Examining the social-emotional impact of a brief mindfulness program for students in special education

Molly Cevasco

A dissertation

submitted in partial fulfillment

of the requirements for the degree of

Doctor of Philosophy

University of Washington
2017

Reading Committee:

Janine Jones, Chair

Suzanne Kerns

Ilene Schwarz

Susan Spieker

Program Authorized to Offer Degree:

Education - School Psychology

Abstract

Examining the social-emotional impact of a brief mindfulness program for students in special education

Molly Cevasco

Chair of the Supervisory Committee:
Janine Jones, Ph.D., Director
Education - School Psychology

As the popularity of both clinic- and school-based mindfulness-based interventions (MBI's) has grown, high quality empirical support for the efficacy of these interventions has been limited. School-based MBI's are gaining popularity as components of strong social-emotional learning curricula, and they are typically delivered as part of a universal intervention. Some initial support for school-based MBI's exists, but the majority of studies have assessed intervention efficacy with typically developing students without identified mental health concerns, developmental delays, or learning disabilities. This study examined the impact of a brief mindfulness intervention on student behavior, as well as student and teacher stress levels. Using repeated-measures ANOVAs, paired samples t-tests, and qualitative focus group data, findings suggested some support for the value of an MBI for students in self-contained special education settings. The study was limited by a small sample size and ensuing limited power, but initial findings provide support for the continued examination of mindfulness as a school-based intervention for students from a wide variety of academic, cognitive, and behavioral skill levels.

TABLE OF CONTENTS

List of Tables

Number Page

List of Appendices

Number Page

Acknowledgements

This study was funded through a Mindfulness Fellowship provided by the Center for Child and Family Wellbeing at the University of Washington. Thank you to Drs. Lili Lengua and Cathryn Booth-LaForce for their support via this fellowship. Thank you also to Dr. Janine Jones, my advisor and mentor, who has always been generous with her care and guidance. Thank you to Drs. Susan Spieker, Sue Kerns, Ilene Schwartz, and Clay Cook, all of whom have been incredibly important to me throughout my development as a person and a professional. I am also grateful to Dr. Michael Pullmann for his help in understanding the confusing world of statistics.

Dedication

This dissertation is dedicated to my mom, Catherine Peterson, and my partner in crime, Colin Anderson. Without both of you, I would never have made it here. Thank you to both of you for rooting me on and being patient with me. I am privileged to be in your lives.

Chapter 1. INTRODUCTION

As mindfulness has become increasingly popular in both psychosocial and educational curricula and interventions, the quantity of research around the effects of mindfulness on wellbeing has grown significantly (Carmody & Baer, 2008; Meiklejohn, Phillips, & Freedman, 2012). Mindfulness-based interventions (MBI's) such as Dialectical Behavior Therapy and Mindfulness Based Stress Reduction have gained empirical support and are increasingly popular in clinical work (Linehan, 1991; Kabat-Zinn, 1994). School-based MBI's appear to be following a similar increase in implementation, with the primary emphasis on universally implemented social-emotional learning (SEL) curricula that either center on mindfulness or include practices.

Although mindfulness is gaining popularity as either a standalone school-based intervention or a component of broader curricula, the majority of research has examined MBI efficacy within general education settings. As is the case with many social-emotional curricula, psychological interventions (both clinical and school-based), and tiered intervention strategies in schools, empirical support for MBI's is limited, and the majority of studies examine feasibility of implementation and efficacy with non-clinical populations. In school-based research, this means that most studies assessing mindfulness as an intervention are carried out with typically developing students who do not require academic or social-emotional support and who receive instruction within a general education setting. As mindfulness grows in both popularity and empirical support, the fields of education and psychology will benefit from studies that evaluate the use of mindfulness with children and youth with diverse developmental and social-emotional needs.

The purpose of this study was to examine the effects of brief, classroom-based mindfulness activities in special education classrooms serving students in first through tenth

grades. Specifically, this study measures the impact of the mindfulness activities on stress, problem behavior and mental health in students receiving special education services in a self-contained setting. Teacher stress levels are also examined to assess whether there is a relationship between teacher functioning and intervention efficacy for student outcome variables.

This secondary analysis of the data collected from a study completed in June 2015 used repeated measures ANOVA to analyze change over time in participating students' externalizing and internalizing behaviors, self-reported stress levels, and teacher self-reported stress levels.

It is hoped that this research will provide key information to multiple stakeholders. Results describe the potential emotional and behavioral benefits of a mindfulness-based intervention that is brief and manageable for educators. This study also provides qualitative information regarding teacher and student impressions of the use of mindfulness in their classroom and can contribute to the effective implementation of future interventions in diverse classrooms. Additionally, teacher insights can provide crucial information regarding the relatively under-studied topic of specialized instruction in social and emotional skills for special education students.

This dissertation begins with a review of the literature on the development of mindfulness as a psychosocial intervention, the current state of school-based mindfulness interventions, and social emotional learning in school settings. Next, specific research questions and hypotheses are proposed. Methods and statistical analyses are presented, followed by a discussion of the results.

Chapter 2: LITERATURE REVIEW

2.1 INTRODUCING AND DEFINING MINDFULNESS

In recent years, mindfulness has become increasingly popular on multiple levels: it is an established component of several successful interventions addressing medical complications, numerous mindfulness-based psychological interventions have gained evidentiary support, and its presence in educational settings is growing in leaps and bounds (Bishop, 2002; Carmody & Baer, 2008; Grossman, Niemann, Schmidt, & Walach, 2004; Meiklejohn, Phillips, & Freedman, 2012; Napoli, Krech, & Holley, 2005; Schonert-Reichl & Lawlor, 2010). While this growth may strike some as a pop culture fad, mindfulness has had a place in western culture since the mid-20th century, and its benefits have been far reaching.

As clinical and popular interest in mindfulness has grown, Jon Kabat-Zinn's definition of mindfulness has become its most widely used description: "the awareness that emerges through paying attention on purpose, in the present moment, and nonjudgmentally to the unfolding of experience moment by moment" (Kabat-Zinn, 2003). This definition is a useful place to start, but an introduction to mindfulness requires a more thorough explanation.

Although mindfulness has been present in Western medicine and mental health for several decades, an agreed-upon definition eluded researchers and clinicians alike. It seemed as though each study provided a new definition, and an operational definition of mindfulness was not proposed until 2004 (Bishop et al., 2004). Bishop, along with several leaders in the field of mindfulness, created a two-pronged definition that emphasizes focused attention on the present moment coupled with an attitude of "curiosity, openness, and acceptance." Although there is no formal agreement on this as the definitive definition of mindfulness, Bishop's definition works well for the purposes of this paper.

Attention to the present moment. First and foremost, it is crucial to understand mindfulness as a state or a practice, rather than a trait. Mindfulness practitioners posit that the majority of human experience remains unrecognized – we walk through life without truly paying attention to what is happening. A regular mindfulness practice develops those attentional skills and results in a more accurate understanding of reality, our own thoughts and actions, and those of people around us (Kabat-Zinn, 1994). Further examining the concept of attention to the present, it is important to note that mindfulness does not encourage prolonged analysis of events or thoughts. Rather, each occurrence is noted, but no further elaboration of each experience is necessary or desired. Typical mindfulness techniques describe attention to each breath as a way to remain present in the moment. As an example, one might focus on the feeling of each deep breath in and out and then suddenly think of an assignment that is due the following day. A typical thought pattern might lead to anxiety about finishing the assignment, frustration around one's history of last minute work habits, and feelings of inadequacy as a student. The cognitive spiral related to these thoughts is easy to predict. A mindful approach to the same situation would encourage the practitioner to notice each sentiment and to then return the focus to the feeling of each deep breath.

An attitude of openness without judgment. Kabat-Zinn and Bishop, et al. both touch on the need for a specific attitude or approach to viewing each observable instance (Bishop et al., 2004; Kabat-Zinn, 1982; Kabat-Zinn, 2006). Kabat-Zinn describes paying attention nonjudgmentally, while Bishop describes an attitude of "curiosity, openness, and acceptance." While the words differ, the concept is the same at its core: mindfulness requires that the practitioner remain open to whatever thoughts, actions, or experiences arise. This means that when we remain attentive to the present, we accept changes to what we expected without

prescribing meaning or judgment to those changes. With sustained practice, a mindful approach aids in remaining open and welcoming of each new moment and experience, despite the potential challenges those moments may bring.

2.2 WHAT MINDFULNESS IS NOT

The growing popularity of mindfulness as an intervention for myriad psychosocial concerns has created a need to clarify what mindfulness is not. Two important caveats must be clear when understanding the development and implementation of mindfulness in Western culture: it is not simply a relaxation strategy and it is primarily secular (Bishop, et al. 2004). Rather, relaxation is a frequent outcome of mindfulness practice and it is easy to confound the practice with the result. Additionally, while mindfulness has its origins in the Buddhist religion, Western adaptations of mindfulness for medical and psychosocial interventions are intentionally separated from traditional Buddhism. While traditional mindfulness has religion at its core, Western mindfulness practitioners and researchers present the practice as secular.

The expansion of mindfulness into many facets of Western culture has changed the religious aspects of the practice. While mindfulness is a strong component of traditional Buddhist meditation, Kabat-Zinn makes the argument that as a practice and an approach to awareness, mindfulness can be considered a universal human ability. He gives credit to Buddhism for cultivating practices, such as meditation, that facilitate mindfulness (Kabat-Zinn, 2006). Kabat-Zinn has been clear about his intention to separate Buddhism from mindfulness when he incorporated it into Mindfulness Based Stress Reduction in the early 1980's (Kabat-Zinn, 2006, 2011). His goal in the development of MBSR was not to cultivate Buddhism in clients, but rather to instill in them the freedom and ability to use contemplative practice to understand and address their suffering. He writes,

> "I bent over backward to structure it (MBSR) and find ways to speak about it that avoided as much as possible the risk of it being seen as Buddhist, 'New Age,' 'Eastern Mysticism' or just plain 'flakey.' To my mind this was a constant and serious risk that would have undermined our attempts to present it as commonsensical, evidence-based, and ordinary, and ultimately a legitimate element of mainstream medical care" (2011).

Kabat-Zinn's work to "secularize" mindfulness was successful in creating an approach to mindfulness that valued the teachings and concepts inherent in the practice but did so without directly referencing Buddhism. In many ways, this work made mindfulness more accessible for many Westerners and opened the door to the adaptation of mindfulness for a wide variety of behavioral, psychological, and physical concerns. Kabat-Zinn has recognized, however, that with the tremendous swell of interest increases the risks of mischaracterizing mindfulness:

> "It becomes critically important that those persons coming to the field with the professional interest and enthusiasm recognize the unique qualities and characteristics of mindfulness as a meditative practice, with all that implies, so that mindfulness is not simply seized upon as the next promising cognitive behavioral technique or exercise, decontextualized, and 'plugged' into a behaviorist paradigm with the aim of driving desirable change, or of fixing what is broken" (2003).

As mindfulness becomes increasingly popular in educational, medical, and psychological interventions, traditionalists, practitioners, and researchers will all have to walk a thin line between making mindfulness accessible and diluting it beyond recognition.

It is important to acknowledge that Western mindfulness is exactly that: a Western version of a tradition rooted in Eastern theology and Buddhism. Mindfulness as a word is a rough translation of a practice that is uniquely different from, but inclusive of, meditation (Thera, 1962). The term "mindfulness" was initially introduced when several key Buddhist texts were translated into English, but it remained relatively unused in favor of the more general "mediation" until the 1970s (Thera, 1962; Thich, 1976; Davidson, 1977). In traditional Buddhist practice, mindfulness is a core component of a wider lifestyle and spiritual approach to living.

Kabat-Zinn and other Western developers have branched off of this approach to create a form of mindfulness that is focused on practice and technique, rather than any religious affiliation (Dryden & Still, 2006). Essentially, the demand for evidence-based, manualized intervention created a Westernized form of mindfulness defined by the tight boundaries of specificity and proof (Segal, Williams, & Teasdale, 2002). This is no criticism of the current state of mindfulness, but rather a warning about the feasibility of direct comparisons between traditional and Western mindfulness practices.

2.3 GROWTH IN WESTERN CULTURE

Mindfulness as a practice has garnered immense interest in recent decades in both research and clinical settings (Baer, 2003). Although its growth has been exponential in educational and psychological settings, mindfulness has been a growing contributor to western medicine and mental health since the mid-20th century. Current literature points to Kabat-Zinn's work as the gateway to the explosion of western mindfulness (Dryden & Still, 2006). Kabat-Zinn incorporated mindfulness into a treatment for chronic pain and developed Mindfulness-Based Stress Reduction (MBSR; Kabat-Zinn, 1990), which gained support as a treatment for various psychosomatic and physical concerns (Grossman et al., 2004). When considering its popularity and influence, it is important to recognize several developments in psychology that set the stage for Kabat-Zinn's work.

Western culture's first introduction to mindfulness. Following World War Two, American troops stationed in Japan returned with experiences and interest in Buddhism (Drydan & Still, 2006). American psychologists and psychotherapists became increasingly interested in the Zen Buddhist response to human suffering, which took a significantly different stance from the extant literature on identification and reduction of symptoms. Historically, Western

psychology had emphasized an approach to psychotherapy that echoed the medical model: symptoms should be identified and reduced through changes in behavior and cognitions (Drydan & Still, 2006). Traditionally, Buddhism has emphasized a more holistic understanding of the human experience. As Western culture attempted to recover from the effects of World War Two, the idea of increased awareness, non-judgment, and a more complete understanding of each experience gained popularity. While Buddhism certainly carried some appeal to Westerners, its incorporation into Humanistic psychology provided what could be considered a more culturally palatable approach to introducing mindfulness to Western society.

The third force in psychology. Humanistic psychology developed twenty years after World War Two as a reaction to the increasing popularity of psychoanalytic and behaviorist trends. Humanistic theory centered on the re-evaluation of the human experience through the joint lens of science and the human experience (Bugental, 1963). Humanistic psychologists disagreed with the emphasis of the clinician as the "healthy expert" responsible for identification and judgment of symptoms to be addressed and decreased in "unhealthy clients" (Rogers, 1992). Humanists decreased the focus on symptom identification and reduction, and rather emphasized the growth of the client through awareness and acceptance of all aspects of their life and thought. Humanists did not seek to discredit or ignore psychoanalysis and behaviorism, but rather to supplement those perspectives with an increased examination of humanity. Early leaders of the Humanistic movement underscored the value of incorporating traditional Eastern culture into Western Psychology (Bugental, 1963).

Early work by Bugental, Watts, and Rogers focused the development of five main tenets of humanistic theory: 1) Man cannot be fully understood when broken into parts or functions – the sum is greater than the whole, 2) Individuals should always be considered in terms of their

relationships and connections, 3) Humanity is characterized by ever-present awareness that is an invaluable part of experience, 4) Man has the ability to make choices that not only determine experience, but also our capacity for change, and 5) Humanity exists because of individual intention: our society and daily lives are driven by the existence of intention and purpose (Bugental, 1963; Rogers, 1963).

Carl Rogers' speech to the American Association for Humanistic Psychology underscored the humanist concern for World War Two's impact on humanity's ability to formulate "a viable philosophy of life, a meaningful way by which to live" (1964). Rogers emphasized an individualistic state of society in which the means were more important than the end: "We will recognize that the value of living is in the process of living, not in some static goal to be reached…we can find security only in a knowable process, not in knowable certainties" (1964). This idea of the lived experience outweighing the end product is steeped in mindfulness: experience the moment rather than remaining on "auto-pilot".

Throughout the mid to late 20th century, the concepts associated with mindfulness continued to be present in some theoretical approaches of Western psychology. While mindfulness gained some traction in the West, Kabat-Zinn's integration of the practice into medical intervention in the late 20th century represented a real expansion into popular culture.

2.4 POPULAR INTERVENTIONS FEATURING MINDFULNESS

The MBI's that are most commonly noted in research include mindfulness-based stress reduction (MBSR; Kabat-Zinn, 1982), dialectical behavior therapy (DBT; Linehan, 1991), mindfulness-based cognitive therapy (MBCT; Teasdale, Segal, & Williams, 1995), and acceptance and commitment therapy (ACT; (Hayes, et al. 2006)). One previous meta-analysis has debated the inclusion of DBT and ACT as MBI's, arguing that mindfulness is a component

of those interventions rather than the basis of the intervention as a whole (Zoogman et al., 2014). Despite the importance of Zoogman's work as the primary meta-analysis for MBI's with youth, ACT and DBT are included in this paper because of their overwhelming popularity in both research and clinical practice. To exclude them would be to ignore interventions that have developed great influence in a burgeoning field.

Because the above interventions were originally intended for use with adults, the majority of empirical studies use altered forms of the interventions for use with children and youth (see Harnett & Dawe, 2012 for a good summary of adaptations). Few studies describe the decision process in tailoring existing interventions for youth, and it is common for multiple variations of the same intervention to exist. This affects not only the validity of studies on a meta-analytic level, but also the generalizability of findings and their potential for replication. Two documented, manualized modifications exist, MBSR-T for adolescents (14-18 years), and MBCT-C for use with children (ages 8-14), though these adaptations have limited evidentiary support in comparison with the widespread, less-documented modified versions of MBSR and MBCT (Biegel, et al. 2009; Semple & Lee, 2008; Semple, Lee, Rosa, & Miller, 2010).

Mindfulness-based stress reduction. Jon Kabat-Zinn's Mindfulness Based Stress Reduction (MBSR) was originally created for adults and offers an 8-week long group intervention intended to address chronic pain, physical ailments, high stress levels, and anxiety (Kabat-Zinn, 1982). Participants attend 2.5 hour weekly sessions, as well as a full day retreat with instruction in meditation, yoga, and daily practice of awareness. The goal of MBSR is not to cure chronic medical conditions of patients but instead to support development of patients' awareness of their experiences, to understand the thoughts and emotions attached to their stressful situations, and to find acceptance for those same situations. Historically, MBSR has

proven effective for adults in the reduction of stress levels, physical symptoms of illness, and anxiety in clinical and nonclinical populations (Carmody & Baer, 2008; Grossman, Niemann, Schmidt, & Walach, 2004; Miller, Fletcher, & Kabat-Zinn, 1995).

In clinical trials for use with children and youth, the majority of studies use a modified version of MBSR. As mentioned above, a multitude of studies have used modified-MBSR procedures for intervention with youth, with a limited explanation of alterations. Because of the multitude of MBSR-based interventions, it would be difficult to discuss the overall impact of MBSR for youth, given the large potential variance in treatment design and delivery. However, recent meta-analyses have attempted to examine the use of MBSR with children and youth.

