California State University,

Fullerton

AN EXPLORATION OF MINDFULNESS AS A STRESS REDUCTION PREVENTION FOR ADOLESCENTS

A DISSERTATION

Submitted in partial fulfillment of the requirements

For the degree of

DOCTOR OF EDUCATION

In

EDUCATIONAL LEADERSHIP

P-12 Leadership

By

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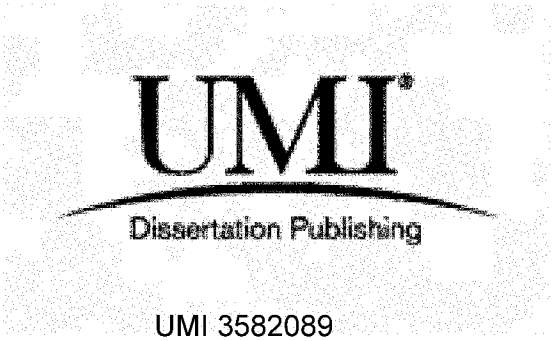

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ABSTRACT

Schools currently do not have a well-designed and well-implemented prevention model to help students reduce their feelings of stress. This mixed methods study examined the relationship between practice of mindfulness, perceived stress, and student achievement among 165 seventh-grade students at a college preparatory high school. Using previously tested survey instruments Perceived Stress Scale (PSS) and Childhood and Adolescent Mindfulness Measure (CAMM), the researcher trained, implemented, and tested the impact of a simple mindfulness practice universally as prevention model. Although the *t*-test did not detect an impact on the stress levels, which could be attributed to the limited time range of 12 weeks for the implementation of intervention, multiple regression analysis predicted mindfulness practice as a strong indicator of reduction in stress among the seventh-grade students. The qualitative analysis indicated a theme of situational awareness among the students who practiced mindfulness that led to regulation of their stress.

The dissertation of Sangeetha Carmona is approved and is acceptable in quality and form for publication on microfilm and in digital formats.

Approved by:

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To my amazing children, Mohammed and Keanu, wise beyond their years

and

To all my dearest friends especially Madalena Cooper for being infinitely supportive through all my endeavors.

ACKNOWLEDGMENTS

First of all I would like to thank Dr. Carmen Beck, my mentor, friend, and supervisor, who supported and encouraged me completely in every phase of my doctoral program and especially this dissertation phase. Dr. Natalie Tran's pivotal role in introducing me to the practice of mindfulness sparked my interest in such an effective stress management technique that I have personally adopted it. Her dedication to her cause, her grounded demeanor, and her patient, gentle nature through her role as my professor, friend, and chair has helped me learn to work smarter not harder and accomplish my goals. Dr. Ron Oliver's amazing sense of humor, his expertise in organizational change, and invaluable support as my professor and second chair provided me with the skills I needed to manage my new jobs and simultaneously work on my dissertation. Alicia Baillie's support as my friend, fellow cohort, and remarkable conduit for implementation of my research cannot be expressed. Words cannot express my gratitude and awe for the openness, kindness, and backing that the high school and their encouraging leadership team and P.E. teachers that piloted the research have shown me. Dr. Perry Wiseman's continuous words of encouragement, guidance, and acknowledgement of the importance of my research topic helped me persist despite resistance and roadblocks along the way.

Without the constant words of cheer, steady trail of important information, status updates, and immense support from my fellow cohort 5 members,

perseverance in this rigorous program would have been next to impossible.

Thank you everyone for your trust in me.

CHAPTER 1

INTRODUCTION

A report by the Centers for Disease Control and Prevention stated that toxic stress resulting from intense adverse experiences can impair the connection of brain circuits making a child overly reactive to adverse experiences throughout life, increasing vulnerability to a variety of infections and chronic health problems, and damaging the hippocampus, an area of the brain responsible for learning and memory (Middlebrooks & Audage, 2008). To counteract the effects of stress, schools can help students learn how to manage their stress before the onset of the problem itself. Park and Vo (2008) reported that stress management for youth is important because impaired mental health and risky behaviors are the major sources of morbidity and mortality in that age group. Using a stress management approach either to intervene or as a preventive measure may help our students learn how to cope. How are our schools currently responding to this urgent need among our youth?

In face of the demands placed on our schools to provide quality education for all students despite diminishing fiscal support, school leaders are looking for innovative ways to optimize their resources to maximize student supports. In their article, Walker and Horner (1996) used the U.S. Public Health Service's conceptual model of prevention involving primary, secondary, and tertiary prevention approaches as an organizing framework to illustrate how schools can

deliver interventions more effectively and improve outcomes. Under this positive behavioral interventions and supports (PBIS) framework, primary (tier 1) approaches or prevention are provided to all students within a school, secondary (tier 2) or more targeted approaches are for the 15% of the students who need additional supports, while the tertiary (tier 3) approaches are for the 3-5% of the student population that need intensive supports.

The research over the last 14 years has shown that although applying a PBIS framework to build systems within schools has improved the school climate and culture and dramatically reduced disciplinary suspensions and referrals rates, there are still gaps in primary, secondary, and tertiary supports within school systems. There remains a need to address the social and emotional needs of students, especially to combat stress. Recent research has demonstrated the need for a comprehensive approach that considers the interrelatedness of domains such as student academic, behavioral, and mental health functioning and one that intentionally addresses the primary, secondary, and tertiary needs of students (Eber, Barrett, & Weist, 2013). This dissertation study will explore this gap in addressing the social and emotional needs of students in relation to stress by using mindfulness, an awareness technique that emerges through paying attention on purpose, in the present moment, and nonjudgmentally to the unfolding experience moment by moment (Kabat-Zinn, 2003). Mindfulness will be explored as a prevention model through the lens of ethic of care as its theoretical foundation. This study's conceptual framework is built upon the empirical research in various approaches to mindfulness practices,

the science of implementation of new initiatives, school-based social and emotional learning, and using a prevention model to address the social and emotional needs of students.

Background of the Problem

Lewis and Sugai (1999) explained that "unfortunately, not all children and youth have access to appropriate models, regular monitoring, regular academic and social success, and meaningful feedback. Instead, for some children, social experiences are best characterized as reactive, aversive, infrequent, haphazard, and trial-and-error learning experiences" (p. 2). Lewis and Sugai's (1999) research indicated one way to help schools effectively and efficiently is by implementing a systematic school-wide behavior intervention. They added, "Effective Behavioral Support (EBS) is a systems approach to enhancing the capacity of schools to adopt and sustain the use of effective practices for all students" (p. 5). EBS is also known as PBIS. Debnam, Pas, and Bradshaw (2012) outlined how the three-tiered PBIS model aimed to prevent disruptive behavior by improving systems and promoting positive change in staff and students. However, since this type of change is carried out in most schools at the primary, or tier 1, level, there is a great need for additional research on the types of programs and services implemented to help students who do not respond to PBIS (Debnam et al., 2012). In a recent monograph edited by Eber et al. (2013), the importance of interconnecting school-wide behavior support practices with mental health interventions and supports that can enhance the learning environments of all students was highlighted.

In light of recent research in coordinated and comprehensive school systems, in addition to implementing a multitiered system of supports (MTSS) within the PBIS framework, efforts are being made to link school-wide behavior support practices and systems with mental health interventions (Eber et al., 2013). An MTSS framework was designed and researched in response to providing all-inclusive and coordinated prevention and intervention supports to all students. Moreover, by understanding and applying the recursive stages of implementation (Bertram, Suter, Bruns, & O'Rourke, 2011) to ensure capacity-building and sustainability of such efforts, schools in collaboration with community agencies are exploring models to provide comprehensive and multiple layers of support to their students that increase in intensity of student interventions (Lane, Menzies, Ennis, & Bezdek, 2013). Streamlining tiered school-based mental health services and augmenting schools' universal (primary) systems with preventative mental health system of supports is still in its stages of infancy.

Currently, schools lack a planned prevention model to help students reduce their feelings of stress. Felitti (2009) reported that the most important findings from a study of 805 high-risk children conducted by Flaherty et. al (2009) is that damage by adverse childhood experiences can start to manifest as ill health and somatization during childhood itself. Felitti (2009) also explained how recognizing these facts provided a clear opportunity for early intervention. In another study, two factors that were identified as significant predictors of self-harm were maladaptive behaviors and recent stress, with recent stress if left

untreated sometimes leading to suicide attempts (Moskowitz, Stein, & Lightfoot, 2013). Bremner's (1999) article reported how multiple studies in animals and with patients who have suffered from posttraumatic stress disorder and childhood abuse introduced the possibility that experiences in the form of traumatic stressors can have long-term effects on the structure and the function of the brain. A literature review by M. Gould, Greenberg, Velting, and Shaffer (2003) also confirmed a correlation between stress and youth suicide. They asserted that a stressful life event is one of the key risk factors for youth suicide. Taylor (2010) pointed out that "positive beliefs associated with optimism, a sense of personal control, and self-esteem appeared to help people manage stress by virtue of cortical regulation of the amygdala activity and consequent lower downstream neuroendocrine responses" (p. 8511). Research in the field of positive psychology has indicated increasing resilience, positive emotion, engagement, and meaning by teaching students how to experience a positive emotion which can lead to discovery of novel ideas, actions, and social bonds (Seligman, Ernst, Gillham, Reivich, & Linkins, 2009). These skills can be acquired through social and emotional learning (SEL) programs, a term used for diverse skills-based programs intended to help young people improve relationships with their peers and adults and develop emotional understanding and regulation, self-control, and healthy values (Davidson et al., 2012). Davidson et al. (2012) reported that a recent meta-analysis of over 250 experimental studies of universal SEL programs indicated that these programs produced significant and meaningful improvements on achievement test performance.

Modzeleski et al. (2012) stated how research has suggested that when families, schools, community organization, and health care and service systems work together to implement programs to help students is when prevention efforts are successful. As a result, any prevention strategy adopted would require a collaborative approach from a variety of stakeholders for successful implementation.

Problem Statement

The problem that this study has addressed is the scarcity of evidence-based stress reduction programs for youth as a preventative measure in schools. Educators and administrators in various schools, whether in low or high socio-economic demographic areas, have noticed the need to add a social and emotional curriculum or practice to help students learn skills to adapt to adults, peers, and the educational environment. There is a shortage of effective evidence-based programs or interventions that address the needs of the whole child, which includes academics, social, and emotional domains. Results from a study conducted by Hoyle, Marshall, and Yell (2011) suggested that, although school personnel attempted to implement a variety of interventions, they continued to need assistance in identifying the best interventions for secondary supports for students. According to Eber et al. (2013), "the solution may reside in operationalizing the school-to-mental health integration of evidence-based practices and grounding implementation within an interconnected system perspective" (p. 18). With schools having to decide among multiple mental health interventions for their students, Eber et al.'s (2013) research demonstrated

that in light of the current limited resources, new initiatives, and accountability measures, schools should be strategic in their adoption of evidence-based practices and streamline access to the community mental health providers.

Drawing on 30 years of research in neuroscience, cognitive science, developmental science, and education, evidence supports the inference that mindfulness improves health and well-being by reducing stress, anxiety, and depression (Brown & Ryan, 2004; Davidson et al., 2012; Kabat-Zinn, 2003; Meiklejohn et al., 2012). According to Mendelson et al. (2010), although research has shown that mindfulness enhances regulatory and coping processes and thus can be well suited for chronically stressed youth, this strategy has received minor attention in education. Meiklejohn et al. (2012) indicated that mindfulness was not like cookie cutter curricula that could be learned in a day, outlined in a resource guide, and then brought into a classroom. Instead, a more direct approach to integrating mindfulness in K-12 education would be to train teachers to teach mindfulness to students (Meiklejohn et al., 2012). This dissertation study examined the use of mindfulness as an evidence-based practice to help students cope with and reduce their stress by training a group of teachers first and then having them train and have their students practice breathing exercises daily.

Purpose Statement

The purpose of this research has been to examine the effectiveness of mindfulness as a prevention model for stress reduction in an educational setting. In our fast-paced educational era of stressful teaching and learning, the focus is

on teaching the standards and getting students ready for high-stakes testing. Focus on academic achievement is necessary in school; however, sometimes it is easy to lose sight of the social and emotional needs of our students and educators. Though research on mindfulness as an intervention in various fields is burgeoning, there is limited research using it as a prevention model in school age youth. According to Langer (1993), "Mindfulness is a state of mind that results from drawing novel distinctions, examining information from new perspectives and being sensitive to context" (p. 44). She also asserted that mindfulness is a process in which one views the same situation from several perspectives as opposed to intelligence, which she defines as a capacity to identify a single optimal view. Thus, in this mixed methods study, students were trained on simple breathing and visualization techniques.

Research Questions

This study addressed the use of mindfulness as a prevention strategy to reduce stress among seventh-grade students in a college preparatory high school serving seventh- through 12th-grade students. An embedded sequential mixed methods design was used that involved collecting quantitative data first and then explaining the quantitative results with in-depth qualitative data. In the first quantitative phase of the study, survey data was collected from the seventh-grade students at their high school to examine whether mindfulness was related to students' stress levels. The second, qualitative phase was conducted as a follow up to help explain the quantitative results (Creswell & Plano Clark, 2011).

The follow-up interviews explored the impact and transference of mindfulness in other settings both in within and outside of school.

The main three research questions this study investigated were:

1. What is the relationship between mindfulness and perceived stress among seventh graders?
2. What is the relationship between mindfulness and students' achievement as measured by grade point average (GPA)?
3. In what way are students using mindfulness both in within school and out-of-school settings?

Significance of the Study

This research study will make a significant contribution to educational leadership because it demonstrates how, in the current era of high-stakes testing and achievement gaps, students now could have access to the benefits of mindfulness. Mindfulness is a stress-reduction program that improves memory and reduces stress as reported by a number of prominent researchers in neuroscience, psychology, and counseling.

The high school selected for the study is a competitive magnet school that only enrolls students who have scored at the advanced level in either English Language Arts or Mathematics in their previous year's California State Test (CST). Since high-achieving students do not often reveal their distress, research has shown that they may not receive critical support due to positive stereotypes. "Though habits of achievement may help them [gifted youth] to maintain high grades and high levels of extra-curricular performance, achievers might quietly

experience high levels of stress from their heavy involvements in or outside of school" (Peterson, Duncan, & Canady, 2009, p. 34). Karnes and Oehler-Stinnett's study (1986) as cited in Peterson et al., 2009, found that the level of past and recent stress was related to suicidal ideation in gifted adolescents. Extremely high expectations, especially in highly stressful school environments were deemed counterproductive in a study that examined the role of personal academic expectations for academic performance (Kaplan, Liu, & Kaplan, 2005). Schraml, Perski, Grossi, and Makower (2012) discussed how "a mindfulness approach might be of help by training students to focus on the present moment and to envision situations objectively, which should help them see future events and challenges, like academic exams in a more neutral/positive light rather than as potential disasters and catastrophes" (p. 75).

