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The impact of mindfulness exercises on the verbal reactive behaviors of students identified with significant behavioral and emotional difficulties

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THE IMPACT OF MINDFULNESS EXERCISES ON THE REACTIVE VERBAL BEHAVIORS OF STUDENTS IDENTIFIED WITH SIGNIFIGANT BEHAVORIAL OR EMOTIONAL DIFFICULTIES

by

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Abstract

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The purpose of this study was to examine the effects of mindfulness exercises such as counting and breathing on the reactive verbal behaviors of students who are identified as having significant behavioral and emotional difficulties. The six participants were fifth and seventh grade students who were instructed in the self-contained classroom for emotional support a minimum of three class periods daily. Mindfulness exercises were practiced twice daily for a period of three to five minutes for twenty days. Data was collected on each participant prior to, during and after the intervention implementation. The independent variable was the mindfulness exercises employed. The dependent variable was each participant's behavior as recoded on the student behavior record sheets. Overall, the study results show that mindfulness exercises such as breathing and counting do have a positive impact on the reactive behaviors, including verbal aggression, of students with emotional and behavioral difficulties. Five of the six participants demonstrated a reduction in negative verbal behaviors as evidenced by an increased number of points earned for positive tone and language. One participant showed no change in behavior. Results show that mindfulness exercises are an effective tool for the development of appropriate social emotional skills which support student success.

Table of Contents

Table of Contents (Continued)

List of Figures

List of Tables

Chapter 1

Introduction

Beyond reading, writing and arithmetic, educators today are faced with the ever growing demand to promote healthy social and emotional development in their students. Research and theory exist that focus on the growing need to teach students the skills required to self-manage emotions and behaviors through the implementation of social emotional learning (SEL) for the promotion of overall success. Social emotional learning can be defined as the process of learning core competencies to recognize and manage emotions. Social emotional learning results in improved student behaviors, increased prosocial behaviors, and enhanced academic performance (Durlak et al., 2001).

Students with significant emotional and behavioral difficulties require their academic education to be accompanied by social emotional instruction in order to develop the ability to appropriately and effectively interact with others. This is particularly important when they experience negative emotions which classically elicit behaviors that are categorized as inappropriate, disproportionate and even dangerous.

Working with students that exhibit significant emotional and behavioral difficulties, I observed students' lack of ability to appropriately manage themselves when exposed to a negative stimulus on a daily basis. This inability caused a loss of instructional time and therefore, negatively impacted academic growth. Student's required instruction in emotional regulation to promote general productivity and establish positive relationships while reducing the exposure to isolation and rejection (Mathur, et al., 1998).

While the need for social emotional learning is evident, the implementation is less clear. Many different programs, approaches and methods exist and have been successfully employed to teach students appropriate social and emotional skills. No matter the approach, social emotional learning has been successful at various educational levels, in various environments and has been effective when incorporated into routine practices (Durlak, et al., 2011).

Mindfulness, *the conscious state of being aware of one's own feelings, thoughts, body sensations and environment in the current moment*, has applications that may support the social and emotional learning of students in the area of self-management as there is evidence that mindfulness helps emotional regulation and decreases reactivity (Davis & Hayes, 2011). Mindfulness, with its entomology from Buddhist Meditation, has recently become a mainstream topic in America with application in education. Mindfulness trains the mind and body to pay attention to the thoughts, feelings and body sensations in the moment and to respond without judgment or connection to the past nor future (Kabat-Zinn, 2017). Mindfulness may allow a person to create responses free of prior experiences or traumas and interact with the feelings and thoughts of the moment, as an isolated incident, therefore exercising greater emotional control. Mindfulness, although not traditionally used in isolation for social emotional learning, may provide similar social and emotional growth in students with instruction in and daily practice of such methods as breathing, counting and meditation. Therefore, mindfulness may provide the same benefits to students as social emotional learning facilitating overall success.

Based on personal observation, students with significant emotional and behavioral difficulties, struggle substantially to experience a negative stimulation without negatively and ineffectively reacting. A simple example, student A calling out a name or demeaning comment, student B reacting to the comment and this continues back and forth, gradually drawing in others who are emotionally triggered by the negative stimuli and are unable or unskilled to navigate away from the situation. Often the reactions to the stimulus extend well beyond the original negative comment. The students will often refer to prior altercations with each other or even reference events from their past which may or may not involve the people present. When experiencing this type of negative stimuli, students often respond ineffectively by pulling into the moment, the emotions and thoughts of prior events, therefore increasing the negative impact of the initial stimulus. Mindfulness, with its focus on paying attentions to just the moment, may allow students to respond to a negative stimulus with greater emotional control and thereby reduce the reactivity.

The focus on negative reactive behaviors derives from the impact these reactions have on the instructional time in a classroom. Daily, there is significant loss of time due to students' chain reaction to each other's negative verbal communications. The loss of instructional time exponentially increases as each individual student becomes involved. There is a great deal of time and energy employed by staff in the classroom to regain control and return to academic instruction. The loss of instruction alone is substantial. A critical need exists to focus on the development of skills students require to appropriately navigate these types of encounter.

Research Problem

The research question for this study is: What is the impact of mindfulness exercises, e.g. breathing and counting, on the negative reactive behaviors of students in grades 5 and 7 who have been identified as having significant emotional and behavioral difficulties?

The students, in this study, attend the Emotional Support program at a public school in an urban environment. They will practice mindful breathing a minimum of 2 times a day for a minimum of five minutes as instructed by their classroom teacher. All six of the students in the program, have demonstrated poor reactive skills to the negative stimulus of verbal aggression which includes name calling, demeaning comments, and threats as documented in daily logs.

It is hypothesized that after a minimum of 4 weeks (40 Mindfulness sessions) the students will begin to show a decrease in negative reactive behavior and will replace this behavior with more appropriate responses such as but not limited to tuning out/ignoring, finding an alternate environment or independently using mindful breathing to remain calm.

Key Terms

Mindfulness. *The conscious state of being aware of (paying attentions to) one's own feelings, thoughts, body sensations and environment in the current moment and accepting and disengaging from them* (Kabat-Zinn, 2017).

Emotional Regulation. *The extrinsic and intrinsic processes responsible for monitoring, evaluating and modifying emotional reactions (Berking and Whitley, 2014).*

Reactions. *An action performed or a feeling experienced in response to a situation or event.*

Implications

Mindfulness breathing and counting will be applied in this study with the hope of seeing a reduction in negative reactive behaviors in students with significant behavioral and emotional difficulties. If successful, mindfulness, as a means to develop emotional control and regulation, could be utilized with specific populations of students that exhibit emotional or behavioral disorders. The general population of students may even benefit from mindfulness exercises. As students become more mindful of their emotions and reactions, teachers may find they gain not only minutes of instruction but quality of learning may improve as students are able to remain focused on the academic objectives and not the distractions of negative emotions such as anxiety, stress and anger. As students gain greater self-control and emotional regulation, they are able to be more attentive and focused on the moment they are in. Therefore, not only does instruction time increase, the quality of learning increases because the students are able to remain attentive and focused even though they may be experiencing negative emotions. As students develop greater emotional control, they will improve academic achievement while developing and practicing skills to effectively deal with the negative emotions of life in a way that facilitates continued success.