The most comprehensive meta-analysis of MBSR-based treatment with youth identified a limited number of studies that used the intervention, with only 3 studies using MBSR and an additional 5 using at least one component of MBSR (Barnes, et al. 2004; Barnes, et al. 2008; Biegel, et al. 2009; Gregoski, et al. 2011; Huppert & Johnson, 2010; Sibinga, et al. 2013; White, 2012; Wright & Gregoski, 2011; Zoogman et al., 2014). Of the studies implementing at least a portion of MBSR, only one (Biegel & Brown), included participants with clinically significant psychological symptoms.

Research published since Zoogman's literature review has typically suffered from the same lack of standardized intervention implementation and has focused on non-clinically significant patient populations (see Sibinga, et al. 2014 for example). Some additional studies have begun to branch out to use MBSR or MBSR-derived interventions for youth with or at-risk for clinically significant psychological concerns, though the field remains limited (Himelstein, Hastings, Shapiro, & Heery, 2012).

In order to adapt MBSR for use with adolescent populations, group sessions were decreased from 2.5 to 2 hours, and the ending daylong retreat was eliminated. In one existing study, adolescents receiving MBSR-T in an outpatient psychiatric clinic showed statistically significant decreases in symptoms of depression, anxiety, somatic complaints, increased sleep quality, and a reduction in diagnoses of mood disorders compared to the treatment as usual group (Biegel & Brown, 2009). The MBSR-T study benefits from an ethnically diverse treatment population (62% nonwhite) with diagnosed clinical needs (primarily anxiety and mood disorders), though client socioeconomic status is not discussed. It is important to note that 57% of participants had an additional diagnostic code related to parent-child interaction challenges or problems related to abuse and/or neglect. This may indicate that MBSR-T may be a feasible treatment for culturally diverse populations with a wide range of sequelae.

Dialectical behavior therapy. After the growth of MBSR, Marsha Linehan developed Dialectical Behavior Therapy (DBT; Linehan, 1991), which has proven to be one of very few evidence-based treatments for individuals with Borderline Personality Disorder. DBT is a variation on Cognitive Behavioral Therapy (CBT) that emphasizes the use of mindfulness to regulate emotions and to practice distress tolerance as a replacement for self-harm and suicidal behaviors (Linehan, 1993).

Of the most commonly practiced MBI's, DBT has some of the most promising evidentiary basis for use with youth, although the research tends to focus on youth with significant psychological concerns such as suicide attempts, borderline personality disorder, eating disorders, and non-suicidal self-injury (Goldstein, et al. 2007; Katz, Cox, Gunasekara, & Miller, 2004; Katz, Gunasekara, & Miller, 2002; Katz & Cox, 2002; MacPherson, Cheavens, & Fristad, 2013; Miller, et al. 1997; Rathus & Miller, 2000; Safer, Telch, & Agras, 2001). While

this is an important population to serve, it limits the ability to consider DBT's application for youth with significant but less severe mental health concerns. This should not be interpreted as a criticism of DBT or its research support, but rather as a word of caution in considering the mechanisms of DBT that are necessary to produce changes in youth with common mental health concerns.

Despite the long history of empirical examinations of DBT for youth, it suffers from a similar dilemma as other MBI's and mindfulness-based research as a whole: studies tend to have a small sample size and are either quasi-experimental or lack a comparison group (Zack, Saekow, Kelly, & Radke, 2014). Although a few studies have examined the use of DBT with minority and/or low-income youth, empirical support in this area remains equally, if not more, limited than use of DBT with youth as a whole. A few examples of DBT with diverse populations exist, but they remain a small piece of the overall literature (Nelson-Gray, et al. 2006; Trupin, 2007).

An additional issue to consider in the discussion around DBT for youth is that of accessibility. Historically, DBT is a fairly time-intensive intervention that requires a fairly intensive treatment commitment, including weekly individual therapy, family therapy / training as needed, and a skills training group that meets regularly (Rathus & Miller, 2014). Clearly, for youth with significant mental health concerns, this level of treatment intensity has proven more successful than other forms of treatment. However, for youth with limited resources, attending frequent treatment with included family involvement may be difficult.

Mindfulness based cognitive therapy. Like DBT, Mindfulness Based Cognitive Therapy (MBCT) incorporates CBT strategies into MBSR with the goal of decreasing the potential of depressive relapse (Teasdale, Segal, & Williams, 1995). An adaptation of MBCT, MBCT-C, has

been created for children ages 8-14 with some promising results (Semple & Semple, 2005; Semple, Lee, & Miller, 2006; Semple & Lee, 2008). The MBCT-C intervention is delivered in a 12-week group format, though it appears feasible to deliver the intervention on an individual basis. Similar to MBCT, MBCT-C focuses on decentering through observation of both internal and external experiences without assigning judgment. Participants are encouraged to notice their emotional, cognitive, and physiological responses but to describe them rather than attempting to change them. In this manner, participants begin to separate themselves from problematic responses and to maintain a more balanced perspective on challenging situations.

Like other MBI's, MBCT lacks strong empirical support with youth – existing research has been conducted with small sample sizes and historically with nonclinical populations. It is encouraging to note that a pilot study of MBCT-C was conducted with ethnic minority youth in order to assess its feasibility and acceptability with culturally diverse populations (Semple et al., 2010). While this study was conducted with a non-clinical population of youth referred for reading difficulties, participants had a high rate of MBCT-C completion, which may suggest that the intervention is acceptable for diverse youth populations. Like most other MBI's, however, limited research has examined the feasibility of participation in MBCT-C for low-income children and their families. rventions that may be most effectively used by mental health practitioners.

Acceptance and commitment therapy. Acceptance and Commitment Therapy has been described as part of the "third wave" of cognitive behavioral theory that includes mindfulness-based approaches such as DBT and MBCT (Hayes, 2004). While ACT is growing in popularity for adults in both clinical and research efforts, it remains a minimal presence in MBI's for children.

ACT is based on Relational Frame Theory (RFT; Strosahl, & Wilson, 1999). While ACT is a psychological intervention, RFT is a theoretical approach to explaining language acquisition. Relational Frame Theory does not utilize mindfulness, but a good understanding of RFT is necessary to fully understand ACT and its mindful approach to psychotherapy.

Relational Frame Theory theorizes that language is developed through the development of relationships between words and concepts (Hayes, Barnes-Holmes, & Roche, 2001). Acceptance and Commitment Therapy builds upon RFT, using language acquisition and the creation of relationships between cognitions to develop a psychotherapeutic approach.

Clinicians using an ACT orientation embody typical MBI's in that the therapeutic process is focused primarily on recognition of cognitions, behaviors, and emotional responses, coupled with nonjudgmental awareness. The ACT focus is on building increased verbal relationships to change existing associations and cognitions with concepts and experiences. The goal of this effort is not to restructure maladaptive cognitions (as in CBT), but rather to build a new set of experiences to define historically challenging concepts and experiences (Hayes, et al. 1996; Hayes, 2004). An in-depth explanation of these concepts and their use in ACT is available in Hayes, et al. (Hayes, et al. 2006).

Although ACT has been used with youth less frequently than other MBI's, some ACT proponents have suggested that its approach to language as a basis for management of psychological concerns is ideally suited for children (Greco & Hayes, 2008). Because children are not yet bound by a lifetime of verbal experience and the development of verbally-based relationships (per RFT), they may be more open and flexible to the concept of changing language in an effort to manage cognitions and experiences.

As mentioned, empirical examinations of ACT with youth have been limited (Zack et al., 2014). Of existing studies, only a handful examine ACT's impacts on youth with psychological concerns as opposed to pain management or risky sexual behavior (Gauntlett-Gilbert, et al. 2013; Metzler, et al. 2001; Swain, et al. 2015). Of studies that have assessed the impact of ACT on the psychological functioning of youth and adolescents, the primary focus has been on treatment of anxiety and related disorders (Swain, et al. 2015). Like the other MBI's discussed here, ACT will benefit from studies that have larger sample sizes and serve youth from low-income and minority populations.

Social-Emotional Learning and Mindfulness in Schools

Social-emotional learning (SEL) has become an increasingly valued component of regular educational practices and goals. The need for SEL curricula is clear: while many students may demonstrate an identified mental health need that would benefit from SEL, all students require social and emotional skills to become effective, positive members of their communities. Social-emotional skills such as empathy, emotion regulation, and resilience are sometimes described as "soft skills" that are somehow less important than traditional cognitive and academic functioning (Heckman & Kautz, 2012). The historical emphasis on "hard skills" like reading, writing, and arithmetic has largely ignored the need for development of prosocial skills such as empathy, engagement in social and academic processes, and responsibility for self and others. In recent decades, educational research has increasingly emphasized the need for social-emotional skills as building blocks and mediators of academic and cognitive skill development (Goleman, 2006). In short, students must not only have academic skills, but also be knowledgeable, responsible, and caring (Elias, 1997).

While these skills may seem secondary to "hard skills", their value is far-reaching. Not only do strong social and emotional skills translate to increased emotional intelligence, but also to higher academic achievement, decreased disciplinary concerns, and more consistent school attendance (Durlak, et al. 2011). In a society that is increasingly budget-strapped and bottom-line focused, the value of SEL remains: a recent cost-benefit analysis of SEL programming found that each dollar invested in SEL program implementation saved 11 dollars in future costs on issues such as delinquency, substance use, and mental health services (Belfield, et al. 2015). This is not a unique finding: economists have also demonstrated the long-term financial impacts of social-emotional skills instruction on higher educational levels, continued involvement in the labor force, physical health, and larger social networks (Heckman & Kautz, 2012). The long-term psychosocial and financial impacts of SEL are clear, but the current state of student social wellbeing and mental health cements the need for high-quality SEL.

In a given year, approximately 15% of youth ages 8-15 meet DSM criteria for significant mental health concerns, though only roughly 1% will receive supports through special education services (Merikangas, et al. 2010; Merrell & Walker, 2004). Perhaps more concerning, students report that they lack the necessary social and emotional skills to cultivate resiliency in the face of stress, adversity, and mental health concerns (Benson, 2006; Durlak, et al. 2011). Unfortunately, many students with mental illnesses are unlikely to receive support: between 50 and 70% of students diagnosed with a mental health concern never receive treatment (Gould, et al. 2003; Merikangas et al., 2010; Merikangas, et al. 2011).

One of the largest barriers to treatment children face is obtaining and participating in off-site, clinic-based therapeutic services, and this is especially true for low-income and minority youth (Bringewatt & Gershoff, 2010). Schools are uniquely positioned to address the clear

mental health needs of students: 70% of children and youth who receive mental health services do so in a school setting, and referral follow through in school settings is drastically higher than when students are referred to community-based resources (Catron, Harris, & Weiss, 1998; Rones & Hoagwood, 2000).

As multi-tiered systems of support (MTSS) have become an increasingly prevalent approach to school-based intervention, school-based mental health and SEL instruction have developed as tiers of strong prevention and intervention programming. With the increase in the school-based emphasis on mental health and wellbeing, the primary method of service delivery has been SEL-curricula provided at the universal level. The emphasis on school-based mental health in an MTSS framework is reasonable: broad-based interventions within an MTSS model are intended to meet the needs of 80% of the student population (Brown-Chidsey & Steege, 2010). National support for the collaborative work of SEL and school-based mental health from both the National Association of School Psychologists and the Center for School Mental Health highlights the growing emphasis on universal and targeted interventions to both prevent and treat student social-emotional challenges (NASP, 2015; CSMH, 2010). The Affordable Care Act has positioned schools to provide mental health services at multiple tiers, and the introduction of 2015's Academic, Social, and Emotional Learning Act has underscored the need for high-quality SEL for students at all levels of functioning.

SEL Service Delivery Within an MTSS Framework

Social-emotional learning and MTSS have been cultivated and introduced to school and research settings in recent decades, and MTSS has become the predominant format for SEL service delivery. The MTSS approach to universal, selected, and intensive tiers of intervention aims to provide support of varying levels of intensity to match student needs (Cook, et al. 2011).

Typically, the majority of students can be served with universal interventions that teach core skills. Additional, more intensive and targeted interventions serve students who do not show sufficient growth, and highly specialized interventions meet the needs of a minority of students for whom the first tiers of intervention were insufficient. Given this format, it should not be surprising that the majority of focus may be centered on the delivery of universal interventions that meet the needs of the greatest number of students.

Researchers have also posited that universal programs target specific psychosocial risk factors that overlap as predictors for future mental health concerns. As such, universal programming may prevent or address a higher number of concerns than a targeted intervention can. The result is, essentially, a better cost: benefit ratio for universal programming than for targeted interventions (Greenberg, 2001). An MTSS

Universal social-emotional learning. Given evidentiary support for tiered interventions, most SEL programs are delivered on a universal level in both whole class and whole school formats in an elementary setting (Payton, et al. 2008; Weare & Nind, 2011). It is important to note that while CASEL describes the value in whole-school program implementation, many listed programs are delivered at the classroom level and do not include a whole-school component. These programs should not be discounted, but their lack of true universal implementation across school settings may limit the generalization of skill use and decreases opportunities for skill practice and feedback.

The prevalence of primary-level, universal SEL programming is not only apparent in comparative studies: the most up-to-date assessment of evidence-based SEL programming includes 40 programs designed for elementary implementation and just 9 programs for middle and high school settings (CASEL 2013 & 2015).

Most universal SEL programming focuses on 5 competencies defined by the Collaborative for Academic, Social, and Emotional Learning (CASEL), a nationally funded center for SEL in all grade levels. According to CASEL's standards, SEL programs should focus on providing students with skills to increase and grow their self-awareness, self-management, social awareness, relationship skills, and responsible decision making (see the 2013 CASEL Guide for a detailed explanation). Following this guideline, the majority of SEL curricula include lessons and practice opportunities intended to directly target these skills.

Research has demonstrated that high-quality SEL programming also consists of at least 2 instructional components: clear skill instruction that is appropriate to student development and culture, accompanied by real-world opportunities to practice newly learned skills and receive responsive feedback from school and community members (Durlak et al., 2011). In this manner, students not only learn important skills, but also have opportunities to practice and receive reinforcement in the form of contributing positively to their home, school, and community environment.

Typically, universal SEL programming follows a specific curriculum and is taught in brief classroom-based lessons, with the goal of each lesson to develop or practice a targeted skill. While many programs describe themselves as SEL, it is difficult to critically evaluate the efficacy of any program that does not include a curriculum because fidelity of implementation becomes difficult to measure. For that reason, CASEL's examination of program efficacy and evidentiary support does not include programs without clear curricula.

In considering the issue of implementation fidelity and necessary components, critical research in SEL programming has described several standards for skill instruction. Programs are most effective when skill instruction is Sequenced, Active, Focused, and Explicit (SAFE; Durlak

et al. 2011). This has typically meant that instruction should build upon previously developed skills and allow students to actively practice newly acquired behaviors with feedback. Additionally, high-quality SEL programs provide sufficient time to focus solely on the development of specific social-emotional skills, rather than an overview of general goals. Programs that include all 4 of the SAFE criteria are significantly more likely to have strong psychosocial impacts on participating students (Payton, et al. 2008). These instructional guidelines have only been evaluated for universally focused programming, though it is fair to assume that they would support the efficacy of targeted interventions, as well.

Universal programming on a classroom-level is most often delivered by the classroom teacher, and programs that follow this format (as opposed to implementation by a community member, researcher, or parent) produce stronger positive results than those that utilize an outside provider (Payton, et al. 2008). School-wide skill instruction is also most frequently delivered by school-based personnel. This is especially important to keep in mind when considering the feasibility of intervention implementation for schools and educators that already balance limited budgets and schedules. The implementation of universal programming by classroom teachers also potentially allows school-based mental heath practitioners to focus on selected interventions for those students who do not respond to more basic tiers of intervention.

Is Mindfulness a Social Emotional Learning Program?

In order to fully examine the impact of mindfulness on child and adolescent wellbeing, it is important to recognize the dual development of both school and clinical interventions. While clinical interventions tend to be delivered on an individual or small-group level, many school-based interventions are delivered on a whole classroom scale. Given this difference in delivery, it

is necessary to determine whether some MBI's would be more appropriately categorized as social emotional learning (SEL) rather than a targeted psychological intervention.

As mentioned above, CASEL describes SEL as being comprised of five cognitive, affective, and behavioral "core competencies": 1) self-awareness, 2) self-management, 3) social awareness, 4) relationship skills, and 5) responsible decision making. At its core, SEL is primarily discusses as a preventative intervention designed to increase protective factors against educational, behavioral, and social emotional difficulties (Durlak, et al. 2011). Although individual outcomes are typically measured when examining SEL implementation, interventions are normally delivered to a universal student population. The most comprehensive meta-analysis of SEL programming excluded interventions delivered to targeted student populations, instead solely focusing on classroom- and school-level implementation, and a much smaller review examined implementation for indicated student populations (Durlak, et al. 2011; Payton, et al. 2008). The review examining indicated populations did not include students with a diagnosed mental illness or those who received special education services (Payton, et al. 2008). Given these trends in research and implementation, it seems reasonable to recognize SEL as primarily a universal intervention that is typically delivered on a classroom level with the goals of increasing core skills that contribute to social emotional wellbeing.

Several school-based MBI's are designed to be implemented in a whole class setting, and their intended outcomes seem to make them strong candidates for consideration as SEL rather than as a targeted intervention to address specific mental health concerns. Although classroom and school-level MBI's are gaining in popularity, there are a select few interventions with any research support. These interventions include MindUp (www.thehawnfoundation.org/mindup), Mindful Schools (www.mindfulschools.org), and Learning to Breathe

(www.learning2breathe.org). Each of these interventions has been examined on a classroom level, although the quality of research is varied.

One additional classroom level MBI, InnerKids, is not included in this paper because the research study examining the intervention focused only on outcomes related to executive functioning and not specifically focused on psychological outcomes related to mental health (Flook, et al. 2010).

MindUp. MindUp advertises itself as a social emotional learning (SEL) curriculum and is the only intervention presented in this paper that is also included in the 2013 CASEL Guide to Effective Social Emotional Learning, though it only had one quasi-experimental study providing evidentiary support (Schonert-Reichl & Lawlor, 2010). According to CASEL's report, MindUp delivers explicit instruction with lessons that build upon each other and offer opportunities to practice within the classroom setting with direct feedback. Its lessons are focused on SEL-related topics, as opposed to being interwoven with academic skill acquisition. While MindUp does offer explicit classroom instruction with feedback, it does not have school-wide or community-level opportunities for instruction or feedback. In short, MindUp meets the goals of being Sequenced, Active, Focused, and Explicit, but its generalization outside of the classroom is limited.