Chapter 3 will explain the details of this study and discuss the relationship between the use of mindfulness and the stress levels of students in one suburban setting. Mindfulness-based practices such as breathing techniques were introduced, taught, and practiced during the students' physical education class for 5 minutes every day. An embedded sequential mixed methods (Bickman & Rog, 2009) design was used for this study to capture the breadth and depth of the research questions. A cross-sectional survey design was selected for the quantitative study. Student interviews with open-ended questions were used for the qualitative component of this study. The quantitative approach allowed me to introduce mindfulness as the independent variable to examine its

relation to stress and academic achievement, the dependent variables (Creswell, 2009).

Scope of the Study

This study will focus on a simple breathing technique of mindfulness that will be taught to the physical education (P.E.) teachers first, who in turn will teach their students and then practice it daily for 5 minutes as a cool down strategy during P.E., thus focusing on it as a prevention model. Even though this technique can be used as tier 2 and tier 3 interventions, exploring this impact is beyond the scope of this study.

Assumptions of the Study

Upon collection of the survey data are collected, the assumption was that the students have responded to the survey items and the follow-up interview questions truthfully and were not influenced by the researcher, their teachers, or their peers to respond in a certain manner. Another assumption was that the GPA was an accurate measure of students' academic achievement.

Study Delimitations

The school leadership team determined that they would like only their seventh graders to receive the intervention, and thus this study is delimited to that grade level. Their decision was based on the fact that the incoming seventh graders needed coping and self-regulation skills to operate in the competitive school environment.

Study Limitations

The study's limitation is that only one suburban high school was studied with one type of mindfulness training used as a prevention model. Due to the time constraints of this study, data was collected after 12 weeks of intervention. In-person follow-up interviews were conducted two weeks after the post-survey data collections. Long-term effects were not measured in this study. Another limitation is that teachers who were receptive to alternative methods of interventions to help students were the ones who participated in this study, indicating a bias in receptivity. Additionally, since the data used in this study was archival data, issues with missing information or data would not be able to be resolved.

Definitions of Key Terms

Throughout this study:

Ethic of care. Ethic of care refers to an approach where the root of our responsibility is to each other, which guides action long enough for natural caring to be restored and for people to once again interact with mutual and spontaneous regard (Noddings, 2007, p. 221-2).

Implementation science. Implementation science is a science of the stages of implementation that are focused on achieving benefits for children, families, provider organizations, human service systems, and communities (Fixsen, Blase, Naoom, & Wallace, 2009). These stages are exploration, installation, initial implementation, full implementation, innovation, and sustainability.

MBSR. MBSR is a mindfulness-based stress reduction technique developed by Jon Kabat-Zinn (2003).

Mindfulness. Mindfulness is the awareness that emerges through paying attention on purpose, in the present moment, and nonjudgmentally to the unfolding experience moment by moment (Kabat-Zinn, 2003).

Multitiered system of supports. A multitiered system of supports exists where "a school as an entire organization participates in providing comprehensive and multiple layers of support that increase in intensity as needed" (Lane et al., 2013. p. 6).

Positive psychology. Positive psychology is the study of positive emotions (Frederickson, 2003)

Social and emotional learning. Social and emotional learning is "the process of acquiring core competencies to recognize and manage emotions, set and achieve positive goals, appreciate the perspectives of others, establish and maintain positive relationships, make responsible decisions, and handle interpersonal situations constructively" (Durlak, Weissberg, Dymnicki, Taylor, & Schellinger, 2011, p. 2).

Stress. According to Middlebrooks and Audage, stress includes "internal or external influences that disrupt an individual's normal state of well-being. These influences are capable of affecting health by causing emotional distress and leading to a variety of physiological changes. These changes include increased heart rate, elevated blood pressure, and a dramatic rise in hormone levels" (Middlebrooks & Audage, 2008, p. 3).

SW-PBIS. "School wide positive behavior supports is a proactive, systems-level approach that enables schools to effectively and efficiently support student (and staff) behavior" (Simonsen, Sugai, & Negron, 2008, p. 33).

Organization of the Dissertation

In Chapter 1, I provided a context for mindfulness, as a prevention model to address the social and emotional needs of students and then defined the problem and purpose of this study. I further discussed the significance and scope of the study and provided definitions for key terms. Chapter 2 presents a critical review of the literature pertaining to the research questions. Chapter 3 contains the research design, including data collection and analysis methods. Chapter 4 presents the study's findings, and in Chapter 5, I discuss conclusions, interpretations, and recommendations for policy and practice.

CHAPTER 2

REVIEW OF THE LITERATURE

Cahn and Polich (2006) elucidated that a considerable body of research supported the idea that meditative training (such as mindfulness) can mitigate the effects of anxiety and stress on psychological and physiological functioning. Similarly, L. Gould, Dariotis, Mendelson, and Greenberg (2012), upon examining gender, grade-level, and baseline depressive symptoms in their randomized control trial with urban youth, concluded that preventive interventions (such as mindfulness) that modify the underlying stress response through increased self-regulation may deflect problematic adjustment trajectories of at-risk urban youth. This chapter begins with an exploration of the theoretical foundation of mindfulness. An extensive review of the empirical research and its implications related to mindfulness as a prevention model to address the social and emotional needs of students follows. I will conclude with a chapter summary.

Theoretical Foundation

The practice of mindfulness originated in the Eastern philosophy of Buddhism and involves appreciating the present moment and developing compassion for self and others, including nature. In this age of bullying and aggression in schools, students would benefit from learning to cope using self-awareness and self-regulating techniques. In light of the need for social and emotional learning, a few schools have introduced secular mindfulness practices

into their curriculum, thus increasingly recognizing mindfulness as an essential educational tool (Nhat Hanh, 2011).

The current study has used the ethic of care as a worldview from which to examine its theoretical foundation. According to Plato, whose teachings weighed toward idealism, "the best students–those most philosophical, those best educated–will use the dialectical process to discover true beauty, goodness, and justice" (as cited in Johnson & Reed, 2012, p. 20). Similarly, in mindfulness, one learns to appreciate self and others and learns to value beauty in nature. When one is mindful, the objects, environment, feelings, and experiences of the present moment are heightened. Bartos (2012) summarized it as:

> The politics of care prioritizes the significance of social relations, recognizes the power relations involved in caring relations, and highlights people's needs, responses and responsibilities of caring and being cared for. Focusing on care and caring relations allows us to look deeply at people's needs and what truly matters in society and offers the greatest possibility for transforming social and political thinking. (p. 158)

Thus, in a caring environment, students learn justice and care through the practice, experience, responsibility, and assurance that justice and caring are established and persist (Thurston & Berkeley, 2010). Families and communities are involved in the learning process where school programs are structured to create and maintain family-like relationships with a foundation of respect, trust, sincerity, faithfulness, and the valuing of individuality (Thurston & Berkeley, 2010). The practice of mindfulness in its true form also involves the parents and

community in the learning process of their students. Parallels can also be drawn between mindfulness and ethic of care through Noddings's (2007) statement,

> As we understand ourselves better, we may increase our motivation to understand others; similarly as we engage in caring forms of interpersonal reasoning, we should gain a deeper understanding of ourselves. Thus, the two pursuits should be synergistic. (p. 232)

To create a caring school that is structured like a family founded on respect, trust, sincerity, faithfulness, and the valuing of individuality (Thurston & Berkeley, 2010), mindfulness practices of walking, deep breathing, eating, and interpersonal interactions can be woven into everyday activities (Meiklejohn et al. 2012), in an effort to interconnect school-wide practices with mental health interventions (Eber et al., 2013) as a primary tiered intervention. While exploring initiatives for a multitiered system of supports (MTSS), "the question shifts to determining how this need relates to other needs within the school and the larger goals of the schools" (Eber et al., 2013, p. 19). If a primary tiered intervention such as mindfulness is cost-effective, easy to implement, has positive student outcomes, and fits into the school's long-term plan, then sustaining such an initiative is not a challenge.

According to Meiklejohn et al. (2012), "K-12 teachers face an array of stressors, and yet are provided with few resources with which to alleviate them" (p. 2). They also elucidated how "in addition to the challenges of learning and achievement, students come to school with stressors arising from many sources including family-system disturbances, peer-interaction conflicts, socio-cultural

components, and vulnerabilities to physical and mental health risk factors" (p. 8). Mindfulness is about attention (Kabat-Zinn, 2003) and research on positive psychology has suggested, "by momentarily broadening attention and thinking, positive emotions lead to the discovery of novel ideas, actions, and social bonds" (Fredrickson, 2003, p. 333). Research has also pointed to self-regulation of attention that allows for metacognitive awareness of one's emotional and cognitive experience as it occurs (Jennings, Snowberg, Coccia, & Greenberg, 2011).

Furthermore, according to Jennings et al. (2011), mindfulness requires individuals to develop compassion for others by listening to others, developing collective harmony, and supporting each other. This aspect of mindfulness is similar to the ethic of care's approach to moral education. Noddings (2007) posited that in moral education "teachers should be explicit in telling students that a primary purpose of cooperative work is helping one another to understand, to share, and to support" (p. 229). Nhat Hanh (2011) further added:

> Teachers may often ask their students to "pay attention," but they may not teach them how to do so. The practice of mindfulness teaches students how to pay attention, and this way of paying attention enhances both academic and social-emotional learning. (p. 19)

A quasi-experimental design study conducted at a middle school where a Transcendental Meditation program called Quiet Time was practiced twice a day by 189 sixth- and seventh-grade students who were below proficiency level in either math or English at baseline on the CST resulted in improvement for

meditating students compared to controls on English and math scale scores (Nidich et al., 2011). The limitation of Nidich et al.'s study was the use of a different grade level as a control. This study also recommended using measures of psychological distress to observe the relationship of change between student stress and academic achievement (2011). In this Quiet Time program model, the focus was on being quiet for 15 minutes at the beginning and at the end of the day. During this time, students and adults could meditate, think about school, or reflect, but it had to be quiet and still. According to Nidich et al. (2011) just the act of daily silence had improved student scores and concentration.

Mindfulness training can involve engaging in daily mindfulness exercises, taking a multiweek course, or participating in an intensive retreat (Vugt & Jha, 2011). Mindfulness as used in this dissertation study is an extension of the Quiet Time silent reflection involving regular mindfulness practice such as breathing exercises. When practicing mindfulness through simple breathing exercises, one learns to focus on whatever sensations your body is feeling and slowly practice nonjudgmental moment-to-moment awareness (Davidson & Begley, 2012). In time we learn how to appreciate the moment and understand ourselves.

Review of the Scholarly Empirical Literature

The following literature review will examine the practice of mindfulness through the lens of the empirical studies conducted using various forms of mindfulness practices, its relation to stress, and how the practice can be implemented using a prevention model for social and emotional learning and adhering to the stages of implementation.

Conceptual Framework

The conceptual framework for this study is grounded in four concepts. The first of these is research that shows the effects of stress. The second is research that has examined the role of prevention within the context of social and emotional learning. The third is research on the effects of various forms of mindfulness practices on adults and youth. Last, I review research that has examined the science of implementing a new initiative. The implementation science findings explored how to develop a strategic plan to implement a new intervention or prevention within a school and lead it to sustainability.

Stress

Evidence has shown that stress can restrict the growth of children's brains. A pilot longitudinal study of children (N = 15) with a history of maltreatment who underwent clinical evaluation for posttraumatic stress disorder, using cortisol levels and neuroimaging, suggested stress was associated with hippocampal reduction in children with posttraumatic stress disorder symptoms and provided human evidence that stress may damage the hippocampus (Carrion, Weems, & Reiss, 2007). The study's limitation was its small sample size.

An open six-week clinical trial that examined the feasibility and acceptability of mindfulness training program for anxious children aged 7 to 8 years suggested that this intervention holds promise for anxiety symptoms (Semple, Reid, & Miller, 2005). The limitations to this study were that expectancy effects could have influenced their findings, the Child Behavior Checklist was not

considered a rigorous measure of academic performance, the nominated children were younger than anticipated, and in an exploratory open trial, no conclusions could be made about treatment efficacy (Semple et al., 2005).

Another quantitative survey study conducted with 270 high school students in Sweden suggested, "the early prevention of chronic stress is critical since, if left untreated, [stress] can have serious consequences on young people's future health and career possibilities" (Schraml et al., 2012, p. 69).

In a two-year longitudinal survey study of 171 high school students with a response rate of 70% that measured chronic stress and self-esteem using descriptive statistics and a multivariate analysis of variance, three stress groups were identified: no stress group, transitory stress group, and chronic stress group (Schraml et al., 2012). Their results indicated that students who experienced stress chronically showed significantly worse final grades at the end of high school than the students who perceived no stress or temporary stress (Schraml et al., 2012). The limitations of the study were that the sample was drawn from one geographic area, it was a self-report questionnaire, some relevant variables were out of the scope of the study, and no follow-up measures could be completed with the high school students.

When eight focus groups were conducted to examine how adolescents perceived the relationship between smoking and stress, the findings indicated that participants overwhelmingly believed that people smoked to reduce their stress (Scales, Monahan, Rhodes, Roskos-Ewoldsen, & Johnson-Turbes, 2009). Felitti et al. (1998) also reported their findings from the Adverse Childhood

Experiences study: "high levels of exposure to adverse childhood experiences would expectedly produce anxiety, anger, and depression in children" (p. 252), and when left untreated several of these factors became the leading causes of deaths in adults. A qualitative ethnographic study of 30 Pacific Northwest youth aged between 14 and 19 years found that stress was recognized as an important suicide risk factor (Howard-Pitney, LaFramboise, Basil, September, & Johnson, 1992). Brent (2011) explained how suicidal youth are more attracted to death and less able to generate alternatives to suicide when faced with stress. If excessive and unmanageable stress is not treated, adolescents respond with symptoms of anxiety, withdrawal, aggression, poor coping skills, drug and/or alcohol use and abuse, and physical illness (Rollin, Rubin, Marcil, Ferullo, & Buncher, 1995).

