

ASSESSING THE ADOLESCENT EXPERIENCE OF MINDFULNESS

by

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## **Abstract**

This investigation explored a relatively understudied aspect of mindfulness: the experience of ninth graders in a public school classroom who practice a brief, daily mindfulness activity. The mixed-method study utilized both qualitative and quantitative research methods. Semi-structured interviews investigated the experience of those students and gleaned further information surrounding the question, “What was the experience of mindfulness like for you?” The data from these interviews was analyzed using thematic analysis and was cross-coded by two outside researchers not part of the data collection. This study also explored the effects of classroom mindfulness activities through the Child and Adolescent Mindfulness Measure (Greco, Dew, & Baer, 2005). The participating students and a control group of students within the same school building and subject area took the measure before and after the study to determine the effects, if any, of participating in classroom mindfulness activities on adolescent mindfulness. These results were analyzed using paired sample T-tests using SPSS software.

Results from both the interviews and the survey showed that students participating in the mindfulness activities had a consistently positive experience with the mindfulness exercise and increased their level of mindfulness. While unfamiliar with mindfulness at the beginning of the study, students in the experimental condition reported they found the experience beneficial in terms of personal growth, classroom environment, and adaption to other areas of their life. Any negative experiences concerning the mindfulness exercises centered around the initial unfamiliarity with mindfulness and specific components of one exercise. These results were further confirmed by the entries in a daily journal kept by the teacher.

## **Table of Contents**

List of Tables .....	iv
Acknowledgements.....	v
Dedication .....	vi
Chapter 1 - Introduction.....	1
Significance of Study	2
Procedure	3
Theoretical Approach	3
Chapter 2--Review of the Literature	4
Chapter 3--Method	10
Procedure	10
Chapter 4--Results	15
Chapter 5--Discussion	19
Limitations	21
Clinical and Therapeutic Implications	21
References	23
Appendix A: Child and Adolescent Mindfulness Measure (CAMM; Greco, Baer, & Smith, 2010)	28
Appendix B: Interview questions	30
Appendix C: Mindfulness Exercises	31

## **List of Tables**

Table 4.1 Results of T-tests .....	17
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## **Acknowledgements**

After twenty years working as a teacher, school counselor, and family counselor/educator, I chose to return to school and begin the process of earning a Ph.D. in Marriage and Family Therapy. While I had anticipated the academic rigor, the challenges of learning new technology, and the long weekend drives back and forth to Nebraska, I have found that completing this Master's degree has far surpassed any expectations I might have had. Yes, it was academically rigorous; yes, my learning curve for the technology presented a challenge, and yes; I came to know each curve along Highway 77 North. What I had not anticipated was the outstanding professionalism, camaraderie, and mentorship that exists in the Marriage and Family Therapy Program at Kansas State University. I wish, first of all, to thank the other eight members of my Master's cohort. You are brilliant, driven, and darn funny. You have become my good friends. I also wish to thank Dr. Joyce Baptist and Dr. Judith Hughey who served on my committee and strengthened this project and this paper. Thanks to Jana Biery for her willingness to "try something new" with her students and facilitate this study with professionalism and enthusiasm. Finally, I extend my sincere gratitude to my major professor, Dr. Sandra Stith. Her support, guidance, and friendship has been the highlight of this project.

## **Dedication**

For Kelly, Jana, Brooke, and Paige—my Eagle's wings.

## **Chapter 1 - Introduction**

Mindfulness, a way of paying attention with kindness and curiosity, is an ancient practice that is currently experiencing an upsurge of popularity and support. Medical experts, therapists, educators, and corporate executives are all touting the benefits of mindfulness interventions. Published research studies have shown mindfulness activities and mindfulness-related therapies correlate with gains in emotional regulation (Wegner, Erber, & Zanakos, 1993) worksite stress (Bond & Bunce, 2000), math anxiety (Zettle, 2003), eating disorders (Sandoz, Wilson, & Dufrene, 2010), immune functioning (Davidson & Kabat-Zinn, 2004), weight loss (Tapper, Shaw, Illsley, Hill, Bond, and Moore, 2009), sleep quality and insomnia issues (Caldwell, Harrison, Adams, Quin, and Greeson, 2007), test anxiety, (Bach & Hayes, 2002), diabetes management (Gregg et al., 2007), generalized anxiety disorder and depression (Dalrymple & Herbert, 2007), epilepsy (Lundgren et al., 2008), smoking cessation (Bowen and Marlatt, 2009), chemotherapy effectiveness (Branstetter, Wilson, Hildebrandt, and Mutch, 2004), and back pain (Hayes, 2002). Mindfueled, a professional organization devoted to mindfulness in the classroom reports on their website ([www.mindfueled.org](http://www.mindfueled.org), 2011) that only a few minutes of daily mindfulness practices help students to better focus and pay attention.

