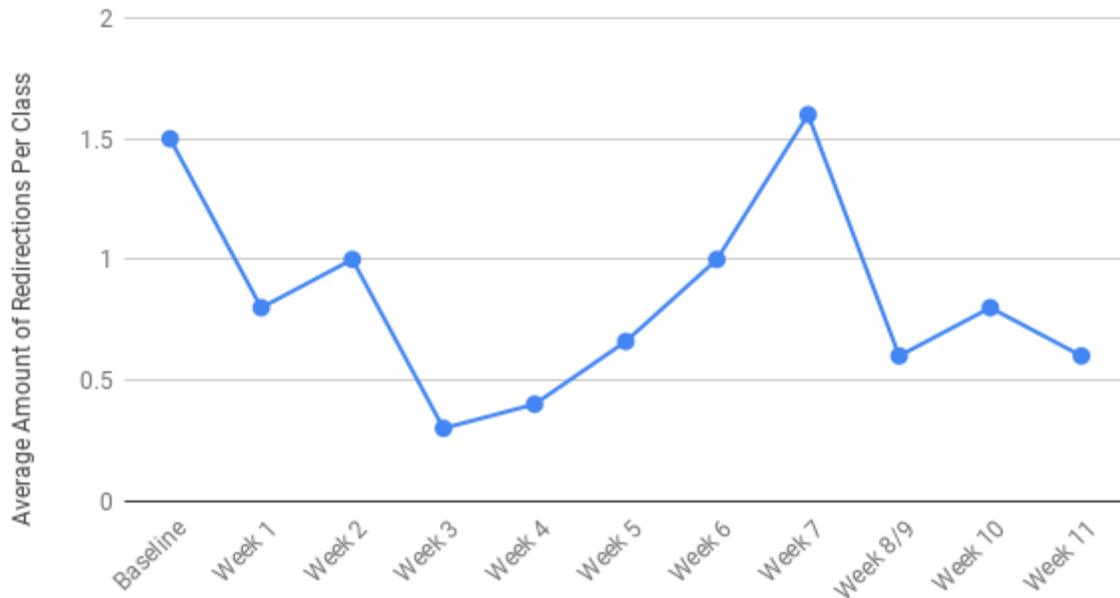


Thomas completed the MSQ for pre-intervention, during intervention, post-intervention, and one month after the intervention. On the pre-intervention and post-intervention data collection, Thomas completed an item incorrectly by choosing two options. To compensate, the primary investigator averaged the value of the two responses. For the during-intervention data collection, he did not answer one of the questions, so his total amount of points was scored out of 56 points instead of 60. Therefore, the data was analyzed using percentages of total points for a better comparison. Thomas' overall mindfulness appeared stagnant throughout the study, but increased between the final session and the one month follow up.

Behavior Chart

The following graph displays the average daily frequency of redirections for pre-intervention, during, and one month after the completion of the curriculum:

Thomas: Daily Average of Redirections per Week



The challenging behavior that Thomas demonstrated was being off-task frequently, especially during non-preferred activities. Every time Thomas was redirected to continue his work, Mr. Smith made a tally mark on the chart. Originally, the data was going to be analyzed by the total frequency of the target behavior each week, or five class periods. However, due to school closings and teacher illness, some weeks contain only three class periods of data. To compensate, the total frequency of the target behavior was calculated to reflect the average amount of daily redirections per week. Additionally, the last three periods of Week 8 and last two periods of Week 10 were combined because of spring vacation. According to the results, the target behavior has a relatively low frequency. However, the average amount of redirections decreased as compared to the baseline period.

Intervention Observations and Student Interviews

Throughout the intervention, Thomas presented as a social, engaging student who was eager to participate. Rapport was built easily, and he appeared to enjoy working with the primary investigator.

Session One: Body/Mind/Spirit Connection

Thomas was eager to participate, engaged in each activity, and enjoyed working in the quiet environment. While he required some clarification, the material was appropriate and accessible for Thomas. His comprehension of the activities was good, but he struggled with reporting stressors during the glitter jar and hand model demonstrations. Following the weekly interview, it was assumed that Thomas would require a review of the important concepts during the next session. He also reported thinking about the glitter jar metaphor in class to help him stay calm, which demonstrates that he was generalizing mindfulness concepts outside of the session.

Session Two: Mindfulness Self-Care

Thomas was engaged and participated throughout the session, but struggled to focus. During the Progressive Muscle Relaxation and Mindful Breathing techniques, he frequently opened his eyes and looked around the room. Thomas responded well to redirection, but needed multiple prompts. He also became interested in a globe on the desk, which seemed to occupy his attention during some of the instruction and may have impacted his comprehension. However, the material was appropriate for his ability and he demonstrated an understanding of the importance of each technique. For instance, with prompting, Thomas was able to state stressful situations in which he could use mindfulness techniques.

Session Three: Mindfulness and Emotions

Thomas was engaged throughout the session and understood the material well, until the Mindfulness of Emotions exercise. During the exercise, he took parts of the script as literal questions and would answer out loud (e.g. answered “my mind” after prompt read “Happy... Where do you feel happy?”). After the exercise, Thomas completed the worksheet with the body outline and appeared to understand the concept. For the weekly interview, however, Thomas reported that he “made it up” because he did not know what to draw. During the same interview, Thomas reported that he was using his breath during times of stress, which was the first indication of him using mindfulness for self-soothing outside of a session.

Session Four: Mindfulness and Thoughts

While Thomas was reluctant to practice the Progressive Muscle Relaxation and Mindful Breathing exercises, he was willing to participate in every activity and inquired if he could complete the body outline again after reviewing the Mindfulness of Emotions technique. After the review, Thomas’ understanding of the technique appeared higher than its first introduction. However, Thomas struggled with the rest of the material. The directions for the “white bear” activity were confusing for him and require more explicit instruction. During the thought cloud activity, Thomas wrote about being threatened by his sister with a knife. The primary investigator explained the rules of confidentiality and spoke with Thomas’ mother after the session to ensure his safety. After following up with his mother, the threat was deemed transient.

Following the cloud activity, Thomas felt comfortable continuing the session. However, his access and understanding of the material was questionable. He presented as restless during the Mindfulness of Thoughts technique and required multiple redirections. During the reflection, Thomas felt confused by the activity, and later stated that his thoughts “go out of control” at

times. His misunderstanding of the material was evident during the interview, when he stated that most thoughts do not go away; instead, they get “burned in your memory.” Interestingly, part of Thomas’ definition of mindfulness was “taking a step back and looking at the problem”. It appeared that he was starting to view mindfulness as a utility for metacognition. In other words, he was starting to see that in a calm state, one can evaluate the surrounding situation.

Session Five: Cultivating Gratitude

Similar to previous sessions, Thomas was engaged in the session, eager to participate, and appeared to enjoy each activity. After reviewing the material from the previous session, his understanding of the material was not consistent. The use of tangible objects, such as the glitter jar, aided in his comprehension.

Thomas offered more elaboration in reflections than previous sessions.

Session Six: Visualization for Forward Movement

Thomas actively participated during the session, but required a fair amount of review for each technique when he was given his packet of practice scripts. After discussing the techniques and reviewing the material, Thomas struggled to elaborate on times he might use the material. However, his engagement and confidence with the material was high. Thomas stated, “I feel like a changed man after this class”, and that overall he felt calmer and was “breathing more.”

Post Intervention Student Interview

During the final interview, Thomas was asked about his overall impressions of the program after completing it the prior month. He reported that mindfulness had helped him, and that he had “been remaining calm ever since the end of the program”; he was not able to elaborate his answers. He gave positive feedback, specifically that the program made him “rethink about 7th grade”, implying that he was able to look at his school year more positively. Thomas reported that he

liked the program because he was able to leave a noisy classroom and participate in the activities, and that he was able to express his feelings. After the intervention, the primary investigator met with Thomas several more times during his free period and they played computer games together.

Post Intervention Teacher Interview

Target Behavior

- Required less redirections to focus on work
- Decrease in complaints following redirection

Additional Improvements

- Improved mood
- Increased socialization with teachers and peers
- Decrease in negative comments about school
- Utilized breathing to self-soothe

Peter

Background and Initial Teacher Interview

Peter is an 8^h grade boy who was diagnosed with ASD outside of school and receives accommodations through a 504 plan. Alongside his accommodations, Peter had a daily behavior report card to earn rewards for good behavior. The daily behavior report card was monitored by his school counselor, Ms. Garcia. Ms. Garcia reported that the report card was beneficial for Peter, and his classroom behaviors had improved dramatically during his time at the middle school. Given his progress, Ms. Garcia decided to discontinue the card to help Peter as he transitioned to high school. While Peter was making progress in his classroom behaviors, the primary investigator and Ms. Garcia agreed that the mindfulness curriculum would be beneficial. The reasoning was that Peter could learn strategies to increase his independence and maturity

when facing adversity. The primary investigator interviewed Ms. Hanley, a general education teacher who taught Thomas in Science. Ms. Garcia and Ms. Hanley summarized the following.