MindUp offers brief, scripted lessons intended to be delivered two to three times per week with additional daily deep breathing activities. It is a widely accessible curriculum because teachers are not required to attend formalized trainings and the entire curriculum is available for purchase for approximately $20.

Additional research support for MindUp has been limited, although the intervention's accessibility makes it a likely candidate for continued research (Schonert-Reichl, et al. 2015).

Both studies examining MindUp's efficacy included students in suburban school settings who were primarily white and from middle- to high-socioeconomic status. The studies had relatively small n's (246 and 99 students respectively in fewer than 15 classrooms per study) and nesting negatively impacts the statistical reliability of findings. With these limitations in mind, the initial findings in each study suggest beneficial effects on student-reported optimism and stress management abilities, as well as decreased levels of depression and aggression.

Mindful Schools. Similar to MindUp, the Mindful Schools (MS) curriculum offers brief modularized lessons intended to be delivered two to three times per week. Teachers and other practitioners must participate in an online training in order to gain access to the curriculum, with the training course priced at approximately $125. Comparatively, this makes MS less accessible than MindUp and potentially more costly to implement for schools with limited budgets.

Mindful Schools has a weaker research base than does MindUp, with only one existing study (Black and Fernando, 2014). The study suffers from the same issue of nesting as do the MindUp studies, but included a much larger sample size (n of 409) than the two existing MindUp studies. Although the MS study indicated that teachers reported increased student attention, engagement, and respect for others, the lack of a comparison group makes it difficult to draw conclusions.

Despite the limited research base for the MS program, it is important to note that the MS study drew from a highly diverse population, with 83% of students receiving free or reduced lunch and 95.7% of ethnic minority background. The high rate of teacher-reported acceptability for implementation within a high-poverty, primarily minority school may suggest that the MS curriculum could be well received by ethnically and socioeconomically diverse student populations.

Learning to Breathe. Of the three SEL-oriented MBI's discussed, Learning to Breathe has the most published information, but still lacks a significant evidentiary basis. Like MindUp, Learning to Breathe is listed in CASEL's guide for effective SEL for secondary students. The intervention is derived from Mindfulness Based Stress Reduction and follows a similar structure as the other classroom-level interventions, offering brief lessons emphasizing recognition of thoughts and emotions, increasing awareness, managing emotional responses, and nonjudgmental thinking (Broderick & Metz, 2009; Kabat-Zinn, 1994).

Learning to Breathe has been discussed in several published works, but peer-reviewed studies on its effectiveness have been limited (Broderick & Frank, 2014; Broderick & Metz, 2009; Metz, et al. 2013). The existing data to support the program's effectiveness comes from a single study conducted with 120 female, predominantly white (93.3%) students at a private high school (Broderick & Metz, 2009). The study did include a control group, and participants receiving the intervention provided self-reports indicating decreased negative affect and increased levels of calmness, relaxation, and self-acceptance.

Limitations in Empirical Work

Mindfulness based psychosocial interventions are becoming increasingly popular in clinical and school settings. While this work is gaining empirical support, there are several important weaknesses in the existing research that should guide future research and intervention selection.

Establishing experimental control. Although the number of studies examining the efficacy of MBI's has dramatically increased in the past 2 decades (Harnett & Dawe, 2012),

studies that establish experimental control through gold standard, randomized control design continue to be in the minority (Felver, et al. 2015).

Diversity of participants. Mindfulness-based research is a victim of a historical research problem: participants tend to be of majority ethnic background and middle to high socioeconomic status. In many cases, participant demographics appear to be an afterthought to researchers, as participant ethnicity and socioeconomic status are not addressed in several studies (Felver, et al. 2015). Given the need for interventions that are culturally relevant, it is crucial to establish empirical examinations of not only the impact of MBI's on minority and low-income populations, but also the acceptability of these interventions for diverse communities (Gregoski, et al. 2011; Lee, et al. 2008; Liehr & Diaz, 2010; Wright & Gregoski, 2011). This issue is not unique to MBI's directed at children and youth; there has been a recent push to expand the assessment of acceptability of MBI's for diverse adult populations (see Fuchs, et al. 2013 and the 2013 special edition of Cognitive and Behavioral Practice for an in-depth examination of this issue).

Non-clinical populations. Mindfulness-based interventions are becoming increasingly popular in both research and clinical practice. Because MBI's are in the early stages of garnering empirical support, it may not be surprising to note that a majority of studies assess the impact of interventions on non-clinical populations (Durlak, et al. 2011; Kallapiran, et al. 2015; Zenner, Herrnleben-Kurz, & Walach, 2014; Zoogman et al., 2014). As Greenberg and Harris note in their 2012 summary of mindfulness-based research, the field of mindfulness will benefit from an increase in studies that are not only sound in their methodology, but that also target populations in actual need of MBI's for existing psychosocial concerns (Greenberg & Harris, 2012).

Overall, MBI's in school settings are beginning to benefit from standardized implementation measured with empirical studies of increasing quality. While studies have tended to examine impacts on non-clinical, middle-to-upper socioeconomic status populations, providing intervention to students with identified needs will be a necessary next step.

Current Study

Statement of the Problem

As the popularity of both clinic- and school-based MBI's has grown, high-quality empirical support for the efficacy of these interventions has been limited. A select number of clinical interventions such as MBSR, MBCT, DBT, and ACT have produced evidentiary support for their effectiveness with adults, and similar empirical support with children is increasing. School-based MBI's are also gaining popularity as components of strong social-emotional learning curriculum and are typically delivered as a universal intervention. Some initial empirical support for school-based MBI's exists, but the majority of studies have assessed intervention efficacy with typically developing students without identified mental health concerns, developmental delays, or learning disabilities. Currently, the field is lacking research on the effectiveness of MBI's for addressing behavioral and mental health concerns for students who are primarily served in special education settings.

Purpose of the Study

The purpose of this study is to examine the impact of a brief mindfulness intervention on externalizing and internalizing behavior, student stress levels, and teacher stress levels for students in self-contained special education settings. This study examines these impacts for students across three self-contained special education settings in first through tenth grades. Specifically, the study focuses on how participation in the brief mindfulness intervention affects

behavioral functioning within a small sample of students in special education and addresses four primary research questions:

Research question #1. Does a brief, classroom-based mindfulness intervention affect social and emotional functioning for students receiving special education services?

Hypothesis #1. It is hypothesized that overall teacher reports of social-emotional difficulties of students in the intervention condition will decrease over time compared to the overall functioning of students who do not receive the intervention.

- To assess this hypothesis, analysis will use the teacher SDQ ratings for the Total Difficulties composite.

Hypothesis #2. It is hypothesized that teacher reports of internalizing behaviors of students in the intervention condition will decrease more over time compared to the internalizing behaviors of students who do not receive the intervention.

- To assess this hypothesis, analysis will use the teacher SDQ ratings for the Emotional and Peer Problems subscales, as well as the Internalizing composite score.

Hypothesis #3. It is hypothesized that teacher reports of externalizing behaviors of students in the intervention condition will decrease more over time compared to the externalizing behaviors of students who do not receive the intervention.

- To assess this hypothesis, analysis will use the teacher SDQ ratings for the Conduct and Hyperactivity subscales, as well as the Externalizing composite score.

Hypothesis #4. It is hypothesized that overall self-reports of social-emotional difficulties of students in the intervention condition will decrease over time compared to the overall functioning of students who do not receive the intervention.

- To assess this hypothesis, analysis will use the student SDQ ratings for the Total Difficulties composite.

Hypothesis #5. It is hypothesized that self-reports of internalizing behaviors by students in the intervention condition will decrease more over time compared to self-reports of internalizing behaviors by students who do not receive the intervention.

- To assess this hypothesis, analysis will use the student SDQ ratings for the Emotional and Peer Problems subscales, as well as the Internalizing composite score.

Hypothesis #6. It is hypothesized that self-reports of externalizing behaviors by students in the intervention condition will decrease more over time compared to self-reports of externalizing behaviors by students who do not receive the intervention.

- To assess this hypothesis, analysis will use the student SDQ ratings for the Conduct Problems and Hyperactivity subscales, as well as the Externalizing composite score.

Hypothesis #7. It is hypothesized that overall parent reports of social-emotional difficulties of students in the intervention condition will decrease over time compared to the overall functioning of students who do not receive the intervention.

- To assess this hypothesis, analysis will use the parent SDQ ratings for the Total Difficulties composite.

Hypothesis #8. It is hypothesized that parent reports of internalizing behaviors of students in the intervention condition will decrease more over time compared to the internalizing behaviors of students who do not receive the intervention.

- To assess this hypothesis, analysis will use the parent SDQ ratings for the Emotional and Peer Problems subscales, as well as the Internalizing composite score.

Hypothesis #8. It is hypothesized that parent reports of externalizing behaviors of students in the intervention condition will decrease more over time compared to the externalizing behaviors of students who do not receive the intervention.

- To assess this hypothesis, analysis will use the parent SDQ ratings for the Conduct and Hyperactivity subscales, as well as the Externalizing composite score.

Research question #2. Does a brief, classroom-based mindfulness intervention affect student stress levels?

Hypothesis #9. It is hypothesized that self-reports of stress levels by students in the intervention condition will decrease more over time compared to self-reports of stress levels by students who do not receive the intervention.

- To assess this hypothesis, analysis will use student PSS ratings at pre and post-intervention.

Research question #3. Does a brief, classroom-based mindfulness intervention affect teacher stress levels?

Hypothesis #10. It is hypothesized that self-reports of stress levels by teachers in the intervention condition will decrease more over time compared to self-reports of stress levels by teachers who do not receive the intervention.

- To assess this hypothesis, analysis will use teacher PSS ratings at pre and post-intervention.

Research question #4. How do children and youth describe and use mindfulness techniques to address issues of anxiety, emotion regulation, and social interaction?

Hypothesis #11. It is hypothesized that students who participate in the intervention will demonstrate increased vocabulary around the use of coping strategies to address internalizing and externalizing behaviors and stress levels.

- To assess this hypothesis, student focus groups will be transcribed and analyzed for themes and the discussion of potential use of mindfulness-based coping strategies.

Chapter III: Methods

Setting

Teachers and students in self-contained special education classrooms from first to tenth grade within the Northshore School District were invited to participate in this study. Because the intervention is delivered on a class wide level, teachers were recruited first for participation. Teachers who provided consent for participation in the study were then provided with recruitment materials for students in their classrooms. Students who were in classrooms with non-participating teachers were not recruited for this study.

All classrooms included in this study fell under one of three classifications of special education service provision: Emotional Disturbance, Autism/Intellectual Disability/Specific Learning Disability, and Profound Cognitive Delay. All students participated in special education services for at least 50% of their day, and the majority of students spent all of their school day in the self-contained classrooms that served as the instructional setting for the study's intervention delivery. The following sections describe the individual classroom types.

Emotional disturbance classroom. Students in these classrooms had Individualized Education Plans (IEP's) and were served under the Individuals with Disabilities Education Act (IDEA) category of Emotional Disturbance (ED). Students served under the ED category may have a range of cognitive scores, as intellectual functioning is not a primary determinant for qualification under the ED category. While it would be inappropriate for a student with a significantly below average cognitive functioning level to be placed in this type of classroom, it would not be unusual for students with low average through above average cognitive scores to be served in this setting. The general criterion for placement is that students display challenging behaviors that impede their progress within a general education classroom. These students may

have diagnosed mental health concerns, but a diagnosis is not required for placement in an ED classroom. The school district had 4 primary-level and 3 secondary-level ED classrooms (7 total).

Autism/intellectual disability/specific learning disability classroom. Students in these classrooms were being served under the Autism, Intellectual Disability (ID), or Specific Learning Disability (SLD) IDEA service categories. They typically had normal cognitive functioning or had mild cognitive disabilities that impacted their ability to consistently participate in the general education classroom. Students served under the SLD category were likely to have average cognitive functioning skills, but required academic support in a significant number of areas to the degree that they were better supported outside of general education programming. The school district had 23 classrooms in this category, with 12 primary-level and 11 secondary-level classrooms.

Profound cognitive delay classroom. Students in these classrooms had significant cognitive impairments that affected their ability to perform activities for daily living, self-care, and to participate in academic activities. They primarily fell under the IDEA service categories of Intellectual Disability or Multiple Disabilities. These students typically were assigned to an Instructional Assistant (IA) at a ratio of either 2 students to 1 IA or at a 1:1 ratio. These classrooms comprised 20 of the total number of self-contained programs, with 11 primary and 9 secondary-level classrooms.

Participants

Participants included teachers and students in self-contained special education classrooms from first to tenth grade within the Northshore School District. Students in grades 1 – 12 were

recruited, but the oldest consenting student was in tenth grade. For the purposes of this study, recruitment began with teachers, and students were recruited from classrooms in which teachers had consented to participate. Subsequently, the intervention was delivered at the classroom level. Given this study design, students were nested in participating teacher classrooms. This issue of nested data is common in educational research and was important to consider during data analysis.

Teachers. As is typical in special education programming, classrooms in the Northshore School District were typically staffed with at least one certified teacher and multiple paraprofessional staff. Because paraprofessionals often accompanied students to activities outside of the classroom and were not reliably present in the classroom during planned intervention times, they were not recruited as part of this study. Recruitment information was only sent to the primary classroom teacher for each self-contained classroom in the school district.

To be eligible for participation in this study, teachers had to meet the following criteria at time of enrollment: 1) serve as the head teacher in a special education classroom, 2) work in a self-contained classroom where enrolled students spent at least 50% of their day in special education settings, and 3) be willing to participate in either the treatment or control condition.

Students. As mentioned above, students in this study were primarily placed in one of three categories of special education classrooms: Emotional Disturbance, Autism/Intellectual Disability/Specific Learning Disability, and Profound Cognitive Delay.

To be eligible for participation in this study, students had to meet the following criteria at time of enrollment: 1) be placed in one of three categories of self-contained special education programming for at least 50% of the school day, 2) a parent or guardian had to have provided

initial consent for the student's participation in the study if the student was under the age of 18, and 3) provide assent for participation in the study.

Procedures

Prior to the initiation of this study, the Institutional Review Board of the University of Washington reviewed and approved the consent forms, assent forms, and recruitment procedure, and ensured the protection of the participants in the study. The study was rated minimal risk and was carefully reviewed due to child participants. The Institutional Review Board of the University of Washington approved this study in an Expedited review on December 9, 2014.

Recruitment.

Teacher recruitment. Recruitment materials were sent to 58 teachers, but because several teachers provided team-teaching approaches, there were not 58 total classrooms in the district. Instead, 58 total teachers served 50 self-contained special education classrooms. Some classrooms used a co-teaching strategy, and in those cases, recruitment information was sent to both lead teachers. Of the 58 recruited teachers, 26 served students in grades 1 – 6, and 32 served students in grades 7 – 12.

All teachers working in self-contained special education settings within the school district were sent an initial email describing the study and expected time commitments. Teachers were also informed that by participating, they were eligible to be entered into a drawing for one of two $50 Amazon.com gift cards. Teachers were asked to respond to indicate whether they were interested in participating. Because information was sent to all special education teachers serving self-contained classrooms, recruited teachers served students from first through twelfth grades. Teachers who responded with interest in the study were sent a packet of further information and a consent form to sign and return.

Of the 58 teachers contacted for participation in this study, 18 teachers consented to participate. This is a 31% response rate. See Table 1 for details of teacher participation. Teacher demographics were not collected for this study.

Table 1. Descriptive Statistics of Teacher Sample

Classroom Type	Emotional Disturbance	Autism/Intellectual Disability/Specific Learning Disability	Profound Cognitive Delay	Total
Primary Teachers	1	4	2	7
Secondary Teachers	0	6	5	11
Total	1	10	7	18

Student recruitment. Students' families were sent recruitment materials if their primary classroom teacher provided initial consent for participation. Recruitment materials were sent to teachers and teachers were instructed to send materials home with each student. Parents or guardians who received the study information packet were asked to consider allowing their child to participate and were provided with stamped envelopes to return signed consent forms. They were informed that participation in the study had no effect on the type or quality of instruction that their child would receive and that they were free to rescind their consent at any time throughout the study.

Because teachers had to provide initial consent before students could be recruited, there were students who may have been willing to participate in this study who were never recruited. Teachers and students were recruited from a convenience sample, which may affect the overall validity of this study.

In total, recruitment materials were sent to 131 students across 18 classrooms, with 7 primary classrooms and 11 secondary classrooms. Of the 131 students recruited, 53 were in grades 1 through 6 and 78 were in grades 7 through 12. A total of 45 parents or guardians provided initial consent for their students to participate in the study, with 18 students in primary grades and 27 in secondary grades. This represented a 34% response rate among parents and guardians.

Upon receiving parental consent for participation, the investigator visited each participating classroom to seek student assent. Because this study emphasized the inclusion of populations who are typically overlooked for mindfulness-based research, the investigator placed special emphasis on the need for student assent for participation. This was especially important given the limited cognitive skills of some participants and the vulnerable nature of youth participants as a whole. It was determined that students had to be able to demonstrate at least a basic understanding of the study in order to provide assent as determined by their response to an assent script. In order to demonstrate a basic understanding of the study, students were asked to summarize the goals of the study after hearing the investigator read the assent script. Students were provided with a written copy of the script to review in order to accommodate students with language-based disabilities. Students who did not possess significant verbal skills were able to assent through the use of either augmentative communication or sign language. Students who were unable to provide a basic summary of the study when prompted were not included in the study.

Final sample. The final sample included 45 students across grades 1 through 10. The student gender population was not evenly distributed: 36 out of 45 (80%) students with permission to participate were male. This does not appear to be an issue of recruitment, as male

students made up the majority of the original recruitment group (105 of 131 students; 80%). Additional student demographics including ethnicity and socioeconomic status were not collected for this study.

Of the 45 students whose parents provided consent for participation, 8 students were not included in the study: six were unable to assent, one moved after completion of pre-intervention measures and one additional student refused to assent to participate and was not included in the study. Thus, in total 8 students whose guardians initially provided consent for participation were not included in the study, either because of significant cognitive delays that prohibited assent, attrition, or refusal of assent. Of these students, 7 were secondary-aged and 1 was in a primary grade.

After accounting for students not included due to assent and attrition issues, a total of 38 students were included in this study. The removal of non-assenting students created a fairly even distribution of students across grade levels: 47.4% of students were in primary grades and 52.6% of participating students were in secondary grades. See Table 2 for details of final student participation.