Often associated with the traditions of Eastern thought and religion, mindfulness practice does not depend on or compete with any religion, cultural context or belief system (Baer, 2006). Simple examples of mindfulness practice include observing the breath and coordinating rise and fall of the abdomen, slowing down and regulating the breathing process, noticing various thoughts as they appear and disappear, noticing tightness or openness within the body, paying attention to sounds or physical sensations within the room, and feeling the specific actions as the

body performs a function such walking or unlocking a door. When practicing mindfulness, one is paying attention to thoughts, emotions, and sensations, instead of automatically reacting to them. The more one trains to be mindful, the more one realizes the fleeting nature of things, and the easier things are to accept (Carmody & Baer, 2009). Mindfulness practice has been a part of my life for over twenty years after attending a contemplative workshop led by Fr. Thomas Keating. This study will incorporate my personal interest in mindfulness activities, my thirteen years of earlier work as a school counselor, and my current research interest in the effectiveness of mindfulness-based therapies in marriage and family therapy.

## **Purpose of Study**

Numerous studies document the effectiveness of mindfulness with adult populations. However, research with children and adolescents is in its initial stages and several important questions remain unexplored (Burke, 2010). While educators past and present, including Montessori, recognize that practices which align with mindfulness are generally a “good idea,” the discussion is frequently based on anecdotal observations (Burke, 2010). The purpose of this study is two-fold: First, I will document the experience of adolescents and their teacher as they practice a brief, teacher-led mindfulness exercise throughout a nine-week period. This research answers the question, “what is practicing mindfulness in the classroom like for you?” Secondly, this work explores the effects of the nine-week practice on the student’s own perceived mindfulness compared with the perceptions of students in a classroom that does not practice the interventions.

## **Significance of Study**

Mindfulness has been shown to be effective in many areas related to health, education, and business. The vast majority of the work has been done with adult populations. Few studies use a child or adolescent population and those that do have not looked at the child or adolescent's experience of mindfulness. This investigation helps to fill existing gaps in the literature as it examines the adolescent experience of mindfulness in the classroom from both a qualitative and quantitative approach. In addition to potential benefits to the participating students, this inquiry will also add to the body of literature in both the fields of mindfulness therapies and education. Marriage and Family Therapists can utilize this information as they introduce mindfulness to their adolescent clients.

## **Theoretical Approach**

This study was guided by Relational Frame Theory (RFT, Hayes, 2005). RFT allows an understanding of how language influences behavior by adopting the view that the cognition of language and our individual relationship to our internal and external verbalizations affects our behaviors. As we grow, these verbal relationships become more complex and we develop relational frames that not only determine our sense of self and other, but generate individual rules that determine how an individual will behave. RFT has a broad scope, providing explanations for a wide variety of complex human behaviors in domains such as problem solving, metaphors self, spirituality, and values. Rigid patterns of relating can result in psychological inflexibility that often leads to anxiety related disorders, stress-related illnesses, inappropriate or dangerous behaviors, and relationship concerns (Wilson, 2005). Hayes (2012) proposes that human suffering is the result of entanglement with the cognitive networks resulting from language. The practice of mindfulness undermines this dominance on verbal activities. Instead of entangling

and engaging with our thoughts, mindfulness allows for acceptance, defusion, contact with present moment and a transcendent sense of self. This theory led me to believe that incorporating mindfulness activities in the classroom would be helpful to students.

Recent holistic approaches to Western medicine and health care have incorporated mindfulness practices through the work of Dr. Jon Kabat-Zinn (1994), Dr. Bernie Seigel (2001), and others who practice from a wellness-centered philosophy. Many psychotherapeutic approaches have also embraced mindfulness and this practice can be found in Acceptance and Commitment Therapy (Hayes, Strosahl, & Wilson, 1999), Dialectical Behavior Therapy (Linehan, 1993) and mindfulness-based cognitive therapy (Segal, Williams, & Teasdale, 2002). These treatments, often described as “third-wave” behavior therapies differ from traditional cognitive or behavioral therapies which seek to eliminate or replace problematic thoughts (Hayes, Strosahl, & Wilson). The goal of mindfulness-based approaches is not to change problematic thoughts or emotions, but to recognize and accept them for what they are, private experiences, not literal truth. By changing their relationship to these thoughts, clients gain the flexibility to move in valued directions. (Baer, 2006). Relational Frame Theory and the mindfulness practices that have been derived from RFT were used to guide this thesis.

## **Chapter 2 - Review of the Literature**

Mindfulness, originally identified with Eastern philosophies and traditions has increasingly been integrated into a wide range of programs designed to promote health, education, business acumen and productivity, and healing. Mindfulness is demonstrating a more profound impact on physical and psychological well-being than was previously supposed (Wilson & Hayes, 2003). Even novice practitioners of mindfulness have demonstrated shifts in

the processing of negative emotions under stress (Kabat-Zinn, 2003). This review will explore the definition of mindfulness, previously conducted studies incorporating mindfulness, and the increased emphasis on mindfulness in educational settings.

