

EFFECTS OF MINDFULNESS BASED TECHNIQUES ON KINDERGARTENERS'

BEHAVIOR AND RESPONSES TO STRESS

A THESIS

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Abstract

This paper explores several published studies regarding the implementation of yoga postures, breathing techniques and guided meditations in low income and/or ethnic minority schools. The possibility for these techniques to meet some of the students' needs of safety, belongingness and self-esteem is considered. Discussion regarding ease and cost of implementation is conducted. The implementation of the curriculum *Yoga4Classrooms* in a predominately White, middle class, kindergarten classroom is detailed. Several measures are reported, including: the amount of time that the students engaged with the curriculum, the effect of the curriculum on students' behavior, the effects of the curriculum on students' responses to stress and anecdotal accounts of students' reactions to the curriculum. Several factors influenced these measures, such as confidence to implement the curriculum and the moral and cognitive development of the students.

This research was inspired by my first career as an Army spouse. I supported my Active Duty US Army spouse, our children and our extended family of Armed Forces friends, through 15 years of deployments. The intense and fast paced rhythm of war places extreme stress on members of the Armed Forces and their families. Many members of the community experience divorce, alcoholism, depression, domestic abuse and Post Traumatic Stress Disorder (PTSD). In an effort to assist my community, I began to research the effects Mindfulness Based Techniques (MBTs) have on the above mentioned situations. MBTs include instruction in slow, diaphragmatic breathing, yoga inspired stretching and strengthening activities and activities in which practitioners focus their attention on a specific subject (guided meditation). I observed anecdotal improvements in stress levels and ability to concentrate in several members of the Armed Forces community with whom I practiced MBTs.

My first course work in Colorado College's Master of Arts in Teaching was Developmental Psychology. I learned about Maslow's hierarchy of needs and how students require their needs of physical and emotional safety to be met, in order to achieve their full potential. I wondered if those needs could be met in much the same way that members of the Armed Forces used MBTs to mitigate the negative effects they experienced from years of war.

Research for my literature review indicated that, in fact, students in high stress situations benefit the most from MBTs. With the national conversation around education focusing on accountability, classrooms are more stressful than ever before. In order to effectively teach students the standards-based content, teachers must first meet their need for safety, belongingness and self-esteem. Time and money are both limited in today's schools and teachers must wear many hats. I wanted to see if it was feasible for a classroom teacher to

integrate MBTs into the classroom at a rate that would effect change in students' behavior and/or stress responses.

This paper comes in two parts. The first is the Knowledge Research Narrative (KRN) entitled "Using Mindfulness Based Techniques to Meet the Needs of Low SES/Ethnic Minorities". This portion of the paper begins on page 5. This literature review looks at how MBTs have been shown to be effective, mainly in schools where most of the students are experiencing poverty or are students of color. The second portion of this paper is the Action Research (AR) entitled "Effects of Mindfulness Based Techniques on Kindergarteners' Behavior and Emotions". This portion begins on page 20. It details the MBT intervention I conducted over an eight week period. The research for the KRN was conducted before my student teaching assignment was finalized. The AR portion was conducted at my student teaching placement. This was a school with very few students who are experiencing poverty or students of color, which is why the demographics of students in the KRN are very different from those in the AR.

Health education is often relegated to P.E. class and many times primary grade students are believed to be too young to self-regulate their behaviors and emotions. My experience implementing MBTs in a Kindergarten classroom has shown me otherwise. Primary grade teachers should note the effectiveness of MBTs and work to implement them in their own classrooms. Teachers and students alike can benefit from students being able to self-regulate their behaviors and emotions.

Using MBTs to Meet the Needs of Low SES/Ethnic Minority Students

The policies of No Child Left Behind are focused on accountability (Neill, 2003). This accountability is meant to curb injustices like those found in Anyon's (1980) research of the "hidden curriculum" in poor schools that maintains the status quo, and Nieto & Bode's (2008) work regarding tracking, retention and disciplinary policies that maintain preexisting groups based on classism and racism. However, the focus on accountability may have an unintended side effect. Many of the schools that have low test scores and need to show annual yearly progress (AYP) in order to avoid disciplinary action, are schools with large amounts of students from low socio-economic and/or ethnic minority backgrounds. (Lemov, 2010). The demands of NCLB leave teachers and administrators feeling pressure to make every second count. In some buildings, "bell to bell" instruction is a looming priority. Any activity involving arts integration must be justified as to how it meets the standard and teachers half-heartedly joke that there can be no "curriculum by Crayola" (personal conversation with classroom teacher, July 14, 2015). This, coupled with cash strapped budgets forcing schools to share specials teachers (Turner & Khrais, 2016), means that many students are not being exposed to the activities and tools they need to deal with the stressors that come from being low SES and/or an ethnic minority. In fact, the very activities that students need to manage their stress, like art, recess, physical education and choir (Van der Kolk, 2014), are some of the first programs to be cut in low income school districts. The physiological, safety, belongingness and self-esteem needs of Maslow's hierarchy (Snowman & McCown, 2015) are unmet in many low SES/ethnic minority students. Their physiological need of food may be met by a Free and Reduced Lunch program, however, they are then expected to reach toward self-actualize with very little time or space to have their mid-level needs met.

The needs of low SES and/or ethnic minority students have been extensively documented. For example, the need for belongingness is documented in Rimm-Kaufman, Pianta and Cox's (2000) study. They noted that 46 % of kindergarten teachers surveyed, indicated that at least half of their incoming students experienced difficulties in kindergarten transition areas, one of which was being part of a group. Students attending low income schools or being an ethnic minority made them more likely to have transition difficulties. Similarly, in *Mind, Brain and Education*, Willis (2010) gives an example of a belongingness need going unmet, when non-native English speakers struggle to communicate in front of their English speaking classmates. Strategies that help meet these mid-level needs will help these students self-actualize.

Several studies have been conducted, regarding the implementations of yoga and mindfulness programs, each using a different curriculum (Mendelson, et al, 2010; Flook, et al., 2010; Black & Fernando, (2015); Razza, Bergen-Cico & Raymond, 2013; Napoli, Krech & Holley, 2008). The Garrison Institute, a non-profit organization that promotes mindfulness practices, issued the report *Contemplation and Education, Current Status of Programs Using Contemplative Techniques in K -12 Educational Settings: A Mapping Report* (2005). The authors, Schoeberlein and Koffler, reported that programs in the category "Contemplative Programs that Prioritize Developing Mindfulness and Attention Training" had three main similarities: instruction in slow, diaphragmatic breathing, yoga inspired stretching and strengthening activities and activities in which students focus their attention on a specific subject (guided meditation). For the purpose of this literature review these activities will be referred to as Mindfulness Based Techniques (MBTs). Can the implementation of MBTs help meet the safety, belongingness and esteem needs of low SES/ethnic minority students? The main research question brings to mind the two other sub questions: are low SES/ethnic minority groups a good

fit for MBT interventions; and, with time and financial constraints on schools that serve these students, are MBT interventions feasible?

MBTs are especially good for the marginalized kids

Most of the studies reviewed here examined some attribute of self-regulation. A theme that emerged from all of these studies was the degree to which the baseline scores influenced the effectiveness of the intervention. For example, Razza, et al. (2013) research with 29 students, from a variety of socio-economic classes and ethnicities, aged three to five; administered 40 hours of YogaKids curriculum to the intervention group and then conducted several direct observations to test for delay of gratification behavior and behavior inhibition. A significant increase in both of these measures was seen. However, an even greater increase was seen in the scores of students who had originally scored low on those tasks in the pre-test. Along the same lines, there was not a statistically significant change seen in focused attention in the intervention group. Razza, et al attributed this to the high class average for attention score seen on the pre-test.