Table 2. Descriptive Statistics of Final Student Sample

Classroom Type	Emotional Disturbance	Autism/Intellectual Disability/Specific Learning Disability	Profound Cognitive Delay	Total
Primary Students	8	9	0	17
Secondary Students	0	13	8	21
Total Students	8	22	8	38

Measures. This study measured the impacts of participation in the mindfulness intervention using quantitative and qualitative data. The study employed two quantitative measures: the Strengths and Difficulties Questionnaire (SDQ; Goodman, 1997; See Appendix B) and the Perceived Stress Scale (PSS; Cohen, Kamarck & Mermelstein, 1983). Brief group interviews were conducted with students in the intervention groups in order to collect qualitative data regarding the impact of intervention participation.

Teachers and parents were asked to complete ratings of student behavior using the SDQ, and these reports were supported by student SDQ-self reports by students aged 11 and older. Teachers were asked to complete self-reports of their own stress levels using the PSS, as were students over age 8. Teachers and parents did not complete PSS ratings for students, as the PSS is only a self-report measure and does not allow respondents to rate other individuals. See Tables 3, 4, and 5 for data collection details.

Table 3. Strengths and Difficulties Questionnaire Sources.

Student Age	Teacher Rating of Student	Parent Rating of Student	Student Self-Rating
Youngest through 10 years old	Yes	Yes	No
11 years old through oldest	Yes	Yes	Yes

Table 4. Perceived Stress Scale Sources.

Student Age	Teacher Rating of Student	Parent Rating of Student	Student Self-Rating
Youngest through 7 years old	None	None	No
8 years old through oldest	None	None	Yes

Table 5. Data Collection Timeline.

Study Timeline and Student Age Ranges	Student SDQ Self-Report	Student PSS Self-Report	Parent SDQ	Teacher SDQ
Pre-Intervention				
Students ages 6 and 7 years	No	No	Yes	Yes
Student ages 8 – 10 years	No	Yes	Yes	Yes
Student ages 11 and older	Yes	Yes	Yes	Yes
Post-Intervention				
Students ages 6 and 7 years	No	No	Yes	Yes
Student ages 8 – 10 years	No	Yes	Yes	Yes
Student ages 11 and older	Yes	Yes	Yes	Yes

Strengths and difficulties questionnaire. Teachers, parents, and students aged 11 and older completed the SDQ. Both teachers and parents provided SDQ ratings of their students' behaviors, while students completed a self-report version of the SDQ. Questions on the Teacher, Parent, and Student forms of the SDQ are the same, with slight variations in wording to meet the developmental needs of student self-reporters. For the purposes of this study, students could elect to either complete the self-report independently or to read the questions with the investigator.

Teachers in both the control and treatment groups completed one SDQ for each student in their classroom at pre and post-intervention. Students in both conditions met individually with the investigator to complete the SDQ and additional measures at both pre and post-intervention. Parents completed the SDQ for their child at pre and post-intervention. See Table 5 for the data collection timeline.

This instrument includes 25 questions regarding individual student behavior and requires 8-10 minutes to complete. Respondents were asked to indicate how accurately certain emotions or behaviors described them, with response choices including “not true”, “somewhat true”, and “certainly true”. A complete version of the student SDQ is available in Appendix B, and a complete teacher version is available in Appendix C.

Items comprise 5 scales: 1) Emotional symptoms, 2) Conduct problems, 3) Hyperactivity/inattention, 4) Peer relationship problems, and 5) Prosocial behavior. Scales 1 through 5 are added together to generate a “Total Difficulties Score”. It is also feasible to conduct a three subscale scoring procedure that combines Emotional and Peer relationship problems into an Internalizing Scale, Conduct problems and Hyperactivity into an Externalizing Scale, and maintains the Prosocial Behavior Scale.

Reliability and validity. The SDQ has been used a great deal in psychological research and has strong psychometric properties. In the largest examinations of its reliability, both the teacher and self-report versions had high internal consistency (Cronbach’s alpha = 0.73) and adequate test-retest reliability (Cronbach’s alpha = 0.62) over the course of 4-6 months (Bourdon, Goodman, & Rae, 2005; Goodman, 2001). An additional examination of the SDQ’s validity showed it to be as good as the Child Behavior Checklist in identifying internalizing and externalizing behaviors, and better than the CBC at identifying inattention and hyperactivity symptoms (Goodman, 1997).

Recent studies have used the SDQ to measure potential psychosocial difficulties in children with developmental disabilities (Emerson, 2005). The study used the parent report version of the SDQ for youth with intellectual disabilities and found strong internal consistency for use with this population. This represents the limited research examining the use of the SDQ

with parents of individuals with intellectual disabilities, and further empirical assessment of the SDQ's psychometric properties for this population are unavailable.

Given the widespread use of the SDQ, its strong psychometric properties, limited research assessing its use with parents of individuals with intellectual disabilities, and its availability for use at no cost, the SDQ was deemed the most appropriate measure of psychological functioning for this study.

Perceived stress scale. The Perceived Stress Scale (PSS; Cohen, Kamarck & Mermelstein, 1983; see Appendix D) is a brief, 10-item self-report of perceived personal stress within the past month. It has been widely empirically validated and is indicated for use with individuals with a junior high school education (Cohen & Williamson, 1988). Respondents indicate how frequently they identify certain thoughts or reactions to difficult situations, with higher scores indicating a higher level of perceived personal stress. Respondents may indicate the frequency of stress responses with "never", "almost never", "sometimes", "fairly often", and "very often". The PSS is not intended to be a diagnostic tool, but rather to give an overview of an individual's stress level. Sample PSS questions are included in Appendix E.

Reliability and validity with youth populations. The PSS was originally created and normed with a large adult population that was demographically representative of the US population (Cohen et al. 1983). It was originally a 14-item scale, but was subsequently shortened to a 10 and 4-item format. The 4-item format does not have the strong reliability and validity of the 10-item format, leading to the decision to use the full, 10-item version for this study (Lee, 2012).

In adult and adolescent populations, the PSS has strong internal consistency - greater than .70 in a meta-analysis of studies using the PSS with adolescent and adult populations (Lee,

2012). Test-retest reliability for the PSS is strong (>.70 in Lee's meta-analysis) when the measure is given within a course of days, but drops significantly (<.55) when completed after 6 weeks. This is important given that participants for this study completed the PSS following a 5-week intervention and pre-intervention data collection occurred one week prior to the implementation of the intervention. Although the PSS has been translated into 25 languages and several studies have used it with non-English speaking populations outside of the United States, there is no current assessment of its cultural validity.

Although the PSS has been used in research with adolescents and its author reports that it is appropriate for use with individuals with a junior high school reading ability, there is little to no research assessing its specific reliability or validity with youth. While this is not ideal for the purpose of this study, the PSS is one of very few stress measures available in the public domain. Its strong reliability and validity with older populations made it the most appealing measure for this study. Because the PSS was used with children younger than the typical populations used to evaluate the psychometrics of the measure, three questions were reworded to remove words or phrases that were considered too advanced for younger students. The investigator piloted the reworded questions with 10 students aged 8 – 13 with mild cognitive delays or autism prior to the start of the study, and students were able to appropriately answer each question. See Table 3 for original and reworded questions.

Table 6. Reworded Questions For Perceived Stress Scale.

Original Format	Reworded Format
How often have you found that you could not cope with all the things you had to do?	How often have you found that you could not deal with all the things you had to do?
How often have you felt that you were on top of things?	How often have you felt that you had everything under control?
How often have you felt that difficulties were piling up so high that you could not overcome them?	How often have you felt that you could not handle all of the hard things in your life?

Research Design. This study used a two-group design with pre-post intervention data collection in a naturalistic classroom setting. Classrooms were coded as primary (grades 1-6) or secondary (grades 7 – 12) and randomly assigned to either the control or treatment condition in a repeated-measures design. Classrooms in the treatment condition received a 5-week, twice weekly mindfulness intervention using the Mindful Schools curriculum. Classrooms in the control condition did not receive the intervention at any point in the study. In order to ensure balanced distribution of grade levels across the control and experimental conditions, an even number of primary and secondary classrooms were randomly selected for each condition.

Intervention. The Mindful Schools curriculum is a 10-week, twice weekly mindfulness intervention intended for youth in both elementary and secondary school settings. Students in the treatment condition participated in a shortened version of the curriculum delivered twice weekly for 5 weeks. The intervention followed the first 10 lessons of the Mindful Schools curriculum, which includes twice weekly, 15-20 minute group activities to engage students in mindfulness-based activities. The investigator scheduled regular visits to each classroom that occurred at a convenient time for the teacher. Teachers were advised that all students in the classroom needed to be present in order to deliver the intervention. In many classrooms, some students spent at least 30 minutes per day out of the classroom engaged in activities such as speech or language

therapy, occupational or physical therapy, participation in general education settings, or other regularly scheduled, individual activities. In classrooms where it was not possible to find a time with all students present, the investigator worked with each teacher to ensure that all students participating in the study would be present.

Mindful Schools produces two curricula: one for grades Kindergarten through 5, and one for grades 6 – 12. Students participated in the curriculum that matched their grade, with the exception of classrooms in which the majority of students had significant developmental or cognitive delays. In such cases, the investigator delivered the K-5 curriculum in order to increase student comprehension and participation.

In preparation for this work, the investigator completed an 8-week online training course in the administration of the curriculum prior to the start of this study. Mindful Schools restricts access or distribution of its curricula without completion of a basic training course. Because of the limitations Mindful Schools places on distribution of its curricula, they are not attached to this dissertation.

Data collection. All data was collected by the primary investigator at both at both pre- and post-intervention data collection points. Teacher and parent-provided data was completed via mail-in forms, while student data was collected in person during the school day.

Teacher data collection. During the pre-intervention phase, teachers were sent one copy of the PSS and asked to rate their own stress levels. In addition, they were asked to complete the SDQ for each student participating in the study.

All participating teachers were asked to complete the self-report PSS, and 16 of the participating 18 teachers (89.9%) returned the pre-intervention rating. Following the end of the intervention, participating teachers were asked to complete a post-intervention PSS. Of the 16

teachers who provided pre-intervention ratings, 6 provided post-intervention ratings, a response rate of 37.5%. While this response rate is less than ideal, it is reflective of a general drop off in student, teacher, and parent responses for the post-intervention measures. In the case of teachers, the low PSS response may be attributable to a challenging data collection schedule in which post-intervention data collection occurred at the same time as federally mandated standardized testing and the end of the school year.

Teachers completed pre-intervention SDQ data for 29 of 38 participating students (76.3%). Missing data was primarily attributable to 3 teachers who did not submit any pre-intervention data for any of their students. Reminders to complete questionnaires were sent to teachers via email on 3 occasions across two weeks at both pre and post-intervention. Because the students in the 3 classrooms without teacher-completed questionnaires tended to have parent-provided pre-intervention data, the decision was made to continue their inclusion in the study in the hopes that sufficient additional data would be available for analysis.

Of the 29 students whose teachers completed pre-intervention ratings, 26 also had teacher-completed post-intervention SDQ data (89.7%). This high response rate represents a disparity between teacher-provided post-intervention response rate: the PSS and SDQ were mailed to teachers in the same packet, but teachers were significantly more likely to complete and return the student SDQ ratings than they were to return their own PSS self-ratings.

Parent data collection. Parents who had provided consent for their student's participation in the study were also asked to complete the SDQ during the pre-intervention phase. Requests for parent participation were mailed to parents, but because no contact information other than address was collected for parents, follow-up mailing reminders were too costly to complete. Of the 38 participating students, 27 parents completed the pre-intervention SDQ ratings, a response

rate of 69.2%. Parents who did not complete the initial SDQ tended to be from Autism/Intellectual Disability/Specific Learning Disability classrooms (11 of 12 missing respondents, 91.6%). It is important to consider that the majority of students participating in the study (22 of 38, 57.9%) were in this category of classrooms.

Post-intervention measures were only sent to parents who had completed the pre-intervention SDQ, as post-measures would not be feasible for analysis without a pre-intervention comparison. As mentioned above, 27 parents completed the pre-intervention measures and were mailed post-intervention measures. Parent completion of the post-intervention SDQ decreased significantly, with only 13 of 27 parents (48.1%) completing the follow-up measure. See Table 4 for an outline of data collection throughout the study.

Table 7. Data Collection Descriptive Statistics.

Data	Pre-Intervention	Post-Intervention
Parent		
SDQ	N = 27/38 (69.2%)	N = 13/38 (34.2%)
Teacher		
SDQ	N = 29/38 (76.3%)	N = 26/38 (68.4%)
PSS (Self-Report)	N = 16/18 (89.9%)	N = 6/18 (33.3%)
Student		
SDQ (Self-Report)	N = 11/15 (73.3%)	N = 7/15 (46.7%)
PSS (Self-Report)	N = 18/23 (78.3%)	N = 9/23 (39.1%)

Student data collection. The goal of the study was to collect pre- and post-intervention student-reported data for all participating students. Student-provided data consisted of the self-report version of the SDQ for students aged 11 and older and the PSS for students aged 8 and older. The primary researcher collected student data during visits to classrooms. For each student, the primary researcher met with the student individually in a private space outside of the

classroom in an effort to protect student privacy. Of the 38 participating students, 31 (81.5%) were old enough to complete the PSS self-report and 21 (55.3%) were old enough to complete the SDQ self-report. Seven students who were old enough to complete the PSS and SDQ self-reports had significant cognitive delays that impacted their ability to understand and respond to the questionnaires. Given the potential for inaccurate and incomplete responses, these 7 students did not complete the self-report measures. This left 23 students (60.5% of total study sample) eligible to complete the PSS and 14 (36.8% of total study sample) eligible to complete the SDQ.

Pre-intervention data collection. Eighteen of the 23 eligible students completed the PSS in the pre-intervention phase, and 11 of the eligible 15 students completed the pre-intervention SDQ. Four students did not complete the pre-intervention PSS or SDQ due to repeated absences or unavailability for individual data collection. One additional student was only eligible to complete the PSS and did not complete pre-intervention ratings.

Post-intervention data collection. Student-reported data proved to be difficult to collect during the post-intervention phase given the implementation of a new district-wide standardized testing schedule that directly conflicted with the study data collection timeline. Given this scheduling challenge, post-intervention data was not collected for several students who had completed pre-intervention ratings. Of the 18 students who completed pre-intervention PSS ratings, 9 (50%) completed post-intervention ratings. Of the 10 students who completed the pre-intervention SDQ ratings, 7 completed post-intervention ratings.

In addition to quantitative data collection, students in the treatment condition were asked to describe their experiences with learning about and using mindfulness. Students were asked three main questions in a focus group format: “What does mindfulness mean to you?”, “Have you tried using mindfulness outside of this class?”, and “If you had a friend that was interested in

mindfulness, what would you tell them about it?" Responses to these questions were transcribed and coded using conventional content analysis (Hsieh & Shannon, 2005) in order to identify themes. Additional information is presented in the results section.

Statistical Analyses for Research Questions

In order to address the research questions, variables from both the SDQ and PSS were used. The dependent and independent variables are described first, followed by a description of the comparison of means used in the analysis process.

Variables.

In the following section, both dependent and independent variables are described in detail.

Dependent variables.

The dependent variables for the current study are the Emotional Problems, Conduct Problems, Hyperactivity, Peer Problems, Prosocial, Internalizing and Externalizing composites of the Strengths and Difficulties Questionnaire, obtained at two measurement points: pre- and post-intervention. In addition, the Total Difficulties score, which represents a composite of all areas of functioning measured on the SDQ is included as a dependent variable. In addition to SDQ variables, the total score on the PSS is included as a dependent variable.

Independent variables.

The independent variable in the current study is student participation in a brief mindfulness intervention. Students in classrooms that were part of the experimental condition took part in twice-weekly mindfulness activities for 5 weeks.

Data analytic strategy.

Given the small sample size in this study and the use of both quantitative and qualitative data, a mixed-methods design was determined to be the most appropriate method for interpreting data and findings. Quantitative data was collected at both

pre- and post-intervention stages of the study for the control and treatment groups, and qualitative data was collected at post-intervention for classrooms that received the mindfulness intervention. Statistical analyses were performed using SPSS version 23.0.

Quantitative data analytic strategy.

Recoding data. Before analyzing the data, recoding was required for several variables. The SDQ uses a 3-point Likert scale, with the majority of ratings using the following scores: 0 = Not True, 1 = Somewhat True, and 2 = Certainly True. Five variables included in the SDQ are reverse coded, where 2 = Certainly True, 1 = Somewhat True, and 2 = Not True. These variables were recoded to reflect the reverse coding scores.

Missing items. As noted above, this study suffered from a lack of consistent post-intervention data from parents and student self-reports. Teacher data, while generally complete at pre and post, still suffered from some missing data, as well. In order to maintain the accuracy of analyses, two methods were used to address missing data: listwise deletion and mean substitution.

Listwise deletion entails the deletion of an entire case based on missing data criteria. It is important to note that listwise deletion can impact the sign and magnitude of estimates, in addition to the obvious issue of decreasing power. Despite these limitations, it was determined that listwise deletion was most appropriate in this case given the very small number of participants and the limited options for addressing missing data with a small sample size. Given the limited number of cases with complete pre- and post-intervention measures provided by parents, teachers, and students, listwise deletion was used to create a dataset with the most complete amount of information possible, while excluding cases with insufficient data. Based on the high percentage of complete teacher-provided data on the SDQ, cases were deleted if they

did not include both pre- and post-intervention teacher-provided SDQ scores. The original participant sample included 38 students, 29 of whom had complete pre-intervention SDQ data provided by the teacher (76.3%). The 9 students who did not have complete pre-intervention teacher data were deleted from the study and their results were not analyzed. Of the 29 students who did have pre-intervention teacher data, 26 also had complete teacher post-data and were included in the study (89.7%). Three students had teacher pre-data but lacked post-data and were not included in the study (6.9%). After completing the listwise deletion process, 9 students remained in the control condition and 17 in the experimental condition.

Mean substitution was used to ensure that the remaining 26 cases had the most complete data possible. Mean substitution is used in cases in which a composite is created from multiple variables and a mean of existing variables is used to account for a missing variable necessary for creation of the composite. As an example, the SDQ includes a composite score called "Emotional Problems" which is created from 5 variables. In using mean substitution, the composite can still be determined if one of the 5 necessary variables is missing by substituting a mean value of the remaining 4 variables as the value for the missing fifth variable. In conducting the mean substitution, the researcher determined that at least 80% of composite variables must be present in order to obtain a mean value for a missing variable. Requiring less than 80% of variables be present would impact the potential accuracy of any mean value substituted. Of the 26 cases remaining following the listwise deletion process, all had sufficient data to use mean substitution to accurately determine composite scores.