While even the ancient Buddhist literature recognizes the difficulty of putting the concept of mindfulness into words, mindfulness centers on particular qualities of attention and awareness. The current understanding of mindfulness in the professional literature does not endorse or require a specific religious bent. In fact, Hayes (2002) has emphasized that methods involving acceptance and mindfulness must be separated from their religious and spiritual traditions in order to integrate them into a Western psychological understanding. Mindfulness is a set of skills than can be learned independently of any spiritual or cultural tradition and then applied to manage psychiatric or physical symptoms (Rapgay, Brystritsky, Dafter, & Spearman, 2011). Kabat-Zinn, (2003) provides a widely accepted working definition that mindfulness is “the awareness that emerges through paying attention on purpose, in the present moment, and nonjudgmentally to the unfolding of experience moment by moment” (p. 24) Baer, (2003) asserts that mindfulness includes an “affectionate, compassionate” quality, a sense of openness and interest. Mindful behavior involves an individual being fully in contact with the present moment, both externally and internally (Thompson & Gauntlet-Gilbert, 2008). Hayes and Wilson (2003) identify mindfulness as a set of techniques designed to encourage deliberate, nonevaluative contact with events that are here and now. Yet another author, (Goleman, 2006) recognizes mindfulness as a “commitment to reside in moment to moment awareness with an open heart and nonreactive mind” (p. 46).

Mindfulness is a skill that can be taught and improved upon. While effects can be seen with minimal practice, one cannot decide to immediately just “become mindful.” Kabat-Zinn

(2003) compares the development of mindfulness to an artistic talent that one develops over time and is greatly enhanced through regular, daily practice that can be sustained throughout a lifetime. The mindfulness teacher, whether therapist, physician, or religious leader, also should have a passion for the practice itself and draw upon his or her personal knowledge base of mindfulness practice. A skillful teacher will draw on personal experience as well as extensive professional knowledge (Kabat-Zinn, 2003).

Mindfulness activities are simple, yet complex (Gorman, 2007). The breath is the most common feature used as an anchor to develop attention and center awareness (Rapgay et al., 2011). These activities are intended to highlight the central focus of the present moment. Roemer and Orsillo (2003) suggest that past memories and future fears should be avoided during mindfulness, focusing instead on a present moment awareness. Rapgay et al. (2011) identifies processes associated with mindfulness practice that include a non-conceptual awareness and attention that is fully immersed in the present moment experience, an introspective awareness of bodily sensations, labeling of thoughts without attaching or reacting, an openness to the present experience, practice over time that becomes “habitual” in nature, and a resulting experiential insight that results in an increase in positive emotional reactions and behaviors. Baer et al. (2006) favors mindfulness characterized by non-reactivity, observation, acting with awareness, objective describing, and nonjudging.

Acceptance and Commitment Therapy (ACT) incorporates a facet of mindfulness that recognizes an observing self that is capable of watching its own bodily sensations, actions, thoughts and emotions by seeing these as separate from the person having them. ACT encourages clients to experience thoughts and emotions without judging, evaluating, or attempting to change or avoid them. Techniques such as being present, adopting an observer

perspective, choosing life directions based on values, and goal setting are integral to the ACT treatment plan (Hayes et al., 2006).

From a medical model, Daniel Siegel calls this approach “Mindsight.” Mindsight is the ability to have insight and empathy for the mental experience of self and others, and to see the patterns of energy and communication. Mindsight permits an individual to see directly the qualities of thinking (Siegal & Shinok, 2010).

No matter what the name or particular definition, mindfulness activity affects the physiology of the brain itself. EEG, MRI, and PET studies of brain activity show the effects of mindfulness (Kabat-Zinn, 2003). During meditation, increased activity of the anterior cingulate cortex and the dorsal medial prefrontal cortex in both hemispheres has been observed and documented (Chiesa & Malinowski, 2011). Magnetic Resonance Imaging has shown that mindfulness can lead to heightened activity in the left hemisphere of the prefrontal cortex, an area of the brain which is associated with calmness and emotional regulation (Hill, 2006).

An impressive amount of research has focused on the effects of mindfulness in the adult population. Kabat-Zinn, a physician, created Mindfulness Based Stress Reduction (MBSR), a structured group program centered on mindfulness practices, for his patients suffering from physical, psychosomatic, and psychiatric illnesses. To date, over sixty published studies covering a wide spectrum of clinical populations have examined the results of specifically incorporating MBSR and show success. This is not surprising to Kabat-Zinn (2010). He believes that developing this kind of awareness can have virtually immediate effects on health and well-being especially in the areas of anxiety and depression. “Mindfulness of thoughts allows you to be aware of a thought or strong emotion as a kind of a storm in the mind or an event in awareness. Once you see it as an event or a storm, it no longer has the same power over you.

Kabat-Zinn believes that depression, which is a major concern for patients, is to a very large degree a disease of disregulated thinking. There's a lot of evidence that mindfulness can actually help you develop a whole different relationship with the stream of negative thoughts called depressive rumination. Mindfulness has profound health implications for depression and also for anxiety disorders" (Lynn Lecture, Kabat-Zinn, 2010).

Other researchers have examined less structured approaches to mindfulness which have also been demonstrated to be successful in studies ranging from the treatment of depression, addiction of various kinds, insomnia, and weight regulation (Baer, 2006). Rapgay et al. (2011) examined the effects of classical meditation (CM) and mindfulness on individuals suffering from Generalized Anxiety Disorder and found the CM to provide improved treatment outcomes compared to a more formal CBT approach.