Summary

Social and Emotional development has become an essential component of education as it prepares students for success in life. Poor self-regulation, including regulations of emotions and behaviors, has detrimental effects on life. Students with

emotional and behavioral disorders have great difficulty developing appropriate and effective self-management skills needed for both success in school and life beyond. Mindfulness exercises may foster the development of emotional regulation and positive reactivity to emotional stimuli therefore supporting social and emotional development.

In this study, it is hypothesized that students in the Emotional Support program will develop greater emotional regulation and positive reactions to negative stimuli through the daily practice of mindful breathing and counting. The goal is that each student will develop self-management skills and then generalize those skills to promote success across environments and throughout life.

Chapter 2

Literature Review

The purpose of this literature review is to provide information and address the following questions as they relate to the research question of this study: What is the impact of social behavior problems on student learning and success? What methods have been used to manage student social behavior problems? What is mindfulness? What is mindful breathing and its expected impact? What impacts of mindfulness have been empirically founded? How can mindfulness be useful for managing the social behavior difficulties of school-age students?

Impact of Social Behavior Problems on Student Learning and Success

Appropriately developed social behaviors, such as managing negative emotions, remaining focused, and navigating peer interactions allow students to perform better in school, establish and maintain positive relationships and improve overall mental health (Jones & Bouffard, 2012). Social behavior has not only been directly linked to academic success but is a predictor of health and financial stability into adulthood (Flook, Goldberg, Pinger, & Davidson, 2015). From an educational point of view, when students have the skills needed to exercise control of emotions, maintain focus and respond effectively to negative stimuli, the classroom environment is improved upon and therefore students are more able to obtain learning objectives and outcomes supporting overall achievement. Conversely, when students lack skills in emotional control, attention and response management, the learning environment becomes emotionally distressing and ineffective. Management becomes the primary goal which results in a lack of instruction. Therefore, in order to promote greater academic learning, students

must first have social behavior skills required to make the classroom an effective learning environment.

The importance and value of appropriately developed social behaviors becomes an essential element in the education of students who have been identified with emotional or behavioral disorders. These students are conceivably entering school at a higher risk of failure based on the findings that directly link behavior to achievement mentioned earlier. Furthermore, if students with emotional or behavioral disorders do not develop social behaviors, these individuals may experience exclusion from certain environments because they do not have the self-regulation and other social skills to appropriately interact with others and the stimuli they may encounter (Mathur, Kavale, Quinn, Forness, & Rutherford, 1998). This leads us to the premise that persons who do not develop adequate social behaviors may find themselves isolated from others and unable to achieve in life. To assist schools and teachers in the development of social skills, many social emotion learning programs and curriculums (see Table 1) have been developed and implemented with positive results. More so, there is some research that concludes that social emotional programs are most effective with high risk students, such as students with emotional or behavioral disorders (Low, Cook, Smolkowski, & Buntain, 2015).

Methods Used to Manage Student Social Behavior Problems

There are many different methods and curriculums available to support and develop the Social Emotional Learning (SEL) of students in today's classrooms. In a study to analyze the cost benefit of SEL on students, Belfield and colleagues (2015) elected to review the research on the following SEL interventions as there was ample literature about each program including a wide variety of SEL goals and diversity of

target audiences. The following list summarizes three of the intervention studied in the cost benefit analysis with reference to additional studies on each for potential benefits (see *Figure 1*). This list is not inclusive of all programs reviewed or available but provides an overview on range of audience, goals and outcomes.

Methods can be integrated or isolated and can vary in focus from students to teacher training. Role play and reflection are common components in SEL. Other common exercises being implemented into daily classroom routines are: reflective journaling, exercises that provide a framework for students to self-analyze strengths and weakness for a content area or social skill and lessons to promote specific strategies to overcome challenges or limitations. Overall, there is a growing acceptance that SEL is as essential as math and literacy skills with empirically founded connections to improved test scores, reduced discipline problems and increased employability of students (Davidson et al., 2012).

Figure 1. List of Social Emotional Learning Interventions.

Name/ Target Population	**Brief Description**	**Benefits (source noted)**
4Rs/ PK thru Middle School	SEL through the use of literature in Language Arts with accompanying activities such as discussion questions, writing exercises and role-play to develop skills of community/relationship development, emotional awareness, social responsibility and conflict resolution.	In a two year study of *4R's*, Jones and colleagues found slower growth of aggressive behaviors, increase social competence (see skills in program description) and greater academic achievement in math and reading (Jones, Brown & Aber, 2011)
Positive Action/ Grades 3-8	SEL through the use of specific, scripted lessons that include games, worksheets and puzzles for the development of positive thoughts on the basis that when students thinking is positive their actions are therefore positive. There are six core units of study which all overlap with the 5 core values of SEL.	In an extensive look at the impacts of *Positive Action*, Snyder and fellow researchers found decreased suspension and absences. Also, an increase in academic achievement (Snyder et al., 2010). Belfield (2015) notes, improvements in personal behavior, mental health and academic achievement.
Second Step/ PK-10th grade	SEL through the use of teacher directed lessons with the assistance of videos, pictures, and audio resources and accompanying activities such as role play, worksheets, games and journaling. Second steps primary focuses are to develop and improve problem solving skills and increase emotional management. These lessons are not directly integrated into a core subject but as teachers are aware of the skills being learned, they can incorporate them into core content lessons as well.	A variety of studies have provided evidence of the benefits of Second Step. Low and Colleagues found a reduction in conduct problems, peer problems and an increase in the prosocial behaviors of students in children in grades K to grade 2. No evidence of effect on disruptive behaviors was determined (Low et al., 2015). In a study of 6th graders, decreased physical aggression was observed (Esplage, Low, Polanin, & Brown, 2013).

Mindfulness

In search of a definition of mindfulness, a logical place to start would be the birthplace of mindfulness which is found in the tradition of Buddhism. However, a study of this etymology and the Buddhist religion would not create a clear picture of the meaning of mindfulness as it is used in our common day American culture. Mindfulness has no one precise consistent definition accepted by all fields. In fact, the only consistency is the varied definitions (Rempel, 2012). There are key common terms you find in each definition: present moment awareness, purposeful attention and nonjudgmental or dispassionate response to events. John Kabat-Zinn, University of Massachusetts, spearheaded mindfulness research in the 1980s and provides this broad definition: mindfulness is purposefully paying attention in the present moment and without judgement (Kabat-Zinn, 2017). Theoretically, mindfulness means a person is fully focused with the events of a moment and is aware of their internal emotional response and able to regulate this response in a manner that demonstrates understanding that the feeling elicited are not factual and can be calmly managed.

As mindfulness has gained greater attention in fields such as psychology, medicine and even education, there is a growing need for a more universally accepted definition. A group of professionals from various universities such a University of Toronto and University of Massachusetts, worked together to create an operational definition. The conclusion was a two-part definition of mindfulness. First, the ability to regulate attention on the immediate moment or event. The second, to experience that moment and create a response that is not connected to prior experiences or feelings (Bishop et al., 2004). There is clear overlap in the operational definition and the earlier

definition from John Kabat-Zinn. Overtime, in-the-moment attention and non-judgmental response have maintained their place as two pillars of mindfulness.

For our purpose, mindfulness will be defined as the conscious state of being aware of (paying attention to) one's own feelings, thoughts, body sensations and environment in the current moment and accepting and disengaging from them.