A significant amount of missing data at post-intervention would be considered missing at random (MAR) because the incomplete data could theoretically be predicted by previous measures. As an example, most missing post-intervention parent data is attributable to a lack of

pre-intervention data. As mentioned previously, parents who did not complete a pre-measure SDQ were not asked to complete a post-intervention version of the measure, resulting in MAR post-intervention data.

Given the disparity between teacher completion of post-intervention PSS and SDQ measures, it is important to consider whether personal stress level may be considered data that is missing not at random (MNAR). Data may be considered MNAR if their missingness may be predicted by the value of the variable. As an example, an individual asked to report their income may be uncomfortable disclosing that information and may choose not to respond to the question. In such a case, their missing data could be considered MNAR. For teachers asked to rate their stress levels, it is possible that disclosure may have been aversive to participants and they actively chose not to return the PSS questionnaire. Unfortunately, without input from teachers, it is difficult to determine the randomness of the missing PSS information.

Missing parent data. In examining the 26 cases with pre- and post-intervention data from teachers, only 10 cases also included complete pre-post SDQ data from parents. Of these 10 cases, 4 were in the control condition and 6 received the intervention. Although this is a small sample size, analyses were still viable to determine potential differences in conditions, as well as to evaluate similarities with teacher SDQ ratings.

Exclusion of data from analyses. As previously noted, post-intervention data was hindered by low response rates and difficulty collecting student self-report data. Extremely limited post-intervention data available for student SDQ self-reports and teacher and student PSS scores. Overall, the distribution of data was poor, with only 34.2% of parents and 46.7% of students completing both pre and post-intervention SDQ ratings. Similarly, only 33.3% of teachers and 39.1% of students provided pre and post-intervention PSS self-ratings. Based on the

very low response rates, these data were deemed inappropriate for quantitative analysis and were not included. Using the remaining, viable data, quantitative analyses were conducted on teacher and parent-completed SDQ ratings of student behavior.

Repeated measures ANOVA. The use of repeated measures ANOVAs and paired samples t-tests was selected as the method of analysis for this study because the combination approach allowed for examination of potential intervention effects while also being compatible with a small sample size. Given the small sample size in this study, options for data analysis were somewhat limited, and ANOVAs provide one of the most reasonable options for analysis in this case. However, the small sample size and unequal number of participants in each group presented a risk in the accurate interpretation of findings. In an effort to complement findings from ANOVAs, dependent samples t-tests were run in order to gain additional information about intervention impacts. A descriptive analysis of participant data was conducted to obtain the means for each of the factorial groups (Treatment by SDQ overall and subscale scores) in order to examine differences in means at pre- and post-intervention.

A traditional ANOVA design relies upon the assumption of homogeneity of variance. Because of the within subjects design, however, homogeneity of variance does not apply and the assumption of sphericity is used in its place to determine the accuracy of findings. Typically, Mauchly's test of sphericity is used, but is unnecessary for two-level ANOVAs such as those conducted for this study, as sphericity is always met.

In determining the model for calculating effect size, partial eta squared estimates were deemed the most appropriate approach. While omega squared estimates of effect size are less affected by small sample sizes, they require equal numbers of participants in each condition and would therefore be inappropriate in this study (Field, 2009). Based on Cohen (1969) and Miles &

Shevlin (2001), a small effect for $\eta^2 = 0.01$, a medium effect for $\eta^2 = 0.06$, and a large effect for $\eta^2 = 0.14$. In the case of t-tests, Cohen's d was used to measure effect size, with a small effect for d=.20, a medium effect for d=.50, and a large effect for d=.80 (Cohen, 1988).

Qualitative data analytic strategy. Qualitative data was collected via brief, 30 to 45 minute focus groups with students who received the mindfulness intervention. Focus groups were transcribed and coded for themes by the primary investigator using a conventional content analysis approach (Hsieh & Shannon, 2005). As Hsieh & Shannon describe, content analysis typically falls into one of three categories: conventional, summative, or directive. Conventional analysis, in comparison with directed analysis and summative analysis, allows for the development of themes within subjects with limited previous research. Typically, a directed approach requires the pre-determination of themes for analysis, which would be inappropriate given the small amount of existing qualitative research on mindfulness in schools. Similarly, summative analysis requires the researcher to quantify the frequency of topics as an assessment of themes. Based on these characteristics, conventional analysis appeared to be the most appropriate analytical method.

Focus groups with students were tape recorded and subsequently transcribed for analysis. Transcriptions were manually analyzed by the researcher without the use of qualitative analytical software. It is typically appropriate to conduct qualitative analyses of themes with at least two coders who can achieve interrater reliability. Given the limited resources available to complete this study, the qualitative analyses were completed only by the researcher.

Chapter IV: Results

Both quantitative and qualitative analyses were conducted in order to answer multiple research questions regarding both the impact and acceptability of a mindfulness intervention in special education programming. Descriptive data is presented first, followed by results of analyses organized by research question.

Descriptive data. As noted previously, listwise deletion was used to limit participants to those students with complete pre-post SDQ ratings from teachers, as this was the most complete data available. Following deletion procedures, 26 students remained in the study: 9 in the control condition and 17 in the treatment condition. Descriptive statistics are provided in Table 8.

Table 8. Student Characteristics Following Listwise Deletion

Condition	Number of students	Classroom type	Age (Mean)	Gender
Control	9		14.33 years (SD = 1.66)	Female (n=4, 44.4%) Male (n=5, 55.6%)
	5	Profound delay	15.6 years (SD=.89)	Female (n=4, 80%) Male (n = 1, 20%)
	4	Autism/Intellectual Disability/SLD	12.8 years (SD = .50)	Male (n=4, 100%)
Treatment	17		10.82 years (SD = 4.38)	Female (n=3, 17.6%) Male (n=14, 82.4%)
	2 (11.8%)	Profound delay	14.5 years (SD = .71)	Male (n=2, 100%)
	8 (47.1%)	Autism/Intellectual Disability/SLD	12.88 years (SD = 4.70)	Female (n=2, 25.0%) Male (n=6, 75.0%)
	7 (41.2%)	Emotional Disturbance	7.43 years (SD = 1.27)	Female (n=1, 14.3%) Male (n=6, 85.7%)
Study total	26		12.04 years (SD=4.00)	Female (n=7, 26.9%) Male (n=19, 73.1%)
	7	Profound delay	15.29 years (SD=.95)	Female (n=4, 57.1%) Male (n=3, 42.9%)
	12	Autism/Intellectual Disability/SLD	12.83 years (SD=3.76)	Female (n=2, 16.7%) Male (n=10, 83.3%)
	7	Emotional Disturbance	7.43 years (SD=1.27)	Female (n=1, 14.3%) Male (n=6, 85.7%)

Teacher-reported data on the SDQ for participating students provides helpful information about pre and post-intervention functioning across several emotional and behavioral domains. The SDQ is comprised of 5 subscales: Emotional Problems, Conduct Problems, Hyperactivity, Peer Problems, and Prosocial Skills. These subscales are summed to create larger composites, including Internalizing Behavior, Externalizing Behavior, and Total Difficulties. Across the subscales and composites, lower scores indicate increased functioning, with the exception of the Prosocial Skills subscale. Descriptive details of student scores across domains is provided in Table 9.

Table 9. Descriptive Data for Teacher-Reported SDQ Scores.

	Pre-Intervention				Post-Intervention				Change Score			
Subscale/ Composite	Control (N=9)		Treatment (N=17)		Control (N=9)		Treatment (N=17)		Control (N=9)		Treatment (N=17)	
	Mean	SD	Mean	SD	Mean	SD	Mean	SD	Mean	SD	Mean	SD
Emotional Problems	6.03	2.68	4.35	2.57	4.11	2.85	1.71	1.83	-1.92	3.13	-2.65	3.33
Conduct Problems	3.11	1.96	4.82	1.98	2.44	1.59	3.12	1.65	-.67	2.24	-1.71	2.37
Hyperactivity	6.22	1.86	5.24	2.33	6.22	2.39	4.59	2.58	.00	1.12	-.65	2.06
Peer Problems	4.44	1.13	4.12	1.50	4.50	1.46	3.66	1.35	.06	1.47	-.46	1.65
Prosocial Skills	6.33	3.74	6.88	3.60	4.69	3.44	5.94	2.84	-1.64	2.71	-.94	2.75
Internalizing	10.47	3.26	8.47	3.26	8.61	3.59	5.37	2.58	-1.86	3.96	-3.10	3.98
Externalizing	9.33	2.87	10.06	3.94	8.67	3.39	7.71	3.53	-.67	2.92	-2.35	3.60
Total Difficulties	19.81	4.94	18.53	6.31	17.28	5.54	13.07	4.66	-2.53	6.01	-5.46	6.92

Proposed data sources to answer research questions. Several research questions and corresponding hypotheses were developed in order to accurately understand the potential impacts of the mindfulness intervention for students. Specific data points were assigned to each research question and are noted in Table 10.

Table 10. Research Questions and Data Sources.

Research Questions and Hypotheses	Data Source
Research Question #1: Does a brief, classroom-based mindfulness intervention affect social and emotional functioning for students receiving special education services?	
Hypothesis #1: It is hypothesized that overall teacher reports of social-emotional difficulties of students in the intervention condition will decrease over time compared to the overall functioning of students who do not receive the intervention.	• Teacher-completed SDQ ratings for Total Difficulties Composite
Hypothesis #2: It is hypothesized that teacher reports of internalizing behaviors of students in the intervention condition will decrease more over time compared to the internalizing behaviors of students who do not receive the intervention.	• Teacher-completed SDQ ratings o Emotional Problems Subscale o Peer Problems Subscale o Internalizing Composite
Hypothesis #3. It is hypothesized that teacher reports of externalizing behaviors of students in the intervention condition will decrease more over time compared to the externalizing behaviors of students who do not receive the intervention.	• Teacher-completed SDQ ratings o Conduct Problems Subscale o Hyperactivity Subscale o Externalizing Composite
Hypothesis #4. It is hypothesized that overall self-reports of social-emotional difficulties of students in the intervention condition will decrease over time compared to the overall functioning of students who do not receive the intervention.	• Student-completed SDQ ratings for Total Difficulties Composite
Hypothesis #5. It is hypothesized that self-reports of internalizing behaviors by students in the intervention condition will decrease more over time compared to self-reports of internalizing behaviors by students who do not receive the intervention.	• Student-completed SDQ ratings o Emotional Problems Subscale o Peer Problems Subscale o Internalizing Composite
Hypothesis #6. It is hypothesized that self-reports of externalizing behaviors by students in the intervention condition will decrease more over time compared to self-reports of externalizing behaviors by students who do not receive the intervention.	• Teacher-completed SDQ ratings o Conduct Problems Subscale o Hyperactivity Subscale o Externalizing Composite

Hypothesis #7: It is hypothesized that overall parent reports of social-emotional difficulties of students in the intervention condition will decrease over time compared to the overall functioning of students who do not receive the intervention.	• Parent-completed SDQ ratings for Total Difficulties Composite
Hypothesis #8: It is hypothesized that parent reports of internalizing behaviors of students in the intervention condition will decrease more over time compared to the internalizing behaviors of students who do not receive the intervention.	• Parent-completed SDQ ratings o Emotional Problems Subscale o Peer Problems Subscale o Internalizing Composite
Hypothesis #9. It is hypothesized that parent reports of externalizing behaviors of students in the intervention condition will decrease more over time compared to the externalizing behaviors of students who do not receive the intervention.	• Parent-completed SDQ ratings o Conduct Problems Subscale o Hyperactivity Subscale o Externalizing Composite
Research question #2. Does a brief, classroom-based mindfulness intervention affect student stress levels?	
Hypothesis #10. It is hypothesized that self-reports of stress levels by students in the intervention condition will decrease more over time compared to self-reports of stress levels by students who do not receive the intervention.	• Student PSS self-reports
Research question #3. Does a brief, classroom-based mindfulness intervention affect teacher stress levels?	
Hypothesis #11. It is hypothesized that self-reports of stress levels by teachers in the intervention condition will decrease more over time compared to self-reports of stress levels by teachers who do not receive the intervention.	• Teacher PSS self-reports
Research question #4. How do children and youth describe and use mindfulness techniques to address issues of anxiety, emotion regulation, and social interaction?	
Hypothesis #12. It is hypothesized that students who participate in the intervention will demonstrate increased vocabulary around the use of coping strategies to address internalizing and externalizing behaviors and stress levels.	• Student focus group transcriptions

Research question 1: Does a brief, classroom-based mindfulness intervention affect social and emotional functioning for students receiving special education services?

Hypothesis #1: It is hypothesized that overall teacher reports of social-emotional difficulties of students in the treatment condition will decrease over time compared to the overall functioning of students who do not receive the intervention.

An assessment of the potential impacts of the mindfulness intervention on overall student functioning was conducted using the Total Difficulties composite of the SDQ. For this analysis, a repeated-measures ANOVA of teacher-provided SDQ data was conducted. The ANOVA identified a main effect for the within-subjects change in Total Difficulties, but did not find a significant interaction effect to indicate a statistically significant intervention impact, $F(1,24)=1.15$, $p=.295$, see Table 11.

Table 11. Repeated Measures ANOVA for Total Difficulties Composite.

Composite	Pre (N=26)				Post (N=26)				F	p
	Control		Treatment		Control		Treatment			
	Mean	SD	Mean	SD	Mean	SD	Mean	SD		
Total Difficulties	19.81	1.96	18.53	1.43	17.28	1.66	13.07	1.21	1.15	.295

Given the identification of a main effect and the small sample sizes in each group, a paired samples t-test was conducted to assess any potential between-subjects effects. Paired samples t-tests indicated a significant pre-post change in Total Difficulties score for students in the treatment group and no significant change for the control group (Treatment group $t = 3.25$, $p = 0.005$; Control $t = 1.26$, $p = 0.242$, $d = -0.45$). See Table 12.

Table 12. Paired Samples t-test for Teacher Total Difficulties.

	Paired Differences							
				95% Confidence Interval of the Difference				
Condition	Mean	SD	SE	Lower	Upper	t	df	p
Control	2.53	6.01	2.00	-2.09	7.15	1.26	8	.242
Treatment	5.46	6.92	1.68	1.90	9.02	3.25	16	.005

Hypothesis #2: It is hypothesized that teacher reports of internalizing behaviors of students in the intervention condition will decrease more over time compared to the internalizing behaviors of students who do not receive the intervention.

An assessment of the potential impacts of the mindfulness intervention on student internalizing behaviors was conducted using the Emotional Problems and Peer Problems subscales, as well as the Internalizing composite of the SDQ. Using a repeated measures ANOVA, a main effect was found for the within-subjects change in the Emotional Problems subscale, but no statistically significant interaction effect was identified, $F(1,24)=.294$, $p=.593$. Similarly, a main effect was found for the Internalizing composite, but no interaction effect was identified $F(1,24)=.575$, $p=.456$. No main or interaction effects were identified for the Peer Problems subscale, $F(1,24)=.608$, $p=.443$. See Table 13.

Table 13. Repeated Measures ANOVA for Teacher Internalizing Behaviors Ratings.

	Pre-Intervention (N=26)				Post-Intervention (N=26)					
	Control		Treatment		Control		Treatment			
Composite	Mean	SD	Mean	SD	Mean	SD	Mean	SD	F	p
Emotional Problems	6.03	.87	4.35	.63	4.11	.74	1.71	.54	.294	.593
Peer Problems	4.44	.46	4.12	.33	4.50	.46	3.66	.34	.608	.443

Internalizing	10.47	1.09	8.47	.79		8.61	.99	5.37	.72	.575	.456

A paired samples t-test was conducted to assess any potential between-subjects effects in the subscales and composite. No significant difference was identified for either the control or treatment groups on the Peer Problems test, but significant changes were noted for the Total Difficulties subscale and the Internalizing composite. Paired samples t-tests indicated a significant pre-post change in Emotional Problems (Treatment group $t = 3.27$, $p = 0.005$; Control $t = 1.84$, $p = 0.104$, $d = -0.23$) and Internalizing scores (Treatment group $t = 3.22$, $p = 0.005$; Control $t = 1.41$, $p = 0.197$, $d = -0.31$) for students in the treatment group and no significant change for the control group. See Table 14.

Table 14. Paired Samples t-tests for Teacher Internalizing Behaviors Ratings.

	Paired Differences							
				95% Confidence Interval of the Difference				
Condition	Mean	SD	SE	Lower	Upper	t	df	p
Emotional Problems								
Control	1.92	3.13	1.04	-.49	4.32	1.84	8	.104
Treatment	2.65	3.33	.81	.93	4.36	3.27	16	.005
Internalizing Problems								
Control	1.86	3.96	1.32	-1.19	4.91	1.41	8	.197
Treatment	3.10	3.98	.97	1.06	5.15	3.22	16	.005

Hypothesis #3. It is hypothesized that teacher reports of externalizing behaviors of students in the intervention condition will decrease more over time compared to the externalizing behaviors of students who do not receive the intervention.

The Conduct Problems and Hyperactivity subscales and Externalizing Composite were analyzed to determine whether the intervention had any impact on teacher-reported rates of externalizing behaviors. Repeated measures ANOVAs indicated a statistically significant main

effect for the Conduct subscale, but no interaction effect was identified between the subscale and group condition, F(1,24)=1.18, p=.289. Similarly, a main effect was identified for the Externalizing composite, but no interaction effect was identified, F(1,24)=1.46, p=.239. No main or interaction effects were identified for the Hyperactivity subscale, F(1,24)=.759, p=.392. See Table 15.

Table 15. Repeated Measures ANOVA for Teacher Externalizing Behaviors Ratings.

	Pre-Intervention (N=26)				Post-Intervention (N=26)					
	Control		Treatment		Control		Treatment			
Composite	Mean	SD	Mean	SD	Mean	SD	Mean	SD	F	p
Conduct	3.11	.66	4.82	.48	2.44	.54	3.12	.40	1.18	.289
Hyperactivity	6.22	.73	5.24	.53	6.22	.84	4.59	.61	.759	.392
Externalizing	9.33	1.21	10.06	.88	8.67	1.16	7.71	.85	1.46	.239

Follow up t-tests indicated some significant changes in the externalizing-specific measures. Specifically, the Conduct Problems subscale showed no significant changes from pre to post for the control group, but did identify significant changes in the treatment group (Treatment group t = 2.97, p = 0.009; Control t =.894, p = 0.397, d = -0.45). The Externalizing composite showed similar significant changes for the treatment group (Treatment group t = 2.69, p = 0.016; Control t =.686, p = 0.512, d = -0.51). No significant changes were identified for the Hyperactivity composite. See Table 16.