Beginning with Montessori over a hundred years ago, the education field has recognized the benefits of a centered, focused attention. Greenberg et al. (2003) recommends that in addition to producing students who are culturally literate and committed to life-long learning, education should teach people to interact in socially and emotionally appropriate ways. In 2010, an invited panel of education experts attended Harvard's Future of Learning Summer Institute. These scholars and researchers identified Developing Mindful Learners as a top priority for future education. They report that a program incorporating mindfulness which would build children's emotional and social skills and enhance their connection to school and other students would be of great benefit. They believe mindfulness practice can effectively link all forms of learning with the needs, interests, and values of learners. This in turn, can result in increased motivation and engagement (Hyland, 2009).

How to incorporate mindfulness practices with young children is not yet clear. The lengthy periods of sitting still present in many mindfulness practices will not be developmentally appropriate for young children (Roemer & Orsille, 2002). Thompson & Gauntlet-Gilbert (2008) identify the following as appropriate mindfulness activities for children and adolescents: mindfulness of breath, a body scan in which attention is moved systematically through the body similar to progressive muscle relaxation, and walking mindfulness. They suggest interventions should last only between three to five minutes at the beginning and never more than ten. Interventions should be repeated until they become familiar to the child or adolescent.

One of the few published studies (Broderick, 2009) with an adolescent population incorporated a mindfulness curriculum for 120 female students in a senior level health class at an upper-class private school in New England. Half of the students participated in a mindfulness program with the acronym BREATHE. A control group did not participate in the mindfulness activities. While the results, based on self-report instruments, suggested that mindfulness was a promising intervention for well-being and emotional regulation, the narrow background of the participants was a significant limitation. The proposed study, while completed at a single high school will incorporate male and female students from a wide SES spectrum.

## **Chapter 3 - Method**

This participants in this study were fifty ninth-grade biology students (age range 14 to 16) in a small, rural Kansas public high school with a wide SES spectrum. Student participation was entirely voluntary and potential participants were assured that their responses would be confidential and their grades would in no way be affected by their participation or responses. Information was given to parents during the fall parent-teacher conferences and parents signed informed consents for their children to participate. No parent or student refused to participate. The control class period and the experimental class period were randomly selected (by a number draw).

### **Procedure**

At the beginning of the study, all students took the ten-item Adolescent Mindfulness Measure (CAMM; Greco, Baer, & Smith, 2011, Appendix A) adapted from the Kentucky Inventory of Mindfulness Skills (Baer, Smith & Allen, 2004). This is currently the only instrument that has been normed and validated for child and adolescent populations.

The biology teacher (also experienced in mindfulness practices) led one section of the class (twenty-six students) in a brief mindfulness activity at the beginning of each class period for nine weeks. The activities included a present moment focus and awareness on the breath, physical sensations, thoughts, and environmental sensations. All activities were adapted from Russ Harris' (2009) *Act Made Simple*. The mindfulness exercises (Appendix C) were read by the teacher. At the conclusion of the activity, class proceeded as usual. The biology teacher was coached to respond to comments about the mindfulness process in a pleasant, neutral way. In

addition, the teacher kept a daily journal outlining her experience with the mindfulness exercises. She documented observations of the exercise, student participation and responses, classroom climate before and after the mindfulness activity, and other pertinent information (such as a fire drill or intercom announcement) that may have affected the students' experience for that day. The study lasted for nine weeks. Upon conclusion, students again took the Adolescent Mindfulness Measure.

Since the purpose of this study was to gain a deeper understanding of the experience of adolescent mindfulness, the research design used a thematic analysis of qualitative data. (Leninger, 1998, Braun & Clark, 2006). Twelve students, seven boys and five girls, who had participated in the mindfulness exercises were interviewed. Parents of these students signed an additional informed consent allowing the researcher to interview their child. The five-to-ten minute semi-structured interview asked questions concerning the experience of mindfulness. The questions focused on the student's experience of the mindfulness activities. They included: "What was the mindfulness experience like for you?" "What did you find appealing about the exercises?" "What didn't you like?" "What did you learn from the exercises?" "What were some specific physical sensations you noticed during the activities". "What were some specific thoughts?" "How do you think this could be of benefit in other areas of your life?" At the completion of the interview, participants had the opportunity to discuss any additional information concerning the mindfulness experience that they would like to share with the interviewers. .

To increase the validity of the findings (Merriam, 1998), the researcher and two team members analyzed the interviews for emerging themes. The author and team members; both graduate students with experience in qualitative research, followed these phases of thematic

analysis. 1) Initially, the team read through data separately; 2) all team members generated codes from the transcripts, and, as codes emerged, 3) researchers found themes within those codes. Collaboratively, the team reached consensus and 4) 100% of the data was cross-coded and 5) analyzed to make sure that the themes were distinctive and homogenous. 6) The team then named the themes; 7) The lead researcher then wrote up the themes in manuscript form (Braun and Clark, 2006).