Mindful Breathing

Mindfulness has a wide variety of methods for practice including mediation, yoga, and the simple act of breathing. Mindful breathing is defined as breathing that brings focus to the sensation of the breath at a certain part of the body (nostrils or stomach). Mindful breathing can also incorporate motion or cognitive input, such as counting. It is essential to understand that the objective in any of these exercises is not the specific act of breathing or pose of yoga but rather the development of sustained attention to the stimulus of choice, the exercise. The mind is expected to wander during these exercise with decreased frequency with practice. During periods of distraction, the participant is to identify the source of the distraction and then practicing returning attention to the exercise avoiding becoming caught up or reactive to the distracting stimulus (Thompson & Gauntlett-Gilbert, 2008). Therefore, the purpose of mindful breathing is to develop sustained attention and resistance to distraction. A person may develop greater attention and resistance through the use of mindful breathing or may develop the habit of using mindful breathing in moments of distraction as an aide to return attention to the task at hand rather than the distraction. Either outcome of mindful breathing is effective as they both increase attention and emotional regulation while decreasing responses to negative stimuli.

Impacts of Mindfulness

Increased emotional regulation, increased sustained attention, improved concentration and decreased reactivity have been linked to the practice of mindfulness. There have been further studies that show decreased anxiety and effective responses to chronic pain, stress and illness with the use of mindfulness strategies. There is limited research on the impacts of mindfulness on children in school settings however, we will can look at the outcomes of mindfulness studies within various populations to inform our ideas and research on the use of mindful breathing in school settings.

Catherine Ortner and colleagues completed two studies on mindfulness mediation as it related to attentional control in emotional context (Ortner, Kilner, & Zelazo, 2007). Study two included 82 participants with a mean age of 23 years selected from an urban setting. There were two groups, one which received 7 weeks of training in mindfulness mediation the other received 7 weeks of training in relaxation mediation. The concluding data showed that those who participated in the mindfulness mediation demonstrated ability to disengage attention from unwanted stimuli more readily than those who did not receive mindfulness mediation training. This study expands our definition of a reduction in reactivity to negative stimulus to include not only the absence of reaction but a reduction in the time the distraction occurs. In this study, the participants of mindfulness mediation were able to return to a task more rapidly after a stimuli caused distraction than those who did not receive the same intervention.

Black and Fernando (2014) completed a study of how mindfulness training impacted the classroom behavior of school children (grades K-5) in a low-income and ethnically diverse elementary school. Randomly selected classrooms received *Mindful*

Schools curriculum in 15 minutes sessions, 3 times a week or 5 weeks for a total of 225 minutes of mindfulness training. Based on rating scales completed by classroom teachers, the children who were receiving the *Mindful Schools* curriculum reportedly improved at paying attention, calm and self-control and participation in activities and caring/respect for others (Black & Fernando, 2014). Again, there is evidence that mindfulness activities have an impact on student social behaviors such as increased attention and self-control. This study and others have shown impact of mindfulness exercise on the social behaviors of students outside of the specific time that the mindfulness exercises were being practiced.

Various other studies and research report that mindfulness can decrease reactivity to negative stimuli (Davies & Hayes, 2011), improve social functioning (Fishbein et al., 2016) and increase attentional control. Mindfulness and its applications in educational settings is empirically growing as a method that successfully grows student prosocial skills for the support of academic and social success across all environments.

Mindfulness for Managing the Social Behavior Difficulties of School-age Children

Mindfulness interventions for the development of prosocial behaviors in various populations are slowly growing in popularity due to the lasting improvements in such skills as self-awareness, increased impulse control and decreased emotional reactivity to difficult events (Thompson & Gauntlett-Gilbert, 2008). The advantage of mindfulness intervention with school age children is that they are minimally disruptive to the general structure of the school day, can be implemented by the classroom teacher and thus far appears to have notable gains for minimal use of resources: financial, human and time. In today's classroom, teachers are combating greater incidents of anxiety, behavior

problems, and lack of motivation and attention. Mindful breathing could be one simple and effective way to promote awareness of self and behavior choices (SEL skills) without giving up large quantities of highly coveted minutes of instruction time.

Moving Forward with Mindfulness

In this study, we will look at the impact that mindfulness exercises, such as breathing and counting, on social emotional skills including reduced student reactivity to negative stimuli and increased student focus, attention and achievement. The students in the Emotional Support classroom will participate in mindful breathing and counting exercise twice daily. As discussed, it is expected that students will become distracted from the task (mindful breathing). This time of mindfulness will be used to learn how to redirect attention and how to minimize the impact of a negative stimulus (reaction reduction).

To accomplish redirecting self to the task of mindful breathing, students will be asked to identify what is distracting them, consider why and then purposefully return attention back to the exercise and to regain control of where they choose to place their attention. To accomplish reduce reactivity, students will also be taught how to perceive a distraction or negative stimulus in an isolated moment. Students will be asked to think why the distractor has successfully gained their attention and to determine if the distraction is in this moment or from a prior experience therefore not in the moment. Students will then be prompted to return attention to the task at hand (mindful breathing) and regain control over where their attention is placed. By teaching the skills of self-management (reactivity) and self-awareness (attention), we hope to see a decrease in the disruptive reactivity of students to negative stimuli and distraction in the classroom.

Chapter 3

Methodology

Setting

This study included seven students who attend school in an urban school district in South Jersey. The school district contains five schools: one high school (grades 9-12), one middle school (grades 5-8), two elementary schools (grades K-4) and a pre-school. The district student enrollment, excluding the pre-school is approximately 2,490 students. The majority of these students are minorities (approximately 40% African American and approximately 42% Hispanic) and almost 70% of the students qualify for free lunch with close to 7% qualifying for reduced lunch. All students in this study attend the middle school. The students begin their day at 7:25am with the breakfast program and school dismissal is 2:45 pm. Students are in school for 7 hours and 20 minutes, however academic instruction time is 5 hours and 50 minutes.

Participants

There are five fifth grade students and three seventh grade students in the Emotional Support program. All students who participated in this study receive at least three periods of instruction in the self-contained Emotional Support classroom due to significant emotional and behavioral difficulties. Each student has an individualized education plan and has been placed in the Emotional Support program due to its emphasis on SEL in conjunction with academic instruction. There are five fifth grade students and two seventh grade students in the Emotional Support program who are in the classroom enough instructional periods to meet the requirement for the study.

Participant 1. BL is a seventh grade African America Male who is currently receiving special education services and has an individualized education plan. BL is eligible for special education services under the category of "Emotionally Disturbed". BL receive instruction in Language Arts, Mathematics, Social Studies and 21st Century Skills (Social Skills) in the self-contained environment of the Emotional Support classroom. BL attends general education classes for Science, Physical Education and Specials accompanied by a special education teacher. BL has difficulty consistently following classroom expectations and maintaining appropriate behavior choices for a academic environment. He will have consecutive days up to ten days where he complies and even exceeds behavioral expectations however, his performance is inconsistent. Other days are characterized by refusal to complete tasks, verbally aggressive and negative comments to peers and staff, a few incidents of physical aggression towards both peers and staff, simply doing whatever he would like including but not limited to walking around the classroom, touching/taking the property of others and leaving the classroom.