Prevention and Social Emotional Learning

Mindfulness practices assist with the development of social and emotional competence of students. Jennings et al. (2011) explained "to successfully address the management, instructional, and emotional challenges of the classroom, teachers must employ a high degree of social and emotional competence" (p. 37). In a meta-analysis of 213 school-based, universal SEL programs involving 270,034 kindergarten through high school students, compared to controls, SEL participants demonstrated significantly improved social and emotional skills, attitudes, behavior, and academic performance that reflected an 11% gain in achievement (Durlak et al., 2011). These SEL programs were categorized in three distinct ways: (1) class by teacher, (2) class by nonschool personnel, and (3) multicomponent nonschool personnel. Durlak et al.

(2011) elucidated how "schools have an important role to play in raising healthy children by fostering not only their cognitive development, but also their social and emotional development" (p. 2). Durlak et al.'s (2011) study indicated that SEL programs were likely to be effective if they used a sequenced step-by-step training approach, included active forms of learning, focused sufficient time on skill development, and had explicit learning goals.

Effects of Mindfulness

Various studies have been conducted to examine the relationship between mindfulness as an intervention and stress reduction. Heydenfeldt, Herkenhoff, and Coe (2011) reported neurological research findings that suggest that mindfulness practices create new structures in the brain that enhance the way the brain processes information. This research suggested the hypothesis that underlies the current dissertation study, which proposes that mindfulness practice, the independent variable, influences stress levels, the dependent variable. Correspondingly, VanDeWeghe's brain research (2011) highlighted the following: "When students practice mindfulness, they pay close attention to detail, both external and internal" (p. 30). From a psychological perspective, "dozens of clinical trials have shown that MBSR can relieve psychological distress in breast cancer survivors, reduce side effects in organ-transplant recipients, relieve anxiety and depression in people with social anxiety disorder, and help people cope with chronic pain" (Davidson & Begley, 2012, p. 201).

Similarly, in an article where the term *contemplative* is used to define mindfulness, Davidson et al. (2012) theorized:

> In modern scientific terms, these [contemplative] practices are forms of mental and behavioral training that are intended to produce alterations in basic cognitive and emotional processes, such as attention and the regulation of certain forms of negative effect, and to enhance particular character traits that are considered virtuous, such as honesty and kindness. (p. 147)

Another pilot study on mindfulness training using mind–body awareness for self-regulation and stress with incarcerated youth investigated the feasibility of implementing a 10-week mindfulness-based intervention (Himelstein, Hastings, Heery, & Shapiro, 2011) instead of the MBSR because of time constraints. Though no significant differences were found on self-reported mindfulness, paired *t*-tests revealed a significant decrease in perceived stress and a significant increase in healthy self-regulation. The limitations of the study included a small sample size of only 32 participants, the Healthy Self-Regulation Scale was not validated, and there was no control group used.

Before this practice was introduced to students, teachers and administrators were trained on how to be mindful in their own profession. According to Tadlock-Marlo (2011), "students who learn to use mindfulness techniques early in life could more readily increase concentration and advance in academic skills." She also added "they may develop into self-reflective individuals who are aware of self and appreciative of others' circumstances" (p. 227). Hence, this type of practice may also help students develop compassion toward other students and respect their differences, although compassion will not

be researched in this dissertation study. Weare (2012) explained how brain imaging studies on adults are showing that mindfulness meditation reliably and profoundly alters the structure and function of the brain to improve the quality of both thought and feeling.

Consequently, this mindfulness practice will enhance and further improve other intervention programs such as antibullying, anger management, and social skills development. Siegel (2007) asserts that "mindful awareness entails more than sensing present experience as it generates an awareness of awareness and attention to intention" (p. 261). Solar (2013) reported how "over the past 30 years MBSR has been researched by the medical and health care community to document the many positive effects experienced by patients" (2013, p. 44). There have been reductions in a variety of psychopathological symptoms using mindfulness techniques while enhancing mental health and well-being (Brown, Ryan, & Creswell, 2007). Hence, over time, advanced practice of mindfulness can also lead to improved metacognition and analysis. The health benefits of mindfulness have been researched over the last 20 years. Heydenfeldt et al. (2011) stated, "mindfulness reduces distress, promotes optimal health, improves attentional control, mental agility, emotional intelligence, and situational awareness" (p. 21). Another important meta-analysis that shows the positive effects of mindfulness in the area of health is one conducted by Anderson, Liu, and Kryscio (2008) where "most of the randomized clinical trials examining the effects of Transcendental Meditation on blood pressure suggest that this practice lowers blood pressure" (p. 315).

In this dissertation study, mindfulness was piloted in seventh-grade physical education classes in a college preparatory high school in Southern California. To enhance school-based prevention and youth development through coordinated social, emotional, and academic learning, Greenberg et al. (2003) explained how short-term preventive interventions produce short-lived results. To ensure that the school-based prevention was well-designed and well-implemented, this pilot study led by a university research team focused on a multiyear implementation plan that involved the school leadership team with a goal to include parents and students in the following years. For the purpose of this dissertation study, the researcher used two of the four surveys administered by the research team.

A randomized clinical trial designed to assess the effect of MBSR for adolescents aged 14 to 18 years with heterogeneous control provided evidence that it may be a beneficial adjunct to outpatient mental health treatment for adolescents. Participants self-reported reduction in the symptoms of anxiety, depression, and somatic distress, and increased self-esteem and sleep quality (Biegel, Brown, Shapiro, and Schubert, 2009). Biegel et al.'s (2009) study explored this manualized intervention that consisted of eight weekly classes, meeting of two hours per week facilitated by two master's degree-level instructors trained in MBSR. The limitations of this study reported by Biegel et al. (2009) were that the sample was largely female, thus a more balanced gender composition would be needed that included the use of a wait list control group and a brief three-month follow-up period that could not measure endurance.

Moreover, in a qualitative study using in-depth interviews to explore context, perceptions, and experiences of 59 participants engaged in MBSR, significant variation in the types and intensity of changes occurring was identified, ranging from a reframing and reduction of daily stressors to transformational shifts in life orientation and well-being (Kerrigan et al., 2011). Kerrigan et al. (2011) identified their study's limitations as the use of a convenience sample and a cross-sectional research design with participants interviewed at only one point in time. A meta-analysis conducted by Chiesa and Serretti (2009) investigated the current evidence about the efficacy of MBSR in healthy subjects, with a particular focus on its benefits for stress reduction. The study concluded that MBSR was able to reduce stress levels in healthy people. The limitations of the study as listed by Chiesa and Serretii (2009) included low-quality studies and use of a waiting list that failed to control for nonspecific factors such as a group support or a teacher's care in a control group. Other limitations were self-rated scales that could be influenced by social desirability and that the participants were mostly Caucasian, undergraduate female students.

In a randomized trial of mindfulness-based cognitive therapy (MBCT-C) for children ages 9 through 13 conducted by Semple, Lee, Rosa, and Miller (2010), participants who completed the program showed fewer attention problems than wait-listed controls, and those improvements were maintained at least three months following the interventions. Their study reported that MBCT-C also shows promise in managing anxiety symptoms and behavior problems in children with clinically elevated levels of anxiety (Semple et al., 2010). Some limitations of this

study were the potential for one or two members of a group to influence treatment effects for other members and that no corrections for multiple analyses were made, thus increasing the possibility of Type I errors. Another randomized control trial assessed whether MBCT is effective in reducing emotional reactivity to social evaluative threat in a clinical sample of 52 participants with recurrent depression (Britton, Shahar, Szepsenwol, & Jacobs, 2012). The study concluded that MBCT was associated with decreased emotional reactivity to social stress, specifically during the recovery (poststressor) phase of the Trier Social Stress Test that measures stress sensitization. The study's limitations as established by Britton et al., (2012) were that the cause of the decreased emotional activity occurred was not addressed, the sample size was small, and it had limited statistical power. Huppert and Johnson's (2010) controlled trial of 155 14- and 15-year-old adolescent boys indicated that the improvement of well-being was related to personality variables (agreeableness and emotional stability), most students reported enjoying and benefitting from the mindfulness training, and 74% said they would like continue with it in the future.

The practice of mindfulness originated in the Eastern traditions with Buddhism, and in the course of its implementation, numerous practitioners have modified the original practice to a more secular version. It is used to study stress reduction, increased awareness, and emotional intelligence in the fields of neuroscience, psychology, and very recently in education. Over all, when mindfulness practices are systematically taught and practiced by adults and children, they increase their situational awareness. Langer (2000) defines it as a

flexible state of mind in which we are actively engaged in the present, noticing new things with sensitivity to context. In this dissertation study, mindfulness serves as an independent variable, namely the students' practicing mindfulness on a regular basis to influence the dependent variables which are their perceptions of their stress levels as the primary focus and their academic performance through their GPA as a secondary focus. The qualitative interviews will address the transference of this practice into other settings.

Implementation Science

The National Implementation Research Network observed through its research that using manuals that clarified interventions and that included model built-in fidelity measures improved the development of evidence-based practices (Bertram et al., 2011). Through complex implementation stages of exploration and adoption, program installation, initial implementation, full operation, innovation, and sustainability, "program implementation should be a data-informed process of knowledge transfer and refinement" (Bertram et al., 2011, p. 719). Recent reviews of implementation literature and best practices acknowledged the recursive process of the stages of implementation focused on achieving benefits for children, families, provider organizations, human service systems, and communities (Fixsen et al., 2009). Fixsen et al. explained how a 2002 study done by Joyce and Showers concluded that training and coaching could only be done with full support and participation of school administrators and worked best with teachers who were willing and able to be fully involved. Hence it is important to use the research in implementation science for

sustainability of any new initiative such as introduction of mindfulness practice at a school setting.

Chapter Summary

Research in the field of mental health has documented a need to provide students with mental health support such as SEL programs within the prevention or universal supports at a school. Though, there is extensive research on using mindfulness as an intervention in the fields of psychology and neurology, there is limited research in providing school-wide training to students to use it as a preventive practice to reduce their stress. To address this gap, in the next chapter I will discuss the research design used to introduce this prevention strategy within a school setting.

CHAPTER 3

RESEARCH METHODOLOGY

In this chapter, I first present the methodology for this study, including a discussion of its philosophical foundations. Next, I provide a description of the research design within my selected methodological approach that I will use in this study. Following the research design, I detail the specific research methods used in this study. This description includes information about the setting; sample; data collection, including instrumentation and procedures; and data analysis. I conclude with a chapter summary.

Mixed Methods Research

To address the complexities of human behavior, especially among adolescents, a more integrated model of research is needed. This dissertation study has used a mixed methods approach in two phases to answer the research questions. To enrich my understanding of the students' experiences, I implemented a more open-ended approach through interviews, integrating both quantitative and qualitative methods. Using this approach, I hoped to provide a more complete view of the relationship between stress and practicing mindfulness in various settings and students' perceptions of their practice.

Research Design

This study will address the use of mindfulness as a prevention strategy to reduce stress among seventh-grade students. An embedded sequential mixed

methods design was used that involved collecting quantitative data in the first phase and then explaining the quantitative results with descriptive qualitative data in the second phase (Creswell, 2009). In the first quantitative phase of the study, survey data were collected from the seventh-grade students at their high school to test whether mindfulness relates to an increase or decrease in their stress levels. The second qualitative phase was conducted as a follow-up to help explain the quantitative results and assess and explain the context of the results (Creswell, Plano, & Clark, 2011). In these follow-up interviews, the tentative plan was to explore the impact and transference of mindfulness in other settings and gauge students' understanding of the meaning of mindfulness. Thus, mixing was through connecting the results from the quantitative survey and exploring these in more depth in the qualitative phase (Creswell, 2009).

A cross-sectional research design was selected for the quantitative phase (Creswell, 2009) of this study. This approach allowed me to investigate the relationship between mindfulness (independent variable) and student-perceived stress and achievement (dependent variables). The intervention, mindfulness training, had not been adopted school-wide and was optional to teachers. Thus, only those teachers who were interested would be teaching mindfulness as an intervention in their P.E. class, thus making a quasi-experimental or experimental design not feasible. I also conducted student interviews to obtain a deeper understanding of the intervention and if, when, and how it was used in other settings.

The intervention was not a traditional academic one, and it required parent consent and student assent. It also required the teacher to be trained and available to practice it regularly. Student achievement data using GPA before and after the intervention was used to analyze the relationship of the treatment to the outcome. A multiple regression model was used to determine the relationship between the independent variable, the intervention, and the dependent variables, student outcomes.

Research Methods

A local preparatory school's (Grades 7-12) leadership team through their data analysis uncovered a need for a stress reduction program for their students. A research team at a local university developed a simple method to train teachers in mindfulness practice of deep breathing (Nhat Hanh, 2011) to be used as a primary prevention. Through a partnership between the university and the school, this practice was piloted in their seventh-grade P.E. classes as a daily "cooling down" routine for students. This dissertation study used archival data collected through this pilot study to examine the relationship between mindfulness and stress and student achievement using the Child and Adolescent Mindfulness Measure (CAMM), Perceived Stress Scale (PSS), and students' GPA data (Cohen, Kamarck, & Mermelstein, 1983; Greco, Baer, & Smith, 2011). The PSS measures the degree to which situations in one's life are appraised as stressful as stated by Cohen et al. (1983). The school's leadership team identified seventh-grade students as those who would benefit the most from the study. The students with prior permission (a nonprobability convenience

sampling) completed paper and pencil CAMM and PSS surveys before the start of the intervention (presurvey) and at the end of 12 weeks (postsurvey). Data were coded and analyzed using statistical software SPSS. Descriptive statistics was used to extract distributions and the relationship between variables, for example, the increase or decrease of the average of students' stress levels before and after intervention. Additional analytical techniques were employed that included *t*-test to measure the impact of the intervention through the pre and post surveys and multiple regression to examine the association between mindfulness and (a) stress levels and (b) student achievement. Student interviews were conducted two weeks after the postsurvey data was collected. The data were transcribed, coded, and predetermined and emerging themes were analyzed for integrated meta-inference.