Table 16. Paired Samples t-tests for Teacher Externalizing Behaviors Ratings.

	Paired Differences							
				95% Confidence Interval of the Difference				
Condition	Mean	SD	SE	Lower	Upper	t	df	p
Conduct Problems								
Control	.67	2.24	.75	-1.05	2.39	.894	8	.397
Treatment	1.71	2.37	.57	.490	2.92	2.97	16	.009

Externalizing Problems								
Control	.67	2.91	.97	-1.57	2.91	.686	8	.512
Treatment	2.35	3.60	.87	.500	4.21	2.69	16	.016

Hypothesis #4. It is hypothesized that overall self-reports of social-emotional difficulties of students in the intervention condition will decrease over time compared to the overall functioning of students who do not receive the intervention.

Hypothesis #5. It is hypothesized that self-reports of internalizing behaviors by students in the intervention condition will decrease more over time compared to self-reports of internalizing behaviors by students who do not receive the intervention.

Hypothesis #6. It is hypothesized that self-reports of externalizing behaviors by students in the intervention condition will decrease more over time compared to self-reports of externalizing behaviors by students who do not receive the intervention.

Unfortunately, significant limitations on student-reported data collection hindered the study's examination of hypotheses 4, 5, and 6. As previously noted, only 5 of 26 participating students had complete pre and post-intervention self-reports for the SDQ. Of those students, only 2 were in the intervention condition. Given this very small number of participants in each group, findings would be not be appropriate for interpretation. Although quantitative results for this question were infeasible, subsequent qualitative information provided some insight into the effects of the intervention on student self-reported wellbeing.

Hypothesis #7: It is hypothesized that overall parent reports of social-emotional difficulties of students in the intervention condition will decrease over time compared to the overall functioning of students who do not receive the intervention.

An assessment of the potential impacts of the mindfulness intervention on overall student functioning was conducted using the Total Difficulties composite of the SDQ. For this analysis, a repeated-measures ANOVA of parent-provided SDQ data was conducted. The ANOVA identified a main effect for the within-subjects change in Total Difficulties and an interaction effect to indicate a statistically significant intervention impact, $F(1,7)=14.52$, $p=.007$, partial $\eta^2= 0.66$. See Table 17.

Table 17. Repeated Measures ANOVA for Parent Total Difficulties Composite.

	Pre-Intervention (N=26)				Post-Intervention (N=26)					
	Control		Treatment		Control		Treatment			
Composite	Mean	SD	Mean	SD	Mean	SD	Mean	SD	F	p
Total Difficulties	23.31	1.87	25.60	1.67	15.75	2.34	12.20	2.10	14.52	.007

A subsequent paired samples t-test was conducted to assess any between subjects effects. The t-test found statistically significant improvements in Total Difficulties scores for both control and treatment groups, limiting the potential for an intervention-specific effect, (Treatment group $t = 14.45$, $p = <.001$; Control $t =5.96$, $p = 0.009$).

Table 18. Paired Samples t-tests for Parent Total Difficulties Composite.

	Paired Differences							
				95% Confidence Interval of the Difference				
Condition	Mean	SD	SE	Lower	Upper	t	df	p
Total Difficulties								
Control	7.56	2.54	1.27	3.53	11.60	5.96	3	.009
Treatment	13.40	2.07	.93	10.83	15.97	14.45	4	<.001

Hypothesis #8: It is hypothesized that parent reports of internalizing behaviors of students in the intervention condition will decrease more over time compared to the internalizing behaviors of students who do not receive the intervention.

An assessment of the potential impacts of the mindfulness intervention on student internalizing behaviors was conducted using the parent-completed Emotional Problems and Peer Problems subscales, as well as the Internalizing composite of the SDQ. Using a repeated measures ANOVA, a main effect was found for the within-subjects change in the Emotional Problems subscale, but no statistically significant interaction effect was identified, $F(1,8)=.175$, $p=.687$. Similarly, a main effect was found for the Internalizing composite, but no interaction effect was identified $F(1,7)=.623$, $p=.456$. Similar to teacher-provided responses, neither a main effect nor an interaction effect were identified for the Peer Problems subscale, $F(1,7)=.350$, $p=.573$. See Table 19.

Table 19. Repeated Measures ANOVA for Parent Internalizing Behaviors Ratings.

	Pre-Intervention (N=26)				Post-Intervention (N=26)					
	Control		Treatment		Control		Treatment			
Composite	Mean	SD	Mean	SD	Mean	SD	Mean	SD	F	p
Emotional Problems	7.75	.68	6.00	.55	3.75	1.35	1.5	1.10	.175	.687
Peer Problems	5.25	.65	5.60	.58	4.75	.96	4.40	.86	.350	.573
Internalizing	13.00	1.21	11.80	1.08	8.50	1.75	6.20	1.57	.623	.456

A paired samples t-test was conducted to assess any potential between-subjects effects in the subscales and composite. Both the control and treatment groups showed significant changes from pre to post intervention for both the Emotional Problems subscale (Intervention group $t = 4.50$, $p = 0..001$; Control $t =3.70$, $p = 0.034$) and Internalizing composite (Intervention group t =

5.20, p = 0.014; Control t =5.44, p = 0.006). No significant difference was identified for either the control or treatment groups on the Peer Problems test. See Table 20.

Table 20. Paired Samples t-tests for Parent Internalizing Ratings.

	Paired Differences							
				95% Confidence Interval of the Difference				
Condition	Mean	SD	SE	Lower	Upper	t	df	p
Emotional Problems								
Control	4.00	2.16	1.08	.56	7.44	3.70	3	.034
Treatment	4.50	1.64	.67	2.78	6.22	6.71	5	.001
Peer Problems								
Control	.50	.58	.29	-.42	1.42	1.73	3	.182
Treatment	1.20	2.28	1.02	-1.63	4.03	1.18	4	.305
Internalizing Problems								
Control	4.50	1.73	.87	1.74	7.26	5.20	3	.014
Treatment	5.60	2.30	1.03	2.74	8.46	5.44	4	.006

Hypothesis #9. It is hypothesized that parent reports of externalizing behaviors of students in the intervention condition will decrease more over time compared to the externalizing behaviors of students who do not receive the intervention.

The Conduct Problems and Hyperactivity subscales and Externalizing Composite were analyzed to determine whether the intervention had any impact on parent-reported rates of externalizing behaviors. Repeated measures ANOVAs indicated a statistically significant main effect for the Conduct subscale and an interaction effect, $F(1,8)=0.28$, $p=.016$, partial $\eta^2= .537$. Similarly, a main effect was identified for the Hyperactivity subscale, and an interaction effect

indicated the effect of the intervention on scores F(1,8)=7.58, p=.025, partial η^2= .486. Finally, both main and interaction effects were identified for the Externalizing composite, F(1,8)=20.17, p=.002, partial η^2= .72. See Table 21.

Table 21. Repeated Measures ANOVA Results for Parent Externalizing Behaviors Ratings.

	Pre-Intervention (N=10)				Post-Intervention (N=10)					
	Control		Treatment		Control		Treatment			
Composite	Mean	SD	Mean	SD	Mean	SD	Mean	SD	F	p
Conduct	4.50	.57	6.50	.47	2.25	.60	1.83	.49	9.28	.016
Hyperactivity	5.81	.62	7.04	.51	5.00	1.14	3.67	.93	7.58	.025
Externalizing	10.31	.99	13.54	.81	7.25	.137	5.50	1.12	20.17	.002

Follow up t-tests indicated some significant changes in the externalizing-specific measures. Specifically, the Conduct Problems subscale showed significant changes from pre to post for both the control and treatment group (Intervention group t = 8.34, p = <.001; Control t =4.70, p = .018). The Externalizing composite showed similar significant changes for the treatment group (Intervention group t = 17.21, p = <.001; Control t =2.57, p = 0.08). The treatment group showed significant changes for the Hyperactivity composite, while the control group did not show significant changes (Intervention group t = 10.30, p = <.001; Control t =.77, p = 0.498, d = -1.60). See Table 22.

Table 22. Paired Samples t-test for Parent Conduct Problems Ratings.

	Paired Differences	
	95% Confidence Interval of the	

Condition	Mean	SD	SE	Difference Lower	Difference Upper	t	df	p
Conduct Problems								
Control	2.25	.96	.48	.73	3.77	4.70	3	.018
Treatment	4.67	1.37	.56	3.23	6.10	8.37	5	<.001
Externalizing Problems								
Control	3.06	2.38	1.19	-.73	6.86	2.57	3	.083
Treatment	8.04	1.14	.47	6.84	9.24	17.21	5	<.001
Hyperactivity								
Control	.81	2.12	1.06	-2.55	4.18	.77	3	.498
Treatment	3.38	.80	.33	2.53	4.22	10.30	5	<.001

Research question 2: Does a brief, classroom-based mindfulness intervention affect student stress levels?

The issue of student-level data collection also impacted the examination of student-reported stress levels. As was the case with the SDQ, only 7 students had complete pre-post PSS self-report data, with only 2 of those students in the control condition. Given the very limited number of complete PSS ratings, this research question could not be answered in this study.

Research question 3: Does a brief, classroom-based mindfulness intervention affect teacher stress levels?

Unfortunately, this study suffered from a lack of consistent pre-post data regarding teacher self-reports of stress levels. Given the very small number of complete pre-post data (6 cases total), and the homogeneity of participant conditions (5 control cases and 1 treatment case), it is inappropriate to conduct quantitative analyses on this data. Further considerations for future study are presented in the discussion section.

Research question 4. How do children and youth describe and use mindfulness techniques to address issues of anxiety, emotion regulation, and social interaction? Following the completion of classroom-level focus groups with students who received the mindfulness

intervention, discussions were transcribed. Themes were developed through the examination of the transcriptions and are presented here with illustrative quotes for support.

Defining mindfulness. Participants tended to describe mindfulness positively, noting that it was especially beneficial as a strategy for addressing stressful situations or moments of emotional dysregulation. Descriptions tended to focus on mindfulness as a practice for managing thoughts or emotions, rather than somatic responses to situations. One participant described mindfulness as, "a state of being relaxed and your mind is calm for a while from everything". Similarly, another student reported, "mindfulness is a process to help calm you down and to give you space in your head", while another student wrote, "mindfulness to me is empty (sic) out your mind for like 5 minutes."

Mindfulness as a benefit. When asked to define mindfulness in their own words, several students explained the concept in terms of its benefit to their day-to-day functioning, especially within the context of relationships. As one student described, "for me, you know, mindfulness, it's a superpower. You know, like it's a superpower like superheroes have. When I do it, I don't get mad at my teachers, I just take deep breaths. It's amazing!" Another student reported that mindfulness "will help calm you down and help you think through bad relationships with family members." Finally, another student contributed, "it's, it gives me love. It helps me get my heart big and makes me have even more love to give. I like it."

Expanding mindfulness. Participants described taking their mindfulness practice outside of the lessons provided through the intervention. Students of all ages described using brief mindfulness practices both in their home and school lives. One student reported using mindfulness during runs, saying, "...on trails while I am running, I do it the way in through my nose and out through my mouth." Several students described using mindfulness during

challenging interactions with parents or siblings. One student discussed his experience with a new baby: “My brother cries and it makes me mad. Sometimes I sit down in the downstairs and breathe and just let my brain get real quiet. I still hear him but I feel a little better.”

Using mindful attention. When asked about other uses for mindfulness besides emotional regulation, some students contributed descriptions of their use of mindful attention to increase their awareness of sounds, sights, and activities going on around them. Their descriptions ranged from increased recognition of sounds, “I heared (sic) kids laughing on the playground. You know I never heared that before?” to observations of the world around them, “I was at daycare after school and I was being quiet and looking out a window and you know what I saw? I saw a bunny! I was doing the breathing like we do and it helped me on my noticing, and then I saw a bunny!”

Recommending mindfulness. During focus groups, students were asked whether they would give any advice to other students who had not yet heard of or experienced mindfulness. Students tended to provide positive responses and were often eager to share their insights. One student remarked, “Just try it. At first you won’t like it because it’s just like (dramatic breathing in and out) but then you keep doing it and the bell helps and your brain gets so calm.” Another student described a day when he suffered a major seizure and had to be hospitalized: “I would tell them it can help with your thinking. I was mad from leaving school and scared at the hospital but I did big breaths and I got calmer again.”

Chapter V: Discussion

Summary and Implications of Findings

Using a between-group, pre-post design with intervention and control groups, this study attempted to assess the potential social-emotional impacts of a brief mindfulness intervention for students in self-contained special education programming within a naturalistic classroom setting. The intervention was delivered using the Mindful Schools curriculum in a 5-week, twice weekly delivery format. Data was collected at pre- and post-intervention for students in the control and treatment groups and included quantitative assessments of functioning and qualitative data regarding student perceptions of mindfulness.

The primary goals of the study were to measure the pre-post scores of student social-emotional functioning and stress as reported by students, teachers, and parents. Increased positive social-emotional functioning is a goal across educational settings, but represents an especially important issue for students in self-contained special education settings, many of whom experience behavioral or social-emotional challenges that necessitate their placement in special education, while others experience limited opportunities to practice and master social skill and emotion regulation skills with typically developing peers. Student and teacher stress levels were also of interest, as stress can play an important role in both student and educator

attitudes towards teaching and learning, as well as contributing to intra and interpersonal functioning. In examining the results of the analysis, it is important to note that the extremely small sample size significantly impacted the power of the study. As such, all findings, whether significant or nonsignificant, should be interpreted with caution.

Student social-emotional functioning. Repeated-measures ANOVAs assessing teacher-completed SDQ data failed to find significant interaction effects to demonstrate the impact of the mindfulness intervention between groups. Repeated measures ANOVAs using parent data were similar, though interaction effects were identified in the Conduct and Hyperactivity subscales, as well as the Total Difficulties and Externalizing composites. Although teacher ratings did not show the same effects as indicated by parents, it is encouraging to note the potential for positive impacts as evidenced by parent ratings.

In addition to between group differences identified through repeated measures ANOVAs, paired samples t-tests provided insight into within group differences and identified significant differences in the pre-post scores of the treatment groups in several areas. Specifically, t-test findings indicated statistically significant improvements from pre-post in the Total Difficulties composite, as well as the Internalizing, Externalizing, Emotional Problems, and Conduct Problems subscales.

Given the variability of students in the treatment group in terms of cognitive functioning and behavioral difficulties, it is especially important to note the improvements across a wide range of social-emotional functioning. Not only do change scores for each subscale represent potential benefits of the mindfulness curriculum, but they also contribute to the overall improved wellbeing measured through the Total Difficulties composite.

Students in the treatment group showed improvements in their internalizing and externalizing behavior scores. Although interpretation of this improvement is limited by the study's small power, the general trend towards improved internalizing and externalizing behaviors is supported by other investigations of mindfulness for youth (Greenberg & Harris, 2012; Zoogman, et al. 2015). Although the majority of studies of mindfulness in school settings are conducted with typically developing students, this study's findings suggest that interventions, and their potential benefits, can be extended to students with a range of disabilities.

It is important to consider the role of the variability in student service category when interpreting changes in social-emotional functioning, especially in the case of the Conduct Problems subscale. As noted above, despite significant recruitment efforts, only one classroom that served students under the Emotional Disturbance category participated in this study. This classroom was randomly assigned to the treatment condition, but the lack of a comparable classroom in the control condition, may have skewed findings for this subscale as students in the ED category are likely to demonstrate behavioral challenges as part of their disability. With this limitation in mind, it is still important to note the significant improvement demonstrated by the treatment group in the Conduct Problems subscale.

Student stress levels.

Analysis of student stress levels, measured via self-report on the Perceived Stress Scale, could not be completed within this study due to the very small number of complete pre-post student-reported PSS data. In total, only 5 students had complete data, with only 2 students in the control condition. Given this imbalance and the small total number of students with complete data, analysis would have been inappropriate. Although the study was not able to determine the

impact of the mindfulness intervention on youth stress levels, findings of decreased internalizing behaviors may be suggestive of lower stress levels.

In addition to internalizing behavior scores, student qualitative responses suggested that participants found value in mindfulness practice as a mediator of stressful situations. Several students described the use of mindfulness during challenging interactions with peers and family members, in addition to its use during day-to-day functioning. These responses suggest that with limited exposure, many students were able to adopt some aspect of a mindfulness practice in a way that they perceived as beneficial to their own functioning. This is an especially important consideration given the potential impact of stress on students who may struggle with cognitive, academic, and behavioral challenges. This finding may potentially expand on a similar study of adolescents with learning disabilities, which found that mindfulness practices were correlated with improved social skills and academic outcomes (Beauchemin, Hutchins, & Patterson, 2008).

Teacher stress levels. As noted previously, teachers did not provide sufficient pre-post data to inform this area of the study. Although the majority of teachers provided pre-intervention data regarding their stress level, only 6 teachers, 5 of whom were in the control condition, returned post-intervention data. Given this significant gap in the data, analyses were not feasible. This question remains important, not only as it has potential impacts on the functioning of teachers, but may serve as evidence to support teacher engagement in mindfulness practices. This issue should continue to be examined in future studies.

Student perceptions of mindfulness. Qualitative analyses of student focus group transcripts identified several themes throughout discussions. Specifically, five major themes emerged: 1) students were likely to identify mindfulness as a tool for coping with challenging interactions or emotional dysregulation, 2) students tended to report mindfulness as a beneficial

addition to their repertoire for navigating both usual and unusual contexts, 3) students were likely to describe using mindfulness outside of the study, and many reported using it in their homes, 4) students found benefit in mindful attention as a specific practice, and 5) students were likely to recommend mindfulness to peers.

Although quantitative analyses were limited in their findings, qualitative data, and the themes that emerged from analysis, indicate that the mindfulness intervention proved beneficial for many participating students. Perhaps especially encouraging, students reported the expansion of their mindfulness practices into their home lives. This is an exciting detail, as it suggests students may have generalized the practice and skills across settings and were not limited to school-based practice efforts. Interestingly, several students reported using mindfulness during challenging interactions with siblings or parents. This concept was not included in the mindfulness intervention, suggesting that students may have spent time identifying difficult situations in which mindfulness could effectively be applied. Although not all students reported such a growth in their use of mindfulness, it is interesting to note that when questioned, all students reported that they would be open to continuing their mindfulness practices after the conclusion of the study.

Limitations of the current study.