Flook, et al. (2010) implemented the curriculum InnerKids with 64 second and third grade students, also from a variety of socio-economic classes and ethnicities. The intervention was intended to improve metacognitive skills such as organization and behavioral regulation skills such as emotion regulation. The effectiveness of the intervention was measured using the *Behavior Rating Inventory of Executive Function* (BRIEF), an 86 item questionnaire that assesses the executive functions related to organizing cognition, emotion, and behavior. Parents and teachers of the students in the study were asked to complete the questionnaire regarding their students during the month prior to the intervention, as well as after the intervention.

When the pretest and posttest mean scores of the groups (control and experimental) were compared, no statistical significance was discovered in either the Behavior Regulation subscale or the Metacognition subscale. However, when the experimental group's participant's pretest scores were broken into quartiles, a significant effect was observed. Individual students in the highest quartile (higher score/less executive function) showed statistically significant improvement in their Behavior Regulation score: $F[1,63] = 5.45, p = .023$ as well as their Metacognition score: $F[1,63] = 6.94, p = .011$. A closer look at the Metacognition score reveals that the highest quartile students' abilities to exhibit emotional control specifically showed statistically significant growth on the parent's questionnaire $F[1,63] = 8.42, p = .005$. These results indicate that the implementation of MBTs for this group of elementary aged children did not aid the entire class in gaining more behavior regulation or metacognition. However, students who struggled with those skills showed more growth than their peers who already possessed those skills. These results indicate that initial scores of these self-regulatory processes are indicative of how much effect an MBT intervention will have on final self-regulatory scores of participants.

In contrast, the intervention groups of Mendelson, et al. (2010), Black and Fernando (2015) and Napoli, et al. (2008), saw statistically significant pre to post-test class mean changes in several self-regulatory measures. There were no "low groups" within these interventions. Instead, most students in these interventions responded to the MBTs with higher self-regulation scores. Most of the participants in these studies were low SES/ethnic minorities. Mendelson's group of students was 83.5% African American and recruited from four Baltimore city public elementary schools. Black's group was 95% ethnic minority with 83% Free and Reduced Lunch. Napoli did not specify the racial demographics of the study, however it did indicate that the

study took place in a U.S. Southwestern city and that all the parental consent forms sent home were in Spanish and English. Therefore, participants in this study must have been pulled from a community with a large amount of English language learners. These groups may have seen more evidence of increased self-regulation because their participants had additional stressors such as food insecurity, classism and racism. These additional stressors may contribute to lower baseline self-regulation scores and therefore, higher overall growth in those areas. The MBT interventions were positive and helpful for these students.

The problem of insufficient teachers, time and money

Schools striving to administer as much standards based content as possible might see taking time to address a student's stress level as a waste of time. However, it really is just setting the stage for a learning conducive environment, which teachers are encouraged to do. Take, for example, Doug Lemov's (2010) strategy #49 from *Teach Like a Champion 2.0*. Lemov encourages teachers to make a "Strategic Investment: From Procedure to Routine". In essence, he advocates for spending time establishing routines. This establishment takes time and patience, but in the long run it offers a classroom environment that is more conducive to learning. In much the same way, offering students strategies and time to learn to self-regulate, will lead to a better learning environment.

Flook, et al. (2010), Mendelson, et al. (2010), and Napoli, et al. (2008), all conducted their interventions during physical education classes or after school. However, in recent years, school budgets of time and money have been stretched further and further (Neill, 2003). Many schools cannot afford to pay for trained professionals to conduct these interventions. In some schools, there is not sufficient money to pay for specials teachers (Turner & Khrais, 2016), let alone a trained MBT instructor. Napoli, et al. (2008), said that often times, health education is

reserved for upper elementary and middle schooler students. However, early elementary school students are experiencing stress and they are at an appropriate age to learn and implement techniques to manage that stress. They say that perhaps the physical education teacher and the classroom teacher can pair up, to implement MBTs. Classroom teachers and classroom time may be the most accessible avenues for implementation.

Napoli, et al. (2008) indicated that people with no previous MBT experience or training can learn to practice and implement the techniques by taking short training courses or reading material regarding the techniques. However, teachers who implement MBT's in the classroom should be able to accommodate students' developmental levels. For example, the MBTs may help a six year old student gain more inhibition control. However, being in the pre-conventional stage of moral development, his decisions regarding his behaviors are based upon whether or not he will be punished or rewarded. Similarly, a young student's ego-centric nature makes it difficult for him/her to meaningfully participate in a guided meditation in which he/she is asked to think of someone else being less fortunate and therefore appreciating what he/she has (Snowman & McCown, 2015).

Napoli, et al. (2008) also indicated that daily, consistent implementation of MBTs may have a more positive effect than a once or twice weekly class and Gould, et al. (2014) research showed that the essential ingredients of a MBT curriculum can be extracted and implemented with success. These factors make the implementation of MBTs in the classroom, by classroom teachers, not only possible, but likely to have a positive impact on students' self-regulation. For students in low income, budget strapped schools, it may be the only practical way for those students to receive instruction in MBTs.

Use of MBTs to Meet Student Mid-Level Needs

The physiological, safety, belongingness and self-esteem needs of Maslow's hierarchy (Snowman & McCown, 2015) are unmet in many low SES/ethnic minority students. MBTs offer an avenue to address those needs.

Safety

Safety is the second most important need in Maslow's hierarchy (Snowman & McCown, 2015). The absence of safety and the subsequent presence of fear, has far reaching socio-emotional and cognitive effects, many of which start with the Reticular Activating System (Willis, 2010). The Reticular Activating System (RAS) is the intake filter for the brain. It processes all incoming information and prioritizes that which it deems most important for the survival of the person. If the information is deemed a threat, it is sent to the lower, reactive brain and a fight/flight/freeze response is initiated. If the information is deemed non-threatening, and especially if the information is deemed novel, it is sent to the pre-frontal cortex. There, it is checked against pre-existing scheme and personal meaning is constructed from it.

Racism, classism or religious oppression are some stressor that low SES/ethnic minority students experience (Garza, Alejandro, Blythe, Fite, 2014). These ever present stressors condition the RAS to see more situations as threatening than students who have fewer stressors. (Willis, 2010). Take for example, a student with an abusive caregiver. This student has a stress primed RAS and may view a teacher who uses a stern voice as a threat to their safety. Other students who do not have a history of abuse, may see the teacher as merely annoying and strict. Students can change their propensity to operate from a fight/flight/freeze standpoint, but only if they are given the proper environment in which to function (Van der Kolk, 2014). This

recalibration of fight/flight/freeze is part of a greater, intricate, system called self-regulation. Self-regulation is the process of activating systems associated with emotion, attention and behavior in response to stimuli. A poorly functioning self-regulatory system can lead to poor cognitive function. (Posner & Rothbart, 2000). One proven strategy to improve self-regulation is the implementation of MBTs.

Mendelson, et al. (2010) conducted research in four public elementary schools in which 4th and 5th grade intervention groups participated in MBT curriculum of the Holistic Life Foundation. One aim of the intervention was to decrease students' involuntary responses to stress like rumination and intrusive thoughts. These stress responses were measured with the Responses to Stress Questionnaire (RSQ).