Strengths

- Intelligent
- Humorous
- Enjoys socializing with his friends

Needs

- Impatient when waiting for teacher assistance
- Low frustration tolerance with peers
- Frequently off-task when using electronics
- Infrequent, intense temper tantrums

Target Behavior

- Argues when redirected to focus on a task

*Initial Student Interview***Overall Mood**

- Friendly
- No reported or observed symptoms of emotional distress

Identified Needs

- Low frustration tolerance with teachers and peers

*Classroom Observation***Observed Strengths**

- Socialized with friends
- Focused on tasks

- Responded appropriately when teacher approached him

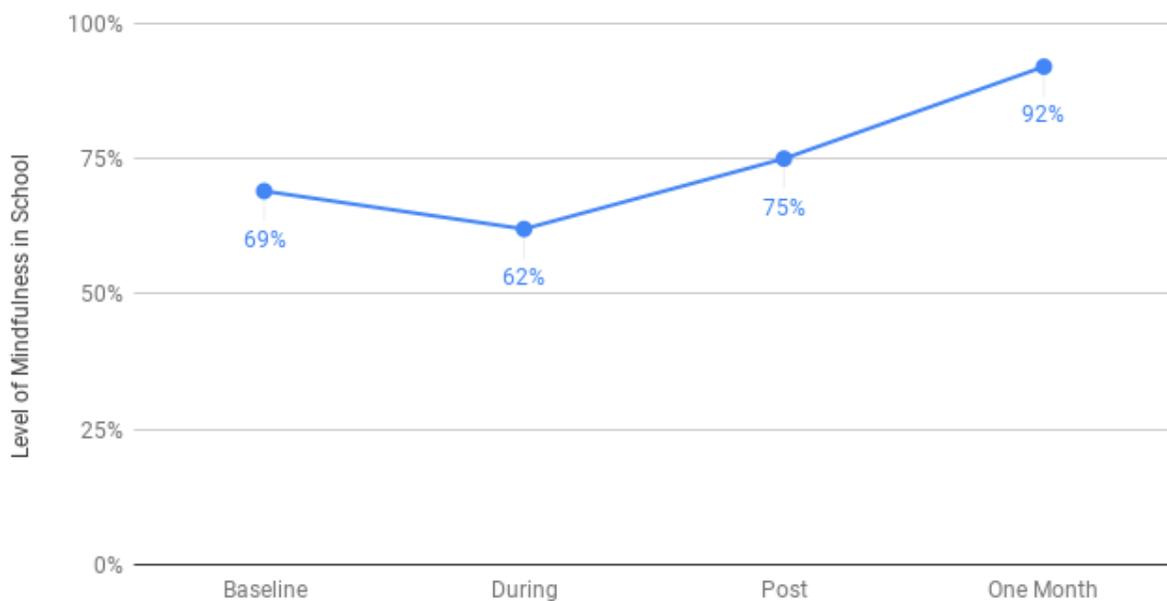
Identified Needs

- Impatient when transitioning to next task

Mindful Student Questionnaire

The following line graph displays Peter's scores on the Mindful Student Questionnaire:

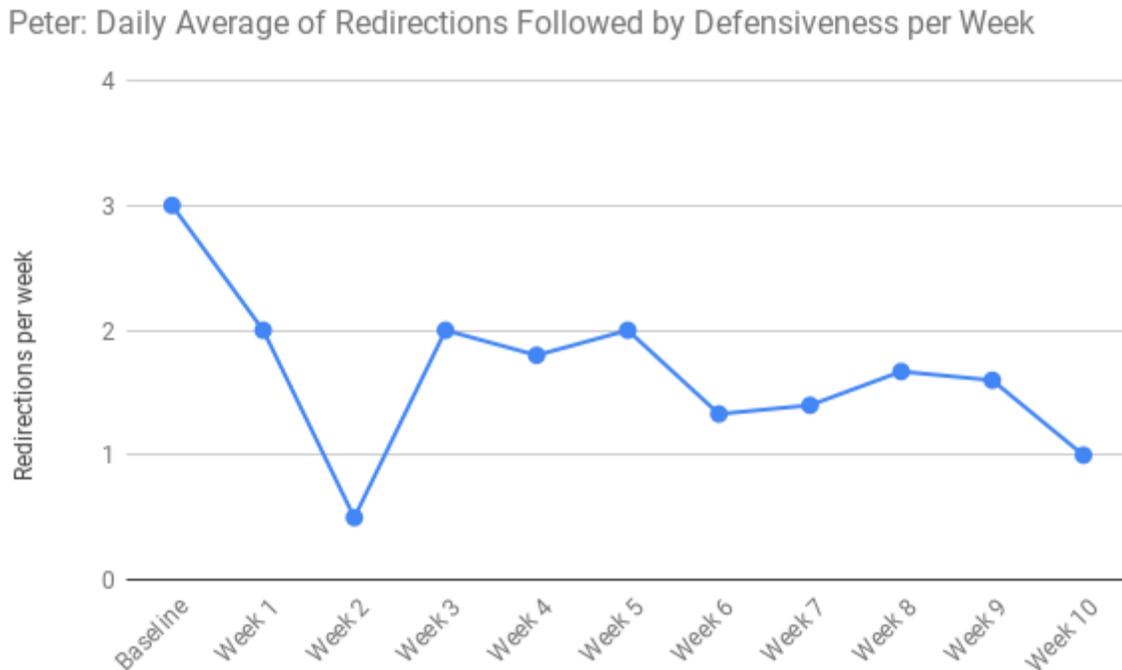
Peter: MSQ Score



Peter completed the MSQ for pre-intervention, during intervention, post-intervention, and one month after the intervention. Similar to Thomas, Peter completed an item incorrectly by choosing two options on two questionnaires, and did not complete one of the items. Therefore, the total score was analyzed by using percentages. Interestingly, Peter's level of mindfulness decreased after the beginning of the curriculum. However, it appears that curriculum was successful in increasing his overall mindfulness when his initial score is compared to his score on the one month follow up.

Behavior Chart

The following line graph displays the average daily frequency of the target behavior per week for pre-intervention, during the intervention, and one month after the completion of the curriculum:



The challenging behavior that Peter demonstrated was becoming argumentative when his teacher redirected him to focus. Specifically, he would become defensive, raise his voice, and contend that he was focusing. Every time Peter was redirected to continue his work and argued, Ms. Hanley made a tally mark on the chart. Similar to Thomas, the data was going to be analyzed by the total frequency of the target behavior each week, or five class periods. However, due to school closings, student illness, and Virginia Standards of Learning (SOL) testing, some weeks contain only two to four class periods of data. To compensate, the total frequency of the target behavior was calculated to reflect the average amount of daily

redirections per week. Additionally, the behavior chart was used for four weeks after the completion of the curriculum, but only the first two weeks of post-intervention data was utilized. Of the 10 class periods left in the final two weeks of data collection, Peter was only in class on 2 occasions because of SOL testing and being assigned to another classroom for SOL review. According to the results, the target behavior steadily decreased throughout the intervention, and continued to decrease after the curriculum was completed.

Intervention Observations and Student Interviews

Throughout the intervention, Peter presented as a friendly, social student. Rapport was built quickly, and Peter appeared comfortable each session. His motivation to participate seemed low at times, but he was willing to attempt every activity.

Session One: Body/Mind/Spirit Connection

Peter was engaged throughout the session and appeared to enjoy the activities. He understood the material with relative ease and appeared to understand the basis of awareness. For example, during the weekly interview, he stated that mindfulness is “basically seeing everything that’s going on around you, I guess.” Peter struggled when asked to reflect on stressful situations that he experiences and make connections to the material.

Session Two: Mindfulness Self-Care

Peter actively participated in the session and enjoyed the activities, but at times he struggled to focus during the Mindful Breathing exercise. However, he did appear to understand the material. While reviewing the previous material, Peter lightly shook the glitter jar so that the glitter was swirling slowly. He demonstrated that his frustration during an incident that day was not overwhelming, but “somewhere in the middle.” Peter struggled to elaborate when reflecting upon his experience for each exercise.

Session Three: Mindfulness and Emotions

Peter participated in each activity, but there were parts that were difficult for him. The material was accessible and appropriate for him until he was asked to complete the Mindfulness of Emotions technique. Peter was not able to make the connection between emotions and physical sensations in the body.

Session Four: Mindfulness and Thoughts

Peter actively participated in the session, but struggled with his focus as well as comprehending the material. While the directions for the “white bear” activity were confusing for Peter, he understood the underlying concept in that thoughts are nearly impossible to ignore. However, the rest of the session appeared confusing for Peter. He was unable to write down unpleasant thoughts he wanted to “let go of”, and did not offer a reflection after the Mindfulness of Thoughts technique. Interestingly, Peter later reported that the session “showed him how to control his thoughts”. However, he needed a reminder of the material from the previous session. Additionally, he felt that mindfulness had helped him stay out of trouble. He indicated that mindfulness might be helping him know what was going on around him, which helps him behave in class.

Session Five: Cultivating Gratitude

Peter appeared reluctant to complete each activity and frequently asked when the session was going to be complete. He did not elaborate on his reflections after practicing techniques from the previous sessions. For example, he stated he did not have any thoughts nor did he focus on his breath during Mindfulness of Thoughts. During the Mindfulness and Gratitude exercise, Peter frequently opened his eyes and fidgeted with objects around him, but was able to reflect with

prompting. Additionally, Peter asked the primary investigator to complete the gratitude chain for him so he could leave.

Session Six: Visualization for Forward Movement

Initially, Peter disclosed feeling reserved about initiating the session because he wanted to complete his homework during his free time instead. After encouragement, however, he agreed to participate and was engaged throughout the session. When reviewing the various techniques from the curriculum, Peter appeared to understand the importance of each technique, but he was unsure why Mindfulness of Thoughts was helpful. Additionally, Peter generally understood the techniques, but was not sure when he could use personally utilize them. Interestingly, Peter later reported that he had learned how to slow his breath and focus, but also reported that he had not been practicing or using any of the mindfulness techniques.

Final Student Interview

During the final interview, Peter was asked about his overall impression of the program after completing it the prior month. Peter reported that he had begun using breathing when he felt stressed. Although he was not able to elaborate when he used it, this was the first occasion when Peter shared that he used a technique to help him outside of a session. When reflecting on the curriculum, Peter stated that he liked the program, but was unable to elaborate on what parts he enjoyed.

Final Teacher Interview

Target Behavior

- Overall decrease in arguing when redirected
- Increase in appropriate, calm responses to redirection

Additional Improvements

- Slight increase in ability to ignore provocation from peers
- Decrease in irritability

IV. Discussion

According to the behavior charts and teacher observation, the intervention was effective in reducing the frequency of the target behavior. The data demonstrates a steady decline of the challenging behavior for both Thomas and Peter. Each students' teacher provided summative observations on the frequency of the target behavior as well. Thomas' teacher, Mr. Smith, reported needing to redirect Thomas less during the intervention, primarily during the last three weeks of the curriculum. Mr. Smith also observed that when redirections did occur, Thomas did not make negative comments or complain about the work, a common behavior he demonstrated prior to the intervention. Instead, Thomas followed the instructions appropriately and continued completing his work without complaint. Peter's teacher, Ms. Hanley, reported that on most days, he was arguing less when redirected. The frequency of redirections did not necessarily decrease, but this was not reported as being a challenging behavior before the intervention began. In other words, Peter did not struggle with being off-task compared to his peers in the classroom before the intervention.