This study incorporated a quantitative component in addition to the consensual qualitative process. In the quantitative portion of this study, the Adolescent Mindfulness Measure (Greco, Baer, & Smith, 2010) was given to students in the control group and the experimental group at the beginning and end of the study. A paired samples T-test was used to determine if there were any significant differences between the experimental group and the control group in the Adolescent Mindfulness Measure before beginning the practice period and after the 9 weeks of mindfulness practice. A t-test also analyzed if there was any difference between groups before and at the conclusion of the study.

## **Chapter 4 - Results**

Analysis of the transcripts revealed five key themes. Four were consistently positive: the experience of beginning a mindfulness practice, the class environment after the exercise, personal growth from the experience of mindfulness, and applying mindfulness to other areas of their life. The only negative theme centered around one of the specific mindfulness exercises.

### **Beginning the Mindfulness Practice**

Only one student had any experience with mindfulness activities before the study began. All twelve students interviewed commented the experience of beginning mindfulness. Most of them found it somewhat awkward at the onset. “*At first I thought it was weird. This wasn’t what I expected in Biology,*” commented one student. Another added, “*The first day I thought, ‘okay, that was a pointless waste of time, but then I started looking forward to doing it.’*” This rather quick turn-around from uncomfortableness to anticipation was echoed by another student, “*I didn’t like it at first, but then it became relaxing.*” The only student with mindfulness experience also suffers from a chronic illness. She had been exposed to mindfulness as part of her pain management. She specifically addressed the classroom experience, “*I liked the classroom better than doing it on my own. I followed along a lot better and my mind didn’t wander.*” The instructor confirmed the students’ experiences. She noted in the first day’s journal, “*It was the first time, so there was some confusion and, in general, they were a little unsure of what was happening.*” In a follow-up interview, she stated, “*At first, the students were like, ‘what are we doing this for,’ but I’d say within a week, their attitude changed. They would start to make positive comments about getting to do “that thing” when they came in the room.*”

## **Class Environment after Mindfulness**

Without exception, students interviewed found the classroom environment improved after the brief mindfulness exercise. “*It was calm, quiet, restful and it helped me concentrate better in class,*” said one student. “*The whole class settled down and it was helpful because it helped us focus on your school work,*” shared another. “*It calmed everyone down after it. When we would open our eyes, most of the time it was quiet in the room for some time,*” commented a third student. Finally, this young man added, “*One day we were gonna have this huge test, and we did that calmness thing and I wasn’t even nervous afterwards. I think it helped my test.*” The instructor added, “*It had an amazing effect on the environment in the classroom. You could tell that they wanted to stay in “the focus zone” and would actually get upset if someone started talking right away.*” Her journal from two weeks into the study stated, *I like that this activity really gives them a chance to relax and focus on their thoughts, it (the environment) held through the whole class period.*”

## **Personal Growth after Mindfulness**

The literature review earlier in this paper cited many positive benefits to a mindfulness practice. The students, likewise, found areas of personal growth after the nine week study ended. One student addressed her tendency to worry. “*I think it helped me with my worry stuff. I would feel better about things all day after we were done.*” Several students believed it helped them to concentrate. “*I learned that if I want to concentrate, I need to slow down and breathe, not let my mind race off.*” Another student seconded that thought, “*Taking deep breaths will calm me down and allow me to think clearly.*” Stress reduction was also noted, “*Stopping and taking a few seconds to just breathe and relax can take so much stress off you.*” The teacher added an interesting component to this, “*I found that just by reading the exercises, I was calmer than I*

*had been earlier in the day. I may have to use this sometime in my earlier classes.” She wrote in her journal six weeks after the study started, I love that we are doing this because it is a great stress reliever for them and me.”*

## **Applying Mindfulness to Other Areas of Life**

Following the study guidelines, the instructor did not engage the students in any conversation about the possible benefits or drawbacks to mindfulness in other areas of their life. Yet, when asked about this during the interviews, all twelve students said that they had incorporated some components of the mindfulness into other aspects of their lives. One student stated, “*I’ve started doing this in basketball, before I shoot free-throws. I take three deep breaths and feel my breath in my abdomen. My dad thinks it’s helping my free throws.*” Family relationships may also be impacted. “*I have to watch my sister a lot and she bugs me and gets in my stuff. I try and take some breaths and not get so mad at her.*” Another student shared the exercises with a parent. “*My mom is all stressed out right now ‘cuz of my grandpa. So, I had the teacher run off the mindfulness thing and we do them at home sometimes.*” Two students commented on improved sleeping. “*I can never get to sleep, so I’ve started doing the bubble exercise where I put my thoughts into bubbles. I think that they just will go off into the stars and then I can get to sleep.*” This student said, “*I do the breathing before I go to sleep and it works!*” The instructor shared that several students had asked for copies of the exercises to take home for family members. “*I’ve even had students who aren’t in the study come in and ask if we could do this sometime in their classroom because the other students were talking about it.*”