Significant improvements were found in the overall RSQ measures (ES=.83). More specifically, subscales measuring Rumination (ES=.70) and Intrusive Thoughts (ES=.51) showed significant decreases between control and intervention groups. This indicates that the implementation of the Holistic Life Foundation curriculum helped students to self-regulate thoughts and emotions which allowed them to experience fewer involuntary responses to stress. Fewer experiences of these involuntary responses to stress would lead to an increased sense of safety.

One possible reason for this decrease in rumination and intrusive thoughts is that the MBTs may have activated the students' Default Modes (DM). The DM is a group of 6 areas of the brain that operate to "look internally". Smallwood, Obonswin, & Heim (2003) posit that the brain network that support attention to one's environment toggles between "looking outward" and activation of the DM. This area is activated during rest, daydreaming, journaling or other internally focused activities. During the absence of external stimuli, the brain "rests" and

processes a variety of information, mostly socio-emotional and self-referential in nature (Immordino-Yang, McColl, Damasio & Damasio, 2009). The lowered rumination and intrusive thoughts scores seen in the Mendelson intervention could be attributed to the MBTs allowing time and space for student to activate the DM. These DM “breaks” may give students time to process thoughts and feelings that are plaguing them. During the MBTs, especially guided meditations, the teacher sets the stage for students to feel safe and comfortable physically and asks them to let their brains explore topics concerning a variety of emotions.

Belongingness

Several different measures of student behavior can indicate an increased sense of belongingness. These include increased emotional control, inhibitory control, ability to shift between tasks and delayed gratification. Increases in these student behaviors lead to students being more accepted by their peers and teachers. For example, Napoli et al. (2008) research on the implementation of the Attention Academy Program curriculum on 1st, 2nd, and 3rd grades showed an increase in pro-social classroom behavior. Exhibition of pro-social classroom behavior was measured by the teachers’ completion of one portion of the ADD-H Comprehensive Teacher Rating Scale (ACTeRS) which measures student classroom behavior before and after an intervention. A significant increase of class mean score in pro-social classroom behaviors was observed in the intervention group. Also, Razza, et al. (2013) showed an increase in the class mean of intervention participants’ inhibition control and delay of gratification.

Once again, it is reasonable to conclude that these increases may be attributable to the MBT’s activation of the DM. For example, Flook, et. al. (2010) study also showed significant improvements in the study participants with low initial self-regulation scores in the areas of

emotional control and the ability to shift between activities or tolerate change (as measured by the participants' parents and teachers completion of the BREIF questionnaire). Immordino-Yang, Christodoulou and Singh (2012) indicated that switching back and forth between DM and focused attention is a skill that can be learned. Being able to move between these two states allows for strengthening of both systems. In other words, the more you use it, the better it gets. Practicing the MBTs may have strengthened the students' ability to switch between DM and focused attention. That task switching skill may transfer to other classroom situations in which task switching is required. Also, much like the decrease in rumination and intrusive thoughts observed in the Mendelson study, the MBT's activation of DM may have allowed for increased emotional processing and therefore greater emotional control. These results indicate that MBTs can positively influence several social-emotional behaviors. Increases in these social-emotional behaviors lead to greater acceptance by peers and teachers and therefore a greater sense of belongingness.

Self-esteem

Although the empirical articles detailed here do not give mention to a measure of MBT's effects on self-esteem, DM activation has been associated with greater self-awareness (Buckner et al., 2008) and a greater understanding of one's autobiographical self (Damasio & Meyer, 2009). Given that DM is activated by activities that encourage inward reflection, and the fact that MBTs encourage such behavior, it is possible that MBT implementation could increase self-reflection and possibly give students a more accurate sense of self-efficacy.

Self-actualization

The increase in sense of safety and belongingness have a cascading effect on self-actualization. One process that saw improvement in several studies (Mendelson et al., 2010;

Flook et al., 2010) was working memory. Flook et al. (2010) measured working memory as one of eight subscales. Parent respondents noted a statistically significant increase in students who had low baseline scores in working memory ($F[1,63]=5.78, p=.020$). The MBT intervention may have caused lower stress levels and thus greater working memory.

The effects of stress on learning are detailed in Sousa's (2005) work *How the Brain Learns to Read*. Working memory is necessary for reading because it holds pieces of information until they can be put together and comprehended. For example, the anterior cingulate holds letters or words in working memory until the left fusiform gyrus can chunk them into information that can be comprehended (Posner, Rothbart, Shees, & Tang, 2007). If a student is experiencing stress and is ruminating on a thought, that thought stays in working memory until it is resolved. If the unresolved thought is important enough, it can interfere with information processing (Sousa, 2005). Although not a direct measurement of working memory, Mendelson's result of lower scores on the Rumination and Intrusive Thoughts sub scales would cause more working memory to be freed up for academic endeavors, based on the above offerings from Sousa and Posner.

Posner and Rothbart (2005) have found that the stronger the coordination between DM areas of the brain, the stronger the coordination between areas that help a person focus and pay attention to an external stimulus. In other words, allowing the brain time to rest, allows it to pay better attention when necessary. This finding is echoed in Napoli et al. (2008) research in which MBT intervention groups showed a statistically significant increased focused attention and Flook et al. (2010) research that showed increases on the subscales of students' ability to initiate and monitor school projects.

Conclusion

The MBT interventions' effects on students' feelings of safety and belongingness have direct effects on their ability to self-actualize. Students experiencing less rumination and increased working memory is an example of students feeling safer, moving out of fight/flight/freeze mode and recalibrating their RAS to send input to the prefrontal cortex. Increased inhibition control allows a student to exhibit more pro-social behavior and gain greater acceptance from their teacher and peers. MBTs may even increase students' sense of self and lead to higher self-esteem. Each of these plays a critical role in helping students reach their highest potential.

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Effects of Mindfulness Based Techniques on Kindergarteners' Behavior and Emotions

Current educational policy's focus on accountability and performance exerts a great deal of pressure on students (Neill, 2003). Increased inhibition control and emotional control can help students manage this pressure. These functions are part of the greater Executive Function which controls the self-regulation of emotion and initiative, planning and organization, working memory and task switching. Mindfulness based techniques (MBTs) have been shown to increase students' executive function (Flook, et al., 2010). In recent years, school budgets of time and money have been stretched further and further (Neill, 2003) and many schools can hardly afford to hire special teachers (Turner & Khrais, 2016), let alone professionals to implement mindfulness-based techniques. Classroom teachers may be the most accessible avenues for implementation of these techniques. However, the school day is already very full with standards-based instruction. This action research project examines how one classroom teacher implemented the MBTs in her classroom throughout the day, what factors led to more time being spent on the techniques and what factors made the techniques difficult to implement. The study also seeks to answer if the MBT intervention increased the students' ability to inhibit behaviors that interfere with their learning and if the intervention caused parents to notice a decrease in the amount of stress responses exhibited by their children.

Literature Review

Neill (2003) indicates that the pressure of No Child Left Behind on schools to show adequate yearly progress (AYP), has a trickle-down effect to teachers and eventually to students. This pressure can result in feelings of stress and anxiety. Napoli, et al. (2008) say that often times, health education is reserved for upper elementary and middle school students. However, early elementary school students are experiencing stress and they are at an appropriate age to

learn and implement techniques to manage that stress. Without stress management, learning outcomes can be compromised.