Mindfulness, as measured by self-report, increased over time. The data from the MSQ demonstrates that both students experienced increases in mindfulness following the intervention. While the scores were relatively stagnant throughout the study, the final measure revealed an increase in each student's level of mindfulness compared to before the intervention began. When comparing results from pre-intervention to the one month follow up, Thomas' level of mindfulness increased by over 10% and Peter's level increased by 23%. It should be noted that while the MSQ was the primary tool to assess changes in mindfulness, Peter reported increased

levels of perceived mindfulness. Specifically, he reported in the weekly interviews that the intervention was helpful because he was more aware of everything around him, making it easier to stay out of trouble and avoid negative consequences.

One of the primary purposes of the study was to look for other positive benefits the students experienced from the mindfulness curriculum. The additional benefits of the intervention do not appear to be as pronounced for Peter as for Thomas, but there are some important observations to note. According to Ms. Hanley, Peter's mood did appear to be somewhat improved from the intervention. Specifically, he was less "cranky" and agitated during class following the intervention. Additionally, Peter reported during the final interview to be using breathing when he feels stressed. This demonstrates that the intervention offered Peter a tool to use when he is feeling overwhelmed or emotionally distressed. According to his school counselor, Peter has had significant struggles with emotional regulation in the past, which has been evidenced with his intense temper tantrums. Although the tantrums have decreased significantly during his enrollment at the middle school, he still has tantrums on occasion when he is disciplined in school. One of the reasons Peter was chosen for the intervention was to give him tools to help with his emotional reactivity before entering high school.

Thomas appears to have experienced multiple benefits from the curriculum. According to teacher and student interviews, Thomas experienced an increase in his mood and positive perception of school, and utilizes breathing when he is stressed or upset. During the teacher interview, Mr. Smith reported that Thomas was more positive in class. Thomas was more social and would talk about his hobbies and interests instead of making negative comments about class and his reluctance to complete work. According to Thomas, the intervention was beneficial in multiple ways. He reported that the intervention made him "rethink the 7th grade". Considering

his negative view of school during the initial interview, it appears that Thomas perceives the 7th grade in a more positive manner. Although he was unable to elaborate on his statement, it is theorized that his participation in the curriculum benefited him in multiple ways. Firstly, Thomas enjoyed attending each session and found it relaxing. The intervention allowed him to leave the over-stimulating classroom, receive one-on-one attention, and participate in activities that reduced stress. Thomas also found the curriculum fun; Thomas reported being bored during his free period because he did not have assignments to complete. For him, the curriculum offered a chance to engage in activities and learn new things. Secondly, the intervention was a supportive outlet for Thomas. He reported liking the curriculum because he was able to express his feelings with the primary investigator. Overall, he appeared to enjoy the counseling nature of the intervention.

Furthermore, the intervention appears to have offered Thomas a tool for deescalating during adversity. During the interviews, Thomas reported utilizing breathing when he felt stressed. Additionally, his teachers observed Thomas self-soothe and calm down when he was visibly upset during class on multiple occasions. This demonstrates that the curriculum offered Thomas a tool for deescalating during adversity. Compared to Peter, Thomas may have benefited more from the curriculum because he desired a supportive environment in which he received individual attention and positive regard. When considering the initial interviews with Thomas and Mr. Smith, Thomas appeared to be struggling with high levels of emotional distress and negativity compared to Peter. Therefore, he had a higher level of need that was met with the mindfulness curriculum.

It is theorized that the therapeutic relationship built during the intervention may have been a larger factor in decreasing the target behavior than the mindfulness curriculum. During the

mindfulness sessions, the primary investigator needed to redirect the students to focus on the material. By establishing a positive relationship, the primary investigator was able to redirect them in a calm manner. It is possible that by redirecting the students in a safe, supportive environment, the students responded better to redirections in the classroom. In other words, the students were able to practice responding to redirections, and this practice led to more appropriate responses to their teachers as well as a decrease in the necessity of redirections in the classroom. The therapeutic relationship may have also been a larger factor in improving the emotional wellbeing of the students, particularly with Thomas, than the mindfulness curriculum. Once again, this could be a direct result of the therapeutic relationship in which the student becomes a part of a positive relationship, receives individualized attention, has an outlet to express his feelings, and is guided to make self-progress. Furthermore, it is possible that the intervention was more successful in improving emotional wellbeing than decreasing the target behaviors.

Barriers

Each student demonstrated signs of delayed executive functioning, a common struggle for students with Autism. During the sessions, the students would frequently become distracted, particularly when practicing techniques in which they had to assume a mindful position with their eyes closed. Each student would frequently open their eyes and look around the room or at the primary investigator. Oftentimes when they did keep their eyes closed, the students would play with objects in their pockets (e.g. cell phones) or reach for objects on the desk or shelf in the primary investigator's office. At times, their distractibility impacted their ability to access all of the material and retain it. Additionally, the students struggled with memory of the material.

Alongside with delayed executive functioning skills, students with Autism display rigid behaviors and thinking, including rigidity about their schedule. At the end of the session, the

students would frequently notify the primary investigator that it was almost time for the them to leave. At times, it appeared to cause some stress and impact their focus. This was difficult because the end of the session typically offered a summary of the new material. When this occurred, the primary investigator offered additional review at the beginning of the next session.

An additional barrier was that the students did not formally practice outside of the sessions. Formal practice is important for building and strengthening mindfulness techniques. It was explained to each student that practicing daily, when calm, is critical so they could use the techniques more efficiently. Every week, the students were given a practice log and a script to guide them. However, neither student engaged in formal practice. As per self-report and teacher observation, the students were using mindful breathing techniques when they felt stressed, but these techniques could be made stronger and easier to access with practice.

Another barrier was fluctuating student motivation. Thomas was regularly ready and eager to participate, but at times, Peter needed encouragement to begin the session. During the free period, Peter usually socialized and played games with his friends, which he was reluctant to sacrifice. When this happened, the primary investigator reiterated the importance of the mindfulness curriculum and its benefits. The primary investigator also incentivized Peter by offering him a short break after the session to watch videos or play computer games. The incentive did not seem particularly motivating for Peter, but when he did begin each session, he was willing to participate and attempt all of the activities.

Limitation of current study

The primary investigator regularly practices mindfulness, has done extensive research on mindfulness, and often utilizes mindfulness techniques when counseling students. However, this study was the first time in which the primary investigator has delivered a full mindfulness

curriculum. It is possible that this impacted the primary investigator's ability to spontaneously adjust parts of the material to accommodate the needs of the students during sessions.

There were some limitations to the measures of the study as well. Firstly, there were missing data points from the behavior chart due to factors such as illness and SOL testing. Secondly, the Mindful Student Questionnaire has solid psychometric properties, but it is still in its preliminary stages and is not norm-based. However, the questionnaire was easy and quick to administer, and the students did not have difficulty comprehending the items. Thirdly, the interviews were semi-structured so the primary investigator could ask specific questions, but also let the interviews be open and allow for more of a free conversation. While this was appropriate for the teacher interviews, the interviews could have been more structured for the students. Thomas and Peter were willing to answer every question and engage with the primary investigator, but their responses were often brief and offered limited elaboration. When the primary investigator queried responses, the students would often make statements such as, "I don't know" or "I'm not really sure".

Implications for School Psychologists

The intention of this study was to administer a mindfulness-based curriculum to the benefit of students, as well as add to the existing literature on using mindfulness-based treatment for a variety of difficulties for children and adolescents with ASD. According to the quantitative and qualitative data from this study, there is preliminary support that mindfulness-based treatments can be used to decrease a challenging behavior due to poor behavioral regulation and emotional regulation, as well as to increase mood and positivity.

The results indicate that a mindfulness curriculum may be considered by school-based mental health practitioners as a behavioral intervention. A strength of the intervention is the one-

on-one format. This curriculum might be used for groups, but it is not recommended to use it for a group of students with ASD. Firstly, due to struggles with attention and focus, the primary investigator needed to prompt the student frequently and adjust to their needs. In a group format, it would be particularly difficult to deliver the material as well as help each student focus. Secondly, there are parts of the curriculum in which the student is encouraged to give personal information, such as when they feel stressed in school. In a group format, students may be less likely to share their personal experiences. Additionally, there is less time to discuss personal difficulties within a group format. Thirdly, the power of the intervention appeared to be in the therapeutic relationship between the primary investigator and the students, particularly for Thomas. The one-on-one attention and therapeutic relationship likely impacted the outcome of the study, which is evidenced through observation and student report.

If guiding a student through the whole curriculum is not feasible, then it is recommended to focus on the first two sessions. It offers the student an introduction to mindfulness, a basic listening exercise to teach them mindful positions and the importance of being aware, as well as direct techniques that can be used when the student is facing a challenging situation.

Additionally, it would be beneficial to include the parents as much as possible. When looking at previous studies, parents were frequently assigned to guide their children with certain techniques (Singh et al., 2011a,b; Hwang et al., 2015). Increased parent involvement would likely help in strengthening the student's motivation to practice the techniques, improve their focus when practicing, and customize any techniques if necessary.

It would also be beneficial to help the student with creating an electronic schedule. At times, the students would forget about the session, particularly if it had to be rescheduled for the next day due to other factors, such as inclement weather or advisory. A schedule would be

especially beneficial for practicing. Throughout the intervention, each student reported that they did not formally practice. This may be partly due to a misunderstanding of the importance of formal practice, but oftentimes the students reported that they forgot to practice. Therefore, it could be helpful to set a daily alarm or have an automatic message sent to the student to remind them to practice. The students only need to practice for less than 5 minutes a day, but doing so at a regular time would help increase their utility of mindfulness techniques.

V. Appendices

Appendix A: MSQ

Mindful Student Questionnaire

Name:	Age:	Gender:
Date:	Grade:	Race/ethnicity:

Here are some questions about what you think, feel, and do at school.
Read each sentence and circle the one best answer.