Participant 2. NE is a seventh grade African America male who is currently receiving special education services and has an individualized education plan. NE is eligible for special education services under the category of "Emotionally Disturbed". NE receive instruction in Language Arts, Mathematics, Social Studies and 21st Century Skills (Social Skills) in the self-contained environment of the Emotional Support classroom. NE attends general education classes for Science, Physical Education and Specials accompanied by a special education teacher. In all setting, NE significantly struggles to meet basic academic and social behavior expectations. He is highly

disruptive to all environments due to calling out, using demeaning and foul language towards both peers and staff, instigating others, throwing items and occasionally exhibits physical aggression towards others including staff. NE is highly verbal in the classroom which is disruptive to the whole learning environment.

Participant 3. TH is a fifth grade Hispanic male who is currently receiving special education services and has an individualized education plan. TH is eligible for special education services under the category of "Emotionally Disturbed" and also has a diagnosis of Attention Deficient Hyperactivity Disorder and Adjustment Disorder with Mood Disorder. TH receives instruction in Language Arts, Mathematics, Social Studies, Science and 21st Century Skills (Social Skills) in the self-contained environment of the Emotional Support classroom. TH joins the general education population Physical Education and Specials accompanied by a two instructional assistances. TH's performance in school is inconsistent and his attendance is a significant issue, missing more than 40 days of school in the 2016-2017 academic year. TH struggles with inappropriate language. Specifically using sexually explicit language and gestures, demeaning language, and profanity towards staff and peers. TH also makes violent threats of harm towards peers and staff.

Participant 4. SG is a fifth grade African American male who is currently receiving special education services and has an individualized education plan. SG is eligible for special education services under the category of "Other Health Impaired" for his diagnosis of Attention Deficient Hyperactivity Disorder and Opposition Defiance Disorder. SG receives instruction in Language Arts, Mathematics, Social Studies, Science and 21st Century Skills (Social Skills) in the self-contained environment of the

Emotional Support classroom. SG joins the general education population Physical Education and Specials accompanied by a two instructional assistances. SG's performance in school is routinely inconsistent. SG struggles with transitions form one environment to another, which often causes the first hour of school to be a time of poor behavior choices. SG also quickly escalates when he is corrected or reminded about behavioral expectations he is not meeting. SG's negative behavior choices are characterized by acts of both verbal and physical aggression, defiant or opposition behavior and impulsivity.

Participant 5. SJ is a fifth grade African American male who is currently receiving special education services and has an individualized education plan. SJ is eligible for special education services under the category of "Other Health Impaired". According to BASC, SJ rated clinically significant on the hyperactivity scale and rated at risk on the scales for aggression, anxiety, depression, somatization and attention problems. SJ receives instruction in Language Arts, Mathematics, Science, Social Studies and 21st Century Skills (Social Skills) in the self-contained environment of the Emotional Support classroom. SJ joins the general education population Physical Education and Specials accompanied by a two instructional assistances. SJ's emotions and behaviors are inconsistent moment to moment in the classroom. He struggles to maintain focus and is overactive even after times when gross motor physical play is provided. His behaviors vary from moody and despondent to disruptive and verbally aggressive with limited number of physical occasions of physical aggression.

Participant 6. SL is a fifth grade Caucasian male who is currently receiving special education services and has an individualized education plan. SL is eligible for

special education services under the category of "Other Health Impaired" for his diagnosis of Attention Deficient Disorder. SL receives instruction in Language Arts, Mathematics, Science, Social Studies and 21st Century Skills (Social Skills) in the self-contained environment of the Emotional Support classroom. SL joins the general education population Physical Education and Specials accompanied by a two instructional assistances. SL behavior is very consistent in the classroom. He is typically agreeable, on task, happy and polite. He likes to work at this own quick pace and needs to be on a very strictly enforced schedule to maintain his learning and behavior. SL has periods of time, a few days to a week, were he struggles with behaviors choices. His actions become characterized by defiance and opposition, verbally abusive language to peers and staff and over all disruptive to the classroom.

Participant 7. DL is a fifth grade African American male who is currently receiving special education services and has an individualized education plan. DL is eligible for special education services under the category of "Emotionally Disturbed" with diagnoses of Oppositional Defiance Disorder and Post Traumatic Stress Disorder. DL receives instruction in Language Arts, Mathematics, Science, Social Studies and 21st Century Skills (Social Skills) in the self-contained environment of the Emotional Support classroom. DL joins the general education population Physical Education and Specials accompanied by a two instructional assistances. DL's requires a great deal of one to one assistance and reinforcement on a 20 minute interval to maintain appropriate behavior choices. Most days, DL has to be removed from the classroom for a period of time for de-escalation. Behaviors of verbally aggression, throwing items and physical aggression towards staff result in his removal. Prior to the implementation of mindful breathing,

DL's classroom behavior was routinely disruptive, even with the implementation of a more supportive behavior plan, DL spent an average of 2 period a day out of the classroom environment during the 20 days of intervention. Therefore he missed, more than half of the mindful breathing exercises and only participated in a minimal number of exercises when present. Due to lack of participation, DL was removed from the study.

Procedure

A mindfulness breathing and counting intervention was employed in the Emotional Support classroom by the classroom teacher/co-investigator twice daily for a period of 20 consecutive school days for a total of 40 mindfulness sessions. The first mindfulness exercise will take place daily between the hours of 7:45 and 8:30. The second mindfulness exercise will be employed between 1:45 and 2:15.

Prior to the first day the intervention was implemented, the purpose of the exercises will be discussed with the participants. As discussed in chapter two, the purpose of the mindfulness breathing is not the act of breathing itself but rather the use of the breathing exercise to practice sustained attention.

The intervention includes a variety of breathing and counting exercises. Participants will be guided through each one separately during one of the intervention sessions. The exercise will be verbally described while modeled by the classroom teacher with video assistance from online resources such as YouTube and GoNoodle. The exercises include:

- In-Hold-Out: Students will draw breath in for a count of 4-hold for a count of 7-release for a count of 8. This exercises will be repeated five times. In total the

exercise takes 3 minutes and 39 seconds and there is a video to assist called 4-7-8-Breathing Exercise by GoZen found on YouTube.

- On & Off: Students will be guided to find a comfortable place to sit either at their desks or on the floor using their rug square. They will be guided to tense various parts of their body while breathing in for a count of 2 and then release the tension while exhaling for a count of 4 then rest. Students will do this for each of the following body parts 3 times each: toes, legs, hands, arms and hands, and whole body. In total the exercise takes 4 minutes and 16 seconds and there is a video to guide provided on GoNoodle.
- In and Out with Body: Students are guided to draw in breathe for a count of 2 and then exhale for a count of four. This is practiced 5 times and then using this pace of breathing, students are guided to add motion. First, arms up for the inhale then down for the exhale. Next, arms up for the inhale and then down to reach for toes for the exhale, inhale up and exhale rest. Each of these exercises is repeated 4 times. In total the exercise takes 3 minutes and 45 seconds and there is a video to guide provided on Go Noodle.
- Breathing Circle: An online application which provides a circle as a visual cue for breathing in, holding breath and then release. Students are cued to breath in when the circle is growing (a count of 5), holding breath with prompting to notice the sensation in the body (count of 5) and then release of breath as circle shrinks in size (count of 5).

For the first four days of the intervention, one exercise will be used for both sessions. On days five to fifteen, a randomly selected exercise from the above list will be

selected for each session. On days sixteen to twenty, students will be given the opportunity to select any method from the four taught during this intervention for the am session and then again for the afternoon session.