Sousa (2005) discusses the effects of stress in his work *How the Brain Learns to Read*. Working memory is necessary for reading because it holds pieces of information until they can be put together and comprehended. For example, the anterior cingulate holds letters or words in working memory until the left fusiform gyrus can chunk them into information that can be comprehended (Posner, Rothbart, Sheese, & Tang, 2007). If a student is experiencing stress and is ruminating on a thought, that thought stays in working memory until it is resolved. If the unresolved thought is important enough, it can interfere with information processing (Sousa, 2005).

The Garrison Institute, a non-profit organization that promotes mindfulness practices, issued the report *Contemplation and Education, Current Status of Programs Using Contemplative Techniques in K -12 Educational Settings: A Mapping Report* (2005). Schoeberlein and Koffler, reported that programs in the category “Contemplative Programs that Prioritize Developing Mindfulness and Attention Training” had three main similarities: instruction in slow, diaphragmatic breathing; yoga inspired stretching and strengthening activities; and activities in which students focus their attention on a specific subject (guided meditation). For the purpose of this literature review, these activities will be referred to as mindfulness based techniques (MBTs).

Research by Flook, et al. (2010) studied the use of MBTs with second and third graders to encourage the development of greater executive function. The results of the study showed statistically significant increases in several measures of executive function, two of which were emotional control and inhibition. The most significant growth was seen in students with the

lowest baseline scores. The results of this study suggest that students can improve control over these executive functions from participation in MBTs.

Observations made regarding a student's response to an MBT intervention must take into account their differing moral and cognitive developmental levels (Snowman and McCown, 2015). Several different age groups have been studied in regards to the effects of MBTs on executive function. These include three to five year olds (Razza, Bergen-Cico & Raymond, 2013), six to nine year olds (Flook, et al., 2010; Napoli, Krech & Holley, 2008) and ten to twelve year olds (Mendelson, et al, 2010). For example, a student who is in a pre-operational state of cognitive development will respond to an MBT differently than an older student who is in the operational stage. Knowledge of these stages is key to understanding the effects of MBT interventions.

Another variable that must be taken into consideration regarding the implementation of MBTs is the amount of time that is spent on the intervention and whether it occurs inside or outside of the classroom. Of the studies reviewed, intervention time varied greatly from less than one hour of instruction time to 36 hours of instruction time (Schoeberlein and Koffler, 2005; Mendelson, et al., 2010). Most of the research reflected instruction time between eight and nine hours (Flook, et al., 2010; Black and Fernando, 2015; Napoli, et al., 2008). All of these interventions occurred outside of classroom time, either after school or during physical education class. One study, in which an MBT curriculum was adapted by a classroom teacher and integrated into daily classroom activities, indicated a total of 40 hours of instruction time (Razza, et al., 2013). Intervention effects may vary depending on the amount of time students spend practicing the MBTs and how and where the MBTs are administered.

Methods

Participants

Participants were 21 kindergarten students, 12 male (57%) and 9 female (43%), attending a suburban elementary school. 20% of students at this school were eligible for free and reduced lunch, below the 60% eligible in the district (CDE, 2013). One student was an English Language Learner (ELL). One student was Black, two students were South Asian and 18 students were White. Two students received interventions for reading skills. All other students were at or above grade level for reading and all students were at or above grade level for math.

Instruments

The Response to Stress Questionnaire (RSQ), (Compas, 2000) is a 57 item questionnaire given to the parents of the students. It measures students' responses to stressors experienced in academic settings, in which the questions fall into two categories. Question Group One has 36 questions that measure responses to stress that are within the fight/flight/freeze category. An examples of these questions is: *"He/she just can't get himself/herself to face the stress of school problems.* Options to answer are on a four point Likert scale: 1-not at all, 2-a little, 3-some or 4-a lot. These reactions to stress are indicators that the brain is processing information in the lower brain with little or no help from the pre-frontal cortex (Willis, 2010). Question Group Two has 21 questions that measure responses to stress that involve active, positive participation in stressful situations. An example of these questions is: *"He/she tells himself/herself that he/she can get through this or that he/she will do better next time."* These kind of responses indicate that the student is processing information in the pre-frontal cortex (Willis, 2010).

A color chart was used to track student behavior. Each student had four different colored cards (blue, green, yellow, red) in a pocket chart on the wall. Each color corresponded with a specific type of behavior. Each student started the day on green, which is indicative of behavior associated with being ready to learn. Some examples of these behaviors are: not talking when the teacher is talking, making eye contact with the teacher during whole group instruction and participating in partner talks and small group discussions when appropriate. From green, a student can move to yellow for exhibiting behaviors that interfere with the student's or class's learning. These behaviors include talking or making excessive noise and not complying with the teacher's instructions within two requests. The students can move to the red card if these behaviors do not improve or escalate. Examples of behaviors that warrant a move to red card are physically harming a classmate or teacher or destroying property. Student may also move from green to blue for exhibiting behaviors that contribute to their own learning and/or the learning environment of the classroom. Some examples of behavior that warrant a change to blue card are when students ask to move away from a classmate that is being disruptive and when students solve conflicts or problems with little or no adult intervention. Students can move between colors continually throughout during the school day. Each color was given a numerical correspondence. Blue: 4, Green: 3, Yellow: 2, Red: 1.

Procedure

After gaining an educational exemption from Colorado College's Institutional Review Board, a description of the intervention and the RSQ were sent home to the participants' parents in the students' daily communications folder. Parents were given one week to complete the questionnaire. MBTs were implemented after the due date for the questionnaire had passed. The length of the MBT exercises was recorded at the end of each day. MBTs continued for eight

weeks, during which time each student's Color Chart score was recorded in an Excel spreadsheet. After eight weeks another copy of the RSQ was sent home with each student. The final sample of completed pre and post RSQs consisted of 11 students; 7 male-64% and 4 female-36%. Responses from the pre and post RSQs were also recorded on an Excel spreadsheet.

Instructional Intervention

The Yoga4Classrooms curriculum was used to teach the students about MBTs. This curriculum has four main sections. The first is stretching and strengthening techniques that can be done seated or standing. The second is breathing techniques and the final two are Imagination Vacations, which are guided meditations and explicit instruction about brain. Each week, one lesson was chosen from each section and posted in the classroom in front of the carpet area. An overview of each section was provided on Monday. Students participated in MBTs 3 to 4 times per day and each exercise ranged in time from one to six minutes.

During morning instruction and after transitions between subjects, the students engaged in a breathing technique or one of the stretching and strengthening exercises. These techniques usually took one to three minutes to complete. At the end of the school day the students were lead on an Imagination Vacation or given explicit instruction regarding brain functions. These techniques usually took between four and six minutes to complete.

Results and Discussion

Question 1: How many minutes of MBsT can be implemented? What factors will contribute to and detract from this amount?

12 to 14 minutes of MBTs were to be implemented each day during the eight week intervention. This rate of implementation would total eight to nine hours of intervention time, similar to that of other interventions (Flook, et al., 2010; Black and Fernando, 2015; Napoli, et al., 2008). MBTs were administered for a total of three hours and twenty minutes over eight weeks. The amount of minutes spent on the daily intervention varied greatly. The daily average was 6.06 minutes (SD 1.54), which is much lower than original goal time. Several factors contributed positively to the amount of time spent on the intervention and other factors detracted from the intervention.