Setting

This study was conducted at a suburban single-purpose high school serving seventh- through 12th-grade students with a student population of about 1,021. According to the school's SARC report from 2013-14, the school demographics were 5.6% White, 8.5% Hispanic, 2.5% African American, 64.1% Asian, 12.8 Filipino, and 6.5% other ethnicities. The community demographics was 23.1% white, 6.9% African American, 61.9% Hispanic, and the rest were other ethnicities. The male and female percentages were at around 50%. About 19.6% of the school's population was of low socioeconomic status (SES) as measured by the National School Lunch Program. English Learners composed 1.6% of students and 0.05% were students with disabilities. The suspension rate

was reduced from 1.47% in 2011-12 to 1.2% in 2012-13. The school had a 100% graduation rate and an API of 993 in 2013, thus the academic environment is very competitive and students have a tendency to express high levels of stress. The school has included multiple programs and approaches to address the need to increase their student population's social and emotional competence.

Sample

Through data analysis, the school uncovered a need for a stress reduction program for their students. Because research in fields such as psychology and neuroscience has indicated positive outcomes after using mindfulness, a secular mindfulness training content and structure was used in this dissertation study in a school setting. Since the sample included minors, the parents signed an informed consent. The parents were notified in writing in a letter with details about the study, the risks and benefits of the study, the parent's right to refuse, and arrangements for confidentiality. Similarly, the students needed to understand what their role in the research was and to sign an assent form to that effect. The assent form detailed the same information as in the parent's consent form.

The data collection and analysis process was reviewed by the Institutional Review Board (IRB) and approvals were obtained in accordance with Bickman and Rog's (2009) recommendation that "the researcher should employ adequate safeguards of confidentiality, and these should be described in specific terms in the consent statement" (p. 123). The survey data and interviews had identifiers that linked the student responses to student permanent identification numbers. Once this data was matched, the identifiers were removed and recoded.

Data Collection and Management

Mindfulness intervention techniques. The school's leadership team helped identify a nonacademic class, P.E., where students could receive this intervention. Introducing the intervention in any other class would have been difficult to train and coordinate since students have different electives and it would require teachers of various disciplines to find ways to integrate this prevention strategy within their curriculum. Since the P.E. teachers have all the seventh-grade students at the same time, the P.E. class was the obvious choice to prevent master scheduling issues. After the P.E. teachers were presented with mindfulness training and an opportunity to collaborate on how this practice could be used in their class, they identified their cooling down time as the best time to practice mindfulness. Instead of going to the next class warmed up from physical activity, students would practice breathing techniques to relax and be prepared for their next academic class. Thus, this intervention was introduced in their P.E class everyday by their P.E. teachers and twice during the duration of the pilot study in a large setting. An overarching question this dissertation study investigated was if the use of mindfulness as prevention practice helped students reduce their stress and increase their academic achievement.

P.E. teachers were trained on how to teach mindfulness breathing techniques to their students during a half-day professional development session. Two weeks later, all seventh-grade students participated in mindfulness training in their school's auditorium led by the university research team. Students with consent and assent forms were administered a presurvey that took 20 minutes to

complete. Once students completed their surveys, the surveys were collected, the students were led through the concept of mindfulness, a brief introduction on the research, and then they practiced mindfulness breathing techniques. They also were introduced to mindful movement, mindful discussion, and mindful walking. For the mindful movement practice, students were led through two exercises where the students inhaled while raising their arms and exhaled while reversing the movement. These motions were repeated slowly three times. During mindful discussion students were asked to work in pairs. They were given discussion prompts where one student would start discussing their opinion without interruption. Once that the student was done the partner would start the discussion without interruption. They were both then expected to reach a consensus if possible. Students were also taught how to walk mindfully by breathing in and out while taking deliberate steps. During the walking motion students were asked to feel the sensation in their feet and muscles and become aware of their surroundings and their thoughts and emotions. At the end of the training session, students were informed that their teachers would continue the basic breathing technique during cooling down in P.E. After 12 weeks, the research team provided a practice of the same techniques covered in their P.E. classes, administered a postsurvey, and then had students discuss their experiences using mindful listening, speaking, and sharing.

Data collection. For the qualitative data collection, a sample of the same students that participated in the quantitative data collection were interviewed in adherence to the recommendations for a mixed methods study design (Creswell

& Plano Clark, 2011). Participants in this study were incoming seventh-grade students. At this college preparatory, 7-12 high school, students from different elementary schools are invited to attend the high school based on their advanced scores on the CST in both English and math in the previous year. As the year progresses, the academic workload increases, and the previous data had indicated an increase in stress levels of students since they were not accustomed to the rigor of this school. To help students build a repertoire of coping skills and manage their stress effectively, the principal and her leadership team selected their new, incoming seventh-grade students to participate in their mindfulness intervention. To prepare the students and their parents for this new intervention, the school principal explained the mindfulness intervention as a universal stress management offering to the incoming seventh-grade students' parents during their back-to-school night in August 2013. Additionally, the P.E. teachers notified their seventh-grade students during the first two weeks of school in September 2013 about the intervention. The students were given the consent and assent forms with an explanation of the study to take home for signatures if they wanted to participate in the survey portion of this study. The mindfulness intervention would be taught to all seventh-grade students; however, only the students with signed consent and assent forms would participate in the pre and post survey, and a few of the students would be selected for interviews after the postsurvey. Out of the 165 seventh-grade students, 111 consented to participating in the study, representing a response rate of 67%. Out of the 111 students who completed the survey, there were some incomplete surveys in the

pre and post session of data collection. These were eliminated in the final statistical analysis, which included correlations and multiple regressions. As such, there were a total of 84 completed surveys, which was 51% of the seventh-grade student population for both pre and post data collection. The qualitative phase had a small size of 16 students using a purposeful sampling per mixed methods guidelines. The interviews comprised both open and close-ended questions.

Instrumentation. To infer a relationship between the intervention (independent or predictor variable) and the outcomes, two separate survey items were used to measure mindfulness and stress. A CAMM intended for youths over the age of 9 (Greco et al., 2011) and a PSS that has been designed to be used with students who have at least a junior high school education (Cohen & Williamson, 1988) were combined in a paper-pencil format.

In prior trials, the scores on CAMM correlated positively with favorable outcomes in the areas of quality of life, academic competence, and social skills (Greco et al., 2011). It is a 10-item questionnaire that uses a 5-point Likert scale that has been tested for validity and reliability with school-aged children and adolescents to assess present-moment awareness and nonjudgmental, nonavoidant responses to thoughts and feelings (Greco et al., 2011). Some questions that appear on the scale were "I get upset with myself for having feelings that don't make sense," "I push away thoughts that I don't like," and "I stop myself from having feelings that I don't like." The participating student had to indicate the degree they agree with the statement using 1 for *never true*, 2 for

rarely true, 3 for *sometimes true*, 4 for *very often true*, and 5 for *always true* (Appendix A).

The ethnicity of the students was recoded to Asian = 1 and non-Asian = 0, and gender was recoded to female = 0 and male = 1. All the questions on the 5-point CAMM measure were reversed and coded as *never true* = 5, *rarely true* = 4, *sometimes true* = 3, *very often true* = 2, and *always true* = 1. So a higher average score on the CAMM Likert scale suggested that the participant was more mindful. For the PSS measure the Likert scale was *never* = 1, *almost never* = 2, *sometimes* = 3, *fairly often* = 4, and *very often* = 5. The original PSS scale version with 10 items had a Likert scale of 0–4; however, for the purpose of this study and to ensure consistency for students, the scale was change to 1–5 to match the CAMM. Four items on the PSS were reversed so the scale values for those questions were reversed to match the rest of the scale items. A higher score on the PSS scale indicated participants' higher appraisal of their stress levels. The student achievement data were the students' GPA and coded as the average number. After the data was coded and uploaded into SPSS, an exploratory descriptive analysis was conducted to check the accuracy and distribution of the data.

The student interviews were conducted face-to-face after the quantitative data collection to gather more in-depth understanding of what mindfulness means to them and their mindfulness practice in other settings besides the P.E. classroom and school. Some of the questions were "How would you describe

mindfulness?," "How did you feel while practicing mindfulness?," and "How did you feel after practicing mindfulness?"

Procedures. A scale reliability of the survey was measured using Cronbach's alpha. A value of 0.7 to 0.8 was used as an acceptable value (Field, 2009). Student achievement data, such as the first two GPAs (quarter and semester ending), was collected in an Excel format from the school, matched, and then coded for confidentiality and participant anonymity. Only group data was used in the study. Surveys were administered during whole grade level meeting session by the researcher using paper and pencil format. The survey information was then entered into an Excel file. Student achievement data in the form of GPA was also collected in Excel format, matched with the survey data, recoded, and uploaded in SPSS for statistical diagnostics and data analysis. After the quantitative data collection, I conducted face-to-face structured interviews with randomly selected students to elicit views and opinions following the interview protocol (Creswell, 2009). Information from the interviews was recorded using voice memo on an iPhone and by making handwritten notes. The interview data was then transcribed and coded into themes. I then interrelated the themes to the quantitative research questions and interpreted the meaning of themes (Creswell, 2009).

Data Analysis

Once the data from two sources, surveys and database from the school were matched, the data was recoded and uploaded into SPSS for data analysis. Table 1 outlines the data analysis that was conducted using the various data sets

to answer the research questions. First using descriptive statistics, frequency distributions were analyzed. Then, correlation was tested between the independent variables and dependent variables. A regression analysis was then done to examine the relationship between mindfulness and stress and GPA. Since there were multiple predictor variables, multiple regression analysis was executed. The qualitative data was analyzed using latent content analysis (Bickman & Rog, 2009) to triangulate data sources for a sequential mixed analysis. Interviews recorded using voice memos on an iPhone were transcribed to individual Microsoft Word documents. These documents were then uploaded using MAXQDA software. The textual interview data was then coded and analyzed for predetermined and emerging themes. Results from both quantitative and qualitative data analyses were integrated in the meta-inference phase of this study (Bickman & Rog, 2009). The following two multiple regression models will be used for the quantitative phase:

Outcome (Post perceived stress level) = $\beta_0 + \beta_1$ (Ethnicity)+ β_2 (Pre perceived stress level)+ β_3 (Gender)+ β_4 (Post mindfulness level) + ε

Outcome (Post GPA) = $\beta_0 + \beta_1$ (Ethnicity)+ β_2 (Pre GPA)+ β_3 (Gender)+ β_4 (Post mindfulness level) + ε

Table 1

Research Questions with Corresponding Quantitative and Qualitative Methods of Analysis

Research Question	Data	Method of Analysis
1. What is the relationship between mindfulness and perceived stress among 7th graders? 2. What is the relationship between mindfulness and students' grade point averages?	Response to survey items 1 through 10 and 27 through 36 Student achievement data grade point averages (October 2013 and March 2014)	1. Use rating scale to determine mindfulness practice level. Higher score indicates higher degree of mindfulness. 2. Complete a correlation in SPSS to determine relationship between stress, mindfulness, and student achievement scores. 3. Based on existence of a relationship, multiple regression analysis will be used to determine if stress and/or mindfulness contributed to predicting student achievement.
3. In what way are students using mindfulness both in within school and out-of-school settings?	Interview data	1. Thematic analysis 2. Connecting results to quantitative data 3. Meta-inference

Since there are other predictor variables, such as prior achievement, ethnicity, and age, multicollinearity will be tested before the multiple regression

analysis is executed. According to Field (2009), "multicollinearity exists when there is a strong correlation between two or more predictors in a regression model" (p. 233).

Chapter Summary

In this chapter, after introduction of the survey design, the methodological approach of using a pre and post surveys was discussed. I provided details on the sample, the setting, data collection and management, procedures, and how the data would be analyzed. The next chapter will introduce the findings from the quantitative and qualitative data analysis and will connect the findings to address the research questions. The secondary qualitative data plays a supporting role in this study (Creswell, 2009).

CHAPTER 4

FINDINGS

This chapter presents the results of the data analysis. The chapter begins with a restatement of the purpose and research questions, followed by a presentation of the demographic information. Then the findings from the qualitative and quantitative data analysis examining the practice of mindfulness and its relation to adolescent stress and student achievement are presented. The chapter concludes with a summary.

Purpose and Research Questions

The purpose of this research was to introduce and examine the impact of mindfulness as a prevention model for stress reduction among seventh-grade students and it was to also provide these students the benefits of mindfulness practice. The research questions addressed in this study were:

1. What is the relationship between mindfulness and perceived stress among seventh graders?
2. What is the relationship between mindfulness and students' achievement as measured by the students' GPA?
3. In what ways are students using mindfulness both within and out of school settings?

The methodology used in this study was an embedded sequential mixed methods model in which the qualitative method was embedded within a

quantitative design. The primary form of data collection was pre and post surveys on mindfulness and perceived stress levels using a convenience sampling. The secondary form of data collection included interviews with students using a purposeful sampling by the P.E. teachers; this methodology provided a deeper understanding of the results derived from the quantitative data analysis beyond just group differences (Bickman & Rog, 2009). The mixed research methods model appears in Table 2 and illustrates the phases, procedures, and products.

Table 2

Visual Model for Mixed Methods Embedded Sequential Design Procedures

Phase	Procedure	Product
Quantitative data collection ↓	Paper/Pencil Survey *n* = 84	Numeric data
Case selection: Interview protocol development ↓	Purposefully select students	Interview questions
Qualitative data collection ↓	Individual interviews in person	Text data (interview transcript)
Quantitative data analysis ↓	Pre CAMM and PSS Post CAMM and PSS Frequencies *t*-test Multiple Regression IBM SPSS software v.22	Descriptive statistics Multiple regression Correlation
Qualitative data analysis ↓	Coding and thematic analysis Cross thematic analysis MAXQDA software	Codes and themes matrix
Integration of the quantitative and qualitative results	Interpretation and explanation of the quantitative and qualitative data	Discussion Implication Future Research

Adapted from "Diagram for a Study That Used the Explanatory Design," by J. Creswell and V. Plano Clark, 2011, *Designing and Conducting Mixed Methods Research* (2nd ed.), p. 121.

Quantitative Phase

Descriptive Statistics of Participants

Table 3 depicts descriptive statistics that include data from 111 students who had turned in consent and assent forms, out of which 84 were valid with no missing data. Of the students who completed the surveys, 38% were male and 62% were female. The average age of the students was 11.69 years. Of these students, 71% were Asian and 29% were non-Asian. This sample was very close to the school's population, which is 64% Asian and 36% non-Asian. The average score on the 5-point Likert PSS before the intervention was 2.76; the average score was 2.84 12 weeks after the intervention, which shows a slight increase in students' perception of stress. The group's average score on the 5-point Likert CAMM before the intervention was 3.49 while it was 3.43 after the intervention, which shows a small decline in mindfulness. The students' GPA at the start of the intervention during the first quarter was 3.65 and was 3.51 during the third quarter, 12 weeks after the intervention, which indicates a slight decline in their GPA. All nine variables–gender, ethnicity, age, premindfulness, postmindfulness, preperceived stress, postperceived stress, prestudent achievement data, and poststudent achievement data–have skewness scores less than 1.0, indicating normal distribution, so Pearson's coefficient was used to run correlation analysis.