## **Negativity Towards a Mindfulness Exercise**

While the core themes concerning the adolescent experience in the classroom were overwhelmingly positive, one negative theme centered on a specific exercise. Exercise #3 asked the students to direct attention to their left foot during the breathing. They then were instructed to curl their toes and slowly scan their left leg from foot to knee, up through their thigh. They then did the same with the right leg. Over half of the students commented on this exercise when asked if they didn't like something about the mindfulness activities. "*I hated the foot one. I told the teacher that we should just stop it because everyone didn't like it,*" said one student. Another confirmed this, "*if she started in on the foot one, I just got mad. I don't think your feet have anything to do with getting calm.*" This student was more blunt. "*The foot one was stupid.*" When asked why that was, he replied, "*I don't know. I liked doing this, but not the foot one.*" The seven exercises had been randomly (through a public domain randomization program) assigned to each of the class periods. When specifically asked about that exercise, the instructor shared, "*The kids really did not like the foot exercise. I thought about doing something different on that day, but I thought it might mess up the whole study so I kept doing it.*" *Fortunately, we didn't have to do that one at all in the last two weeks.*"

## **Analysis of the Child and Adolescent Mindfulness Measure**

The Child and Adolescent Mindfulness Measure (CAMM) is the only measure normed and validated for assessing mindfulness in children and adolescents (Greco, Baer, and Smith, 2011). CAMM scores were also shown to be positively correlated with quality of life, academic competence and social skills. They were also shown to negatively correlate with somatic complaints, internalizing symptoms and behavior problems (Greco, Baer, and Smith, 2011).

The control group and the experimental group took the CAMM before the study. A independent samplesT-test showed that the experimental group and the control group did not differ significantly from each other,  $t(49) = 1.86$ ,  $p > .05$  at pre-test, however results from Table 1 indicate that the experimental group significantly improved at post-test,  $t(48)=3.1$ ,  $p=.003$ , and the control group became significantly less mindful at post-test,  $t(49)= -.2.32$ ,  $p=.02$ .

**Table 4.1 First Table in Chapter 4**

*Results of T-tests*

Source	N	Mean	St. Error	t-value	p
Experimental. Pretest	25	17.96	1.09	3.1	.003
Experimental Posttest	24	12.42	1.42		
Control Pretest	26	15.08	1.09	-2.32	.02
Control Posttest	24	19.29	1.47		

\*The CAMM is reverse scored so lower numbers indicate a higher level of mindfulness.

In addition to level of significance, researchers need to be concerned with the effect size, or the magnitude of an observed effect. Shadish, Cook, & Campbell (2002) call for a greater sensitivity to the magnitude of an effect than to its statistical significance. The effect sizes for the difference between the pretest and posttest in each group are impressive. In the experimental group, the effect size is .80, a large effect according to (Cohen 1992) and the control group had a .59 or medium size effect.

## **Chapter 5 - Discussion**

Relational Frame Theory (RFT, Hayes, 2005) which guided this research suggests that our entanglement with our thoughts creates suffering. Mindfulness is a way to eliminate or decrease that suffering. Yet, we have very little information on the experience of adolescents who practice mindfulness. This study explored what the experience of mindfulness is like for these adolescents as well as looking at the results of a daily practice on students' perceived mindfulness.

The adolescent experience of mindfulness in the classroom was consistently positive. Students, while admitting confusion or awkwardness at the beginning, soon readily welcomed the exercises at the start of the class period. Students and their instructor perceived that the mindfulness had a positive effect on classroom environment and they also believed that doing mindfulness led to personal growth in other areas of their life. Students were eager to share their mindfulness with other family members and incorporated the breathing exercises into out-of-classroom activities. During the nine week study, students found that one of the exercises did not appeal to them and the exercise seemed to interfere with the benefits recognized in other exercises. Students consistently reported that the exercise in which they were supposed to focus on their feet was not helpful. One clear implication of this finding is that even though others have found an exercise helpful, the choice regarding whether or not to continue using an exercise needs to be made in conjunction with participants. What is helpful for some, may not be helpful for others.

The data analysis of the CAMM indicates that the scores on the posttest did significantly differ from the pretest scores. The control group also differed significantly, but unfortunately, their scores increased, indicating a decrease in mindfulness. When reporting the findings to the instructor who had implemented the mindfulness, she was not surprised. She stated, “*the control class period seemed to be “at odds” throughout the year. It never occurred to me until now that they could have some anxiety or other issues. It would have been interesting to follow up and do some mindfulness with them and see if they improved.*”

Another important finding to emerge from this study is the student willingness to participate in classroom mindfulness activities. Every parent, 100%, signed the informed consent form after the teacher explained the study. In addition, no child in the experimental classroom refused to participate. The literature review earlier documented the benefits of mindfulness in health, education, and interpersonal relationships. This study also documents, that at least in this small study, students were willing to participate in the activities and parents were supportive. Exposing students to mindfulness can assist them in many ways.