Student behavior data will continue to be collected using the routine student behavior record sheets employed in the Emotional Support classroom with notations on instances of negative stimulation and resulting behaviors (see Table 1). Each day students can earn points for meeting classroom expectations. The four expectations are keep hands, feet and objects to self, remain in and report to assigned area, use self-focused positive tone and language and follow adult directions within 15 seconds. Students also earn points for work completion and participation in academic tasks and for a personal goal each student is working on. For the purpose of this study, we will focus on the data collected for the expectation use self-focused positive tone and language as this is where data is collected in regards to verbal communication. Each student was able to earn 16 points for using self-focused positive tone and language. The data collected for this expectation during the intervention will be compared to the data collected on the same students for the same expectation for a period of 35 days prior to the intervention. Specifically analysis focused on the total number of points students earn for language before and during the intervention out of the total of 16 daily points possible. Both descriptive and statistical analysis will be completed with this data to determine if there is any evidence that mindfulness exercises have an impact on reactive verbal behaviors of students in the Emotional Support class. Descriptive will include observations made by the class room teacher that are only relevant to the purpose of the study. Statistical

analysis will include occurrences of negative verbal reactions to negative stimuli prior to mindfulness breathing intervention compared to the occurrences during.

Variables

The independent variable in the study was the mindfulness breathing and counting intervention as part of developing appropriate social emotional skills to support student success. The study specifically aimed to decrease reactions to negative stimuli in the students with potential increases in attention, focus and academic achievement.

The dependent variable was the student's behavior, as recorded on the student behavior record sheets, such as decreased reactions to negative stimuli, increased on task behavior and academic achievement.

Table 1

Student Behavior Record Sheets

Daily Job Description/Professional Development Plan (2016-2017)

Revised (9/26/2016)

Student:_____ **Day/Date:**_____

Skill of the Week:_____

Personal Goal: _____

Period	Time	Keep Hands, Feet & Objects to Self	Remain In Assigned Area	Use Self-Focused Positive Tone & Language	Follow Adult Direction w/in 15 secs	Work	Personal Goal	Total Salary	Notes
Arrive	7:25-8:07	0 1 2	0 1 2	0 1 2	0 1 2	0 2 5	0 1 2		
LA	8:07-9:09	0 1 2	0 1 2	0 1 2	0 1 2	0 2 5	0 1 2		
SS	9:13-10:11	0 1 2	0 1 2	0 1 2	0 1 2	0 2 5	0 1 2		
Quiet Break		Homework Bonus:____/4 Salary Total: ___/45___ EARN BREAK? YES ☺ or NO • •TRY AGAIN !!! NEED AT LEAST 36/45 TO EARN BREAK (80%)							
Quiet Break 10:15-10:25		0	1	2					
Math	10:25-11:13	0 1 2	0 1 2	0 1 2	0 1 2	0 2 5	0 1 2		

Skill Key: 2 = Shows the skill with 0 reminders 1 = Needs 1-2 reminders 0 = Needs 3 or more reminders

Work Key 5= Completes all work according to quality directions 2= Completes ½ work according to quality directions

0= Completes 0 work according to quality directions

**** 0 Work = 0 Total Salary for the Period *****

Table 1 (continued)

Student:_____TOTAL FROM SIDE ONE: Salary _____/45 Bonus_____/4

Period	Time	Keep Hands, Feet & Objects to Self	Remain In Assigned Area	Use Self-Focused Positive Tone & Language	Follow Adult Direction w/in 15 secs	Work	Personal Goal	Total Salary /17 (Side 1)	Notes
Science 11:17-12:15	11:17-12:15	0 1 2	0 1 2	0 1 2	0 1 2	0 2 5	0 1 2		
Lunch 12:19-12:41	12:19-12:41	0 1 2	0 1 2	0 1 2	0 1 2	0 2 5	0 1 2		
Specials 12:45-1:43	12:45-1:43	0 1 2	0 1 2	0 1 2	0 1 2	0 2 5	0 1 2		
Tactile Break		Salary Total: ____/62 EARN BREAK? YES ☺ or NO • •TRY AGAIN !!! NEED AT LEAST 50/62 TO EARN BREAK							
Tactile Break 1:47-2:00		0		1		2			
21st Century 2:00-2:35	2:00-2:35	0 1 2	0 1 2	0 1 2	0 1 2	0 2 5	0 1 2		
Total Daily Salary		Salary Total : ____/124____ + Bonus Total:____/4 = _____ EARN SALARY? YES ☺ or NO • •TRY AGAIN TOMORROW !! NEED AT LEAST 99 /124 TO EARN (80%)							

Skill Key: 2 = Shows the skill with 0 reminders 1 = Needs 1-2 reminders 0 = Needs 3 or more reminders

Work Key 5= Completes all work according to quality directions 2= Completes ½ work according to quality directions

0= Completes 0 work according to quality directions

**** 0 Work = 0 Total Salary for the Period *****

Parent/Guardian Signature:_____

Experimental Design

The mindfulness breathing intervention utilized an AB single subject design. Each subject's behavior data was collected for 35 days prior to the intervention and serves as an individual baseline. The subject's behavior during the intervention was collected using the same tool as prior to the implementation and then will be compared to the baseline data. In the mindfulness breathing intervention, there are 6 subjects. The intervention consisted of 40 sessions of mindful breathing over the course of 20 days. All sessions were under 5 minutes in length. In addition to behavior data, the co-investigator collected observational data to include student engagement and participation.

Chapter 4

Results

In this single subject design study, the effects of mindful breathing on the reactive verbal behaviors of six special education students identified with significant emotional and behavioral difficulties were examined. The 5th and 7th grade students were part of a self-contained emotional support program. The research question addressed was: What is the impact of mindfulness exercises such and breathing and counting on student reactive verbal behaviors when encountering a negative stimulus?

Behavioral data was collected daily on each student in the Emotional Support program. For 35 days prior to the implementation of mindful breathing and counting exercises, data on the verbal behaviors of students was collected. The students could earn up to 16 points each day for using positive tone and language with peers and staff. When incidents of negative tone and language were used, a point was removed. The same method of data collection was employed during the 20 days of the intervention and for five days afterwards.

Group Results

Table 2 shows the average number of points each participant earned for positive tone and language points prior to, during and after the intervention. This average is out of a total possible 16 points. Values are rounded to the nearest tenth. Additionally, means were calculated for the whole group prior, during and after the intervention.

Table 2

Average points earned prior, during and after intervention

Participant	Prior	During	After
1	14.38	14.67	13.5
2	9	9.07	10
3	11.36	12.43	15
4	13.09	13.27	15
5	13.67	13.67	13
6	13.58	14.58	15.75
Group	12.51	12.95	13.71

The results for the overall group showed a baseline of 12.51 points earned out of 16 possible, which is a mean percentage of 78.19%. During the intervention phase, the overall group average of total points is 12.95, which is a mean percentage of 80.94%. This is an overall increase in 0.44 points earned which is an increase of 2.75%. Figure 2 shows a comparison of points earned prior to the intervention to points earned during the intervention. Data for after was removed due to inadequate number of data points which can lead to skewed conclusion.