The demographics information the participants responded to were (a) what is your gender, (b) how old are you?, (c) which of the following choices best describes your ethnicity? The options were American Indian or Alaska Native, Asian or Asian American, Black or African American, Native Hawaiian or other,

Pacific Islander, Latino/a, White, Multi-ethnic (please specify), and Other (specify). For improved data analysis, the data on ethnicity was recoded to Asian as 0 and non-Asian as 1.

Table 3

Descriptive Statistics

Description	*N*	Minimum	Maximum	Mean	SD
Gender	107	0	1.0	0.38	0.488
Age	108	1.00	13.0	11.69	1.450
Ethnicity	108	0	1.0	0.71	0.454
Pre CAMM Pre Mindfulness	107	1.90	5.0	3.50	0.65350
Post CAMM Post Mindfulness	94	2.00	5.0	3.44	0.67110
Pre PSS Pre Perceived Stress	110	1.00	4.7	2.77	0.76243
Post PSS Post Perceived Stress	95	1.00	5.0	3.44	0.67110
First Quarter GPA Pre Student Achievement	111	1.18	4.0	3.65	0.50390
Third Quarter GPA Post Student Achievement	110	3.18	4.0	3.52	0.60552
Valid N (listwise)	84				

To test the internal consistency reliability of the two scales PSS and CAMM, the output in Table 4 provides the Cronbach's Alpha of 0.88 for PSS.

Moreover, the internal reliability measured by the alpha coefficient was 0.78 as reported by Cohen and Williamson (1988). Similarly the Cronbach's alpha was 0.81 for CAMM and the internal consistency (coefficient alpha) of the 10-item scale was 0.80 (Greco et al., 2011). Both these values are positive and higher than 0.69, thus acceptable as a measure of reliability (Morgan, Leech, Gloeckner, & Barrett, 2011).

Table 4

Cronbach's Alpha for PSS and CAMM

Type of scale	Number of Valid Items	%	Cronbach's Alpha
Perceived Stress Scale (PSS)	110	96.5	0.880
Children and Adolescent Mindfulness Scale (CAMM)	107	93.9	0.809

Correlation Matrix Analysis

Table 6 demonstrates the correlation between multiple variables, post mindfulness using CAMM data, stress using PSS data, and post student achievement using GPAs. There is a very strong negative correlations between mindfulness and perceived stress $p < 0.001$ for pre and post data with a probability that 0.1% is due to chance. This means that an increase in mindfulness reliably predicts a decrease in stress. There is also a fairly strong

negative association between post perceived stress and post student achievement $p < 0.036$ with a probability that 3% is due to chance. Similarly, if there is a decrease in stress, it can be predicted that student achievement will increase.

In addition, a paired sample *t*-test as demonstrated in Table 5 was used to determine whether there is a significant difference between the average values of the pre and post surveys administered before the start of the intervention and then 12 weeks after the intervention was introduced. The means for the pre and postperceived stress were 2.75 and 2.82 with a *t*-value of 1.38, which exhibited an increase in average stress levels. The same students were present during the administration of both pre and post perceived stress surveys; however, their stress did not increase significantly since the *p* value was 0.216. Similarly, the pre and post mindfulness survey average scores were 3.49 and 3.41, and the *t*-value was -1.2 as shown in Table 5. Even though this indicated a slight decrease in mindfulness, the value was not statistically significant since the *p* value was 0.171. This means that the differences in means are not significant, and thus the intervention did not have an impact. Data in Table 5 also indicated that males were more mindful than females, while females reported higher levels of stress than males. This higher stress levels among females is consistent with findings reported by Cohen and Williamson (1988) using PSS.

Table 5

t-Test to Test Significant Difference Between the Means of Pre and Post Surveys

Pair (2-tailed)	Mean	*SD*	*N*	Correlation	*t*-value	*df*	Sig.
CAMM				0.62	1.38	90	0.17
Mindfulness							
Pre	3.49	0.65	91				
Post	3.41	0.67	91				
Male	3.66						
Female	3.28						
PSS				0.68	-1.26	93	0.22
Perceived Stress							
Pre	2.75	0.73	94				
Post	2.82	0.78	94				
Male	2.56						
Female	3.03						

*Alpha level is set at 0.05.

Table 6

Correlation Matrix N=84

Variables		Gender	Age	Ethnicity	Mindfulness		Perceived Stress		Achievement	
					Pre	Post	Pre	Post	Pre	Post
Age	Pearson	.083								
	Sig. (2-tailed)	.452								
Ethnicity	Pearson	.318**	-.013							
	Sig. (2-tailed)	.003	.905							
Mindfulness (CAMM)										
Pre	Pearson	.102	.100	.067						
	Sig. (2-tailed)	.355	.366	.547						
Post	Pearson	.268*	.062	.125	.623**					
	Sig. (2-tailed)	.014	.575	.258	.000					
Perceived Stress (PSS)										
Pre	Pearson	-.232*	-.116	-.203	-.592**	-.524**				
	Sig. (2-tailed)	.033	.292	.064	.000	.000				
Post	Pearson	-.304**	.032	-.284**	-.515**	-.569**	.716**			
	Sig. (2-tailed)	.005	.769	.009	.000	.000	.000			
Student Achievement										
Pre	Pearson	-.045	-.069	.225*	.100	.005	-.230*	-.136		
	Sig. (2-tailed)	.685	.534	.039	.366	.965	.035	.217		
Post	Pearson	.045	-.072	.274*	.079	-.004	-.171	-.230*	.732*	
	Sig. (2-tailed)	.684	.513	.012	.476	.973	.119	.036	.000	

** Correlation is significant at the 0.01 level (2–tailed)
* Correlation is significant at the 0.05 level (2–tailed)

Multiple Regression Analysis

The second column in Table 7 shows post perceived stress as the dependent variable and the independent variables are pre perceived stress, gender, ethnicity, and post mindfulness. The model used for this outcome is: Outcome (post-perceived stress level or post student achievement) = $\beta_0 + \beta_1$ (Ethnicity)+ β_2 (pre-perceived stress level or pre student achievement)+ β_3 (Gender)+ β_4 (post-mindfulness level) + ε

The sample size for the first dependent variable post perceived stress is reduced to 87 since there were missing scores from multiple participants on one or more variables. Multiple regression uses only the participants who have complete data for all variables (Morgan et al., 2011). There are no issues of multicollinearity since none of the variables are highly correlated with each other. ANOVA shows that the multiple correlation coefficient (*R*), using all the predictors simultaneously, is 0.745 and the adjusted *R* square is 0.534, meaning that 53% of the variance in PSS levels can be predicted from the combination of the post mindfulness, pre perceived stress, ethnicity, and gender. The regression coefficients indicate that only pre-perceived stress level and post-mindfulness level (CAMM) are significant indicators of the post PSS levels since the *p* values are < 0.001.

The third column in Table 7, the output, specifies the dependent variable as the post student achievement and the independent variables were pre grade point average, gender, ethnicity, and post mindfulness where $N = 91$. There are no issues of multicollinearity since none of the variables are highly correlated

with each other. ANOVA shows that the multiple correlation coefficient (*R*), using all the predictors simultaneously, is 0.764 and the adjusted *R* square is 0.564, meaning that 56% of the variance in the post GPA can be predicted from the combination of the CAMM level (Mindfulness intervention), pre student achievement, ethnicity, and gender. The coefficients section of this table indicates that only pre student achievement is a significant indicator of the post student achievement since the *p* value is < 0.001.

Table 7

Multiple Regression – Predictors of Post Perceived Stress (N=87) and Post Student Achievement (N=91)

Variable	Dependent Variable	
	Post Perceived Stress	Post Student Achievement
Constant	2.673**	-0.339
Gender	-0.084	0.055
Ethnicity	-0.204	0.121
Pre Perceived Stress	0.549**	
Post Mindfulness	-0.344**	-0.017
Pre Student Achievement		1.030**
R	0.745	0.764
Adjusted *R* square	0.534	0.564

Note. Predictors for post perceived stress are constant, pre perceived stress, post mindfulness, gender, and ethnicity. The predictors for post student achievement are constant, pre student achievement, post mindfulness, gender, and ethnicity.
** p < .001.

Qualitative Phase

A subset of 16 students out of 96 were interviewed to identify patterns that influenced their need to either stop or continue practicing mindfulness. Nine were female and seven were male students. Data was prepared by transcribing 16 interviews into 16 Word files. The interview transcription was checked for accuracy and then uploaded using MAXQDA, a qualitative data analysis software. After the creation of six themes for coding, each interview file was read and coded into those six themes. Then the data were explored to obtain a general overview of the interview content, confirm the predetermined themes, find connections, check coding, and write short memos.

The interview questions' five predetermined themes were practice of mindfulness in the classrooms, practice of mindfulness outside of classroom and school, participants' feelings before and while practicing mindfulness, participants' feelings after practicing mindfulness, and the frequency of practice. A new theme that emerged out of the qualitative data analysis was on situational awareness, which was discovered when the students described mindfulness and how they applied their practice in different settings and situations. Table 8 includes a matrix of qualitative data of the 16 student participants.

Table 8

Qualitative Data Analysis

Gender	Ethnicity	In class	Out	Activity	Before	During	After	Frequency
Female	Non-Asian	Yes	No	5 finger	Presentation	Calm	Excited	3 times/month
Female	Non-Asian	Yes	No	5 finger	Ran mile	Bit better	Better	Everyday
Female	Non-Asian	Yes	No	5 finger	Volleyball	Neutral	Normal	During test
Female	Non-Asian	Yes	No	None	P.E.	Stressed	Calmer	None
Female	Asian	Yes	No	5 finger	Nervous	Calmer	Better	Daily
Female	Asian	Yes	Yes	5 finger	Ran mile	Relaxed	Calmer	None
Female	Asian	Yes	Yes	Breathe	Mad	Calm	Composed	Every week
Female	Asian	Yes	Yes	5 finger	Flustered	Better	Calmer	When frustrated
Female	Unknown	Yes	No	Breathe Deeply	Test	Calmer	Calmer	None
Male	Asian	Yes	Yes	Pay attention	Nervous	Relaxed Tension	Confident	4-5 times/week
Male	Asian	Yes	Yes	5 finger	Soccer	Ignored People	Enthusiastic	None
Male	Asian	Yes	No	5 finger	Hard Question	Calm & Composed	Better	Once/week
Male	Asian	Yes	Yes	5 finger	Nothing	No feeling	Better	Daily
Male	Asian	Yes	Yes	5 finger	Quiz	Calmed	Relieved	During testing
Male	Asian	No	Yes	None	Project	Relaxed	Confident	Everyday
Male	Unknown	No	No	None	No	No	No	None

In Table 9, the qualitative data have been quantified to provide an understanding of the frequencies of the students' experiences. Out of the 16 students interviewed, 56% were female and 62% were Asian, which is very close to the demographics of the quantitative data. The average score on the perceived stress scale for these 16 students before the intervention was 2.79 and 2.83 after the intervention, so the students' average perception of stress had increased. The average mindfulness score pre intervention was 3.33 while it was 3.55 after the intervention. So their mindfulness practice had increased over the 12 weeks. The students' achievement was 3.70 while post achievement was 3.57, which showed a slight decline. The interviews uncovered that generally, when students were faced with a stressful situation, using mindfulness practice helped them calm down, relax, and be ready for the activity, class, or test.

Table 9

Qualitative Frequencies (N =16)

Description	Frequency	Percentage
Gender		
Male	7	44%
Female	6	56%
Ethnicity		
Asian	10	62%
Non-Asian	4	33%
No response	2	12%
In classroom	14	88%
Out of classroom	8	50%
Mindfulness Activity	13	81%
Activity or experience right before mindfulness practice		
Academic activity	5	31%
Nervousness or Flustered	3	19%
Negative Feeling	1	6%
Sport or P.E.	5	31%
No response/nothing	2	12.5%
Experiences during mindfulness practice		
Calm	6	38%
Relaxed	3	19%
Ignore surroundings	1	6%
Stressed	1	6%
Better	2	12.5%
Neutral/No feeling	2	12.5%
Experiences immediately after mindfulness practice		
Calm/Composed	5	31%
Relieved	1	6%
Better	4	25%
Confident	2	12.5%
Excited/Enthusiastic	2	12.5%
Normal/no difference	2	12.5%

Practice of Mindfulness in the Classroom and Frequency of Practice

When asked if they practiced mindfulness in the classroom, 14 out of the 16 students said they practiced either five-finger breathing, focusing on the breath, or paying attention to the moment in P.E. and other subject areas, such as math, English, and science or whenever they were not focused. When the researcher asked one of the students in which class they practiced mindfulness, the student responded, "I would have to say probably history the most, because that is my most stressful class." Another student said, "any class, math, science, history." One of the students elaborated on how she practices: "So like maybe sometimes when I am tired, you know I would like rest a little bit like catch my breath. I don't do anything really noticeable just breathe in breathe out." Students practiced mindfulness at various frequencies. Some practiced every week, daily, during testing, when frustrated, three times a month, or four to five times a week.

Mindfulness Outside of School

` Half of the participants who were interviewed continued to use mindfulness practice outside of the school setting, primarily at home. One student explained how she used it whenever she was angry at her parents to help her calm down: "At home yes, when I am mad at my parents. Sometimes like, I realize that I am wrong and I just have to learn to control my anger and to do I use mindfulness and I breathe in and out to calm myself." Another example is when a student talked about concentration, "Sometimes when I'm not focused I try to focus like on the task at hand and concentrate on my breathing."