RFT helps to explain these findings. We consistently undergo a barrage of verbal (internal and external) judgments on our experiences. Mindfulness practice is a way to disentangle ourselves from this judgment. For many adolescents, the verbal chirping within has a negative connotation. They do not miss a test question, they are “stupid.” A friend is preoccupied and the adolescent becomes anxious. Has someone gossiped about me? Did I do something wrong? Adolescents are not alone in this. All of us do not only respond to what is happening around us, we respond to what we have constructed, with words, to be our own particular judgment. The brief interlude from this that mindfulness practice provides seems to have immediate benefits as the students in this study realized quite early.

Students did not enjoy the foot exercise. When looking through an RFT lens, we can discern that the students made a verbal construction of the exercise (“It’s stupid,” “I don’t like this”) that was strong enough to overpower their ability to free themselves from those negative thoughts and just allow the experience of curling their toes or feeling their feet on the floor. With continued mindfulness practice, RFT would claim that the students would develop the psychological flexibility to modulate their judgment of the exercise and participate with a neutral, allowing framework. This is the outcome many teachers and therapists who operate from a mindfulness perspective want for their students and clients—the ability to learn, grow, and move forward with a spirit of emotional and mental acceptance that allows for behaviors that facilitate that growth.

## **Limitations**

This study, while containing an experimental and control group was not a randomized grouping. The students were assigned to the class periods by the Guidance Counselor at the beginning of the year and often, because of math groupings, are with the same students throughout the school day. The control class period and the experimental class period were randomly selected (by a number draw). Also, the role of the instructor may have had an impact on the research process. She has practiced mindfulness, first as a college athlete, and then as a young teacher for several years. She is a popular teacher and students have been exposed to other experimental learning activities in her classroom. This could have impacted the positive nature of the student comments and it would be beneficial to repeat the study in other classrooms.

## **Clinical and Therapeutic Implications**

Mindfulness is beneficial to adolescents in numerous ways (Harris, 2009). This study examined the experience of adolescents practicing mindfulness within the classroom and a thematic analysis revealed that students had a positive response to the experience. This concurs with Broderick's (2009) findings that students accept and come to appreciate a mindfulness curriculum over time.

This study also has clinical implications for Marriage and Family Therapists who often work with adolescents. While mindfulness may seem too "out there" or experiential, it can be a valued part of a therapeutic program (Wilson, 2008). Therapists wishing to utilize mindfulness with their adolescent clients can feel confident that while there may be a little resistance or "awkwardness" during the initial stages, the adolescents will begin to recognize the benefits. Marriage and Family Therapists also are working within a school setting with increasing frequency and this study can assist them in formulating their Marriage and Family Therapy/school program.

Overall, the students and teachers found benefit in the mindfulness experience. The hope is that it will continue to positively impact the students beyond the length of the study. As one student participant commented, "*Every class should do this, every day.*"

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## **Appendix A: Child and Adolescent Mindfulness Measure (CAMM; Greco, Baer, & Smith, 2010)**

*Used with Permission*

We want to know more about what you think, how you feel, and what you do. **Read** each sentence. Then, circle the number that tells how often each sentence is true for you.

	Never True	Rarely True	Sometimes True	Often True	Always True
1. I get upset with myself for having feelings that don't make sense.	0	1	2	3	4
2. At school, I walk from class to class without noticing what I'm doing.	0	1	2	3	4
3. I keep myself busy so I don't notice my thoughts or feelings.	0	1	2	3	4
4. I tell myself that I shouldn't feel the way I'm feeling.	0	1	2	3	4
5. I push away thoughts that I don't like.	0	1	2	3	4
6. It's hard for me to pay attention to only one thing at a time.	0	1	2	3	4
7. I get upset with myself for having certain thoughts.	0	1	2	3	4
8. I think about things that have happened in the past instead of thinking about things that are happening right now.	0	1	2	3	4
9. I think that some of my feelings are bad and that I shouldn't have them.	0	1	2	3	4
10. I stop myself from having feelings that I don't like.	0	1	2	3	4

*Scoring Instructions:* Compute total score on the CAMM by reverse scoring and summing all items.

## **Appendix B**

### **Semi-structured interview questions:**

Following the team approach as outlined by Hill (2005), trained interviewers will ask the students the following questions in a semi-structured interview format. Interviews will be audio- and/or video-taped.

What was the mindfulness experience like for you?

What did you find appealing about the exercises? What didn't you like?

What did you learn from the exercises?

Describe any mindfulness activities that were difficult for you.

What were some specific physical sensations you noticed during the activities.

What were some specific thoughts?

How do you think this could be of benefit in other areas of your life?

A member of the research team will also interview the teacher. Following Patton's (2002) recommendations on the use of diaries and journals for qualitative research, her daily journal also provided information for determining core themes.

The teacher provided the following demographic information: Her age, years of teaching experience, highest degree earned, courses taught in this high school. Her interview will centered around the following questions:

Please describe your previous experience with mindfulness?

What was this experience like for you as the facilitator?

What do you believe the experience was like for the students?

What did you find particularly appealing in this activity?

What surprised you?

What did you find difficult?

What do you believe the effect was on the students as the nine weeks progressed?

What would you alter if you were to use this with your other classes?