This study represented an initial attempt to implement a mindfulness intervention with students in special education, an effort that has, to the knowledge of the author, not previously been implemented in such a manner. Although findings may be impacted by the small number of participants in the study, this issue also provides insights into the design and implementation of future studies.

Teacher-level recruitment. First and foremost, the recruitment of teachers as a primary step was necessary given the classroom-level delivery of the mindfulness intervention. However, this limited the number of students who could be recruited for the study, as students in non-participating teachers' classes were not eligible to participate. As has been previously noted, this may have impacted the overall sample size and findings for this study, as a large proportion of students who were in eligible, self-contained classroom settings were not contacted for participation. This issue presents an issue not only regarding the generalization of findings to other populations, but also equity of access to the intervention.

Service categories across conditions. The limitation of primary teacher recruitment not only affected the sample size in this study, but also created a limited representation of service categories in the control and treatment conditions. As an example, only one teacher from a classroom serving students under the Emotional Disturbance (ED) category agreed to participate in this study. As a result and because of random assignment, the treatment condition included students from the ED category, while the control condition did not. Given the previous description of the three primary service categories in this study, it is evident that student functioning may vary widely depending on service category and could impact findings.

Missing data. Missing data significantly impacted the quality of analyses, as well as the potential for generalizations of findings. Several challenges affected both pre and post-intervention data collection. Perhaps the most prominent issue was the implementation of national standardized assessments during study implementation and post-study data collection. Because these assessments required significant amounts of student time without any scheduling flexibility, it became incredibly difficult to effectively schedule time for data collection. Additionally, the post-intervention data collection period coincided with the final 2 weeks of the

school year, a time when many teachers, students, and parents are extremely busy. It is possible that the significant decrease in teacher self-reports on the PSS may have been affected by the coinciding demands of the study and the end of the school year. Finally, this study was affected by a lack of resources to support high quality data collection procedures. Given the limited funds available to implement the study, details that could have increased parental response, such as incentives for returning questionnaires and multiple reminders sent in the mail, were not feasible. These issues undoubtedly played a role in the incomplete data at post-intervention and would be areas for increased attention in future studies.

Statistical significance. This study's small sample size may have potentially impacted the accuracy and strength of quantitative analyses. Because the study suffered from an overall small sample size, the statistical significance of findings may be inaccurate: potentially significant findings may have been lost in analyses that could not mitigate the small sample size. Additionally, the low power present in such a small sample size can negatively impact the likelihood that a statistically significant finding portrays a true effect. Button et al. (2013) provide an outline of such impacts in the field of neuroscience, though the points are applicable to social sciences research such as this study.

Future directions for research

As the field of mindfulness grows not only in American culture, but in schools as well, it will benefit from studies that can provide strong evidence to support its benefit for both children and adults. This study attempts to contribute to the field not only by assessing the impact of mindfulness in a school setting, but also by addressing a sub-population in schools: students in special education services. Although this study was impacted by a small sample size and missing

data in both the recruitment and analysis phases, it does demonstrate the feasibility of conducting future, larger scale studies with similar populations.

Perhaps most encouraging was the interest in participation on the part of teachers from several different classroom types. This may indicate the increasing interest in and acceptability of mindfulness practices on the part of educators. This is encouraging for future studies, as system-wide interventions require the support of individual teachers to experience broad uptake and long-term success (Forman et al., 2009; Horner, et al. 2005).

In terms of study design and implementation, the field will benefit from larger scale studies that can produce greater power. This has been a challenge in the recently burgeoning field of school-based mindfulness studies, and has inspired some doubt about not only the initial findings of small-scale studies such as this one, but also the validity of efforts by increasing number of schools implementing mindfulness interventions (Zenner, Herrnleben-Kurz, & Walach, 2014). As research around mindfulness moves forward, it will behoove the field to increase its use of consistent measures and to identify common elements of interventions in an effort to standardize practices for replication.

Future research will also benefit from an increased examination of the quality and quantity of training necessary for the implementation of mindfulness practices. As is the case with school-based mental health and behavior-change, efforts undoubtedly experience increased uptake and use when they are implemented by school staff rather than outside providers. Not only does the use of interventions by teachers and staff demonstrate buy-in, it decreases the potential complications of reliance on outside interventionists. In considering future mindfulness-based studies, research examining mindfulness-based training for teachers will be

an important contribution to understanding best practices in including and supporting teachers as facilitators of school-based mindfulness programming.

As both students and teachers experience increasing levels of stress, and the number of students with significant mental health concerns grows, mindfulness offers a viable tool for the reduction of symptoms and increased resiliency. Although mindfulness as a school-based practice is increasing in popularity, the research has been slow to catch up and the lack of large-scale demonstrations of efficacy has impacted its acceptance. This study offered a small, initial examination of the impacts of a brief mindfulness intervention on student social-emotional functioning. Although the study suffered from small sample sizes, it did demonstrate some initial findings to indicate the potential value of mindfulness practices for students with a wide range of cognitive, behavioral, and social-emotional functioning.

References

Baer, R. A. (2003). Mindfulness training as a clinical intervention: A conceptual and empirical review. Clinical psychology: Science and practice, 10(2), 125-143.

Barnes, V. A., Davis, H. C., Murzynowski, J. B., & Treiber, F. A. (2004). Impact of meditation on resting and ambulatory blood pressure and heart rate in youth. Psychosomatic medicine, 66(6), 909-914.

Barnes, V. A., Pendergrast, R. A., Harshfield, G. A., & Treiber, F. A. (2008). Impact of breathing awareness meditation on ambulatory blood pressure and sodium handling in prehypertensive African American adolescents. Ethnicity & disease, 18(1), 1.

Beauchemin, J., Hutchins, T. L., & Patterson, F. (2008). Mindfulness meditation may lessen anxiety, promote social skills, and improve academic performance among adolescents with learning disabilities. Complementary Health Practice Review, 13(1), 34-45.

Belfield, C., Bowden, A. B., Klapp, A., Levin, H., Shand, R., & Zander, S. (2015). The economic value of social and emotional learning. Journal of Benefit-Cost Analysis, 6(03), 508-544.

Benish, S. G., Quintana, S., & Wampold, B. E. (2011). Culturally adapted psychotherapy and the legitimacy of myth: a direct-comparison meta-analysis. Journal of Counseling Psychology, 58(3), 279.

Benson, P. L. (2006). All kids are our kids: What communities must do to raise caring and responsible children and adolescents. San Francisco: Jossey-Bass.

Biegel, G. M., Brown, K. W., Shapiro, S. L., & Schubert, C. M. (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.

Bierman, K. (2002). Evaluation of the first 3 years of the Fast Track prevention trial with children at high risk for adolescent conduct problems. Journal of Abnormal Child Psychology, 30(1), 19-35.

Bishop, S. R. (2002). What do we really know about mindfulness-based stress reduction?. Psychosomatic medicine, 64(1), 71-83.

Bishop, S. R., Lau, M., Shapiro, S., Carlson, L., Anderson, N. D., Carmody, J., Segal, S.V., Abbey, S., Speca, M., Velting, D., & Devins, G. (2004). Mindfulness: A Proposed Operational Definition. Clinical Psychology: Science and Practice, 11(3), 230–241. http://doi.org/10.1093/clipsy.bph077

Bourdon, K. H., Goodman, R., Rae, D. S., Simpson, G., & Koretz, D. S. (2005). The Strengths and Difficulties Questionnaire: US normative data and psychometric properties. Journal of the American Academy of Child & Adolescent Psychiatry, 44(6), 557-564.

Broderick, P. C., & Frank, J. L. (2014). Learning to BREATHE: An intervention to foster mindfulness in adolescence. New directions for youth development, 2014(142), 31-44.

Broderick, P. C., & Metz, S. (2009). Learning to BREATHE: A pilot trial of a mindfulness curriculum for adolescents. Advances in School Mental Health Promotion, 2(1), 35-46.

Bringewatt, E. H., & Gershoff, E. T. (2010). Falling through the cracks: Gaps and barriers in the mental health system for America's disadvantaged children. Children and Youth Services Review, 32(10), 1291-1299.

Broderick, P. C., & Metz, S. (2009). Learning to BREATHE: A pilot trial of a mindfulness curriculum for adolescents. Advances in school mental health promotion, 2(1), 35-46.

Broderick, P. C., & Frank, J. L. (2014). Learning to BREATHE: An intervention to foster mindfulness in adolescence. New directions for youth development, 2014(142), 31-44.

Brown-Chidsey, R., & Steege, M. (2010). Response to intervention: Principles and effective strategies. New York: Guilford.

Bruhn, A. L., Lane, K. L., & Hirsch, S. E. (2014). A review of tier 2 interventions conducted within multitiered models of behavioral prevention. Journal of Emotional and Behavioral Disorders, 22(3), 171-189.

Bugental, J. F. (1963). Humanistic psychology: A new breakthrough. American Psychologist, 18(9), 563.

Button, K. S., Ioannidis, J. P., Mokrysz, C., Nosek, B. A., Flint, J., Robinson, E. S., & Munafò, M. R. (2013). Power failure: why small sample size undermines the reliability of neuroscience. Nature Reviews Neuroscience, 14(5), 365-376.

Carmody, J., & Baer, R. A. (2008). Relationships between mindfulness practice and levels of mindfulness, medical and psychological symptoms and well-being in a mindfulness-based stress reduction program. Journal of behavioral medicine, 31(1), 23-33.

Catron, T., Harris, V. S., & Weiss, B. (1998). Posttreatment results after 2 years of services in the Vanderbilt School-Based Counseling project. M.H.Epstein, M.H., K. Kutash, A. Duchnowski, (Eds). Outcomes for children and youth with emotional and behavioral disorders and their families: Programs and evaluation best practices (pp. 633-656). Austin, TX, US: PRO-ED.

Center for Benefit-Cost Studies in Education. (2015). The economic value of social and emotional learning. Columbia University: Belfield, C., Bowden, B., Klapp, A., & Levin, H.

Cohen, J. (1988). The effect size index: d. Statistical Power Analysis for the Behavioral Sciences. 2nd ed. New Jersey: Lawrence Erl-baum Associates, 20-26.

Cohen, S., Kamarck, T., & Mermelstein, R. (1983). A global measure of perceived stress. Journal of health and social behavior, 385-396.

Cohen, S., & Williamson, G. (1988). Perceived stress in a probability sample of the US In S. Spacapam & S. Oskamp (Eds.), The social psychology of health: Claremont symposium on applied social psychology (pp. 31-67).

Conduct Problems Prevention Research Group. (1999). Initial impact of the Fast Track prevention trial for conduct problems: II. Classroom effects. Journal of consulting and clinical psychology, 67(5), 648.

Cook, C. R., Browning-Wright, D., Gresham, F. M., & Burns, M. K. (2011). A guide to refining and retooling school psychological practice in the era of RtI. Palm Beach: LRP Publications.

Davidson, R. J., & Goleman, D. J. (1977). The role of attention in meditation and hypnosis: A psychobiological perspective on transformations of consciousness. International Journal of Clinical and Experimental Hypnosis,25(4), 291-308.

Diekstra, R. F., & Gravesteijn, C. (2008). Effectiveness of school-based social and emotional education programmes worldwide. Social and emotional education: An international analysis, 255-312.

Dix, K. L., Slee, P. T., Lawson, M. J., & Keeves, J. P. (2012). Implementation quality of whole-school mental health promotion and students' academic performance. Child and adolescent mental health, 17(1), 45-51.

Dryden, W., & Still, A. (2006). Historical aspects of mindfulness and self-acceptance in psychotherapy. Journal of Rational-Emotive & Cognitive-Behavior Therapy, 24(1), 3–28. http://doi.org/10.1007/s10942-006-0026-1

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.

Dwyer, S. B., Nicholson, J. M., & Battistutta, D. (2006). Parent and teacher identification of children at risk of developing internalizing or externalizing mental health problems: A comparison of screening methods. Prevention Science, 7(4), 343-357.

Elias, M. J. (1997). Promoting social and emotional learning: Guidelines for educators. ASCD: Alexandria.

Emerson, E. (2005). Use of the Strengths and Difficulties Questionnaire to assess the mental health needs of children and adolescents with intellectual disabilities. Journal of Intellectual and Developmental Disability, 30(1), 14-23.

Espelage, D. L., Low, S., Polanin, J. R., & Brown, E. C. (2013). The impact of a middle school program to reduce aggression, victimization, and sexual violence. Journal of Adolescent Health, 53(2), 180-186.

Farrell, A. D., Meyer, A. L., & White, K. S. (2001). Evaluation of Responding in Peaceful and Positive Ways (RIPP): A school-based prevention program for reducing violence among urban adolescents. Journal of clinical child psychology, 30(4), 451-463.

Farrell, A. D., Valois, R. F., & Meyer, A. L. (2002). Evaluation of the RIPP-6 violence prevention program at a rural middle school. American Journal of Health Education, 33(3), 167-172.

Farrell, A. D., Valois, R. F., Meyer, A. L., & Tidwell, R. P. (2003). Impact of the RIPP violence prevention program on rural middle school students. Journal of Primary Prevention, 24(2), 143-167.

Felver, J. C., Celis-de Hoyos, C. E., Tezanos, K., & Singh, N. N. (2015). A Systematic Review of Mindfulness-Based Interventions for Youth in School Settings. Mindfulness, 1-12.

Fenning, P., & Rose, J. (2007). Overrepresentation of African American students in exclusionary discipline the role of school policy. Urban Education, 42(6), 536-559.

Field, A. (2009). Discovering statistics using SPSS. New York: Sage.

Flook, L., Smalley, S. L., Kitil, M. J., Galla, B. M., Kaiser-Greenland, S., Locke, J., ... & Kasari, C. (2010). Effects of mindful awareness practices on executive functions in elementary school children. Journal of Applied School Psychology, 26(1), 70-95.

Forman, S. G., Olin, S. S., Hoagwood, K. E., Crowe, M., & Saka, N. (2009). Evidence-based interventions in schools: Developers' views of implementation barriers and facilitators. School Mental Health, 1(1), 26-36.

Fuchs, C., Lee, J. K., Roemer, L., & Orsillo, S. M. (2013). Using mindfulness-and acceptance-based treatments with clients from nondominant cultural and/or marginalized backgrounds: Clinical considerations, meta-analysis findings, and introduction to the special series: Clinical considerations in using acceptance-and mindfulness-based treatments with diverse populations. Cognitive and Behavioral Practice, 20(1), 1-12.

Gauntlett-Gilbert, J., Connell, H., Clinch, J., & McCracken, L. M. (2013). Acceptance and values-based treatment of adolescents with chronic pain: Outcomes and their relationship to acceptance. Journal of pediatric psychology, 38(1), 72-81.

Goldstein, T. R., Axelson, D. A., Birmaher, B., & Brent, D. A. (2007). Dialectical behavior therapy for adolescents with bipolar disorder: a 1-year open trial. Journal of the American Academy of Child & Adolescent Psychiatry, 46(7), 820-830.

Goleman, D. (2006). Emotional intelligence. Bantam.

Goodman, R. (1997). The Strengths and Difficulties Questionnaire: a research note. Journal of child psychology and psychiatry, 38(5), 581-586.

Goodman, R. (2001). Psychometric properties of the strengths and difficulties questionnaire. Journal of the American Academy of Child & Adolescent Psychiatry, 40(11), 1337-1345.

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

Greco, L. A., & Hayes, S. C. (2008). Acceptance & mindfulness treatments for children & adolescents: A practitioner's guide. New Harbinger Publications.

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

Greenberg, M. T., Domitrovich, C., & Bumbarger, B. (2001). The prevention of mental disorders in school-aged children: Current state of the field. Prevention & treatment, 4(1), 1a.

Greenberg, M. T. (2010). School-based prevention: current status and future challenges. Effective Education, 2(1), 27-52.

Greenberg, M. T., Weissberg, R. P., O'Brien, M. U., Zins, J. E., Fredericks, L., Resnik, H., & Elias, M. J. (2003). Enhancing school-based prevention and youth development through coordinated social, emotional, and academic learning. American psychologist, 58(6-7), 466.

Gregory, A., Skiba, R. J., & Noguera, P. A. (2010). The Achievement Gap and the Discipline Gap Two Sides of the Same Coin?. Educational Researcher, 39(1), 59-68.

Gregoski, M. J., Barnes, V. A., Tingen, M. S., Harshfield, G. A., & Treiber, F. A. (2011). Breathing awareness meditation and lifeskills training programs influence upon ambulatory blood pressure and sodium excretion among African American adolescents. Journal of Adolescent Health, 48(1), 59-64.

Grossman, P., Niemann, L., Schmidt, S., & Walach, H. (2004). Mindfulness-based stress reduction and health benefits. A meta-analysis. Journal of Psychosomatic Research, 57(1), 35–43. http://doi.org/10.1016/S0022-3999(03)00573-7

Grossman, D. C., Neckerman, H. J., Koepsell, T. D., Liu, P. Y., Asher, K. N., Beland, K., ... & Rivara, F. P. (1997). Effectiveness of a violence prevention curriculum among children in elementary school: A randomized controlled trial. Jama, 277(20), 1605-1611.

Harnett, P. H., & Dawe, S. (2012). The contribution of mindfulness-based therapies for children and families and proposed conceptual integration. Child and Adolescent Mental Health, 17(4), 195-208.

Hawken, L. S., MacLeod, K. S., & Rawlings, L. (2007). Effects of the behavior education program (BEP) on office discipline referrals of elementary school students. Journal of Positive Behavior Interventions, 9(2), 94-101.

Hawken, L. S., O'Neill, R. E., & MacLeod, K. S. (2011). An investigation of the impact of function of problem behavior on effectiveness of the behavior education program (BEP). Education and Treatment of Children, 34(4), 551-574.

Hayes, S. C., Barnes-Holmes, D., & Roche, B. (2001). Relational frame theory: A post-Skinnerian account of human language and cognition. Springer Science & Business Media.

Hayes, S. C. (2004). Acceptance and commitment therapy, relational frame theory, and the third wave of behavioral and cognitive therapies. Behavior therapy, 35(4), 639-665.

Hayes, S. C., Luoma, J. B., Bond, F. W., Masuda, A., & Lillis, J. (2006). Acceptance and commitment therapy: model, processes and outcomes. Behaviour Research and Therapy, 44(1), 1–25. http://doi.org/10.1016/j.brat.2005.06.006

Hayes, S. C., Wilson, K. G., Gifford, E. V., Follette, V. M., & Strosahl, K. (1996). Experiential avoidance and behavioral disorders: a functional dimensional approach to diagnosis and treatment. Journal of consulting and clinical psychology, 64(6), 1152.