Participants' Feelings While and After Practicing Mindfulness

When asked to think about a time when they practiced mindfulness and express how they felt during practice, they used words such as "calm," "composed," "relaxed," "better," and "neutral," and after practice, they felt "excited," "confident," "enthusiastic," "better," "calmer," "normal," and "relieved." Some of the examples they cited were to cool down after P.E., before a stressful situation, right before testing, when assigned a project, or when they were stressed out about their homework. One student explained, "well like during it I feel actually more composed and calm then during it, it's just, I'm not as tensed up as other kids are when they are finished doing what they are doing." Another student elaborated, " I felt like there is a lot of people around me talking but when I practice it kinda helped me ignore them and I felt calmer." A student shared the following: "It was a good experience I had fun with all the breathing and stuff. And I think some people kinda sometimes find it funny like cheesy like breathing in breathing out but it is actually helpful. It works."

Situational Awareness

This theme emerged from the interviews when students were asked to describe mindfulness. Their responses indicated that they were aware that mindfulness helped them in maintaining focus, being aware of their surroundings, truly knowing their full potential and how to achieve it, ignoring any extraneous tasks, learning how to control their anger, and learning how to cool down and relax through breathing. One of the students said, " I feel more calm and composed like you know I feel this new air around me, I just realize things that probably I wouldn't have before without mindfulness." Though this intervention

was introduced as a cooling down activity in P.E., a student discussed how "I kind of, I sort of calmed down and said I should concentrate on this instead of panicking" when she encountered a very hard question in class. During testing is another time students who were interviewed said they tend to use mindfulness: "In English once we were going to have a quiz. I wasn't really prepared for the quiz. I didn't know what was going to be on the subject. So then I used the 5 finger, and I kinda calmed myself down. After the quiz, I felt relieved. Since I calmed myself down, I was able to do better than it would have been if I was stressed."

Chapter Summary

The most significant findings from quantitative data included the following: the average score on the PSS score before the intervention was 2.76 and was 2.84 after the intervention. The average stress level had increased. The CAMM score before the intervention was 3.49 and 3.43 after the intervention, in other words, mindfulness had decreased. The students' average GPA was 3.65 at the start of the intervention and 3.51 at the end of the 12 weeks of intervention, thus their achievement scores decreased. A negative association was identified between post mindfulness level and post perceived stress level, which indicated that the more mindful a student is, the less stressed they are likely to be. Similarly, there was a strong negative correlation between postperceived stress level and post average student achievement score. The regression analysis identified mindfulness as a significant predictor of stress levels, which means that a higher level of mindfulness correlates with a lower level of stress. The most significant qualitative findings were that half of the students who were interviewed

used mindfulness practices outside of school, mostly at home, though the quantitative findings pointed toward less mindfulness and increased stress levels after the intervention. Additionally, a new theme of being aware of the situation to use mindfulness effectively emerged from the qualitative data analysis. In the next chapter, I will discuss my interpretation of these findings and how they impact future research, policy, and practice.

CHAPTER 5

DISCUSSION

This chapter presents a discussion and interpretation of the findings of this study. This chapter is organized into five sections: (a) overview of the study; (b) discussion and interpretation of the findings, in view of the literature, and conclusions; (c) strengths and limitations of the study; (d) implications and recommendations for future research; and (e) a concise summary of the dissertation.

Overview of the Study

The purpose of this research was to introduce and assess the effectiveness and impact of mindfulness as a prevention model to help new, incoming seventh-grade students cope with stress. Students were asked to self-report using two previously tested and validated reliable scales: CAMM to measure mindfulness and PSS to measure perceptions of stress. The students' GPAs were also used to examine the relationship between the mindfulness intervention and student achievement. Sixteen students were selected by their teachers for individual in-person follow-up interviews to help the researcher obtain a deeper understanding of what the students felt before, during, and after practicing mindfulness; alternatively one can visualize the interviews as a close-up picture that provides great detail (Cook & Cook, 2008). The study was largely influenced by Langer (1990, 1993, 2000), Langer and Moldoveanu (2000a,

2000b) , Langer, Djikic Pirson, Madenci, and Donohue (2010), Seligman, Steen, Park, and Peterson (2005), Seligman et al. (2009), Semple et al. (2005), Semple et al. (2010), Greenberg and Harris (2012) and Kabat-Zinn's (2003) research in mindfulness and Rollin, Arnold, Solomon, Rubin, and Holland's (2003) work on stress management. Mindfulness as used in this study is the awareness that emerges through paying attention on purpose, in the present moment, and nonjudgmentally to the unfolding experience moment by moment (Kabat-Zinn, 2003).

The stimulus for this study was the researcher's previous professional experience at a middle school site where there was a dire need for a social and emotional learning curriculum or practice that was simple to implement and sustain and which produced positive student outcomes. Collaboration with a university research lead investigator in mindfulness promulgated the researcher's interest in finding a school site that would consider a long-term commitment with the university and the researcher and that had assessed and identified a high need for such an intervention. During the start of the study, the researcher discovered that there were very few evidence-based research studies conducted in education with mindfulness practice as prevention. The intervention had been applied in individual settings by therapists, usually after a diagnosis. Strongly influenced by this gap in research, the researcher focused on using the practice with a large group of students to help them reduce their stress.

The conceptual framework for this study was captured through four concepts: (a) effects of stress, (b) role of prevention within the context of social and emotional learning, (c) effects of mindfulness practices, and (d) science of

implementation. A population of 165 seventh-graders participated in learning mindfulness practices led by three P.E. teachers and the university research team. Of these, there were 84 valid surveys with a 51% response rate. The dissertation study was guided by three research questions:

1. What is the relationship between mindfulness and perceived stress among seventh graders?
2. What is the relationship between mindfulness and students' achievement measured by their GPA?
3. In what ways are students using mindfulness both within and out of school settings?

The researcher used CAMM, the mindfulness scale, to assess students' perception of their mindfulness levels before and after the intervention. The perceived stress scale measure was also used to gauge the perceptions of students with regard to their stress levels. The results of these surveys were used to address the first question. The GPA data and CAMM results were used to address the second question. And the interview data analysis was used to answer the third question. Descriptive statistics, including frequencies, means, and distributions, were calculated to address Research Questions 1 and 2. Multiple regression analyses were used to determine the degree to which mindfulness predicted students' perceptions of stress and their academic outcomes to answer the first two questions. The interviews contradicted the findings on the average stress and mindfulness levels before and after the intervention (descriptive statistical data) and the impact of the stress (*t*-test).

Discussion and Interpretation of Findings

The first research question, "What is the relationship between mindfulness and perceived stress among seventh graders?," can be answered by the results of the correlation matrix, the paired *t*-test for PSS and CAMM, and multiple regression using post perceived stress as a dependent variable. The correlation analysis indicated a strong negative association between mindfulness and perceived stress with a *p* value of <0.001, which indicates that there is a 0.1% possibility that this relationship is by chance. Similarly, the multiple regression analysis predicted that 52% of the variance in perceived stress levels can be derived from the combination of post mindfulness, pre perceived stress level, ethnicity, and gender. However, the paired *t*-test reported means for the pre and post perceived stress as 2.75 and 2.82 with a *t* value of 1.38 while the pre and post for mindfulness as 3.49 and 3.41 with a *t* value of -1.2. The differences in the means of the two pre and post surveys were not significant, and the intervention according to the data did not have an impact. I speculate that there are a few reasons for this unexpected result. Cohen and Williamson (1988) suggested that because of levels of perceived stress are usually influenced by daily hassles, major events, and changes in coping resources, the predictive validity of PSS wears off after four to eight weeks. So when the same students took the PSS survey after 12 weeks, their perceptions were unrelated to their experiences when they first started school. Their workload had increased, they had a major event happening on campus that day, and their needs and expectations were very different from their experiences at the elementary schools or their initial few weeks at the new high school. Also, the qualitative data

analysis showed that the students were stressed at that time due to testing and other academic demands. Since the PSS measures the perceived degree to which environmental demands exceed ability to cope (Cohen & Williamson, 1988), it can be concluded that despite mindfulness practices, the environmental demands were higher than usual at that time. Another important consideration could be that the universal mindfulness intervention may have not be sufficient for the students who scored very high on the PSS. They may have had some other deep-rooted trauma or serious history that would require more intensive interventions to counteract their stress levels. The only way we could have tested that definitively was with a control group. I venture to postulate that the stress levels would have been higher than what was found during our post data collection because students were able to use mindfulness as a stress management strategy. Though according to Cohen and Williamson (1988) "PSS is especially appropriate in studies investigating factors influencing or influenced by stress appraised" (p. 37), Cook and Cook (2008) explained how participants' self reports on a survey might not always accurately reflect actual behavior. However, there is research that supports the utility of PSS and proves it is a valid measure of perceived stress.

The second research question, "What is the relationship between mindfulness and students' achievement measured by their GPA?," can be answered by the results of the correlation matrix, the paid *t*-test for PSS and CAMM, and multiple regression analysis using post student achievement as the dependent variable. Greco et al. (2011) suggested that future research needed to be conducted to examine the sensitivity of CAMM in detecting treatment effects

and to identify mechanisms of change. The correlation analysis specified a negative relationship between post student achievement and post mindfulness; however, this was not a statistically significant relationship since the *p* value was 0.973. The multiple regression results for post student achievement indicated 56% of its variance can be predicted from a combination of mindfulness, pre student achievement, ethnicity, and gender; however, only pre student achievement is a significant indicator of post student achievement at $p >$ .001 level. If a student has had a high GPA, he or she is likely to score high in the future. It can be thus concluded that there is a relationship between student achievement and mindfulness, but it is not statistically significant. Multiple factors could be attributed to these results. One factor could be the small sample size of students. Since the average mindfulness levels of students were lower at the end of 12 weeks, it could be due to the fidelity of the intervention. The researcher did not include an effective fidelity tool to measure the effectiveness of the implementation of the intervention, due to time constraints. Furthermore, the teachers were trained on the intervention for one half day and were expected to implement daily starting in three weeks after the training. The reduced mindfulness of the students could be attributed to this limited training and practice and delay. Another important perspective could be that during the time students were surveyed, which is 12 weeks after the start of the intervention and about 16 weeks into their school year, students historically are very high stressed and would not intuitively use stress management strategies without explicitly being trained in using it in different settings.

The conclusions gleaned from the quantitative data analysis were unexpected, which led to the need to conduct the qualitative phase data analysis to obtain a more in-depth understanding of such findings. The third research question, "In what ways are students using mindfulness both within and out of school settings?," can be answered by the qualitative cross thematic analysis. Prior research in using mindfulness suggested that being more mindful could help reduce stress and anxiety. In the qualitative analysis (N = 16), 88% of the students practiced mindfulness in the classroom, 50% practiced it outside of school, and 81% of the students tried a variety of different mindfulness practices. In addition to using mindfulness in P.E., students practiced it to help them cope with stressful academic activities, such as testing, and other tasks, such as projects and presentations, when they had a negative feeling or when they were nervous or flustered. Nearly 87% of the students felt either calm and composed, relieved, better than before, confident, excited, or enthusiastic after practicing mindfulness for a few minutes.

Environmental factors changed substantially for the seventh-grade students in the 12 weeks during which the interventions were introduced and practiced by the students and then examined by the researcher. The quantitative aspect of this correlational survey does not test the contextual factors that could impact the intervention and student outcomes. A controlled experimental study would account for the changes in the environment or contextual factors. However, the qualitative phase of this study did help the researcher explain the quantitative findings in light of the contextual issues and student experiences that could not be explained by the quantitative results. Historically the stress during

this time could be very high and there could be a substantial drop in student achievement; however, the intervention could have helped keep the stress levels and drop in achievement lower than usual. However, without a baseline data at the same time from a previous year or a control group, it is not a conclusive statement but a theory. In conclusion with the cross thematic data analysis, the findings have provided support for the effectiveness of the intervention to help students use these simple mindfulness practices when confronted with stressful situations whether at home or at school, though this impact could not be conclusively supported by the quantitative data analysis.

Strengths and Limitations of the Study

There were several strengths of this study as well as several limitations to consider relative to its findings. Strengths and limitations are discussed below.

Strengths of the Study

One of the greatest strengths of this study was the willingness of the high school to open their doors to researchers and to implement a fairly new and promising practice in education especially at the universal, prevention level with a larger group. The leadership team, the P.E. teachers, and the seventh-grade students were very receptive to the new intervention and welcomed the training and practice. They were very accommodating with their time despite the multiple times the university team and researcher had to collect survey and interview data and provide training. Thus, the school established ties with the university and the researcher and the students received training of an effective stress management practice as determined through the qualitative data analysis.

The mixed methods research design was another strength of this study. In the beginning, during the literature review and due to the time constraints of this study, the researcher had originally planned to focus only on a correlational survey quantitative study. However, after recommendations from the committee, a mixed methods design was used which brought to light thoughts, feelings, and extended learning opportunities of students who practiced mindfulness that would not have been revealed through just a quantitative study. Though the results of the quantitative study has not conclusively shown positive impact of the intervention, the qualitative aspect of the study presented the intervention to be a promising practice for stress management among adolescents. This study can be a pathway for a more controlled experimental study using randomized control trials to test the effectiveness of the simple and easy-to-implement intervention as designed.

A large group of students that received the intervention in a nonacademic setting, such as P.E., is also another strength of the study. Very few research studies have been conducted where mindfulness has been taught school-wide or to a complete grade level. This study included this type of intervention with a larger body of students and in a nontraditional setting like the P.E. class, giving students an opportunity to see the intervention used in P.E. by their teachers and their peer leaders who lead the warming up and cooling down exercises.

Using previously researched and validated instruments to measure stress and mindfulness also added to the strengths of this study. Greco et al.'s (2011) results suggested that CAMM is a developmentally suitable measure of mindfulness skills for school-aged children and adolescents with acceptable

internal consistency. This dissertation study also provided an avenue to test the sensitivity of the CAMM scale to treatments such as the mindfulness intervention, which was one of the recommendations for future research by Greco et al. (2011). Cohen and Williamson (1988) suggested that the PSS could be used to assess whether a factor known to moderate stress–illness relations impacted the appraisal of stress in this survey. In this study, this factor was the mindfulness intervention.

Finally, another strength of the study was the ease of implementation. Implementation research recommends that any new initiative should be introduced in schools with long-term planning, coaching, and evaluation using data to ensure sustainability. Thus the new intervention, program, or initiative should be easy to implement. The mindfulness intervention was designed intentionally to be brief, easy to implement, cost-effective, and practical. According to Greenberg and Harris (2012) brief forms of mindfulness practice, such as sustaining focus of attention on the breath, may help children's social skills and school-related functioning.