	<i>Almost Never</i>	<i>Some- times</i>	<i>Often</i>	<i>Almost Always</i>
<i>When I <u>am at school</u>, I notice . . .</i>				
1. . . when my feelings change from good to bad.	1	2	3	4
2. . . how other people feel and act.	1	2	3	4
3. . . the many things that happen around me.	1	2	3	4
4. . . when my thoughts come and go.	1	2	3	4
5. . . how other people react to what I do.	1	2	3	4
<i>When I <u>am feeling bad at school</u>, I still . . .</i>				
6. . . have a good attitude.	1	2	3	4
7. . . am kind to myself.	1	2	3	4
8. . . think nice thoughts.	1	2	3	4
9. . . stay calm.	1	2	3	4
10. . . am friendly to others.	1	2	3	4
<i>When I <u>am doing something hard at school</u>, I try to . . .</i>				
11. . . work and work to get it right.	1	2	3	4
12. . . do the best I can.	1	2	3	4
13. . . focus on doing a good job.	1	2	3	4
14. . . keep going until I finish.	1	2	3	4
15. . . do everything I can to do well.	1	2	3	4

Appendix B: Behavior Chart (Sample)

Behavior Chart (Intervention):

Please tally incidents involving the challenging behavior for each class. If you wish to add notes, feel free to add them below the chart or on a separate form. Thank you for your involvement and know your help is appreciated.

Teacher Name: _____

Student Name: _____

Beginning Date: _____

Target Behavior: _____ has difficulty focusing on assignments during class, particularly with assignments that he does not prefer. Whenever _____ redirects _____ to focus on his work, he will make a tally on the chart.

Week	Monday	Tuesday	Wednesday	Thursday	Friday
2/04/2019- 2/08/2019					
2/11/2019- 2/15/2019					
2/18/2019- 2/22/2019					
2/25/2019- 3/01/2019					
3/04/2019- 3/08/2019					
3/11/2019- 3/15/2019					

Appendix C: Student/Teacher Interviews

*****Additional questions were added during interviews to encourage the respondent to elaborate or to query a response, as well as inquire about other pertinent information.**

Student Interview (pre- intervention)

Student Name:

Date:

- 1) Do you have any hobbies? What do you like to do with your free time?
- 2) Do you have friends at school?
- 3) How do you get along with your teachers?
- 4) Let's say a genie appears and granted you 3 wishes. What would you wish for?
- 5) Who lives with you?
- 6) How is school going for you?
- 7) What's something you do well in school?
- 8) What's something you would like to do better in school?
- 9) So (insert teacher's name) mentioned that sometimes you have difficulty (insert behavior). What's up?

Student Interview (Final)

Student Interview (Final)

Student Name:

Date:

- 1) How is school going for you?

- 2) What does mindfulness mean to you?

- 3) What was helpful about the mindfulness program and our time together?

- 4) Have mindfulness and our session(s) been helping you in your classes?

- 5) Are there other ways mindfulness and our sessions have been helpful?

- 6) Was there anything that you felt confused by?

- 7) What were some things you liked? Didn't like?

- 8) Overall, what did you think of this program?

Teacher Interview (Pre-intervention)

Teacher Interview (pre-intervention)

Teacher Name:

Date:

- 1) How would you describe (insert student's name)?

- 2) What's going well (insert student's name)?

- 3) What do you believe may cause the target behavior?

- 4) Does there seem to be a pattern (e.g. time of class, day of the week, type of instruction) to this behavior?

- 5) What are some things you have tried to help decrease this behavior?

- 6) Are there other behaviors that you have noticed (insert student's name) struggle with?

- 7) Is there anything else you would like to add about this student?

Teacher Interview (Post-Intervention)

Teacher interview (post-intervention)

Teacher Name:

Date:

- 1) What's going well for (insert student's name)?

- 2) Have you observed a decrease in the frequency of the target behavior?

- 3) Are there any other improvements that you have noticed?

- 4) Is there anything else you would like to add?

Mindfulness Curriculum: Appendix D

Session One: Body/Mind/Spirit Connection

1. Use an “Awareness Meter” to check in with the student and see how they are feeling about the session. The green part means it’s easy for the student to be there. the yellow means it’s not easy to be there, but it’s not hard either, and the red means it’s hard to be there. Allow the student to explain their answer and be sure to validate their input. After you let them choose, pick a color for yourself to model awareness and give appropriate self-disclosure.

2. Use a glitter jar to demonstrate the connection between our minds and our thoughts and feelings. Parts of the script were influenced by Christopher Willard’s article on Mindful (2019). Here’s a script:

“This jar is like our mind, and the glitter inside the jar is like our thoughts and feelings. Right now, the glitter is in the bottom of the jar and we can see clearly. This is similar to when our mind is calm. However, when we shake the jar, the glitter begins to swirl around and we can’t see clearly. This is what it’s like when we feel stress, and our thoughts and feelings take over. Are there things that make you feel stressed like this?”

Allow the student to reflect and list stressful events.

Exactly, so when ____ happens, your mind looks like this (let student shake jar). We can’t see clearly because our thoughts and feelings are getting in the way. So how do we get the glitter to settle down so we can see clearly again? We stay still, be patient, and the glitter will eventually settle on the bottom again. Even if we try to rush it, the glitter won’t go down any faster, so we have to watch and wait.

When things become clear again, we can see what the best choice is. And notice that the glitter hasn’t gone away, it’s just staying at the bottom. Just like the glitter, our thoughts and emotions are always there, but now they aren’t in our way. Mindfulness can help us recognize when the “glitter” is swirling around and clouding our mind, and it can also help us settle the “glitter” so we can see more clearly and make good decisions.

3. Let the student choose a stressful event and reflect on how calming down may help them make the best choice.
4. Explanation of mindfulness:
“Mindfulness is about paying attention in a particular way- on purpose, in the present moment and without judgment.” (John Kabat-Zinn, 2005, p.4)
5. Present the “Getting to Know and Love Your Brain” poster (MindUp, n.d.). Go over the material with the student, make sure everything is presented at an appropriate level for the student, and answer questions they may have.
6. After the poster, explain the fight or flight response using your hand. Here is a script:

Hold up one of your hands, like this (stretch out your hand and fingers). Let's pretend that this is the brain. Remember earlier we talked about the amygdala? Let's tuck our thumb in like this to make an amygdala (tuck thumb into palm, with fingers still stretched out). Like we talked about earlier, the amygdala processes our emotions and keeps us safe from danger. Now, fold the rest of your fingers over your thumb like this (make a fist with thumb tucked under fingers). This is the prefrontal cortex. It helps us stay focused, solve problems, and make good decisions. When our amygdala senses danger, like a bearing getting near us, it takes over and our brain looks like this (stretch fingers out and keep your thumb on your palm). Our amygdala has taken over and causes a fight or flight response. In other words, we either try to fight the danger or run away from it. Our amygdala is great because it keeps us safe. The problem is that our amygdala can't tell the difference between true danger and a stressful situation like (mention a stressful situation that the student listed earlier), but it reacts the same way. What can then happen is that we react without thinking when we are stressed. With mindfulness, we can understand what causes stressful situations for us, identify how it makes us feel, and use techniques to calm our brain down and use our prefrontal cortex (fold fingers back down).

7. Utilize a basic listening exercise to demonstrate mindfulness. Here's a script:

Now that we have a better idea of how mindfulness can help us, let's practice using a mindful body. Keep your feet on the floor, hands in your lap, and keep your back straight. Not too straight like a soldier, but not too limp like a rag doll. You can close your eyes or gently gaze at the floor.

Practice for about 15 seconds and allow student to reflect on what it feels like.

Let's get back into a mindful body and listen to this chime for as long as you can hear it. Slowly raise your hand when you can't hear it anymore and open your eyes.

Talk to the student about listening to the chime, what it sounds like, and how long they could pay attention to it.

Let's get back into a mindful body again. When you hear the chime, go ahead and open your eyes.

Wait about 1 minute and ring the chime.

You can open your eyes. So what sounds did you hear?

Excellent. Like we talked about earlier, an important part of mindfulness is to pay attention, to be present and notice what's happening around you. This time, I want you to focus on all of the sounds around you. Some sounds may be loud, some may be quiet. Some may be familiar, and some may be new to you. Either way, pay close attention to all of these sounds.

One more time, get into a mindful body and remember to listen carefully to all of the sounds. When you hear the chime, open your eyes.

Wait about 1 minute and ring the chime.

You can now open your eyes. What sounds did you hear this time?

Great job! You completed your first mindfulness practice. Practicing mindfulness means that we stay in the present moment, pay attention, and observe what is happening around us. When we do this, we notice things that we would otherwise ignore, forget, or simply overlook.

Session Two: Mindfulness Self-Care

1. Use an “Awareness Meter” to check in with the student and see how they are feeling about the session. The green part means it’s easy for the student to be there. the yellow means it’s not easy to be there, but it’s not hard either, and the red means it’s hard to be there. Allow the student to explain their answer and be sure to validate their input. After you let them choose, pick a color for yourself to model awareness and give appropriate self-disclosure.
2. Review the glitter jar and the hand model. It’s important for the student to at least understand the basics from each activity to understand the brain and how mindfulness can affect it, especially when we are stressed. Then, practice mindful listening for one minute. Reference back to Session 1 if you need to.
3. Introduce Progressive Muscle Relaxation as a way to practice mindfulness and pay close attention to the present moment. It’s also important to express that this technique helps us become more understanding of our bodies and it can help calm us when we feel stressed. Here is a script:

Last time we practiced mindfulness by getting into to a mindful body and listening to the sounds around us. It required you to pay special attention to all the noises that you may hear. This time, we are going to practice another mindfulness technique. This technique is called progressive muscle relaxation. It requires us to pay special attention to our body, but it can also help us calm down, just like the glitter settling down in the jar or when our prefrontal cortex controls our brain again (show fingers folding over the “amygdala”).

Do you remember how to get into a mindful body?

Let the student try to get into a mindful position and give corrective feedback if necessary.

Good. Your back is straight; not too straight like a soldier, but not too limp like a rag doll. Your feet are on the floor, hands in your lap, and your eyes are either closed or softly gazing at the floor.

We are going to flex different muscles in our bodies, and then let them relax. Remember to pay special attention to how your muscles feel as they tighten, and how they feel as you relax them.

First, scrunch your toes, as tight as you can. Hold... (wait 5 to 10 seconds for each flex) now relax (wait another 10 seconds). Scrunch your toes again and hold... now relax.

Next, straighten your legs, feel your legs tighten, and point your feet straight ahead of you. Hold... now relax. Hold your legs up again and hold.... now relax.

Now, put your legs together and pretend like you are trying to squeeze an orange with your knees. Hold... now relax. Squeeze the orange again and hold.... now relax.

This time, tighten all the muscles in your belly. Hold... now relax. Hold.... now relax.