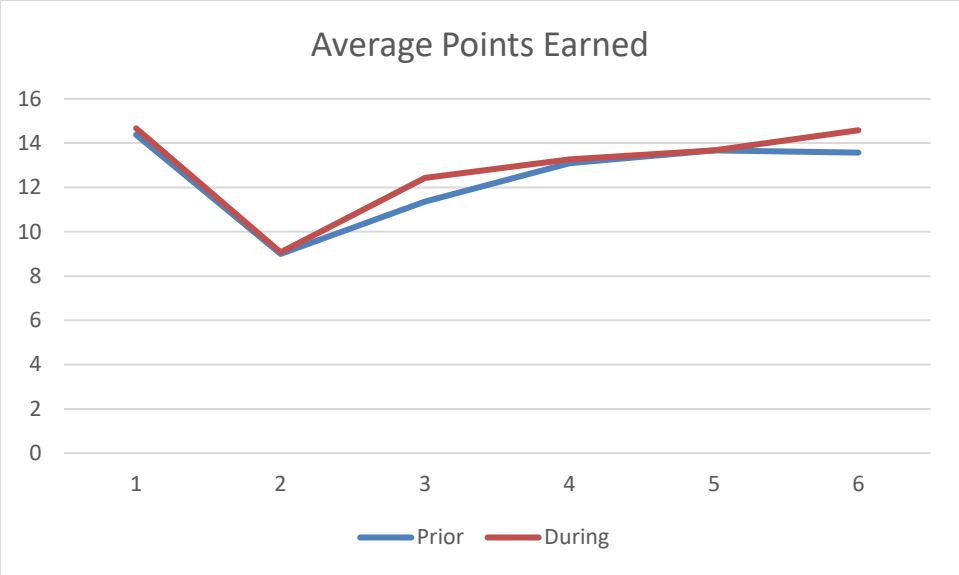

Figure 2. Average points earned by each participant both prior and during intervention.

Individual Results

Table 3 compares the verbal behavior data of each participant prior to the mindful breathing intervention to the data collected during the intervention. For each participant, the mean number of points earned was calculated prior to the intervention (*Ap*) and during the intervention (*Ad*). To calculate the average change (*Ac*) for each student, the average prior was subtracted from the average during (*Ad-Ap=Ac*). The value represents the change in the mean total points each student earned during the intervention. Percent change was calculated by the following: (*Ac*/16) * 100 and round to the nearest tenth. Five out of six participants, showed an increase in the number of points earned in positive tone and language during the intervention. One participant showed no change.

Table 3

Change in average points and percentages

Participant	Change: mean total points	Change: mean average
1	+0.29	+1.81%
2	+0.07	+.44%
3	+1.07	+6.69%
4	+0.18	+1.13%
5	0	0
6	+1.0	+6.25%
Group	+0.44	+2.75%

Figure 3 shows the total number of points Participant one earned each day during the entire collection period. Although there were a total of 60 possible data points, there are only 48 included in the graph, as twelve data points were missing due to absences and suspensions. Participant One's average prior to the intervention was 14.38 which is earning 89.88% of his possible points. During the intervention the average points earned was 14.67 which is 91.69% of the total possible. This is an increase in an average of 0.29 points or 1.81%.

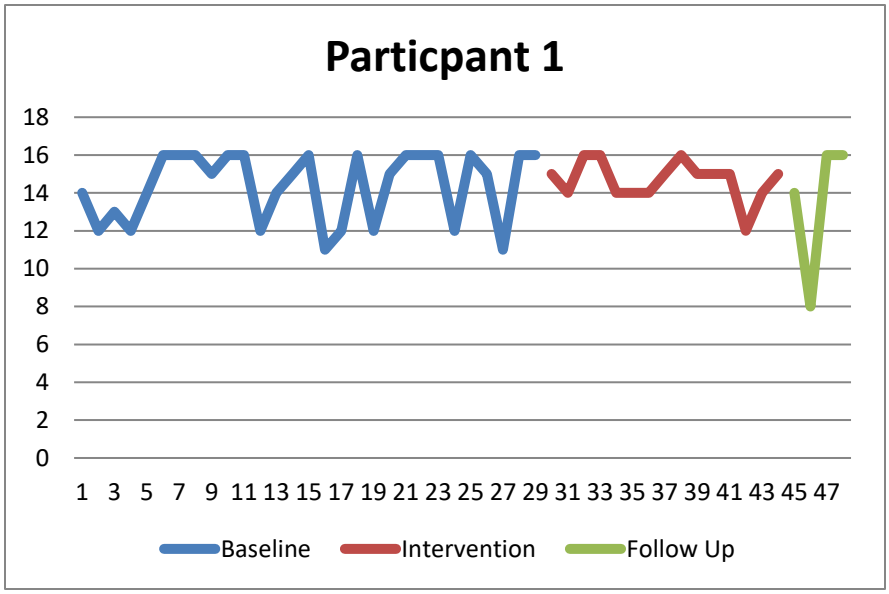

Figure 3. Participant one's daily points during collection period.

Figure 4 shows the total number of points Participant two earned each day during the entire collection period. Although there were a total of 60 possible data points, there are only 46 included in the graph, as fourteen data points were missing due to absences and suspensions. Participant Two's average prior to the intervention is 9 which is earning 56.25% of his possible points. During the intervention the average points earned in 9.07 which is 56.69% of the total possible. This is an increase in an average of 0.07 points or 0.44%.

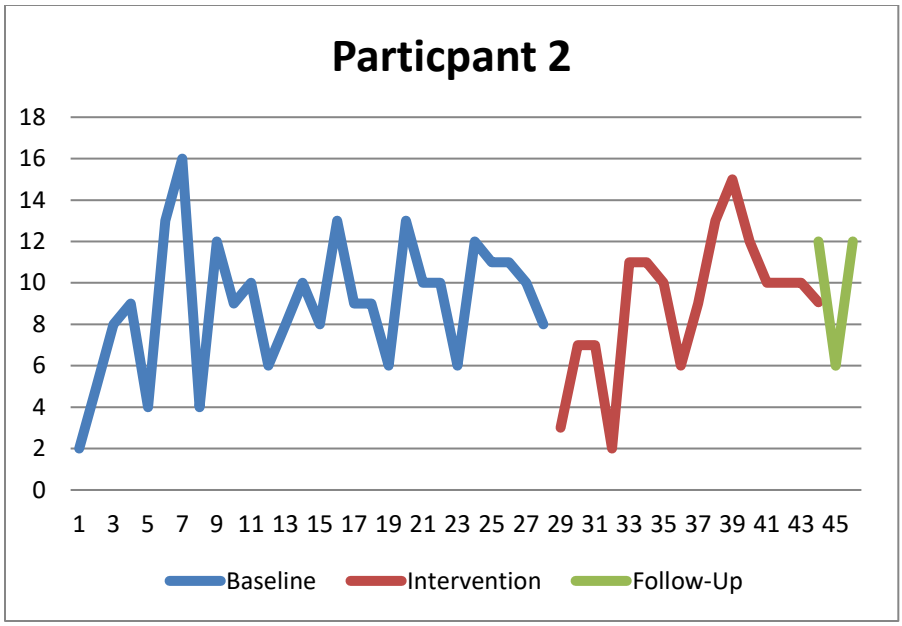

Figure 4. Participant two's daily points during collection period.

Figure 5 shows the total number of points Participant three earned each day during the entire collection period. Although there were a total of 60 possible data points, there are only 38 included in the graph, as twenty two data points were missing due to absences. Participant Three's average prior to the intervention is 11.36 which was earning 71.00% of his possible points. During the intervention the average points earned was 12.43 which is 77.69% of the total possible. This is an increase in an average of 1.07 points or 6.69%.