## **Appendix C**

### Mindfulness Exercises

All exercises have been adapted from *ACT Made Simple* (2009) by Russ Harris, MD.

#1

Sit comfortably on a straight-backed chair. Place your hands in your lap, gently clasped or cupped, whatever feels comfortable and natural to you. Close your eyes and take a deep breath. Now another. Breathe in s-l-o-w-l-y and deeply through your nose. In your mind, count 1-2-3-4 while you feel your abdomen move outwards. Your chest should not rise noticeably. In a natural, relaxed manner, now pause your breath and count back down, 4-3-2-1.. Don't force yourself to hold your breath if you feel like exhaling sooner. Breathe out through your mouth, slowly. You may spout/purse your lips to slow down the force of expiration. Don't count, just feel how relaxing it is to exhale. S-l-o-w-l-y inhale through your nose... 1-2-3-4... Naturally relaxed, count down as you pause... 4-3-2-1... Return to your natural breathing for two breaths. One. Two. Now gently open your eyes.

#2

Begin by sitting in a comfortable position, with your back straight and shoulders relaxed. Softly close your eyes. Take a deep breath and feel your breath go down into your abdomen. Breathe again. Now, imagine bubbles slowly rising up in front of you. Each bubble contains a thought, feeling, or perception. See the first bubble rise up. What is inside? See the thought, observe it, and watch it slowly float away. Try not to judge, evaluate, or think about it more deeply. Once it has floated out of sight, watch the next bubble appear. What is inside? Observe it, and watch it slowly float away. If your mind goes blank, then watch the bubble rise up with

“blank” inside and slowly float away. Take a full, complete breath. Now another. Gently open your eyes.

### #3

Begin by sitting in a comfortable position, with your back straight and shoulders relaxed. Softly close your eyes. Take a deep breath and feel your breath go down into your abdomen. Breathe again. While breathing slowly, direct attention to your left foot. Feel your foot. Curl your toes once to fix your awareness to it. Now relax your toes. As you breathe in through your nostrils, slowly scan your left leg from foot to knee, and up through your thigh. As you breathe out, trace your leg down to your foot. Do this 3 times, then take your mind off your breath and remain with your foot. Now let’s repeat with our right foot. Curl your toes once to fix your awareness. Now relax your toes. . . As you breathe in through your nostrils, slowly scan your left leg from foot to knee, and up through your thigh. As you breathe out, trace your leg down to your foot. Do this 3 times, then take your mind off your breath and remain with your foot.

### #4

Begin by sitting in a comfortable position, with your back straight and shoulders relaxed. Softly close your eyes. Take a deep breath and feel your breath go down into your abdomen. Breathe again.

Scan the top of your head. Relax... Begin by sitting in a comfortable position, with your back straight and

shoulders relaxed. Softly close your eyes. Allow the picture in your mind to become blank. You are going to imagine a place that feels comfortable, safe, and relaxing. Think of your place. It might be the beach, a lake, or even your own bed. Imagine it slowly appearing before you, becoming more and more clear. Look to your left. What do you see? Look to your right. What is over there? Look closer. Breathe in. What do you smell? Walk around your place. Look closer at certain things. Stay focused on your place. How are you feeling? If you find your thoughts wandering, observe them, and then focus on bringing the image of your place back into focus in front of you. (Allow some time.) When you are ready, put your hand in front of your eyes. Open your eyes. Slowly spread your fingers to allow light in. When you are ready, slowly remove your hand.

## #5

Begin by sitting in a comfortable position, with your back straight and shoulders relaxed. Softly close your eyes. Take a deep breath and feel your breath go down into your abdomen. Breathe again. Think of an activity that you enjoy such as playing with a pet, walking outdoors, playing a sport, fishing on a bank, or listening to music. Imagine yourself participating in that activity. What do you see around you? Look around you and notice what you see. What do you hear as you are engaging in this activity. Notice what you hear. What smells surround you as you do this? Sense yourself enjoying this activity. Now, take a deep breath and pull the air down into your abdomen. Take another deep breath. Gently open your eyes.

## #6

Begin by sitting in a comfortable position, with your back straight and shoulders relaxed. Softly close your eyes. Take a deep breath and feel your breath go down into your abdomen. Breathe again. Now, we are going to take ten slow, deep breaths. Focus on breathing out as slowly as possible until your lungs are completely empty—now allow them to refill by themselves. Notice the sensation of your lungs emptying. Notice them refilling. Notice your rib cage rising and falling. Notice if your shoulders rise and fall. Slowly count your breaths and when you have completed ten, gently open your eyes.

## #7

Begin by sitting in a comfortable position, with your back straight and shoulders relaxed. Softly close your eyes. Take a deep breath and feel your breath go down into your abdomen. Breathe again. Plant your feet on the floor. Push them down—notice the floor beneath you, supporting you. Notice the muscle tension in your legs as you push your feet down. Notice the energy and felling of gravity flowing down through your head, spine, and legs. Now release the pushing and let your feet softly rest on the floor. Let your legs, spine, and head rest. Take a deep, resting breath. Now another. Gently open your eyes.