Next, pull your shoulders behind your back, try to touch your shoulder blades together, and hold.... now relax. Hold... now relax.

Good. Now grab the sides of your chair, pull hard, and feel your hands and arms tighten. Hold... now relax. Hold... now relax.

Now slowly open your eyes. Great job!

Reflect on the exercise, talk about how the student felt when relaxing their muscles after flexing, and when they might use this technique.

4. The focus now will be on the breath, it's importance, and how to incorporate it into mindfulness practice.

Mindfulness can be practiced a lot of different ways, like we talked about earlier. One of the most important parts of mindfulness practice is finding your breath. Our breath is like a boat anchor; when the wind picks up and the water gets rough, we can use the anchor to keep the boat steady. Our breath is always there, and it can help us stay grounded in the present moment. We can also use it to practice paying special attention to what's going on around us and even calm down. Let's try it out.

Get two cotton balls. One for yourself, and one for the student. This activity is fun, but it also demonstrates controlling one's breath and allows the student to reflect on what it feels like. Here's a script:

So here we have two cotton balls; one for you, and one for me. Try putting the cotton ball on the palm of your hand, close to your wrist. Now gently blow the cotton ball to the end of your fingertips, like this (give a quick demonstration). Now you try.

Let this be a fun activity for the student and encourage them whether they are successful or having a hard time. After trying it a few times, allow the student to reflect on what it felt like to try and control their breath, and where they felt their breath. Remember to normalize anything they reflect on, such as feeling the breath in their belly, chest, or nostrils. Next, go through the Mindful Breathing exercise. Here is a script:

First, we get into a mindful body. Once your eyes are closed or looking down at the floor, think to yourself "Here I am, right now, in this space." As you inhale, breathe slowly through your nose. Feel the air as it hits your nose, goes through your nostrils, and slowly make its way to your belly. Imagine your belly is like a balloon, and as you inhale, the balloon is getting bigger and bigger. Let the balloon completely fill up with air, and then slowly exhale through your mouth. As you exhale, let your breath find its way out. Observe the balloon in your belly shrink as you let continue to exhale, and notice how it feels as you release the breath from your body. After you exhale, inhale again through your nose and let the balloon fill up. Remember to keep breathing.

There are times when you might get distracted from your breath. You might have thoughts that make it hard to focus, like something that happened earlier today that annoyed you, a funny story, or an assignment that's due tomorrow. It's okay to get distracted sometimes, it happens to all of us. Simply observe that you had a thought and then find your breath again. You may also feel emotions, like joy or sadness. Just like thoughts, we all have emotions that come and go. Accept these feelings as they happen, and then find your breath. Your breath is an anchor and will bring you back to the present moment. Keep breathing, in and out.

Now open your eyes.

Reflect on the exercise. Discuss how breathing felt in their body, how the student feels after the exercise, and when they might use this technique. It could also be beneficial to talk about how it makes you feel, and what you notice when doing breathing exercises. Once again, be sure to normalize any of the student's responses (e.g. feeling sleepy, it seemed weird) and that whatever they experienced is normal.

5. Finish off the session by talking about the importance of practicing mindfulness techniques. Provide the student with necessary scripts, a practice log, and encourage them to try progressive muscle relaxation and the breathing exercise when they are able to. Here's a script:

When we want to make a muscle stronger, what do we do? Exactly, we work out. To make a muscle stronger, we use techniques that focus on it, and practice those techniques daily. The brain is the same way- if we practice mindfulness techniques daily, then the brain gets better and better at being in the present moment and paying special attention to things. It can also help us calm down quicker when we feel stressed, angry, or worried. The more you practice the techniques we talked about today, the better you will be at letting the "glitter" (reference the glitter jar) settle so we can see clearly and make a good choice. Here's a list of steps for each technique we practiced, as well as a practice log. If you would like to, try each technique for a couple minutes every day and feel free to write down any reflections you have on the practice log. Do you have any questions or feel confused about anything we talked about today?

Session Three: Mindfulness and Emotions

1. Use an "Awareness Meter" to check in with the student and see how they are feeling about the session. The green part means it's easy for the student to be there. the yellow means it's not easy to be there, but it's not hard either, and the red means it's hard to be there. Allow the student to explain their answer and be sure to validate their input. After you let them choose, pick a color for yourself to model awareness and give appropriate self-disclosure.
2. Review the glitter jar and hand model if there was any confusion during the last session. It's important for the student to understand and visualize how the mind responds to stress and how it works when calm.
3. Review the Progressive Muscle Relaxation and Mindful Breathing techniques. Ask the student if they tried practicing these techniques over the last week and reflect on what it was like for

them. Remind the student that practicing daily can help them use these techniques when they feel stressed or overwhelmed. Refer back the Session Two scripts and practice each technique.

4. The focus of this session is to build emotional awareness and identify emotions the student has in challenging situations. Here's a script:

So today we're going to talk about emotions. Whether you want to call them emotions or feelings is completely up to you. We'll say that they are the same thing. Let's try and think of as many emotions as you can, and I'll write them down. Go ahead.

Encourage the student to list as many emotions as they can, and add any important emotions they might have missed. Remember to praise the student for trying! After you create the list, talk about how each emotion has variability. For example, nervous versus anxious versus fearful, or content versus happy versus excited. If you feel that more practice is necessary, then try role playing and using nonverbal cues for the student to guess your emotion.

Some emotions, like happiness, feel good. Some emotions, like frustration or being worried, don't always feel good. Sometimes we talk about positive emotions and negative emotions, but it's important to know that all of them are important and help us in some way. Happiness helps us feel good and stay motivated. Feeling worried helps us stay out of danger, but it can also tell us when something is wrong. Anger helps protect us and lets us know when we have been wronged. Sadness can help us understand how much we care for other people when we say bye.

Next, look at specific challenges this student has and assist them in identifying the emotion that comes with it. This will be crucial to the session because it not only makes the information personal, but it can also help with building good emotional regulation skills. After the reflection, we will then introduce a mindfulness exercise on identifying emotions; specifically, by paying special attention to our bodies and where we feel our emotions.

Mindfulness of emotions means that we notice our feelings, accept them as a normal part of us, and approach them with curiosity to understand them better. One way to recognize our emotions is to think about where we feel them in our body. A lot of times our body can signal to us when we are experiencing feelings. For example, when people feel anger, they may notice that their hands tighten into fists. Today we are going to work on recognizing where in our bodies we experience emotions.

Let's get into a mindful body. Breathe in through your nostrils, feel the balloon in your belly fill up, and then slowly exhale through your mouth. Remember to keep breathing. In... and out... In... and out. Now, I want to picture a time when you felt worried. Continue to breathe, in... and out. Breathe in, and use your breath to find where in your body you feel worried (remember to go through each emotion slowly to give the student time to reflect). Worried...where do you feel worried... worried.

Keep breathing... in... and out. Now, picture a time when you felt angry. Continue to breathe, in... and out. Use your breath to find where in your body you feel angry. Angry... where do you feel angry... angry.

Keep breathing... in... and out. Now, picture a time when you felt sad. Continue to breathe, in... and out. Use your breath to find where in your body you feel sad. Sad... where do you feel sad... sad.

Keep breathing... in... and out. Now, picture a time when you felt happy. Continue to breathe, in... and out. Use your breath to find where in your body you feel happy. Happy... where do you feel happy... happy.

Provide the student with a blank sheet of paper with the outline of a person. Ask the student what emotions they noticed and where in their body they felt them. Remember to normalize anything the student reflects on. To finish up the session, talk about how our body can be used as a signal for when we feel emotions and encourage practicing this technique. Here's a script:

Our body can often tell us what we are feeling before our brain can. This is important because we can notice when our body is reacting in a certain way, like our hands clenching up when we're angry, understand what we are feeling, and then use a mindfulness technique to help us calm down. Here's a script and a new practice log so you can try this out on your own. Do you have any questions or want to share anything before we finish up?

Session Four: Mindfulness and Thoughts

1. Use an "Awareness Meter" to check in with the student and see how they are feeling about the session. The green part means it's easy for the student to be there. the yellow means it's not easy to be there, but it's not hard either, and the red means it's hard to be there. Allow the student to explain their answer and be sure to validate their input. After you let them choose, pick a color for yourself to model awareness and give appropriate self-disclosure.
2. Review the Progressive Muscle Relaxation and Mindful Breathing Techniques. Ask the student if they tried practicing these techniques over the last week and reflect on what it was like for them. Remind the student that practicing daily can help them use these techniques when they feel stressed or overwhelmed. Refer back to the Session Two scripts and practice each technique.
3. Review the Mindfulness of Emotions technique. Here's the script.

Let's get into a mindful body. Breathe in through your nostrils, feel the balloon in your belly fill up, and then slowly exhale through your mouth. Remember to keep breathing. In... and out... In... and out. Now, I want to picture a time when you felt worried. Continue to breathe, in... and out. Breathe in, and use your breath to find where in your body you feel worried (remember to go through each emotion slowly to give the student time to reflect). Worried...where in your body do you feel worried...just notice where you are feeling this emotion... worried.

Keep breathing... in... and out. Now, picture a time when you felt angry. Continue to breathe, in... and out. Use your breath to find where in your body you feel angry. Angry... where in your body do you feel angry...just notice where you are feeling this emotion ... angry.

Keep breathing... in... and out. Now, picture a time when you felt sad. Continue to breathe, in... and out. Use your breath to find where in your body you feel sad. Sad... where in your body do you feel sad...just notice where you are feeling this emotion ... sad.

Keep breathing... in... and out. Now, picture a time when you felt happy. Continue to breathe, in... and out. Use your breath to find where in your body you feel happy. Happy... where in your body do you feel happy...just notice where you are feeling this emotion ... happy.

4. The focus of this session is to introduce thoughts as separate from our mind. In other words, our thoughts are like clouds that drift through the sky, and we can observe them as they come and go with curiosity. Here's a script:

So now we're going to focus on thoughts. Thoughts can be our self-talk, like "I feel great today", memories, observations, etc. Some thoughts are pleasant, like thinking about playing a video game with a close friend. Thoughts can be neutral, like noticing that someone's shirt is blue. Thoughts can also be unpleasant, like thinking about a big test you have tomorrow. The interesting thing about unpleasant thoughts is that trying to ignore them doesn't work. It actually makes them stronger and harder to get rid of! I'll give you an example.