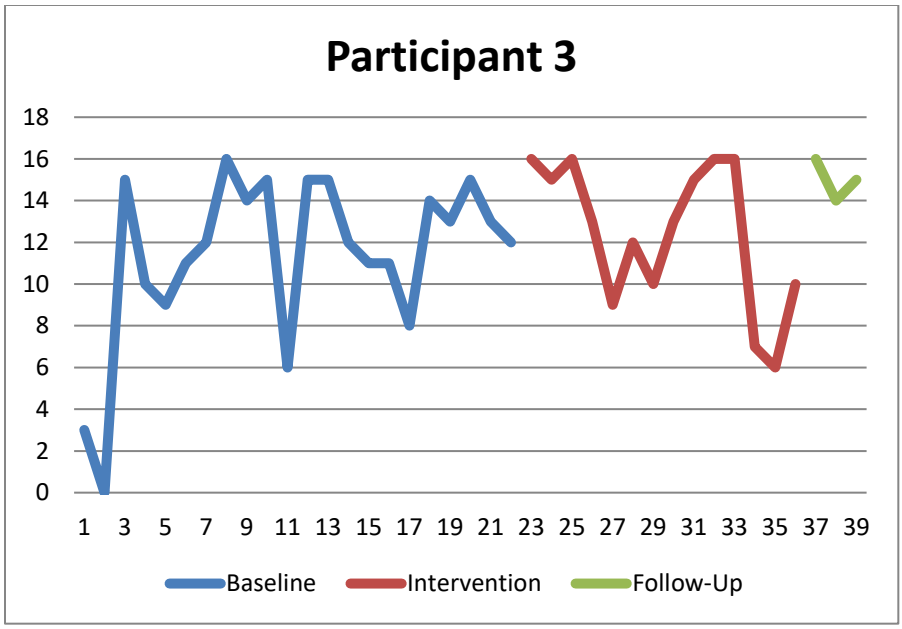

Figure 5. Participant three's daily points during collection period.

Figure 6 shows the total number of points Participant four earned each day during the entire collection period. Although there were a total of 60 possible data points, there are only 52 included in the graph, as 8 data points were missing due to absences and suspension. Participant Four's average prior to the intervention is 13.09 which was earning 81.81% of his possible points. During the intervention, the average points earned was 13.27 which is 82.94% of the total possible. This is an increase in an average of 0.18 points or 1.13%.

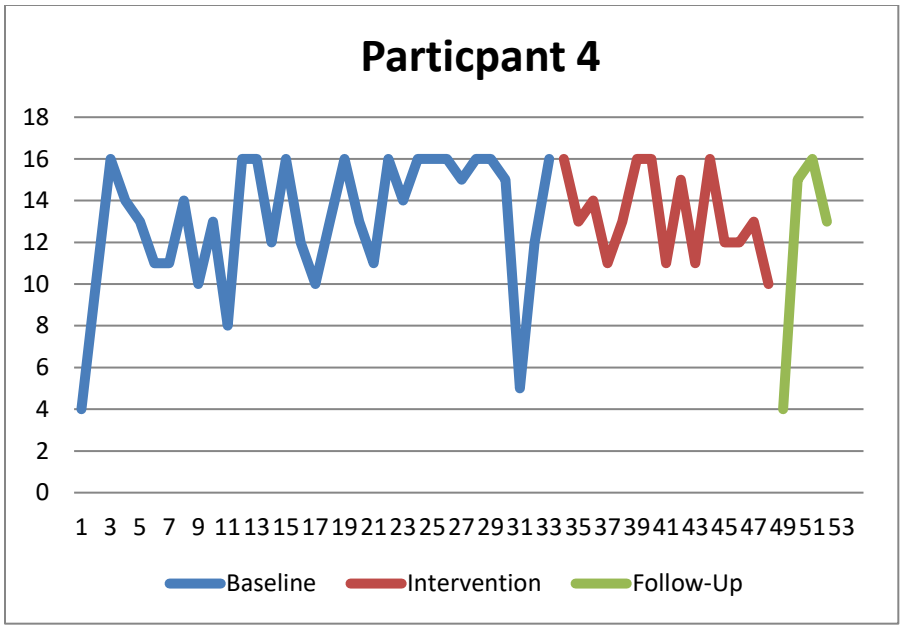

Figure 6. Participant four's daily points during collection period.

Figure 7 shows the total number of points Participant five earned each day during the entire collection period. Although there were a total of 60 possible data points, there are only 54 included in the graph, as 6 data points were missing due to absences. Participant Five's average prior to the intervention was 13.67 which is earning 85.44% of his possible points. During the intervention the average points earned remained the same at 13.67 and 85.44% of the total possible. There was not change.

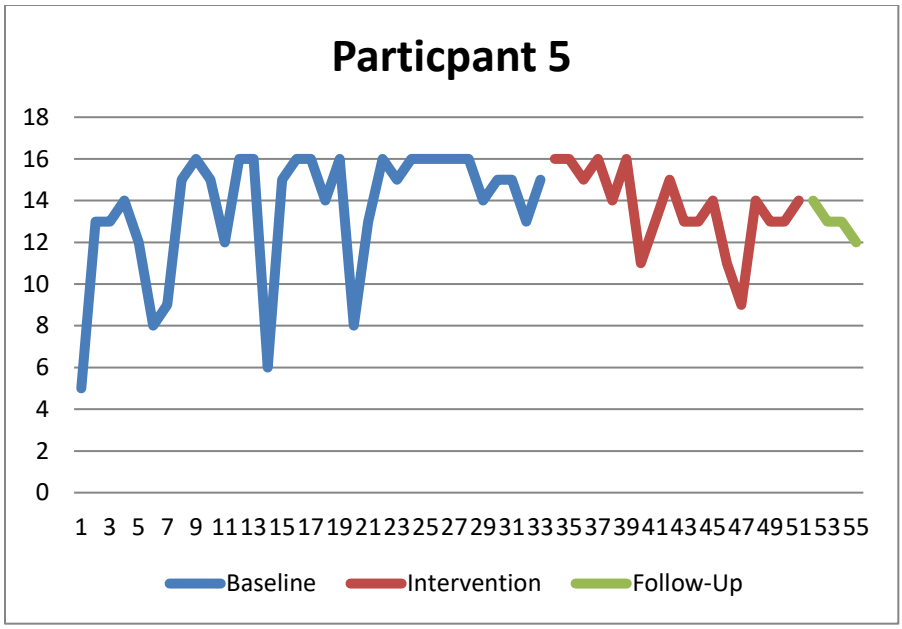

Figure 7. Participant fives's daily points during collection period.

Figure 8 shows the total number of points Participant six earned each day during the entire collection period. Although there were a total of 60 possible data points, there are only 53 included in the graph, as seven data points were missing due to absences. Participant Six's average prior to the intervention was 13.58 which is earning 84.88% of his possible points. During the intervention the average points earned was 14.58 which is 91.13% of the total possible. This is an increase in an average of 1.00 points or 6.25%.