Heckman, J. J., & Kautz, T. (2012). Hard evidence on soft skills. Labour economics, 19(4), 451-464.

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

Holsen, I., Iversen, A. C., & Smith, B. H. (2009). Universal Social Competence Promotion Programme in School: Does it Work for Children with Low Socio-Economic Background?. Advances in School Mental Health Promotion, 2(2), 51-60.

Horner, R. H., Sugai, G., Todd, A. W., & Lewis-Palmer, T. (2005). School-wide positive behavior support. Individualized supports for students with problem behaviors: Designing positive behavior plans, 359-390.

Hsieh, H. F., & Shannon, S. E. (2005). Three approaches to qualitative content analysis. Qualitative health research, 15(9), 1277-1288.

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, 5(4), 264-274.

Jones, S. M., & Bouffard, S. M. (2012). Social and Emotional Learning in Schools: From Programs to Strategies. Social Policy Report. Volume 26, Number 4. Society for Research in Child Development.

Jones, S. M., Brown, J. L., Hoglund, W. L., & Aber, J. L. (2010). A school-randomized clinical trial of an integrated social–emotional learning and literacy intervention: Impacts after 1 school year. Journal of consulting and clinical psychology, 78(6), 829.

Kabat-Zinn, J. (1982). An outpatient program in behavioral medicine for chronic pain patients based on the practice of mindfulness meditation: Theoretical considerations and preliminary results. General hospital psychiatry, 4(1), 33-47.

Kabat-Zinn, J. (1990). Full catastrophe living. Delta.

Kabat-Zinn, J. (1994). Wherever you go, there you are: Mindfulness meditation in everyday life. Hyperion.

Kabat-Zinn, J. (2003). Mindfulness-based interventions in context: past, present, and future. Clinical psychology: Science and practice, 10(2), 144-156.

Kabat-Zinn, J. (2006). Mindfulness-Based Interventions in Context: Past, Present, and Future. Clinical Psychology: Science and Practice, 10(2), 144–156. http://doi.org/10.1093/clipsy.bpg016

Kabat-Zinn, J. (2011). Some reflections on the origins of MBSR, skillful means, and the trouble with maps. Contemporary Buddhism, 12(1), 281–306. http://doi.org/10.1080/14639947.2011.564844

Kallapiran, K., Koo, S., Kirubakaran, R., & Hancock, K. (2015). Review: Effectiveness of mindfulness in improving mental health symptoms of children and adolescents: a meta-analysis. Child and Adolescent Mental Health, 20(4), 182-194.

Katz, L. Y., & Cox, B. J. (2002). Dialectical behavior therapy for suicidal adolescent inpatients: A case study. Clinical Case Studies, 1(1), 81-92.

Katz, L. Y., Cox, B. J., Gunasekara, S., & Miller, A. L. (2004). Feasibility of dialectical behavior therapy for suicidal adolescent inpatients. Journal of the American Academy of Child & Adolescent Psychiatry, 43(3), 276-282.

Katz, L. Y., Gunasekara, S., & Miller, A. L. (2002). Dialectical behavior therapy for inpatient and outpatient parasuicidal adolescents. Adolescent Psychiatry, 26, 161.

Lee, E. H. (2012). Review of the psychometric evidence of the perceived stress scale. Asian Nursing Research, 6(4), 121-127.

Lee, J., Semple, R. J., Rosa, D., & Miller, L. (2008). Mindfulness-based cognitive therapy for children: Results of a pilot study. Journal of Cognitive Psychotherapy, 22(1), 15-28.

Kilgus, S. P., Reinke, W. M., & Jimerson, S. R. (2015). Understanding mental health intervention and assessment within a multi-tiered framework: Contemporary science, practice, and policy. School Psychology Quarterly, 30(2), 159.

Liehr, P., & Diaz, N. (2010). A pilot study examining the effect of mindfulness on depression and anxiety for minority children. Archives of Psychiatric Nursing, 24(1), 69-71.

Linehan, M. M., Armstrong, H. E., Suarez, A., Allmon, D., & Heard, H. L. (1991). Cognitive-behavioral treatment of chronically parasuicidal borderline patients. Archives of general psychiatry, 48(12), 1060-1064.

Linehan, M. M., Heard, H. L., & Armstrong, H. E. (1993). Naturalistic follow-up of a behavioral treatment for chronically parasuicidal borderline patients. Archives of general psychiatry, 50(12), 971-974.

MacPherson, H. A., Cheavens, J. S., & Fristad, M. A. (2013). Dialectical behavior therapy for adolescents: Theory, treatment adaptations, and empirical outcomes. Clinical child and family psychology review, 16(1), 59-80.

Meiklejohn, J., Phillips, C., Freedman, M. L., Griffin, M. L., 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.

Merikangas, K. R., He, J. P., Brody, D., Fisher, P. W., Bourdon, K., & Koretz, D. S. (2010). Prevalence and treatment of mental disorders among US children in the 2001–2004 NHANES. Pediatrics, 125(1), 75-81.

Merikangas, K. R., He, J. P., Burstein, M., Swendsen, J., Avenevoli, S., Case, B., Georgiades, K., Heaton, L., Swanson, S., & Olfson, M. (2011). Service utilization for lifetime mental disorders in US adolescents: results of the National Comorbidity Survey–Adolescent Supplement (NCS-A). Journal of the American Academy of Child & Adolescent Psychiatry, 50(1), 32-45.

Merrell, K. W., & Walker, H. M. (2004). Deconstructing a definition: Social maladjustment versus emotional disturbance and moving the EBD field forward. Psychology in the Schools, 41(8), 899-910.

Metz, S. M., Frank, J. L., Reibel, D., Cantrell, T., Sanders, R., & Broderick, P. C. (2013). The effectiveness of the learning to BREATHE program on adolescent emotion regulation. Research in Human Development, 10(3), 252-272.

Metzler, C. W., Biglan, A., Noell, J., Ary, D. V., & Ochs, L. (2001). A randomized controlled trial of a behavioral intervention to reduce high-risk sexual behavior among adolescents in STD clinics. Behavior Therapy, 31(1), 27-54.

Miles, J., & Shevlin, M. (2001). Applying regression and correlation: A guide for students and researchers. Sage.

Miller, J. J., Fletcher, K., & Kabat-Zinn, J. (1995). Three-year follow-up and clinical implications of a mindfulness meditation-based stress reduction intervention in the treatment of anxiety disorders. General hospital psychiatry, 17(3), 192-200.

Miller, A. L., Rathus, J. H., Linehan, M. M., Wetzler, S., & Leigh, E. (1997). Dialectical behavior therapy adapted for suicidal adolescents. Journal of Psychiatric Practice®, 3(2), 78.

Miller, J. J., Fletcher, K., & Kabat-Zinn, J. (1995). Three-year follow-up and clinical implications of a mindfulness meditation-based stress reduction intervention in the treatment of anxiety disorders. General hospital psychiatry, 17(3), 192-200.

Mitchell, B. S., Stormont, M., & Gage, N. A. (2011). Tier two interventions implemented within the context of a tiered prevention framework. Behavioral disorders, 241-261.

Napoli, M., Krech, P. R., & Holley, L. C. (2005). Mindfulness training for elementary school students: The attention academy. Journal of Applied School Psychology, 21(1), 99-125.

Nelson-Gray, R. O., Keane, S. P., Hurst, R. M., Mitchell, J. T., Warburton, J. B., Chok, J. T., & Cobb, A. R. (2006). A modified DBT skills training program for oppositional defiant adolescents: Promising preliminary findings. Behaviour Research and Therapy, 44(12), 1811-1820.

Payton, J., Weissberg, R. P., Durlak, J. A., Dymnicki, A. B., Taylor, R. D., Schellinger, K. B., & Pachan, M. (2008). The Positive Impact of Social and Emotional Learning for Kindergarten to Eighth-Grade Students: Findings from Three Scientific Reviews. Technical Report. Collaborative for Academic, Social, and Emotional Learning (NJ1).

Rathus, J. H., & Miller, A. L. (2000). DBT for adolescents: Dialectical dilemmas and secondary treatment targets. Cognitive and Behavioral Practice, 7(4), 425-434.

Rathus, J. H., & Miller, A. L. (2014). DBT® Skills Manual for Adolescents. Guilford Publications.

Roemer, L., & Orsillo, S. M. (2002). Expanding our conceptualization of and treatment for generalized anxiety disorder: Integrating mindfulness/acceptance-based approaches with existing cognitive-behavioral models. Clinical Psychology: Science and Practice, 9(1), 54-68.

Rogers, C. R. (1963). Toward a science of the person. Journal of Humanistic Psychology.

Rogers, C. R. (1992). The necessary and sufficient conditions of therapeutic personality change. Journal of consulting and clinical psychology, 60(6), 827.

Rones, M., & Hoagwood, K. (2000). School-based mental health services: A research review. Clinical child and family psychology review, 3(4), 223-241.

Safer, D. L., Telch, C. F., & Agras, W. S. (2001). Dialectical behavior therapy for bulimia nervosa. American Journal of Psychiatry, 158(4), 632-634.

Schonert-Reichl, K. A., & Lawlor, M. S. (2010). The effects of a mindfulness-based education program on pre-and early adolescents' well-being and social and emotional competence. Mindfulness, 1(3), 137-151.

Segal, Z. V., Williams, J. M. G., & Teasdale, J. D. (2002). Mindfulness-based cognitive therapy for depression: A new approach to relapse prevention. New York: Guilford.

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

Schonert-Reichl, K. A., & Lawlor, M. S. (2010). The effects of a mindfulness-based education program on pre-and early adolescents' well-being and social and emotional competence. Mindfulness, 1(3), 137-151.

Schonert-Reichl, K. A., Oberle, E., Lawlor, M. S., Abbott, D., Thomson, K., Oberlander, T. F., & Diamond, A. (2015). Enhancing cognitive and social–emotional development through a simple-to-administer mindfulness-based school program for elementary school children: A randomized controlled trial. Developmental psychology, 51(1), 52.

Semple, R. J., & Lee, J. (2008). Treating anxiety with mindfulness: Mindfulness-based cognitive therapy for children. Acceptance and mindfulness interventions for children, adolescents and families, 63-87.

Semple, R. J., Lee, J., & Miller, L. F. (2006). Mindfulness-based cognitive therapy for children. Mindfulness-based treatment approaches: Clinician's guide to evidence base and applications, 143-166.

Semple, R. J., Lee, J., Rosa, D., & Miller, L. F. (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., & Semple, R. J. (2005). Mindfulness-based cognitive therapy for children: A randomized group psychotherapy trial developed to enhance attention and reduce anxiety (Doctoral dissertation, Columbia University).

Shonkoff, J. P., Duncan, G. J., Fisher, P. A., Magnuson, K., & Raver, C. (2011). Building the brain's "air traffic control" system: how early experiences shape the development of executive function. Contract, (11).

Sibinga, E. M., Perry-Parrish, C., Chung, S. E., Johnson, S. B., Smith, M., & Ellen, J. M. (2013). School-based mindfulness instruction for urban male youth: a small randomized controlled trial. Preventive medicine, 57(6), 799-801.

Skiba, R. J., Horner, R. H., Chung, C. G., Karega Rausch, M., May, S. L., & Tobin, T. (2011). Race is not neutral: A national investigation of African American and Latino disproportionality in school discipline. School Psychology Review, 40(1), 85.

Sklad, M., Diekstra, R., Ritter, M. D., Ben, J., & Gravesteijn, C. (2012). Effectiveness of school-based universal social, emotional, and behavioral programs: Do they enhance students' development in the area of skill, behavior, and adjustment?. Psychology in the Schools, 49(9), 892-909.

Swain, J., Hancock, K., Hainsworth, C., & Bowman, J. (2015). Mechanisms of change: Exploratory outcomes from a randomised controlled trial of acceptance and commitment therapy for anxious adolescents. Journal of Contextual Behavioral Science, 4(1), 56-67.

Hayes, S. C., Strosahl, K. D., & Wilson, K. G. (1999). Acceptance and commitment therapy. New York: Guilford Press.

Teasdale, J. D., Segal, Z., & Williams, J. M. G. (1995). How does cognitive therapy prevent depressive relapse and why should attentional control (mindfulness) training help?. Behaviour Research and therapy, 33(1), 25-39.

Thera, N. (1962). Satipatthana: The heart of Buddhist meditation: A handbook of mental training based on the Buddha's way of mindfulness. Rider.

Thich, H. N. (1976). The miracle of mindfulness: An introduction to the practice of meditation (Mobi Ho, Translation).

Trupin, E. (2007). Evidence-based treatment for justice-involved youth. The mental health needs of young offenders. Forging paths toward reintegration and rehabilitation, 340-367.

Waddell, C., Hua, J. M., Garland, O. M., DeV. Peters, R., & McEwan, K. (2007). Preventing mental disorders in children: A systematic review to inform policy-making. Canadian Journal of Public Health/Revue Canadienne de Sante'e Publique, 166-173.

Weare, K., & Nind, M. (2011). Mental health promotion and problem prevention in schools: what does the evidence say? Health promotion international, 26(suppl 1), i29-i69.

White, L. S. (2012). Reducing stress in school-age girls through mindful yoga. Journal of Pediatric Health Care, 26(1), 45-56.

Wright, L. B., Gregoski, M. J., Tingen, M. S., Barnes, V. A., & Treiber, F. A. (2011). Impact of stress reduction interventions on hostility and ambulatory systolic blood pressure in African American adolescents. Journal of Black Psychology, 37(2), 210-233.

Zack, S., Saekow, J., Kelly, M., & Radke, A. (2014). Mindfulness based interventions for youth. Journal of Rational-Emotive & Cognitive-Behavior Therapy, 32(1), 44-56.

Zenner, C., Herrnleben-Kurz, S., & Walach, H. (2013). Mindfulness-based interventions in schools-a systematic review and meta-analysis. Frontiers in psychology, 5, 603-603.

Zoogman, S., Goldberg, S. B., Hoyt, W. T., & Miller, L. (2015). Mindfulness interventions with youth: A meta-analysis. Mindfulness, 6(2), 290-302.

Appendix A

Strengths and Difficulties Questionnaire – Student Self-Report

For each item, please mark the box for Not True, Somewhat True or Certainly True. It would

help us if you answered all items as best you can even if you are not absolutely certain. Please give your answers on the basis of how things have been for you over the last six months.

	Not True	Somewhat True	Certainly True
I try to be nice to other people. I care about their feelings.			
I am restless, I cannot stay still for long			
I get a lot of headaches, stomachaches, or sickness			
I usually share with others, for example, CD's, games, food			
I get very angry and often lose my temper			
I would rather be alone than with people of my age			
I usually do as I am told			
I worry a lot			
I am helpful if someone is hurt, upset or feeling ill			
I am constantly fidgeting or squirming			
I have one good friend or more			
I fight a lot. I can make other people do what I want			
I am often unhappy, depressed or tearful			
Other people my age generally like me			
I am easily distracted, I find it difficult to concentrate			
I am nervous in new situations. I easily lose confidence			
I am kind to younger children			
I am often accused of lying or cheating			
Other children or young people pick on me or bully me			
I often offer to help others (parents, teachers, other children)			
I think before I do things			
I take things that are not mine from home, school, or elsewhere			
I get along better with adults than with people my own age			
I have many fears, I am easily scared			
I finish the work I'm doing. My attention is good			

Appendix B
Strengths and Difficulties Questionnaire – Teacher Report (age 4 – 10)

For each item, please mark the box for Not True, Somewhat True or Certainly True. It would help us if you answered all items as best you can even if you are not absolutely certain. Please give your answers on the basis of the child's behavior in the last month.

	Not True	Somewhat True	Certainly True
Considerate of other people's feelings			
Restless, overactive, cannot stay still for long			
Often complains of headaches, stomach-aches or sickness			
Shares readily with other children, for example toys, treats, pencils			
Often loses temper			
Rather solitary, prefers to play alone			
Generally well behaved, usually does what adults request			
Many worries or often seems worried			
Helpful if someone is hurt, upset or feeling ill			
Constantly fidgeting or squirming			
Has at least one good friend			
Often fights with other children or bullies them			
Often unhappy, depressed or tearful			
Generally liked by other children			
Easily distracted, concentration wanders			
Nervous or clingy in new situations, easily loses confidence			
Kind to younger children			
Often lies or cheats			
Picked on or bullied by other children			
Often offers to help others (parents, teachers, other children)			
Thinks things out before acting			
Steals from home, school or elsewhere			
Gets along better with adults than with other children			
Many fears, easily scared			
Good attention span, sees work through to the end			

Appendix C

Strengths and Difficulties Questionnaire – Teacher Report (age 11-17)

For each item, please mark the box for Not True, Somewhat True or Certainly True. It would help us if you answered all items as best you can even if you are not absolutely certain. Please give your answers on the basis of the child's behavior in the last month.

	Not True	Somewhat True	Certainly True
Considerate of other people's feelings			
Restless, overactive, cannot stay still for long			
Often complains of headaches, stomach-aches or sickness			
Shares readily with other children, for example books, games, food			
Often loses temper			
Would rather be alone than with other youth			
Generally well behaved, usually does what adults request			
Many worries or often seems worried			
Helpful if someone is hurt, upset or feeling ill			
Constantly fidgeting or squirming			
Has at least one good friend			
Often fights with other youth or bullies them			
Often unhappy, depressed or tearful			
Generally liked by other youth			
Easily distracted, concentration wanders			
Nervous in new situations, easily loses confidence			
Kind to younger children			
Often lies or cheats			
Picked on or bullied by other youth			
Often offers to help others (parents, teachers, children)			
Thinks things out before acting			
Steals from home, school or elsewhere			
Gets along better with adults than with other youth			
Many fears, easily scared			
Good attention span, sees work through to the end			

Appendix E
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 indicated by circling how often you felt or thought a certain way.

	Never	Almost Never	Sometimes	Fairly Often	Very Often
In the last month, how often have you been upset because of some-thing that happened unexpectedly?					
In the last month, how often have you felt that you were unable to control the important things in your life?					
In the last month, how often have you felt nervous and "stressed"?					
In the last month, how often have you felt confident about your ability to handle your personal problems?					
In the last month, how often have you felt that things were going your way?					
In the last month, how often have you found that you could not cope with all the things that you had to do?					
In the last month, how often have you been able to control irritations in your life?					
In the last month, how often have you felt that you were on top of things?					
In the last month, how often have you been angered because of things that were outside of your control?					
In the last month, how often have you felt difficulties were piling up so high that you could not overcome them?					