This activity is loosely based off of Daniel Wegner's White Bear experiment about thought suppression (Wegner, Schneider, Carter, & White, 1987). Here's a script:

I want you to close your eyes and focus. Now, picture seeing a big, white bear. Can you think of it? Great. Now, I want you to try as hard as you can to not think about the white bear. Try to move your mind away from the white bear and think about something else. If you do think about the white bear, it's completely fine; just clap your hands once and try to move on. Go ahead.

After one minute, ask the student to open their eyes and reflect on their experience. Remember to validate any of the student's reflections as common and normal. Here's a script:

Like I was saying earlier, it's really hard to ignore thoughts! This is completely normal, especially when we want to avoid a thought that is unpleasant. However, the harder we try to avoid a thought, it comes back to us and usually comes back stronger. So what can we do?

It's important to know that we can let thoughts go past us, like a cloud. Thoughts are real, but not necessarily true. They can be about the past, right now, or the future. Mindfulness helps us keep our focus on right now. There are times when past or future thoughts are needed- like remembering to prepare for a test. However, we don't want to stay stuck in our thoughts about the past or future.

5. Introduce a blank cloud for the student so the student can draw or write down a thought they want to let pass on by. If the student can't think of anything, you might want to bring up a time that they mentioned feeling stressed or a time that was challenging.
6. Now it's time to merge mindful breathing with mindfulness of thoughts. Try the exercise for about a minute. Here's a script:

Let's get into a mindful body. Breathe in through your nostrils, feel the balloon in your belly fill up, and then slowly exhale through your mouth. Remember to keep breathing. In... and out... In... and out. Keep focusing on your breath and how it feels in your body. Keep breathing... in... and out.

As you continue to breathe, notice any thoughts that come up in your mind. Noticing means that you see that the thought is there, but you don't have to do anything with it; you just see it. This also means that you don't have to judge the thought as good, bad, or anything. It's just a thought, and you can see it. After you notice the thought, bring your attention back to your breath, and back to the present moment. Breathe in... and out... in... and out.

After the activity, allow the student to reflect and be sure to validate any responses they have. Make sure to reinforce that mindfulness techniques, like progressive muscle relaxation and mindful breathing can help them when the “glitter” has taken over and they feel overwhelmed. Here's a script:

Just like emotions, our thoughts can take over our mind and take us away from the present moment and can make it harder for us to focus. It's important to practice the technique we tried today because we can get better at noticing thoughts that come up and decide what to do with them. In other words, we can choose whether we want to investigate our thoughts or simply let them go. I would encourage you to try the other techniques we have practiced as well! Do you have any questions?

7. Finish up the session by encouraging the student to practice the new technique (script included). It's similar to mindful breathing, but has more of an emphasis on noticing thoughts.

Session Five: Cultivating Self-Gratitude

1. Use an “Awareness Meter” to check in with the student and see how they are feeling about the session. The green part means it's easy for the student to be there. the yellow means it's not easy to be there, but it's not hard either, and the red means it's hard to be there. Allow the student to explain their answer and be sure to validate their input. After you let them choose, pick a color for yourself to model awareness and give appropriate self-disclosure.
2. Review the definition of mindfulness and then allow the student to pick either progressive muscle relaxation or mindful breathing to practice.
3. Review how to mindful of our thoughts and practice the activity (try for about a minute) from the previous session.

So last time we talked about thoughts. Specifically, that thoughts are real, but not necessarily true. They can be about the past, right now, or the future. When we're being mindful about our thoughts, we can notice these thoughts, but not get stuck. In other words, we can “see” the thoughts as they happen, but they don't have to take us away from the present moment. Let's try this out.

First, get into a mindful body. Breathe in through your nostrils, feel the balloon in your belly fill up, and then slowly exhale through your mouth. Remember to keep breathing. In... and out... In... and out. Keep focusing on your breath and how it feels in your body. Keep breathing... in... and out.

As you continue to breathe, notice any thoughts that come up in your mind. Noticing means that you see that the thought is there, but you don't have to do anything with it; you just see it. This also means that you don't have to judge the thought as good, bad, or anything. It's just a thought, and you can see it. After you notice the thought, bring your attention back to your breath, and back to the present moment. Breathe in... and out... in... and out.

Allow time for the student to reflect on the exercise and be sure to validate any of their responses.

4. The focus of this session is going to be about gratitude for oneself, the people around us, and the things that we appreciate in life. Here's a script:

So today we're going to focus on gratitude. What does it mean to be grateful? (Allow student to guess). Being grateful means we are thankful for who we are, thankful for the people around us, and thankful for the good things in our lives. It's being thankful for everything that makes us feel happy and fulfilled. When we are being mindful, we are able to stay in the present moment and notice the aspects of our lives we are grateful for. These can be big things we're grateful for, like a family member or a favorite sport, or little things, like eating your favorite candy after lunch or having a teacher compliment you on working hard in class.

Let's get into a mindful body. Breathe in through your nostrils, feel the balloon in your belly fill up, and then slowly exhale through your mouth. Remember to keep breathing. In... and out... In... and out. Keep focusing on your breath and how it feels in your body. Keep breathing... in... and out.

As you continue to breathe, think about the things around you in school that make you feel happy. Things that you like to learn about, the things you enjoy doing in class, the people you like to see, the teachers you like to learn from. Think about anything that brings you joy in school.

Now think about the things outside of school that make you feel happy. Things that you like to do during your free time, games you like to play, the music you like to listen to, the food you like to eat, the places you like to visit. Remember anything that brings you joy in life.

Now think about the people who you care about. Think about your family, friends, teachers, coaches, or anybody who is important to you. Notice what they mean to you, how they make you feel, and why they are important to you. Think about anybody who brings you joy in life.

Now think about yourself. See yourself as a unique person and how there is only one of you. Notice your strengths and what you have to offer the world. Remember your challenges, and how you work to overcome them. Think about the qualities you have that your friends and family admire about you. Notice the qualities you admire about yourself. The combination of your strengths, challenges, and qualities make you unique, and make you (insert student's name).

Reflect on everything you have thought of and say "I am grateful". Now open your eyes.

Reflect on the activity and allow the student to talk about everything they are grateful for.

5. Now you will create a gratitude chain to finish the activity. Cut strips of construction paper (make them equal) and encourage the student to write down what they are thankful. Try to see if they can fill out at least 4 strips of paper, each of them with something they are grateful for. While the student is working, fill out your own strips of paper as well and then the two of you can share. After sharing, tape the strips of paper and make them into one long chain.
6. Provide the student with a small journal and encourage them to write down three things they are thankful every day. Talk about the benefits of this and how it can help them.

Session Six: Visualization for Forward Movement

1. Use an "Awareness Meter" to check in with the student and see how they are feeling about the session. The green part means it's easy for the student to be there. the yellow means it's not easy to be there, but it's not hard either, and the red means it's hard to be there. Allow the student to explain their answer and be sure to validate their input. After you let them choose, pick a color for yourself to model awareness and give appropriate self-disclosure.
2. Review the definition of mindfulness and then allow the student to pick either progressive muscle relaxation or mindful breathing to practice.
3. Practice the Mindfulness and Gratitude exercise. Remember to ask the student if they have been filling their personal journal with 3 things they are grateful for each day. Here's a script:
Let's get into a mindful body. Breathe in through your nostrils, feel the balloon in your belly fill up, and then slowly exhale through your mouth. Remember to keep breathing. In... and out... In... and out. Keep focusing on your breath and how it feels in your body. Keep breathing... in... and out.

As you continue to breathe, think about the things around you in school that make you feel happy. Things that you like to learn about, the things you enjoy doing in class, the people you like to see, the teachers you like to learn from. Think about anything that brings you joy in school.

Now think about the things outside of school that make you feel happy. Things that you like to do during your free time, games you like to play, the music you like to listen to, the food you like to eat, the places you like to visit. Remember anything that brings you joy in life.

Now think about the people who you care about. Think about your family, friends, teachers, coaches, or anybody who is important to you. Notice what they mean to you, how they make you feel, and why they are important to you. Think about anybody who brings you joy in life.

Now think about yourself. See yourself as a unique person and how there is only one of you. Notice your strengths and what you have to offer the world. Remember your challenges, and how you work to overcome them. Think about the qualities you have that your friends and family

admire about you. Notice the qualities you admire about yourself. The combination of your strengths, challenges, and qualities make you unique, and make you (insert student's name).

Reflect on everything you have thought of and say "I am grateful". Now open your eyes.

Reflect on the activity and allow the student to talk about everything they are grateful for.

4. The main focus of the last session is about reviewing the techniques and when the student can use them in the future. It will also be about cementing the student's ability to use these techniques as a tool for forward progress. Here's a script:

Being mindful means that we are focused on the present moment, paying special attention to the things around us, and accepting the things we notice. We accept the things around us nonjudgmentally, and we accept ourselves and who we are. Your strengths, challenges, and personal qualities are what make you unique, and what make you (insert student's name). While it's important to accept who we are in this present moment, it doesn't necessarily mean that we can't think about the future sometimes and what we want to improve about ourselves.

First, collect copies of the practice scripts that were given to the student and create a packet for them. Review the techniques and the importance of each one. Then, have an open discussion about general and specific times when these techniques could help them. If the student is struggling with this, encourage them to think about what the two of you have discussed in previous sessions, or suggest challenges that the student or teacher mentioned in the interview.

Afterwards, use a "ruler" to gauge the student's confidence about using the techniques when challenges arise. Here's a script:

On a scale from 1 to 10, how confident are you in using these techniques? 1 means that you don't feel confident at all, and 10 means that you feel extremely confident.

Let student answer and follow up with this format:

Why a (the number that was given) and not a (lower number than what was given)?

Use this time to validate the student's response and reflect on their answer.

5. Next, we'll "cement" the student's knowledge of mindfulness and the techniques they have learned. The goal of this is to help encourage their control and ability to use these techniques. Here's a script:

The mindfulness techniques you have learned will always be tools you can use. They are parts of your knowledge that can't be unlearned. It's just like knowing that 1+1=2. You will always know this and can't unlearn it. It's something you automatically know. It's the same with mindfulness techniques, like Progressive Muscle Relaxation and Mindful Breathing- it can't be taken away. You'll always know these techniques, and I would encourage you to keep practicing them so these tools become stronger and stronger.