Limitations of the Study

Several limitations much be considered when reviewing this research. Some of the limitations are also the strengths of the study. There was a time constraint issue due to the nature of the dissertation study timeline, and thus the intervention could not extend beyond 12 weeks. Greenberg and Harris (2012) had recommended a longer term follow-up of last least six months.

Also having students take the CAMM and the PSS surveys at multiple points during the intervention with a control and experimental group would have

strengthened the study's design. Increasing the number of students participating in the study and thus increasing the sample size may have had an impact on the results.

The interview protocol and tool were developed in advance. During the interview the researcher realized that the questions, though open-ended, did not lend themselves to a narrative response. Some responses were answered with "yes" or "no" by the students, making them closed ended. This limited the quality of responses in the qualitative phase of the study. Adding the question "What are some ways you use mindfulness in other settings such as your home?" might have elicited a more in-depth response, which would have improved the conclusion to the third research question.

Another limitation was not interviewing the staff as part of the dissertation study data collection. This was not done because a tool was not established at the time of the IRB approval process. Staff interviews would have provided a context for some of the environmental factors uncovered during the data collection. Having this information could have provided a better understanding of the teachers' perceptions of the students' stress levels at certain times and during certain events in the year.

Implications and Recommendations

Research had indicated that very few trials were conducted with universal populations and most studies suffer from problems in design, sample size, and measurement, reducing confidence in their findings (Greenberg & Harris, 2012). They also suggested greater integration of studies using a comprehensive logic model, which has been the basis for the mixed methods model in this dissertation

study. The results of the quantitative phase of the study indicated that the students were not more mindful after the intervention, though the qualitative data emphasized an increase in awareness of oncoming stress and usage of mindfulness to help reduce stress. This conclusion is in alignment with Greenberg and Harris's (2012) analysis; they concluded that limited exposure to mindfulness practice might initially increase awareness of stress and emotional experience before observable benefits occur.

Implications for Practitioners and Policy

Social and emotional learning is an important aspect of a student's growth. The qualitative phase of this study painted a picture of students using strategies to help them cope with the various indicators of stressful events or situations in their lives. Bearing in the mind the high levels of stress and the adverse results of not addressing these risk factors in our society, it is an important consideration as we plan our students' future through our school, district, county, and state educational plans. The Local Control Accountability planning process has provided districts some sort of autonomy to plan and receive funding for positive student outcomes in the areas of academics, behavior, and social and emotional learning. The results of this study could help districts find interventions that will help fulfill one of the needs of our students.

Fixsen et al. (2009) asserted that human services implementation is very complex because the practitioner is the intervention and the desirable outcomes are achieved only when effective programs are implemented well. In the case of this dissertation study, the impact, intensity, and duration of the mindfulness practice fell on the P.E. teachers' shoulders. To help with fidelity of

implementation, in addition to the training provided initially, the P.E. teachers could have received periodic coaching by the researcher and the university team. Fixsen et al. (2009) explained how a coach provides advice, encouragement, and opportunities to practice and use skills specific to the innovation. Thus, providing this additional coaching support would have helped teachers evaluate the intervention progressively and, if needed, make changes and adjustments to how it was being implemented. The intervention was introduced and implemented from October 2013 through February 2014, while research has shown that it often takes years to develop an implementation site and a few more years to adjust strategies for sustainability (Fixsen et al., 2009).

Recommendations for Future Research

One important recommendation would be to ensure that a tiered system of mindfulness intervention is established to address the different levels of needs of students in relation to stress. Using the PSS scores as a baseline, three levels of intervention, such as universal, early intervention, and intensive intervention, can be determined. Thus all the students would receive the five-minute practice during P.E.; the students who need more support would work in small groups with their advisors, using the mindfulness curriculum developed by the university research team, and the students who need intensive support could practice the mindfulness activities individually with their counselors.

Another recommendation would be to ensure that a fidelity tool is developed and used to evaluate the implementation of the intervention. Furthermore, the training of the teachers would need to be revisited a few more

times during the year as a refresher and an opportunity for them to provide feedback on the intervention and make suggestions.

As indicated in the researchers' conclusion of findings, this mixed methods study can be used as guiding research that has laid some groundwork by suggesting a nearly causal relationship between mindfulness practices as an intervention in schools and the desired outcome of a reduction in students' appraisal of their stress levels is likely. For a practice or program to be considered evidence-based, two or more randomized group designs is a requirement (Fixsen et al., 2009), therefore, I would recommend that a randomized control trial be conducted at the current school or a school that is interested in long-term implementation. Thus, even if the control group participants do not receive the intervention during the first year of implementation, they will receive the benefits of the intervention in the following year after the completion of the experimental study.

Summary of the Dissertation

This dissertation was one of only a few studies that examined mindfulness as a stress reduction prevention practice during P.E. among adolescents using a mixed methods inductive inquiry. Children who experience prolonged stressors may demonstrate amplified levels of risky behaviors such as early sexual activity, drug and alcohol abuse, suicide, and lower achievement in school and dropout (Huber, Sifers, Houlihan, and Youngblom, 2012). Stress is a real, urgent, and critical issue in our society and providing our students with a toolkit of strategies and practices to mitigate the effects of stress should be an important consideration when building schools' response to intervention or multi-tiered

system of supports and as an integral part of the school district's Local Control Accountability Plan to ensure the needs of our students are addressed comprehensively.

REFERENCES

Anderson, J., Liu, C., & Kryscio, R. (2008). Blood pressure response to transcendental meditation: A meta-analysis. *American Journal of Hypertension*, *21*(3), 310-316.

Bartos, A. (2012). Children caring for their worlds: The politics of care and childhood. *Political Geography*, *31*(3), 157-166.

Bertram, R., Suter, J., Bruns, E. , & O'Rourke, K. (2011). Implementation research and wraparound literature: Building a research agenda. *Journal of Child and Family Studies, 20*(6), 713-725.

Bickman, L. & Rog, D. J., Eds. (2009). *The SAGE handbook of applied social research methods*. Thousand Oaks: Sage.

Biegel, G., Brown, K., Shapiro, S., & Schubert, C. (2009). Mindfulness-based stress reduction for the treatment of adolescent psychiatric outpatients: A randomized clinical trial. *Journal of Consulting and Clinical Psychology*, *77*(5), 855-866.

Bremner, J. (1999). Does stress damage the brain? *Biological Psychiatry, 45*(7), 797-805.

Brent, D. (2011). Preventing youth suicide: Time to ask how. *Journal of the American Academy of Child and Adolescent Psychiatry, 50*(8), 738-740.

Britton, W., Shahar, B., Szepsenwol, O., & Jacobs, W. (2012). Mindfulness-based cognitive therapy improves emotional reactivity to social stress: Results from a randomized controlled trial. *Behavior Therapy*, *43*(2), 365-380.

Brown, K., & Ryan, R. (2004). Perils and promise in defining and measuring mindfulness: Observations from experience. *Clinical Psychology: Science & Practice*, *11*(3), 242-248.

Brown, K., Ryan, R., & Creswell, J. (2007). Target article: Mindfulness: Theoretical foundations and evidence for its salutary effects. *Psychological Inquiry*, *18*(4), 211-237.

Cahn, B., & Polich, J. (2006). Meditation states and traits: EEG, ERP, and Neuroimaging Studies. *Psychological Bulletin*, *132*(2), 180-211.

Carrion, V., Weems, C., & Reiss, A. (2007). Stress predicts brain changes in children: A pilot longitudinal study on youth stress, posttraumatic stress disorder, and the hippocampus. *Pediatrics, 119*(3), 509-516.

Chiesa, A., & Serretti, A. (2009). Mindfulness-based stress reduction for stress management in healthy people: A review and meta-analysis. *Journal of Alternative & Complementary Medicine, 15,* 593–600Cohen, S., Kamarck, T., & Mermelstein, R. (1983). A Global Measure of Perceived Stress. *Journal Of Health & Social Behavior*, *24*(4), 385-396.

Cohen, S., & Williamson, G. (1988). Perceived stress in a probability sample of the United States. In S. Spacapan & S. Oskamp (Eds.), *Social psychology of health: The Claremont symposium on applied social psychology* (pp. 31-67). Thousand Oaks, CA: Sage.

Cook, B., & Cook, L. (2008). Nonexperimental quantitative research and its role in guiding instruction. *Intervention in School and Clinic, 44*(2), 98-104.

Creswell, J. W. (2009). *Research design: Qualitative, quantitative, and mixed methods approaches* (3rd ed.). Los Angeles, CA: Sage.

Creswell, J. W., & Plano Clark, V. L. (2011). *Designing and conducting mixed methods research* (2nd ed.). Los Angeles, CA: Sage.

Davidson, R., & Begley, S. (2012). *The emotional life of your brain: How its unique patterns affect the way you think, feel, and live--And how you can change them*. New York, NY: Hudson Street Press.

Davidson, R., Dunne, J., Eccles, J., Engle, A., Greenberg, M., Jennings, P., . . . Vago D. (2012). Contemplative practices and mental training: Prospects for American Education. *Child Development Perspectives, 6*(2), 146-153.

Debnam, K., Pas, E., & Bradshaw, C. (2012). Secondary and tertiary support systems in schools implementing school-wide positive behavioral interventions and supports: A preliminary descriptive analysis. *Journal of Positive Behavior Interventions, 14*(3), 142-152.

Durlak, J. A., Weissberg, R. P., Dymnicki, A. B., Taylor, R. D., & Schellinger, K. B. (2011). The impact of enhancing students' social and emotional learning: A meta-analysis of school-based universal interventions. *Child Development, 82*(1), 405-432.

Eber, L., Barrett S., & Weist, M. (2013). *Advancing education effectiveness: Interconnecting school mental health and school-wide Positive Behavioral Interventions and Supports* (p. 86-107). Eugene, OR: University of Oregon

Felitti, V. (2009). Adverse childhood experiences and adult health. *Academic Pediatrics, 9*(3), 131-132.

Felitti, V., Anda, R., Nordenberg, D., Williamson, D., Spitz, A., Edwards, V., . . . Marks, J. (1998). Relationship of childhood abuse and household dysfunction to many of the leading causes of death in adults. The adverse

childhood experiences (ACE) study. *American Journal of Preventive Medicine,14*(4), 245-258.

Field, A. (2009). *Discovering statistics using SPSS* (3rd ed.). London, England: Sage.

Fixsen, D., Blase, K., Naoom, S., & Wallace, F. (2009). Core implementation components. *Research on Social Work Practice, 19*(5), 531-540.

Flaherty, E. G., Thompson, R., Litrownik, A.J., Zolotor, A. J., Dubowitz, H., Runyan, D. K., ... Everson, M. D. (2009). Adverse childhood exposures and reported child health at age 12. *Academic Pediatrics, 9,*150-156.

Fredrickson, B. (2003). The value of positive emotions: The emerging science of positive psychology is coming to understand why it's good to feel good. *American Scientist*, *91*(4), 330-335.

Gould, L., Dariotis, J., Mendelson, T., & Greenberg, M. (2012). A school-based mindfulness intervention for urban youth: Exploring moderators of intervention effects. *Journal of Community Psychology*, *40*(8), 968-982.

Gould, M., Greenberg, T., Velting, D., & Shaffer, D. (2003). Youth suicide risk and preventive interventions: A review of the past 10 years. *Journal of the American Academy of Child and Adolescent Psychiatry*, *42*(4), 386-405.

Greco, L., Baer, R., & Smith, G. (2011). Assessing mindfulness in children and adolescents: Development and validation of the child and adolescent mindfulness measure (CAMM). *Psychological Assessment*, *23*(3), 606-614.

Greenberg, M., & Harris, A. (2012). Nurturing mindfulness in children and youth: Current state of research. *Child Development Perspectives, 6*(2), 161-166.

Greenberg, M., Weissberg, R., O'Brien, M., Zins, J. , Fredericks, L. , Resnik, H., & Elias, M. (2003). Enhancing school-based prevention and youth development through coordinated social, emotional, and academic learning. *The American Psychologist, 58*(6-7), 466-474.

Heydenfeldt, J., Herkenhoff, L., & Coe, M. (2011). Cultivating mind fitness through mindfulness training: Applied neuroscience. *Performance Improvement*, *50*(10), 21-27.

Himelstein, S., Hastings, A., Heery, M., & Shapiro, S. (2012). Mindfulness training for self-regulation and stress with incarcerated youth: A pilot study. *Probation Journal, 59*(2), 151-165.

Howard-Pitney, B., LaFramboise, T. D., Basil, M., September, B., & Johnson, M. (1992). Psychological and social indication of suicide ideation and suicide attempts in Zumi adolescents. *Journal of Consulting Psychology, 60,* 473-476.

Hoyle, C., Marshall, K., & Yell, M. (2011). Positive behavior supports: Tier 2 interventions in middle schools. *Preventing School Failure*, *55*(3), 164-170.

Huber, R., Sifers, S., Houlihan, D., & Youngblom, R. (2012). Teacher support as a moderator of behavioral outcomes for youth exposed to stressful life events. *Education Research International*, 2012, 1-10.

Huppert, F. A., & Johnson, D. M. (2010). A controlled trial of mindfulness training in schools: The importance of practice for an impact on well-being. *The Journal of Positive Psychology: Dedicated to furthering research and promoting good practice*, 2010, 264-274.

Jennings, P., Snowberg, K., Coccia, M., & Greenberg, M. (2011). Improving classroom learning environments by cultivating awareness and resilience in education (CARE): Results of two pilot studies. *Journal of Classroom Interaction*, *46*(1), 37-48.

Johnson, T. W., & Reed, R. F. (2012). *Philosophical Documents in Education.* (4th ed.). Upper Saddle River, NJ: Pearson.

Joyce, B., & Showers, B. (2002). *Student achievement through staff development* (3rd ed.). Alexandria, VA: Association for Supervision and Curriculum Development.

Kabat-Zinn, J. (2003). Mindfulness-based interventions in context: Past, present, and future. *Clinical Psychology: Science & Practice*, *10*(2), 144-156.

Kaplan, D., Liu, R., & Kaplan, H. (2005). School related stress in early adolescence and academic performance three years later: The conditional influence of self expectations. *Social Psychology of Education*, *8*(1), 3-17.

Kerrigan, D., Johnson, K., Stewart, M., Magyari, T., Hutton, N., Ellen, J. M., & Sibing, E. M. S. (2011). Perceptions, experiences, and shifts in perspective occurring among urban youth participating in a mindfulness-based stress reduction program. *Complementary Therapies in Clinical Practice, 17*(2), 96-101.