Many of the skills necessary to implement the MBTs well were skills that effective classroom teachers already possess. One example is good classroom management skills such as paring students who would normally be off task with less disruptive students for the MBT exercises. Students needed specific instructions regarding how to execute the exercises and the transitions in between them. One student had a physical limitation that affected his balance and needed differentiated instruction in order to participate in some of the stretching and strengthening poses. All of these situations required the implementation of good classroom management skills.

Another aspect that contributed to the success of the implementation was parental support. Parents of the students were notified three times, via email and in print, regarding the implementation of the MBTs. Although not all parents returned the RSQ, no parents expressed

concern about the implementation of the MBTs in the classroom and no parents requested that their child not participate in the MBTs.

Another skill needed to implement the MBTs and make them accessible to all students, was knowledge of the students' level of cognitive and moral development (Snowman and McCown, 2015). The Yoga4Classrooms curriculum offers basic instruction as well as extensions for how to implement each exercise. However, with the particularly young age of the participants, modifications to fit the developmental needs of the students became necessary.

One example of this is when the Special Friend Imagination Vacation (Flynn, 2015) exercise was implemented. The exercise is intended to be a guided meditation in which the students lay on the floor, while a suggested script is read. The script asks the students to bring to find an imaginary special friend that can help them whenever they need support. Five and six year old students in the pre-operational stage of cognitive development may struggle to make the connection between their imaginary friend and someone who could offer them actual help. After the recommended script was read, an additional suggestion, that the person that could offer them support was in the room with them, was given. At that point, one boy reached over and hugged another boy. The two boys stayed engaged in the hug for the remaining 90 seconds of the exercise. These boys interpreted the script literally and chose to physically find and support each other. This example emphasizes the need for the MBT instructions to be accessible to the students on a developmentally appropriate cognitive and moral level. This, along with effective classroom management techniques and parental support, positively contributed to the amount of time spent on the intervention.

Whether or not the MBT curriculum could be integrated with the standards-based curriculum was the most influential factor on how much time was spend on the intervention.

Figure 1 shows the total time spent on the intervention each day. The two highest points are days when the mindfulness-based techniques coincided with the curriculum. This circumstance allowed for more time to be spent integrating the two components. It also led to students independently making connections between the corresponding MBTs and the lesson. The three lowest points are days when difficult lessons necessitated more time be spent on the standards-based curriculum and therefore less time was available for the MBT curriculum.

For example, in Figure 1 on February 22nd, ten minutes of the MBT intervention were conducted. Eight of those ten minutes corresponded with the plant life cycle lesson being taught that day. The lesson involved the students cutting out pictures labeled with the stages of the plant life cycle and placing them in order. At the end of the day, the students were led through an Imagination Vacation. Students were directed to curl up into a ball on the floor. The lights were turned off and the students heard the script “imagine you are a seed that the farmer has planted.” During this time, each student’s back was rubbed. Then the students heard “what does the soil feel like? Is it warm? Scratchy?” The students remained curled up and silent while their backs were lightly tapped on and they heard “now it is raining. What does the rain feel like?” The light was then turned on and the students heard “the sun has come out. When you are ready you can start to grow”. Each student moved at different rates, but eventually they all stood up. Some of them reached one hand up before standing, supposedly to represent the spout of the seed. One student said “Look, I’m germinating,” independently making a connection between the two curriculums.

Another example of increased intervention time started with seven minutes of direct instruction regarding the hippocampus on February 23rd. The students were shown where the hippocampus is located in the brain and were told to tap the crown of their heads while they said

“hipp-o-camp-us”. The students were told that the hippocampus is the area of the brain that helps them remember and learn new information and that good nutrition, regular exercise and low levels of stress help to grow this part of the brain (Kemperman, Wiskat and Gage, 2004).

Ten days later, shown on March 4th in Figure 1, a student who was a struggling reader and did not regularly contribute to classroom discussion, made a particularly insightful comment regarding a math problem. The student came to the front of the room and gave a very unique and accessible explanation for the math problem that was on the board. When the student was asked how he had come to that explanation the student pointed to the crown of his head, shrugged his shoulders and said, “hmm, my brain told me”. A reminder of the hippocampus mini-lesson presented ten days earlier was offered and the student’s choice to pay attention to the math lesson and “listen” to his brain was rewarded. This interaction occurred on Dr. Seuss’s birthday. The math lesson was paused and the Dr. Seuss passage “You have a brain in your head. You have feet in your shoes. You can steer yourself any direction you choose.” (*Oh the Places You Will Go*, p.2, 1990) was read. This reinforced the connection between the hippocampus lesson and the student’s participation in class that day. These examples show that when the standards-based curriculum coincided with the MBT curriculum, more time was spent on the MBTs and students independently made connections to previously disparate information.

Days where interventions were at their lowest are shown in Figure 1 on January 27, February 12, February 18 and March 3. The writing lessons on these days were some of the most intensive. This suggests that when the work load of the day was heavier, less time was spent on MBTs instruction in favor of more time being spent on the standards-based curriculum.

Overall, Figure 1 has an upward trend indicating that intervention minutes per day increased as the intervention progressed. Several factors may have influenced this trend; a level

of comfort in implementing intervention components increased; ease of integration of MBTs throughout the day enhanced over time; and associations between the standards based curriculum and the MBT curriculum was perfected. It is possible that the original 12-14 minute goal could have been met eventually, if the intervention had continued further into the school year.

Question 2: Can the MBT intervention increase the students' ability to inhibit behaviors that interfere with their learning as measured by the daily class average Color Chart score?

Figure 2 shows that the daily class average Color Chart score showed a downward trend, indicating that MBTs did not help the students inhibit behaviors that interfere with their learning. The result of a downward trend in behavior may be due to the students being in the pre-conventional stage of moral development. Once the intervention began, the students were first asked to make a personal choice to use MBTs to manage negative behavior, before being asked to change their color card. Sometimes students chose to use an MBT to redirect their negative behavior and other times they chose to continue exhibiting the negative behavior.

One example of this occurred during reading groups. The expectation for student behavior during this time of day was that all students keep their hands to themselves and remain quiet. One student kept reaching across his desk and taking his desk mate's paper. He was asked to employ a breathing technique to calm down and focus. The student did not make the choice to self-regulate and after the third incidence, he was told to change his color to yellow. Students in the pre-conventional stage of moral development choose to engage in or refrain from behaviors based upon whether or not they will be punished or rewarded for the behavior (Snowman & McCown, 2015). The autonomous choice to employ an MBT did not have an impact on negative student behavior.

As the intervention progressed, the two techniques (MBTs and color chart) were used together. For example, the student mentioned above who said “hmm, my brain told me” was asked to change his color card to blue, indicating that he had made choices that contributed to his learning. This positively reinforced his choice to mindfully listen and participate in the lesson. Another example of the hybrid of the two techniques working together occurred on February 2nd. A student was coloring with a marker by continually stamping it onto the paper. The paper and the marker were taken from the student and he received an explanation as to why his behavior was inappropriate and given a choice. His first option was to choose a breathing technique in order to calm down and have the paper returned to him. His second option was to continue his behavior and have his color changed to yellow. The student choose to take three deep breaths and calm down. This is an example of the two behavior management systems working together.