6. This is the last part of the mindfulness curriculum! Finish off by talking about the importance of mindfulness, how it can help them, and how you appreciate their participation. Here's the script:

So this is the last part of the curriculum. Like we've talked about throughout our time together, mindfulness is about being present, paying special attention to the things around us, and approaching them without judgment. When we do this, we can notice thoughts as they come and go, emotions in our mind and bodies, and the parts of our lives we feel thankful for. Mindfulness gives our mind the power to be in control, even when our thoughts and feelings try to take over.

I'm grateful for your willingness to be here. Mindfulness was a new concept for you when you started, but you have been open and willing to learn about it, you've tried new techniques, and you've shared your experiences with me. Thank you, and I hope you continue to learn and utilize mindfulness on your journey!

Final Packet of Practice Scripts for Student: Appendix E

Mindfulness Techniques**A quick note:**

Remember that mindfulness is about being present, paying special attention to the things around us, and approaching them without judgment. When we do this, we can notice thoughts as they come and go, emotions in our mind and bodies, and the parts of our lives we feel thankful for. Mindfulness gives our mind the power to be in control, even when our thoughts and feelings try to take over.

You did awesome! I'm grateful for you participating in the program. Mindfulness was a new concept for you when you started, but you have been open and willing to learn about it, you've tried new techniques, and you've shared your experiences with me. Thank you, and I hope you continue to learn and utilize mindfulness on your journey!

-Mr. Krogmann

Progressive Muscle Relaxation

- Start by getting into a mindful body. Sit in a comfortable position and make sure your back is straight; not too straight like a soldier, but not too limp like a rag doll. Your feet are on the floor, hands in your lap, and your eyes are either closed or softly gazing at the floor.
- Remember to pay special attention to how your muscles feel as they tighten, and how they feel as you relax them. Each time you flex your muscles, hold it for about 5 to 10 seconds and then relax them for about 10 seconds.
- First, scrunch your toes, as tight as you can. Hold.... now relax. Scrunch your toes again and hold.... now relax.
- Next, straighten your legs, feel your legs tighten, and point your feet straight ahead of you. Hold.... now relax. Hold your legs up again and hold.... now relax.
- Now, put your legs together and pretend like you are trying to squeeze an orange with your knees. Hold... now relax. Squeeze the orange again and hold.... now relax.
- This time, tighten all the muscles in your belly. Hold... now relax. Hold.... now relax.
- Next, pull your shoulders behind your back, try to touch your shoulder blades together, and hold.... now relax. Hold... now relax.
- Good. Now grab the sides of your chair, pull hard, and feel your hands and arms tighten. Hold... now relax. Hold... now relax.
- Now slowly open your eyes. Great job!

Mindful Breathing

- One of the most important parts of mindfulness practice is finding your breath. It can help us stay grounded in the present moment. We can also use it to practice paying special attention to what's going on around us and even calm down.
- There are times when you might get distracted from your breath. You might have thoughts that make it hard to focus, like something that happened earlier today that annoyed you, a funny story, or an assignment that's due tomorrow. It's okay to get distracted sometimes, it happens to all of us. Simply observe that you had a thought and then find your breath again.
- You may also feel emotions, like joy or sadness. Just like thoughts, we all have emotions that come and go. Accept these feelings as they happen, and then find your breath again.
- It may help you to set a timer. Try this exercise for a couple of minutes at first, and then you can build your way up to longer exercises.
- Start by getting into a mindful body. Sit in a comfortable position and make sure your back is straight; not too straight like a soldier, but not too limp like a rag doll. Your feet are on the floor, hands in your lap, and your eyes are either closed or softly gazing at the floor.
- Once your eyes are closed or looking down at the floor, think to yourself "Here I am, right now, in this space."
- As you inhale, breathe slowly through your nose. Feel the air as it hits your nose, goes through your nostrils, and slowly make its way to your belly. Imagine your belly is like a balloon, and as you inhale, the balloon is getting bigger and bigger.
- Let the balloon completely fill up with air, and then slowly exhale through your mouth. As you exhale, let your breath find its way out. Observe the balloon in your belly shrink as you continue to exhale, and notice how it feels as you release the breath from your body.
- After you exhale, inhale again through your nose and let the balloon fill up. Remember to keep breathing.
- Continue to breath in and out, and pay attention to anything that may happen. Once the timer rings, or you decide to stop, open your eyes. Good job!

Mindfulness and Emotions

- Start by getting into a mindful body. Sit in a comfortable position and make sure your back is straight; not too straight like a soldier, but not too limp like a rag doll. Your feet are on the floor, hands in your lap, and your eyes are either closed or softly gazing at the floor.
- Now, picture a time when you felt worried. Continue to breathe, in... and out. Breathe in, and use your breath to find where in your body you feel worried. Worried...where in your body do you feel worried...just notice where you are feeling this emotion... worried.
- Keep breathing... in... and out. Now, picture a time when you felt angry. Continue to breathe, in... and out. Use your breath to find where in your body you feel angry. Angry... where in your body do you feel angry...just notice where you are feeling this emotion ... angry.
- Keep breathing... in... and out. Now, picture a time when you felt sad. Continue to breathe, in... and out. Use your breath to find where in your body you feel sad. Sad... where in your body do you feel sad...just notice where you are feeling this emotion ... sad.
- Keep breathing... in... and out. Now, picture a time when you felt happy. Continue to breathe, in... and out. Use your breath to find where in your body you feel happy. Happy... where in your body do you feel happy...just notice where you are feeling this emotion ... happy.
- Now gently open your eyes and bring yourself back to the room.

Mindfulness and Thoughts

- Try to set a timer for yourself for at least a minute!
- Start by getting into a mindful body. Sit in a comfortable position and make sure your back is straight; not too straight like a soldier, but not too limp like a rag doll. Your feet are on the floor, hands in your lap, and your eyes are either closed or softly gazing at the floor.
- Breathe in through your nostrils, feel the balloon in your belly fill up, and then slowly exhale through your mouth. Remember to keep breathing. In... and out... In... and out. Keep focusing on your breath and how it feels in your body. Keep breathing... in... and out.
- As you continue to breathe, notice any thoughts that come up in your mind. Noticing means that you see that the thought is there, but you don't have to do anything with it; you just see it. This also means that you don't have to judge the thought as good, bad, or anything. It's just a thought, and you can see it. After you notice the thought, bring your attention back to your breath, and back to the present moment. Breathe in... and out... in... and out.
- Keep doing this until you hear the timer go off. Great job!

Mindfulness and Gratitude

- Start by getting into a mindful body. Sit in a comfortable position and make sure your back is straight; not too straight like a soldier, but not too limp like a rag doll. Your feet are on the floor, hands in your lap, and your eyes are either closed or softly gazing at the floor.
- Breathe in through your nostrils, feel the balloon in your belly fill up, and then slowly exhale through your mouth. Remember to keep breathing. In... and out... In... and out. Keep focusing on your breath and how it feels in your body. Keep breathing... in... and out.
- As you continue to breathe, think about the things around you in school that make you feel happy. Things that you like to learn about, the things you enjoy doing in class, the people you like to see, the teachers you like to learn from. Think about anything that brings you joy in school.
- Now think about the things outside of school that make you feel happy. Things that you like to do during your free time, games you like to play, the music you like to listen to, the food you like to eat, the places you like to visit. Remember anything that brings you joy in life.
- Now think about the people who you care about. Think about your family, friends, teachers, coaches, or anybody who is important to you. Notice what they mean to you, how they make you feel, and why they are important to you. Think about anybody who brings you joy in life.
- Now think about yourself. See yourself as a unique person and how there is only one of you. Notice your strengths and what you have to offer the world. Remember your challenges, and how you work to overcome them. Think about the qualities you have that your family and friends admire about you. Notice the qualities you admire about yourself. The combination of your strengths, challenges, and qualities make you unique, and make you who you are.
- Reflect on everything you have thought of and say "I am grateful". Now gently open your eyes and bring yourself back to the room.
- Another way to embrace gratitude is to write 3 things you are thankful for each day. Whether this is a small thing, like enjoying your favorite snack, or a big thing, like your family and friends, it's important to reflect on what we are grateful for and how it brings joy to our lives. Good work!

Practice Log: Appendix F

Mindfulness Practice Log

- Try to practice a mindfulness technique you have learned for at least a couple of minutes once a day, each day of the week
- List the technique you practiced in the provided box for each day.
- Feel free to write down your thoughts about each practice session on the back of this sheet. This can include any thoughts, feelings, or sensations you experienced before, during, or after practicing.
- Remember, practicing these techniques when you are calm can help you when you feel stressed at school. You can do this!

Week:	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday	Sunday
Technique Practiced:							

Monday:

Tuesday:

Wednesday:

Thursday:

Friday:

Saturday:

Sunday:

Appendix G: Parent/Guardian Informed Consent Form

Identification of Investigators & Purpose of Study

Your child is being asked to participate in a research study conducted by Richard Krogmann, a School Psychology intern and graduate student from James Madison University. The purpose of this study is to implement an intervention with a mindfulness-based curriculum to reduce a student with Autism Spectrum Disorder's challenging behavior that results in academic difficulties within the classroom. Mindfulness is used to teach awareness and develop the ability to closely observe our thoughts, emotions, and feelings. Furthermore, it teaches individuals how to calm down and self-soothe in order to make better decisions when it comes to behavior. This study will contribute to the researcher's completion of his master's thesis.

Research Procedures

If you decide to allow your child to participate in this research study, you will be asked to sign this consent form once all your questions about have been answered to your satisfaction. This study consists of six mindfulness sessions in a one-on-one format. The six sessions are briefly described below:

- **Body/Mind/Spirit Connection-** The effects of mindfulness on the brain
- **Mindfulness and Thoughts-** Nonjudgmental awareness of thoughts
- **Mindfulness and Emotions-** Nonjudgmental awareness of emotions
- **Cultivating Gratitude-** Embracing gratitude for oneself
- **Mindfulness Self-Care-** Caring for oneself through mindfulness techniques and activities
- **Visualization for Forward Movement-** Goal-setting for personal wellbeing

Your child will be asked to participate in each session to personalize the information and how it can help him/her in the classroom. After each session (in which a technique was taught), a log will be given in order to encourage practicing mindfulness techniques for the week. He/she will also be asked to complete a mindfulness questionnaire on 3 separate occasions and will be brought in for a short interview weekly (a separate time from the session) as well as before and after the intervention. The primary investigator would also like to meet with you to explain mindfulness, the curriculum and the techniques being used. Additionally, the primary investigator will observe your child in the classroom(s) in which the challenging behavior is occurring and the teacher has agreed to participate. This will be an opportunity to observe your child's behaviors and interactions with teachers and classroom peers.