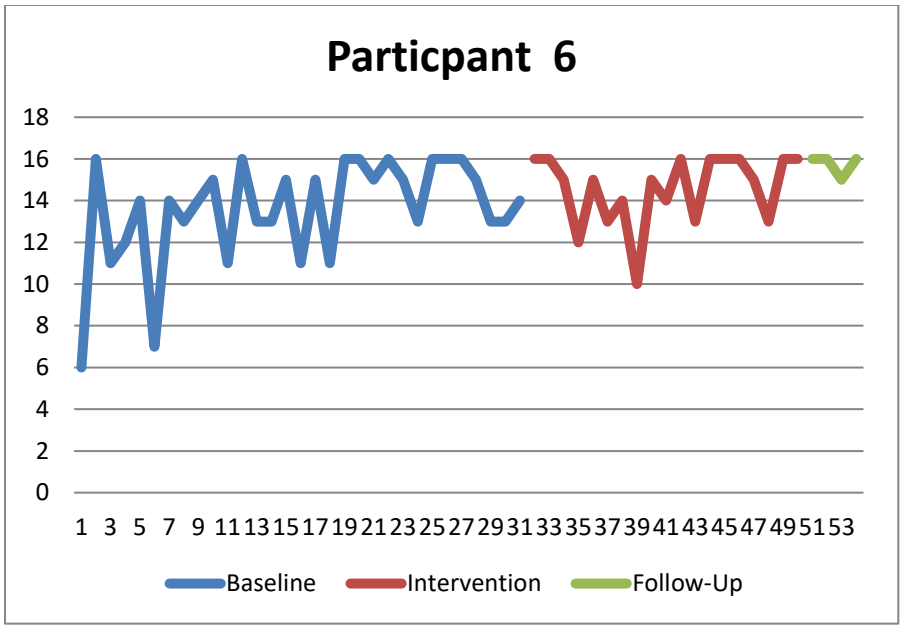

Figure 8. Participant six's daily points during collection period.

Chapter 5

Discussion

To study the impact of mindful breathing and counting on the verbal behaviors of fifth and seventh grade students identified with emotional and behavioral difficulties, mindfulness breathing and counting exercises were practiced twice a day for a period of three to five minutes for twenty days. After twenty days of intervention implementation, five of the six participants demonstrated a reduction in negative verbal behaviors as evidenced by an increased number of points earned in positive tone and language. One participant showed no change in points earned for verbal behavior. As a whole group, the participants showed an average increase of 0.44 points earned for positive tone and language which is the measure of verbal reactive behaviors used in this study. This is an increase of 2.75%.

These results show that mindful exercises such as breathing and counting do have a positive impact on the reactive behaviors, such as verbal aggression, of students with identified emotional and behavioral difficulties. In five out of six participants, there was a reduction in the number of verbal aggressions displayed during the time period the intervention was in place. The most common alternate behaviors observed during the twenty day intervention when students were encountering a negative stimulus were ignoring or finding an alternate environment. No student was observed independently using mindfulness breathing or counting.

One participant demonstrated no reduction in his verbal reactive behaviors during the intervention. Although there is no conclusive reasoning to be given to explain the difference in Participant 5's results, there are two possible explanations for his outcome.

First, Participant 5 did not authentically participate until day 6 of the intervention. He was often distracted or attempting to cause distraction. This lack of time practicing mindfulness may have had an impact. Second, Participant 5 was experiencing turmoil beyond typical in his home life during the months of May and June which may have exasperated his behaviors and impeded on the effects of the mindfulness.

Previous Research

As seen in this study, when mindfulness was employed most students showed a decreased use of negative language in their environment. This aligns with the current research on the impact of mindfulness in the classroom. Although there was not a specific study that focused on the behaviors of students with behavioral and emotional difficulties, there were several studies with various populations that showed that the implementation of mindfulness exercises in varying degrees, had a positive impact on the development of prosocial behaviors.

Black and Fernando (2014), studied the impact of mindfulness training on the classroom behavior of students in grades kindergarten to fifth. Although these participants did not have emotional and behavioral difficulties, they do share other demographics such as low income and ethnic diversity as those in the present study. Black and Fernando study found a broad range of improvements on skills such as decreased reactivity, self-control, emotional regulation, improved attention and participation and caring and respect for others (Black & Fernando, 2014). In the present study, there were similar results in increased self-control and emotional regulations as students decreased the number of incidents of negative language.

Ortner and colleagues (2007) completed two studies that included 82 participants with a mean age of 23 years old from urban setting. After seven weeks of mindfulness mediation, the data showed the participants demonstrating greater ability to disengage attention from an unwanted stimuli (Ortner et al., 2007). Davis and Hayes (2011), completed a practice review of the use of mindfulness, and found that the current research demonstrates that mindfulness mediation allows people to develop skills to become less reactive and have greater self-control (Davies & Hayes, 2011). The present study aligns with these results as participants showed decreased negative verbal reactions therefore increased self-control.

The current study did not demonstrate as broad an impact on behaviors as reported in other studies. The differences between the results of this present study and those of previous studies could be for multiple reasons but the two that would seems most likely would be either (1) in the current study only the verbal behaviors of the participants were monitored and (2) students with emotional and behavioral difficulties take longer or require more intensive training in mindfulness to increase the impact on their behaviors.

To better study the impacts of mindfulness exercises on students with significant behavioral and emotional difficulties, I would alter and add the following design elements. First, to determine if the effectiveness of mindfulness is altered based on the behavioral and emotional difficulties of the students, I would implement the same intervention on similar age peers in the same school environment and compare the mean changes from one group to the other. This may allow us some additional insight on the frequency required for various populations for mindfulness to be an effective tool for the

development of prosocial skills. Second, participants asked questions throughout the intervention about what mindfulness is and the reasoning for using it in the classroom. Designing discussion time into the study to educate participants on mindfulness, may increase engagement and set the stage for a more open minded mentality to mindfulness exercises. It may allow participants to see mindfulness as a more universal intervention as many people use mindfulness in their everyday lives to manage stress and regulate emotions and reactions. Next, building in a self-reflective component would allow student to draw their own conclusion about the validity of mindfulness as a strategy for the development of more appropriate social emotional skills. This could potentially allow participants to give insight into what specific exercises work and why, therefore, furthering our understanding on mindfulness as a method for social emotional development. Finally, the current study data did not allow for a measure of behaviors beyond verbally aggressive reactions. A different measuring tool needs to be designed to allow for monitoring of skills in other areas such as attention, respect and productivity.

Implications

For any classroom teacher, there is a logical connection between a student's behavior and social skills and their academic success. These skills are also a predictor of success beyond an academic environment (Flook et al., 2015). Therefore, time and energy dedicated to teaching social emotional skills (competencies in recognizing and managing emotions) has gained value in classrooms. However, the need for time and energy in planning for the development of prosocial skills, has to be balanced with the growing demands on teachers. Mindfulness, although one of many methods that can be used to develop appropriate social emotions skills in students, has two advantages. First,

the implementations of mindfulness exercises does not require great amount of time in the classroom therefore you are able to maintain most classroom time for instruction. Second, there are a growing number of resources available to teachers to help prepare therefore reducing the time and energy needed to plan for mindfulness. The use of mindfulness, as studied, is demonstrating an effectiveness in the development of more appropriate behavioral skills while also supporting development of a more positive and effective learning environment.

Conclusion

Overall, mindfulness exercises are demonstrating excellent results in the social emotional development of students. In my study, which focused on students with emotional and behavioral difficulties, there was increased ability to control verbal aggression, which demonstrated both self-control and decreased reactivity. Mindfulness, with its minimum time required to plan and implement and positive impact on the prosocial behaviors of our students, could quickly become a paramount tool in developing young people into successful adults who not only have the academic knowledge to bolster their success but the prosocial skills needed to successful navigate the world at large.

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