During the first three weeks of the intervention, Figure 2 shows a wide range of scores. During the latter five weeks of the intervention, there is less variance in the scores. The more consistent scores may have been the result of the two behavior management systems working together. This hybrid allowed for the continued introduction of MBTs, while still appealing to the students’ pre-conventional moral development and maintaining strong classroom management. Overall the MBTs did not help students inhibit behaviors that were detrimental to their learning.

Question 3: Can the MBT intervention cause parents to notice a decrease in the amount of stress responses exhibited by their children as measured by the RSQ?

The RSQ measured parents’ observations of two types of stress responses in their children (Compas, 2000). Question Group One indicated a student’s fight/flight/freeze response to stress. An example of this type of question is “*When stressful things happen related to school*

problems, he/she can't always control what he/she does.” Question Group Two indicated a student’s active, participatory response to stress. An example of this type of question is *“He/she tells himself/herself that he/she can get through this or that he/she will do better next time.”* Parents observed their student having fewer (an average of .23 points on a four point Likert scale, SD .25) fight/flight/freeze responses to stress after the eight week intervention. It also shows that parents saw an almost negligible increase (an average of .02 points on a four point Likert scale, SD .27) in their student’s responding to stress in an active, participatory manner.

The content of the Yoga4Classrooms curriculum as well as these students’ pre-operational stage of cognitive development, both contribute to these results. For example, parents indicated a decrease in responses such as: *“When he's/she is dealing with the stress of school problems he/she doesn't know what he's/she feels.”* The Yoga4Classrooms curriculum offers MBT exercises that explicitly encourage the participants to notice how they are feeling. These types of exercise reinforced the student’s frame of mind multiple times throughout each day. Also, the students’ ego-centric nature actually helps them tune into how they are feeling. The MBTs may have encouraged this intuition. The explicit instruction coupled with the students’ developmental stage corroborate the result that parents would see fewer fight/flight/freeze responses after the intervention.

Similarly, the nearly negligible increase in parents’ observations of active, participatory responses to stress can be attributed to the students’ cognitive development. For example, the question *“He/she tells himself/herself that things could be worse”*, is a difficult concept for the pre-operational mind to understand. The student’s ego-centric nature makes it difficult for them to think of someone else “having it worse”. Their inability for abstract thought makes it difficult to envision a situation in which they themselves would be less fortunate. MBTs that asked the

students to think in this abstract manner were intentionally modified or not included due to this group's pre-operational stage of development. These factors explain the almost negligible increase in the students' observable active, participatory reactions to stress. Overall, the MBTs did help students regulate their responses to stress.

Implications for Future Research

Further research should be conducted to discern whether MBT intervention with early elementary age students leads to increased reading ability. Students who participate in an MBT intervention have fewer fight/flight/freeze responses to stress. Lower stress could mean those students have a lower propensity for ruminating on a stressful thought. That lack of rumination frees up working memory to help chunk words and create meaning from them (Posner, et al., 2007). One student in this study had a parent reported fight/flight/freeze stress reaction score average that decreased by 0.33 Likert points (0.10 Likert points more than the class average). After the intervention, the student showed enough growth in his reading ability to be moved to a more challenging reading group. It is possible that the intervention's effect of decreasing his level of fight/flight/freeze response had the additional effect of increasing his working memory and subsequently his capacity for chunking information and reading.

The goal of implementing MBTs 12-14 minutes per day was not reached. Days on which particularly difficult lessons were taught saw the lowest levels of MBTs because more time was spent on the standards-based curriculum. However, when daily lessons coincided with the MBTs, more time was spent on the MBTs and students independently made connections to previously disparate information. This observation is supported by research conducted by Immordino-Yang, Christodoulou, & Singh, (2012). Researchers found that when students engaged in activities that turn their attention internally, such as journaling, daydreaming or

visualization, they engage a network in their brains called the default mode network. This group of six brain areas may be responsible to processing disparate pieces of information and creating personal meaning out of them. The associations made by the student during the plant life cycle worksheet and the MBT exercise, in which she said “I’m germinating,” may have been a genuine representation of the brain’s ability to process disparate information. Therefore, spending less time on MBTs on days with difficult lessons would be counterintuitive. Further research should be conducted to indicate whether more consistent MBT implementation leads to students exhibiting more examples of self-constructed knowledge.

Conclusion

The objectives of this research were to determine how MBTs could be implemented in a controlled setting, dedicate additional time throughout the day to MBTs, and determine which methods hindered the implementation of MBTs in the classroom setting. Subsequently, this study attempted to unearth whether MBT intervention diminished stress responses in students and if students were deterred from employing negative behavior that would impede upon their learning abilities. In order to ascertain the effectiveness of MBTs in the classroom, the Yoga4Classrooms curriculum was implemented for three hours and 20 minutes over the course of eight weeks. The adaption of the curriculum to meet the cognitive and moral development of the student participants and several other adaptations allowed all 21 students to meaningfully participate in the MBTs. Greater time was spent on MBTs when the standards-based curriculum integrated topically with the Yoga4Classrooms curriculum. Fewer MBTs were offered when the lessons of the day were challenging and time was needed to focus on the standards-based curriculum. Implementation of the MBTs did not help the students inhibit behaviors that were detrimental to their learning. However, the behavior score showed less variance when a hybrid of the MBTs

and the Color Chart was used as a behavior management technique. After the intervention, parents of the student participants reported fewer fight/flight/freeze stress responses than before. Active, participatory stress responses saw negligible change. Potential exists for further research including determining if MBTs can positively influence students' reading abilities.

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LIST OF FIGURES

FIGURE 1. Daily totals of intervention time. Average daily intervention time was 6.06 minutes (SD 1.54).