Lane, K., Menzies, H., Ennis, R., & Bezdek, J. (2013). School-wide systems to promote positive behaviors and facilitate instruction. *Journal of Curriculum and Instruction,* 7(1), 6-31.

Langer, E. (1990). Mindfulness. *American Health (0730-7004)*, *9*, 54-7004.

Langer, E. (1993). A mindful education. *Educational Psychologist*, *28*, 43-50.

Langer, E. (2000). Mindful learning. *Current Directions in Psychological Science*, *9*(6), 220-223.

Langer, E., & Moldoveanu, M. (2000a). The construct of mindfulness. *Journal of Social Issues*, *56*(1), 1-9.

Langer, E., & Moldoveanu, M. (2000b). Mindfulness research and the future. *Journal of Social Issues*, *56*(1), 129-139.

Langer, E., Djikic, M., Pirson, M., Madenci, A., & Donohue, R. (2010). Believing is seeing. *Psychological Science*, *21*(5), 661-666.

Lewis, T., & Sugai, G. (1999). Effective behavior support: A systems approach to proactive schoolwide management. *Focus on Exceptional Children*, *31*(6), 1-24.

Meiklejohn, J., Phillips, C., Freedman, M., Griffin, M., Biegel, G., Roach, A., & Saltzman, A. (2012). Integrating mindfulness training into K-12 education: Fostering the resilience of teachers and students. *Mindfulness, 3*(4), 291-307.

Mendelson, T., Greenberg, M., Dariotis, J., Gould, L., Rhoades, B., & Leadf, P. J. (2010). Feasibility and preliminary outcomes of a school-based mindfulness intervention for urban youth. *Journal of Abnormal Child Psychology*, *38*(7), 985-994

Middlebrooks, J., & Audage, N. (2008). *The Effects of childhood stress on health across the lifespan.* Atlanta, GA: Centers for Disease Control and Prevention, National Center for Injury Prevention and Control. Retrieved from: http://www.cdc.gov/ncipc/pub-res/pdf/childhood_stress.pdf

Modzeleski, W., Mathews-Younes, A., Arroyo, C., Mannix, D., Wells, M., Hill, G., & Murray, S. (2012). An introduction to the safe schools/healthy students' initiative. *Evaluation and Program Planning, 35*(2), 269-272.

Morgan, G. A., Leech, N. L., Gloeckner, G. W., & Barrett, K. C. (2011). *IBM SPSS for introductory statistics: Use and interpretation* (4th ed.). New York, NY. Routledge.

Moskowitz, A., Stein, J., & Lightfoot, M. (2013). The mediating roles of stress and maladaptive behaviors on self-harm and suicide attempts among runaway and homeless youth. *Journal of Youth and Adolescence, 42*(7), 1015-1027.

Nhat Hanh, T. (2011). Planting seeds : Practicing mindfulness with children. Berkeley, CA : Parallax Press

Nidich, S., Mjasiri, S., Nidich, R., Rainforth, M., Grant, J., Valosek, L., . . . Zigler R. L. (2011). Academic achievement and transcendental meditation: A study with at-risk urban middle school students. *Education, 131*(3), 556-564.

Noddings, N. (2007). *Philosophy of education.* Boulder, CO: Westview Press.

Park, M., & Vo, D. (2008). Stress and stress management among youth and young men. *American Journal of Men's Health, 2*(4), 353-366.

Peterson, J., Duncan, N., & Canady, K. (2009). A longitudinal study of negative life events, stress, and school experiences of gifted youth. *Gifted Child Quarterly, 53*(1), 34-49.

Rollin, S., Arnold, A., Solomon, S., Rubin, R., & Holland, J. (2003). A stress management curriculum for at-risk youth. *Journal of Humanistic Counseling, Education and Development, 42*(1), 79.

Rollin, S. A., Rubin, R., Marcil, R., Ferullo, U., & Buncher, R. (1995). Project KICK: A school-based drug education health promotion research project. *Counseling Psychology Quarterly, 8*(4), 534-539.

Scales, M., Monahan, J., Rhodes, N., Roskos-Ewoldsen, D. , & Johnson-Turbes, A. (2009). Adolescents' perceptions of smoking and stress reduction. *Health Education & Behavior*, *36*(4), 746-758.

Schraml, K., Perski, A., Grossi, G., & Makower, I. (2012). Chronic stress and its consequences on subsequent academic achievement among adolescents. *Journal of Educational and Developmental Psychology*, 2(1), 69.

Seligman, M., Ernst, R., Gillham, J., Reivich, K., & Linkins, M. (2009). Positive education: Positive psychology and classroom interventions. *Oxford Review of Education, 35*(3), 293-311.

Seligman, M., Steen, T., Park, N., & Peterson, C. (2005). Positive psychology progress: Empirical validation of interventions. *The American Psychologist, 60*(5), 410-421.

Semple, R., Lee, J., Rosa, D., & Miller, L. (2010). A randomized trial of mindfulness-based cognitive therapy for children: Promoting mindful

attention to enhance social-emotional resiliency in children. *Journal of Child and Family Studies*, *19*(2), 218-229.

Semple, R. J., Reid, E. G., & Miller, L. (2005). Treating anxiety with mindfulness: An open trial of mindfulness training for anxious children. *Journal of Cognitive Psychotherapy*, *19*(4), 379-392.

Siegel, D. (2007). Mindfulness training and neural integration: Differentiation of distinct streams of awareness and the cultivation of well-being. *Social Cognitive Affective Neuroscience, 2*(4), 259-263.

Simonsen, B., Sugai, G., & Negron, M. (2008). Schoolwide positive behavior supports: Primary systems and practices. *TEACHING Exceptional Children*, *40*(6), 32-40.

Solar, E. (2013). An alternative approach to behavior interventions: Mindfulness-based stress reduction. *Beyond Behavior*, *22*(2), 44-48.

Tadlock-Marlo, R. (2011). Making minds matter: Infusing mindfulness into school counseling. *Journal of Creativity in Mental Health*, *6*(3), 220-233.

Taylor, S. (2010). Mechanisms linking early life stress to adult health outcomes. *Proceedings of the National Academy of Sciences of the United States of America, 107*(19), 8507-8512.

Thurston, L., & Berkeley, T. (2010). Morality and the ethic of care: Peaceable rural schools, caring rural communities. *Rural Special Education Quarterly, 29*(2), 25-31.

VanDeWeghe, R. (2011). A literacy education for our times. *English Journal*, *100*(6), 28-33.

Vugt, M., & Jha, A. (2011). Investigating the impact of mindfulness meditation training on working memory: A mathematical modeling approach. *Cognitive, Affective & Behavioral Neuroscience*, *11*(3), 344-353.

Walker, H., & Horner, R. (1996). Integrated approaches to preventing antisocial behavior patterns among school-age children and youth. *Journal of Emotional & Behavioral Disorders*, *4*(4), 194-209.

Weare, K. (2012). *Evidence for the impact of mindfulness on children and young people.* Mindfulness in Schools Project, University of Exeter and South Hampton, UK. Retrieved from http://mindfulnessinschools.org/wp-content/uploads/2013/02/Kukyen-20-June-2013.pdf

APPENDIX A

MINDFULNESS FOR YOUTH – 2013-14 – SURVEY

I. Child and Adolescent Mindfulness Measure (CAMM). Please rate how often each item is true for you.

No.	Items	*Never true*	*Rarely true*	*Sometimes true*	*Very often true*	*Always true*
1.	I get upset with myself for having feelings that don't make sense.	❑1	❑2	❑3	❑4	❑5
2.	At school, I walk from class to class without noticing what I'm doing.	❑1	❑2	❑3	❑4	❑5
3.	I keep myself busy so I don't notice my thoughts or feelings.	❑1	❑2	❑3	❑4	❑5
4.	I tell myself that I shouldn't feel the way I'm feeling.	❑1	❑2	❑3	❑4	❑5
5.	I push away thoughts that I don't like.	❑1	❑2	❑3	❑4	❑5
6.	It's hard for me to pay attention to only one thing at a time.	❑1	❑2	❑3	❑4	❑5
7.	I think about things that happened in the past instead of thinking about things that are happening right now.	❑1	❑2	❑3	❑4	❑5
8.	I get upset with myself for having certain thoughts.	❑1	❑2	❑3	❑4	❑5
9.	I think that some of my feelings are bad and that I shouldn't have them.	❑1	❑2	❑3	❑4	❑5
10.	I stop myself from having feelings that I don't like.	❑1	❑2	❑3	❑4	❑5

II. Perceived Stress Scale

The questions in this scale ask you about your feelings and thoughts **during the last month**. In each case, you will be asked to indicate by circling *how often* you felt or thought a certain way.

No.	Items	*Never*	*Almost never*	*Sometimes*	*Fairly often*	*Very often*
27.	In the last month, how often have you been upset because of something that happened unexpectedly?	❑1	❑2	❑3	❑4	❑5
28.	In the last month, how often have you felt that you were unable to control the important things in your life?	❑1	❑2	❑3	❑4	❑5
29.	In the last month, how often have you felt nervous and "stressed"?					
30.	In the last month, how often have you felt confident about your ability to handle your personal problems?	❑1	❑2	❑3	❑4	❑5
31.	In the last month, how often have you felt that things were going your way?	❑1	❑2	❑3	❑4	❑5
32.	In the last month, how often have you found that you could not cope with all the things that you had to do?	❑1	❑2	❑3	❑4	❑5
33.	In the last month, how often have you been able to control irritations in your life?	❑1	❑2	❑3	❑4	❑5
34.	In the last month, how often have you felt that you were on top of things?	❑1	❑2	❑3	❑4	❑5
35.	In the last month, how often have you been angered because of things that were outside of your control?	❑1	❑2	❑3	❑4	❑5
36.	In the last month, how often have you felt difficulties were piling up so high that you could not overcome them?	❑1	❑2	❑3	❑4	❑5

Section V. Demographics

47. What is your gender? □ Female □ Male

48. How old are you? _____ years old.

49. Which of the following choices best describe your ethnicity?

□ American Indian or Alaska Native □ Asian or Asian American □ Black or African American
□ Native Hawaiian or other Pacific Islander □ Latino/a □ White
□ Multiethnic (please specify) _____ □ Other (specify) _____

APPENDIX B

Assent Form (under 18 years old)

Dear Student:

My name is _____. I am a professor at _____ University.

The Study: I am conducting a study to see how mindfulness can help students learn in the classroom. You have been chosen to be a part of this study. You will be asked to fill out 3 surveys, each takes about 10-15 minutes to finish. You may also be asked to participate in a 30 minute interview. The survey and the interview ask you what you think about yourself and how you study in school.

Risks/Benefits: We do not think that this study will harm you in anyway. If you agree you will be asked to complete 3 surveys. Each survey takes about 10-15 minutes to finish. The first survey will be given in October, 2013. The second survey will be given in December, 2013. The third survey will be given in February, 2014. You may be invited to do an interview which lasts about 30 minutes. For the interview, we will ask you about your practice of mindfulness in the classroom. Data collected from these surveys will tell us whether mindfulness can help you learn better in school.

Confidentiality: We only want to know about how students do as a group so the data will be reported in group format. Results of this study may be shared with others but no names will be mentioned. We will keep the research records that are allowed by law. Data will be kept for five years in a locked office and only the researchers can get this information. Your parents will not be able to see your individual responses.

Right to Refuse: You do not have to be in this study and no one will be mad at you if you decide to not participate. Even if you start the study, you can stop at anytime and no one will be mad. As a participant in this study, you will participate in regular classrooms activities.

Contact Information: You may ask questions about the study at anytime. If you have questions, you can contact _____.You can also contact the Institutional Review Board (IRB) at _____.

_____**YES**. I want to be in the study. I understand the study will be done during school hours. I understand that even if I check "yes" now, I can change my mind later.	_____ **NO**. I do not want to be in the study.

Student's name: _____ Signature: _____

APPENDIX C

Parental Letter of Consent for Minors

Dear Parent:
My name is _____. I am a professor at _____University.

The Study: I am conducting a study looking at the impact of mindfulness on student wellness and learning. Your child has been selected to be a part of this study. She/he will be asked to fill out 3 surveys, each takes about 10-15 minutes to complete. The survey questions describe your child's opinion about himself or herself. Your child may also be asked to participate in a 30 minute interview. I am asking for permission to have your child participate in this research.

Risks/Benefits: There are no foreseeable risks for participants involved in the study as they will be asked to share their beliefs, perceptions, and attitudes. Your child's participation will involve the completion of 3 survey questionnaires. Each questionnaire takes approximately 10-15 minutes to complete. The first survey will be completed in October, 2013. The second survey will be completed in December, 2013. The third survey will be completed in February, 2014. Your child may be invited to participate in an interview which lasts about 30 minutes. During the interview, the child will be asked to share about his/her experience of practicing mindfulness in the classroom. Data collected from these surveys will help us determine the effectiveness of mindfulness in improving student learning.

Right to Refuse: If you or your child chooses not to participate there will be no penalty (it will not affect your child's grade, treatment, services rendered, etc.) that you or your child may otherwise be entitled to. Your child's participation is voluntary and he or she is free to withdraw from participation at any time without suffering penalty. The results of the research study may be published, but your child's name will not be used. Data collected will be kept confidential to the extent allowed by law.

Confidentiality: We are only interested in group characteristics, therefore the data will be reported in group format. Results of this study may be published but no names or identifying information will be included for publication. Research records will be kept confidential to the extent allowed by law. Data will be kept for five years in a locked filing cabinet at California State University, Fullerton with only the researchers having access to collected data. If you have any questions concerning this study or your child's participation in this study, please call_____. You can also contact the Institutional Review Board (IRB) at _____.

Sincerely,

By signing below, I give consent for my child to participate in the above-referenced study.
Parent's Name: _____ Child's Name: _____ Parent's Signature: _____

APPENDIX D

STUDENT INTERVIEW PROTOCOL 2013-2014

1. How would you describe mindfulness?

2. Do you practice mindfulness in the classroom?

   If Y*es,*

   a) which activities do you use?

   b) in which class?

   c) how often do you do this?

   If *No*, why not?

3. Think about the time when you were practicing mindfulness…

   a) What happened before that?

   b) How did you feel while practicing mindfulness?

   c) How did you feel after practicing mindfulness?

4. Do you practice mindfulness outside of the classroom/school?

5. Is there anything else you would like to share?