Time Required

Participation in this study will require one 20 to 30 minute interview session before the intervention begins to build rapport and understand your child better. Each of the six sessions will take approximately 30 minutes and each weekly interview will take 10 to 15 minutes (as well as the final interview). However, additional practice sessions may be included if necessary in order to cover all of the material and allow the student to practice. The mindfulness questionnaire will take about 10 minutes to complete. If no additional sessions are required, the total estimated time of participation is approximately 5 to 5.75 hours for your child.

Risks

The researcher does not perceive more than minimal risks from your child's participation in this study (meaning no risks beyond the risks associate with everyday life). Additionally, your child will not miss any core instruction to participate in this study.

Benefits

Participation in this study may include the decrease of a challenging behavior your child is struggling with in the classroom, as well as supporting a body of literature that seeks to embrace mindfulness-based interventions as a form of treatment in schools.

Confidentiality

The results of this research will be presented at James Madison University as a part of Richard Krogmann's master's thesis. The research will be submitted as a requirement for his graduation of the School Psychology program and will be presented at the 2019 Graduate Psychology Spring Symposium at James Madison University. If given the opportunity, the research may also be presented at state or federal conferences to share the results with other mental health professionals. The results of this project will be coded in a manner that ensures the respondent's identity will not be attached to the final form of this study. The researcher retains the right to use and publish non-identifiable data. When the results of this research are published or discussed in conferences, no information will be included that would reveal your child's identity. All data will be secured in a location accessible only to the researcher. Upon completion of the study, all information that matches up individual respondents with their answers will be destroyed.

There is one exception to confidentiality we need to make you aware of. In certain research studies, it is our ethical responsibility to report situations of child abuse, child neglect, or any life-threatening situation to appropriate authorities. However, we are not seeking this type of information in our study nor will you be asked questions about these issues.

Participating & Withdrawal

Your child's participating is voluntary and he/she is free to not participate. Should you or your child choose to participate, he/she can withdraw at any time without consequences of any kind. Participating in the study, refusing to participate, or withdrawing in the study will not affect your child's education status at the school.

Questions about the Study

If you have questions or concerns during the time of your child's participation in this study, or after its completion or you would like to receive a copy of the final aggregate results of this study, please contact:

Richard Krogmann, M.A.
Graduate Psychology Department
James Madison University
krogmara@dukes.jmu.edu

Tammy Gilligan, Ph.D.
Graduate Psychology Department
James Madison University
gilligtd@jmu.edu

Questions about Your Rights as a Research Subject

Dr. Taimi Castle
Chair, Institutional Review Board
James Madison University
(540) 568-5929
castletl@jmu.edu

Giving of Consent

I have read this consent form and I understand what is being requested of my child as a participant in this study. I freely consent for my child to participate. I have been given satisfactory answers to my questions. The researcher provided me with a copy of this form. I certify that I am at least 18 years of age.

Name of Child (Printed) _____
Name of Parent/Guardian (Printed) _____

Name of Parent/Guardian (Signed) _____ Date _____

Name of Researcher (Signed) _____ Date _____

Interviews

As stated previously in this form, your child will be asked to interview with the primary researcher once before the intervention, have weekly interviews during the intervention (a time separate from the session), and one interview after the intervention. The interview will only include your child and the primary researcher, who has been trained to conduct interviews as a mental health professional.

Name of Child (Printed) _____

Name of Parent/Guardian (Printed) _____

Name of Parent/Guardian (Signed) _____ Date _____

Name of Researcher (Signed) _____ Date _____

Appendix H: Child Assent Form (Ages 11-17)

Mindfulness Intervention for Students

Mindfulness is noticing what is happening right now. It helps us pay special attention to how we think and how we feel emotions in our brain and in our body. By paying special attention to these things, we can help control our feelings and how we behave. This can be done by learning about mindfulness and practicing techniques that help us pay attention.

Mr. Richard Krogmann, a school psychologist, will work with you and teach you about mindfulness. Overall, we will meet for six sessions and each session will last about 30 minutes. We may have extra sessions to make sure you understand what we learn. After each session, you will be asked to meet with me to talk about how mindfulness has been helping you. This will be on a separate day than our session. We'll also meet to talk once before our sessions start, and once after.

Before we begin, you will need to answer a short list of questions about mindfulness. The same list of questions will also be given to you once during our time together, and then once after all of our sessions are done. The questions should take about 10 minutes to answer.

Your parents will also be asked to give their permission for you to take part in this study.

You do not have to be in this study if you do not want to. If you decide to participate in the study, you can stop at any time. If you decide to stop or do not want to participate, that is completely fine- there will be no consequences and it will not affect your education at school.

If you have any questions at any time, please ask Mr. Richard Krogmann.

IF YOU PRINT YOUR NAME ON THIS FORM IT MEANS THAT YOU HAVE DECIDED TO PARTICIPATE AND HAVE READ EVERYTHING THAT IS ON THIS FORM. YOU AND YOUR PARENTS WILL BE GIVEN A COPY OF THIS FORM TO KEEP.

Name of Child (Printed) _____ Date _____

Signature of Researcher _____ Date _____

Richard Krogmann, M.A.
krogmara@dukes.jmu.edu

Appendix I: Teacher Informed Consent Form

Identification of Investigators & Purpose of Study

You are being asked to participate in a research study conducted by Richard Krogmann, a School Psychology intern and graduate student from James Madison University. The purpose of this study is to implement an intervention with a mindfulness-based curriculum to reduce a student with Autism Spectrum Disorder's challenging behavior that results in academic difficulties within the classroom. Mindfulness is used to teach awareness and develop the ability to closely observe our thoughts, emotions, and feelings. Furthermore, it teaches individuals how to calm down and self-soothe in order to make better decisions when it comes to behavior. This study will contribute to the researcher's completion of his master's thesis.

Research Procedures

If you decide to participate in this research study, you will be asked to sign this consent form once all your questions about have been answered to your satisfaction. This study consists of six mindfulness sessions in a one-on-one format. The six sessions are briefly described below:

- **Body/Mind/Spirit Connection-** The effects of mindfulness on the brain
- **Mindfulness and Thoughts-** Nonjudgmental awareness of thoughts
- **Mindfulness and Emotions-** Nonjudgmental awareness of emotions
- **Cultivating Gratitude-** Embracing gratitude for oneself
- **Mindfulness Self-Care-** Caring for oneself through mindfulness techniques and activities
- **Visualization for Forward Movement-** Goal-setting for personal wellbeing

The student will be asked to participate in each session to personalize the information and how it can help them in the classroom. After each session (in which a technique was taught), a log will be given in order to encourage practicing mindfulness techniques for the week. They will also be asked to complete a mindfulness questionnaire on 3 separate occasions and will be brought in for a short interview weekly (a separate time from the session) as well as after the intervention. Additionally, the primary investigator will observe your student in your classroom. This will be an opportunity to observe your student's behaviors and interactions with teachers and classroom peers.

The primary investigator will need to meet with you before the intervention is implemented for an interview. The interview will be semi-structured and allow you to give observations on the student and the challenging behavior in the classroom. There will also be an interview following the end of the intervention to record any changes in the student's challenging behavior and any other important observations that may be related to the mindfulness curriculum, such as a change in the student's quality of life. Along with the interviews, you will be asked to complete a behavior chart to tally the target behavior two weeks before the beginning of the intervention, during the six-week intervention, and four weeks for post-intervention.

Time Required

For the student, participation in this study will require one 20 to 30 minute interview session before the intervention begins to build rapport and understand your student better. Each of the six sessions will take approximately 30 minutes and each weekly interview will take 10 to 15 minutes (as well as the final interview). The questionnaire will take approximately 10 minutes to complete. If no additional sessions are required, the total estimated time of participation is approximately 5 to 5.75 hours for your student. For yourself, participation will require the completion of the behavior chart as well as a semi-structured interview (approximately 20 to 30 minutes) before and after the intervention. Additionally, the primary investigator would like to meet with you to explain mindfulness, the curriculum and the techniques being used. In total, your participation will require about 1 to 1.5 hours.

Risks

The researcher does not perceive more than minimal risks from your participation in this study (meaning no risks beyond the risks associate with everyday life).

Benefits

Participation in this study may include the decrease of a challenging behavior your student is struggling with in the classroom, as well as supporting a body of literature that seeks to embrace mindfulness-based interventions as a form of treatment in schools.

Confidentiality

The results of this research will be presented at James Madison University as a part Richard Krogmann's master's thesis. The research will be submitted as a requirement for his graduation of the School Psychology program and will be presented at the 2019 Graduate Psychology Spring Symposium at James Madison University. If given the opportunity, the research may also be presented at state or federal conferences to share the results with other mental health professionals. The results of this project will be coded in a manner that ensures the respondent's identity will not be attached to the final form of this study. The researcher retains the right to use and publish non-identifiable data. When the results of this research are published or discussed in conferences, no information will be included that would reveal your identity or the identity of your student. All data will be secured in a location accessible only to the researcher. Upon completion of the study, all information that matches up individual respondents with their answers will be destroyed.

Participating & Withdrawal

Your participation is voluntary. Should you choose to participate, you can withdraw at any time without consequences of any kind. Participating in the study, refusing to participate, or withdrawing in the study will not affect your employment at the school nor will it affect your student's education.

Questions about the Study

If you have questions or concerns during the time of your participation in this study, or after its completion or you would like to receive a copy of the final aggregate results of this study, please contact:

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Tammy Gilligan, Ph.D.
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Questions about Your Rights as a Research Subject

Dr. Taimi Castle
Chair, Institutional Review Board
James Madison University
(540) 568-5929
castletl@jmu.edu

Giving of Consent

I have read this consent form and I understand what is being requested of my me as a participant in this study. I have been given satisfactory answers to my questions. The researcher provided me with a copy of this form. I certify that I am at least 18 years of age.

Name of Teacher (Printed) _____

Name of Teacher (Signed) _____ Date _____

Name of Researcher (Signed) _____ Date _____

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