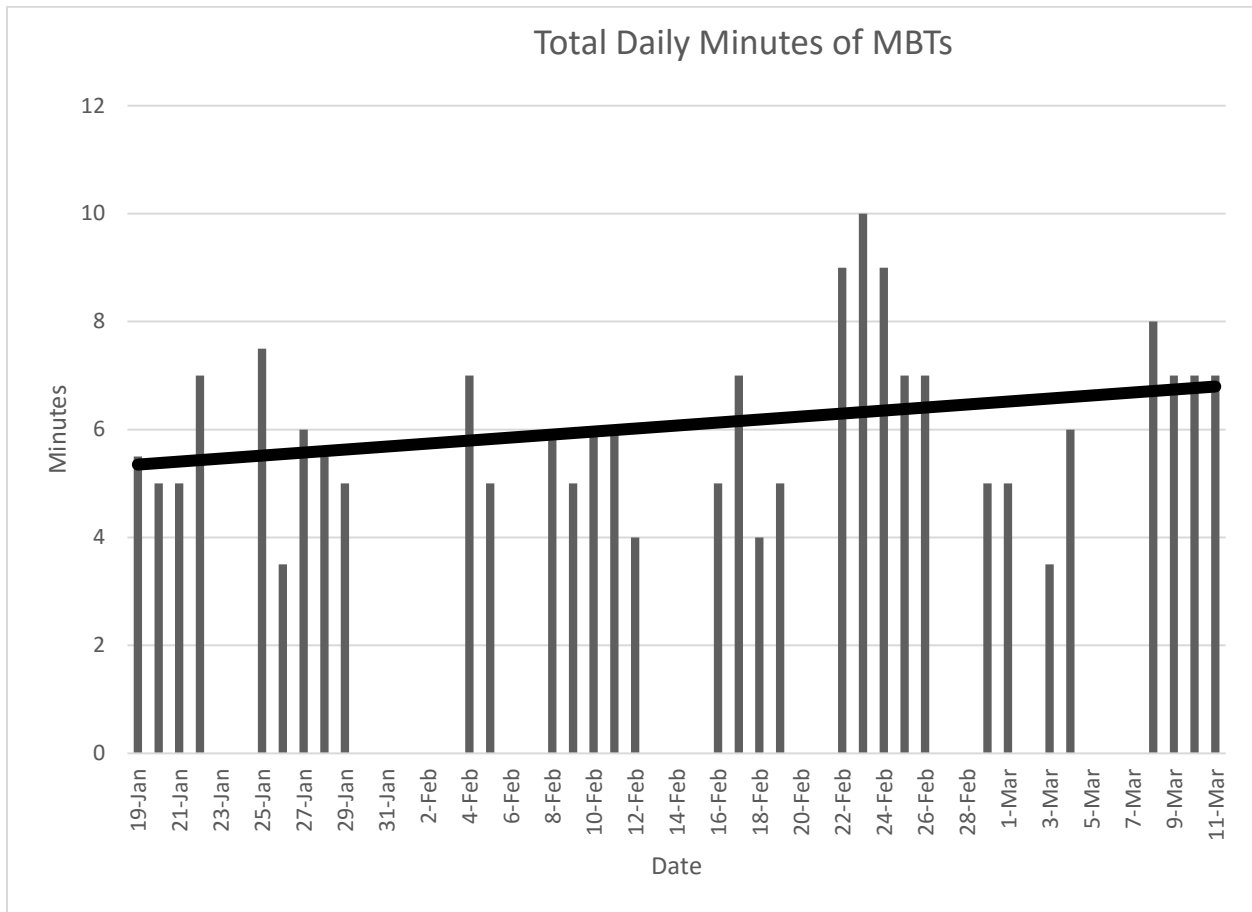
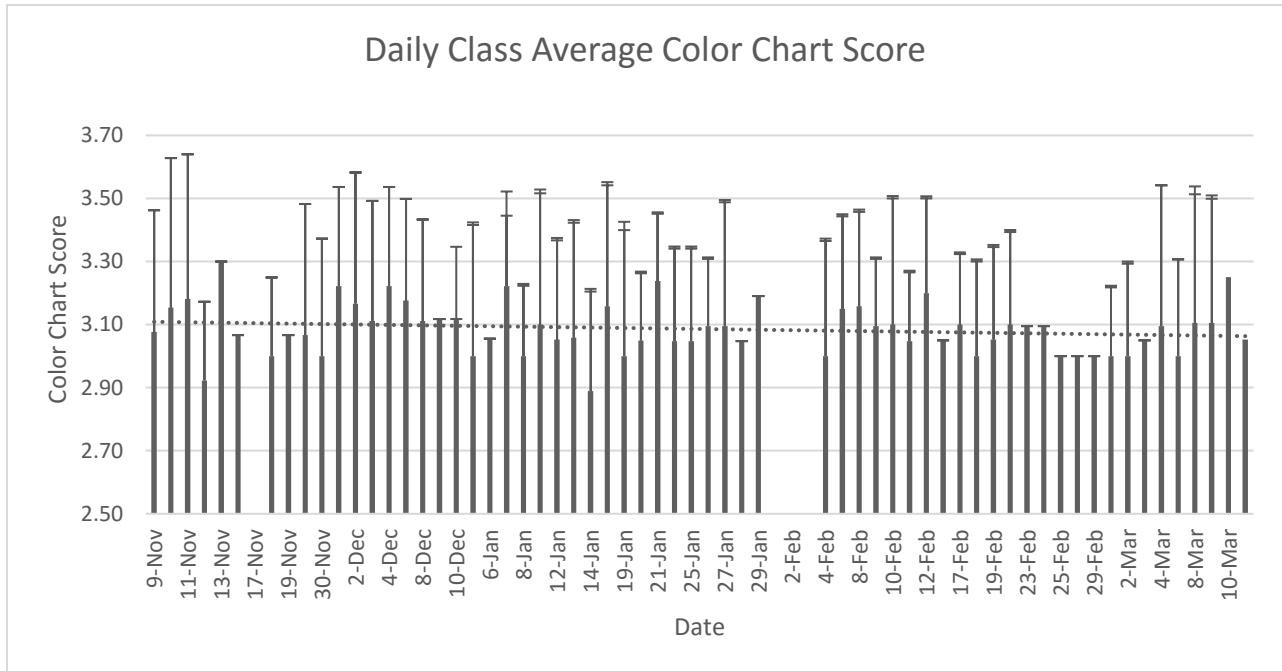


FIGURE 2. Class average Color Chart scores recorded before and during the MBT intervention.



APPENDIX A

ID: _____

Date: _____

RESPONSES TO STRESS – [AS] (PR-C)

This is a list of things about school that children and teenagers sometimes find stressful or a problem to deal with. Please circle the number indicating how stressful the following things have been for your child in the past 6 months.

	Not at All	A Little	Somewhat	Very
a. Doing badly on a test or paper	1	2	3	4
b. Getting bad grades or report cards	1	2	3	4
c. Not understanding classes	1	2	3	4
d. Feeling pressured to do something	1	2	3	4
e. Having bad classes or teachers	1	2	3	4
f. Having trouble studying	1	2	3	4
g. Not having his/her homework done	1	2	3	4
h. Teachers that yell or get angry	1	2	3	4
i. Pressure from parents or teachers to perform perfectly	1	2	3	4
j. Other: _____	1	2	3	4

Circle the number that shows how much control he/she generally thinks he/she has over these problems.

1	2	3	4
None	A little	Some	A lot

Below is a list of things that children and teenagers sometimes do, think, or feel when they are dealing with school problems. Everyone deals with problems in their own way – some people do a lot of the things on this list or have a bunch of feelings, other people just do or think a few of these things.

Think of all the stressful parts of school that have been stressful for your child lately that you checked off above. For each item below, circle one number from 1 (not at all) to 4 (a lot) that shows **how much**

he/she does or feels these things when he/she has the problems with school like the ones you indicated above. Please let us know about everything he/she does, thinks, and feels, even if you don't think it helps make things better.

WHEN DEALING WITH THE STRESS OF SCHOOL PROBLEMS:	How much does he/she do this?			
	Not at all	A little	Some	A lot
1. He/she tries not to feel anything.	1	2	3	4
2. When dealing with the stress of school problems, he/she feels sick to his/her stomach or gets headaches.	1	2	3	4
3. He/she tries to think of different ways to change or fix the situation. Write one plan he/she thought of: _____ _____	1	2	3	4
4. When school problems happen, he/she doesn't feel anything at all, it's like he/she has no feelings.	1	2	3	4
5. He/she wishes that he/she were stronger and less sensitive so that things would be different.	1	2	3	4
6. He/she keeps remembering what happened with the school problems or can't stop thinking about what might happen.	1	2	3	4

WHEN DEALING WITH THE STRESS OF SCHOOL PROBLEMS:	How much does he/she do this?			
	Not at all	A little	Some	A lot
7. He/she lets someone or something know how he/she feels. (<i>remember to circle a number.</i>) <input type="checkbox"/> 1 <input type="checkbox"/> 2 <input type="checkbox"/> 3 <input type="checkbox"/> 4 Check all he/she talked to:				
<input type="checkbox"/> Parent <input type="checkbox"/> Friend <input type="checkbox"/> Brother/Sister <input type="checkbox"/> Pet <input type="checkbox"/> Clergy Member <input type="checkbox"/> Teacher <input type="checkbox"/> God <input type="checkbox"/> Stuffed Animal <input type="checkbox"/> Other Family Member <input type="checkbox"/> None of these				
8. He/she decides he/she is okay the way he/she is, even though he/she's not perfect.	1	2	3	4
9. When he/she is around other people he/she acts like the school problems never happened.	1	2	3	4
10. He/she just has to get away from everything when he/she is dealing with the stress of school problems.	1	2	3	4
11. He/she deals with the stress of school problems by wishing it would just go away, that everything would work itself out.	1	2	3	4
12. He/she gets really jumpy when he/she is dealing with the stress of school problems.	1	2	3	4

13. He/she realizes that he/she just has to live with things the way they are. 1 2 3 4

14. When he/she is dealing with the stress of school problems, he/she just **can't** be near anything that reminds him/her of the problem. 1 2 3 4

15. He/she **tries** not to think about it, to forget all about it. 1 2 3 4

16. When he/she is dealing with the stress of school problems, he/she really doesn't know 1 2 3
4 what he/she feels.

17. He/she asks other people or things for help or for ideas about how to make things better. (remember to circle a number.) 1 2 3 4

Check all he/she talked to:

- Parent Friend Brother/Sister Pet Clergy Member
- Teacher God Stuffed Animal Other Family Member None of these

18. When he/she is trying to sleep, he/she **can't stop** thinking about the stressful aspects of 1
2 3 4 school problems or he/she has bad dreams about the school problems.

19. He/she tells himself/herself that he/she can get through this, or that he/she will do better next time. 1 2 3 4

20. He/she lets his/her feelings out. (remember to circle a number.) 1 2 3 4

He/she does this by: (Check all that he/she did.)

- Writing in his/her journal/diary Drawing/painting
- Complaining to let off steam Being sarcastic/making fun
- Listening to music Punching a pillow
- Exercising Yelling
- Crying None of these

21. He/she gets help from other people or things when he/she is trying to figure out how to deal 1 2 3 4

with his/her feelings. (remember to circle a number.)

Check all that he/she went to:

- Parent Friend Brother/Sister Pet Clergy Member
- Teacher God Stuffed Animal Other Family Member None of these

22. **He/she just can't** get himself/herself to face the stress of school problems. 1 2 3 4

23. He/she wishes that someone would just come and take away the stressful aspects of school problems. 1 2 3 4

You're half done. Before you keep working, look back at the first page so you remember the aspects of having SCHOOL PROBLEMS that have been stressful for your child lately. Remember to answer the questions below thinking about these things.

WHEN DEALING WITH THE STRESS OF SCHOOL PROBLEMS: How much does he/she do this?
Not at all A little Some A lot

24. He/she does something to try to fix the stressful parts of school problems. 1 2 3 4

Write one thing he/she did: _____

25. Thoughts about school problems just pop into his/her head. 1 2 3 4

26. When he/she is dealing with the stress of school problems, he/she feels it in his/her body. 1 2 3 4

(remember to circle a number.) □

Check all that happen:

- His/her heart races His/her breathing speeds up None of these
- He/she feels hot or sweaty His/her muscles get tight

27. He/she **tries** to stay away from people and things that make him/her feel upset or remind him/her of school problems or the stressful aspects of school problems. 1 2 3 4

28. He/she doesn't feel like himself/herself when he/she is dealing with the stress of school problems, it's like he/she is far away from everything. 1 2 3 4

29. He/she just takes things as they are; he/she goes with the flow. 1 2 3 4

30. He/she thinks about happy things to take his/her mind off the stressful parts of school problems or how he/she is **feeling**. 1 2 3 4

31. When something stressful happens related to school problems, he/she **can't stop** thinking about how he/she is feeling. 1 2 3 4

32. He/she gets sympathy, understanding, or support from someone. *(remember to circle a number.)* □1

2 3 4 **Check all he/she went to:**

- Parent Friend Brother/Sister Pet Clergy Member
- Teacher God Stuffed Animal Other Family Member None of these

33. When something stressful happens related to school problems, he/she **can't** always control what he/she does. (remember to circle a number.) 1 2 3 4

what he/she does. (remember to circle a number.)

Check all that happen:

- He/she can't stop eating He/she can't stop talking
- He/she does dangerous things He/she has to keep fixing/checking things
- None of these

34. He/she tells himself/herself that things could be worse. 1 2 3 4

35. His/her mind just goes blank when something stressful happens related to school problems, he/she can't think at all. 1 2 3 4

36. He/she tells himself/herself that it doesn't matter, that it isn't a big deal. 1 2 3 4

37. When he/she is faced with the stressful parts of school problems, right away he/she feels really: (remember to circle a number.) 1 2 3 4

Check all that he/she feels:

- Angry Sad None of these
- Worried/anxious Scared

38. It's really hard for him/her to concentrate or pay attention when something stressful happens related to school problems. 1 2 3 4

39. He/she thinks about the things he/she is learning from the situation, or something good that will come from it. 1 2 3 4

How much does he/she do this?

WHEN DEALING WITH THE STRESS OF SCHOOL PROBLEMS:

Not at all A little Some A lot

40. After something stressful happens related to school problems, he/she **can't stop** thinking about what he/she did or said. 1 2 3 4

41. When stressful parts of school problems happen, he/she says to himself/herself, "This isn't real." 1 2 3 4

42. When he/she is dealing with the stressful parts of school problems, he/she ends up just lying around or sleeping a lot. 1 2 3 4

43. He/she keeps his/her mind off stressful parts of school problems by: 1 2 3 4
(remember to circle a number.)

Check all that he/she does:

- Exercising Seeing friends Watching TV
- Playing video games Doing a hobby Listening to music None of these

44. When something stressful happens related to school problems, he/she gets upset by things 1 2
 3 4

that don't usually bother him/her.

45. He/she does something to calm himself/herself down when he/she is dealing with the 1 2 3 4
 stress of

school problems. *(remember to circle a number.)*

Check all that he/she does:

- Take deep breaths Pray Walk
- Listen to music Take a break Meditate None of these

46. He/she just freezes when he/she is dealing with stressful parts of school problems, 1 2 3 4
 he/she **can't** do anything.

47. When stressful things happen related to school problems he/she sometimes 1 2 3 4
 acts without thinking.

48. He/she keeps his/her feelings under control when he/she has to, then lets them 1 2 3 4
 out when they won't make things worse.

49. When something stressful happens related to school problems, he/she can't seem 1 2 3 4
 to get around to doing things he/she is supposed to do.

50. He/she tells himself/herself that everything will be all right. 1 2 3 4

51. When something stressful happens related to school problems, he/she **can't** 1 2 3 4
stop thinking about **why** this is happening.

52. He/she thinks of ways to laugh about it so that it won't seem so bad. 1 2 3 4

53. His/her thoughts start racing when he/she is faced with the stressful 1 2 3 4
 parts of school problems.

54. He/she imagines something really fun or exciting happening in his/her life. 1 2 3 4

55. When something stressful happens related to school problems, he/she can get 1 2 3 4
 so upset that he/she can't remember what happened or what he/she did.

56. He/she tries to believe that it never happened. 1 2 3 4

1 2 3 4