

***Mindfulness Meditation with High School Students who Receive Special Education Services:  
Research Recommendations from a Pilot Study***

**Ernest Solar, Ph.D.  
Mount St. Mary's University**

**Abstract**

Research has shown evidence that mindfulness-based meditation practices are effective treatment interventions for mental, emotional, and medical disabilities in the adult population. There has been a limited number of research studies showing the effectiveness of meditation practices with high school students who receive special education services. This randomized waitlist control pilot study was designed to assess the effect of mindfulness meditation practice with 10 secondary students who receive special education services. The independent variable was a mindfulness meditation technique that was delivered as an afterschool program. Analysis of the dependent variable measurement of perceived stress demonstrated a medium effect size with Cohen's  $d = .46$  and a low effect size for anxiety with  $d = .22$  between the pretest and posttest measurements. Lastly, the paper concludes with research recommendations when studying mindfulness meditation with high school students who receive special education services. These recommendations include implementing a contemplative program versus a contemplative technique with ample interaction time exceeding 700 minutes and a group discussion for the participants to process their experiences related to mindfulness.

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Mindfulness is a form of awareness that is practiced by our inner ability to relax, pay attention, and be aware of our inner thoughts and outward actions (Kabat-Zinn, 1990). Mindfulness is based on seven principles defined by Kabat-Zinn (1990) as (a) non-judging, (b) patience, (c) beginner's mind, (d) trust, (e) non-striving, (f) acceptance, and (g) letting go. The practice of mindfulness is often learned through a structured program called, Mindfulness-Based Stress Reduction (MBSR). MBSR was developed by Kabat-Zinn (1990) as an experiential contemplative program that uses a pedagogical approach through weekly group sessions, a curriculum embedded with the principles of mindfulness, guided meditations, and group discussion as a tool for the practitioner to manage his or her daily stress. Since MBSR's inception in the early 1990's, many mindfulness-based programs have been developed and validated for use with children and adolescents (Biegel, Brown, Shapiro, & Schubert, 2009; Burke, 2010; Lee, Semple, Rosa, & Miller, 2008; Meiklejohn et al., 2012; Thompson & Gauntlett-Gilbert, 2008).

In the Garrison Institute Report on Contemplation and Education, the authors used the structure of Kabat-Zinn's MBSR program and mindfulness principles to provide a distinction between a contemplation (mindfulness) program and a contemplation (mindfulness) technique. A contemplative program uses a pedagogical approach that specifically emphasizes mindfulness

and improving a person's capacity for self-awareness; such as, MBSR (Schoeberlein, Koffler, & Jha, 2005).

Two important components of a structured contemplative program, like MBSR, is the practice of a guided meditation and group discussions. Guided meditation is defined as the process of leading an individual (via an outside source, teacher or recording) through a visualization exercise to use his or her imagination to engage in relaxation or problem solving strategy (Hart, 2004). For example, a guided meditation may begin with the instructor asking the participant to sit or lie down comfortably with eyes closed. The instructor then asks the participant to visualize a lake. The instructor then provides guidance for the practitioner to mentally perform while visualizing the lake. These instructions may include bringing awareness to the physical act of breathing, or visualize throwing an object that represents a stressful event into the lake as a way of releasing that stressful moment.

The practice of a group discussion after meditating gives the practitioner an opportunity to share his or her experience of the meditation related to using the seven principles of mindfulness in everyday life. The group discussion typically happens at the beginning of each session and after the guided meditation practice. In this way, the instructor can help the participants connect how to use the principles of mindfulness in relation to real-world experiences (Kabat-Zinn, 1990).

Whereas, according to the Garrison Institute Report on Contemplation and Education, contemplative techniques include attention training, meditation, and yoga without using a pedagogical approach (Schoeberlein et al., 2005). For example, a contemplative technique may be the practice of meditating for 20 minutes twice a week or attending a yoga class.

**Mindfulness research with children and adolescents.** In recent years, contemplation programs, such as MBSR, and contemplation techniques have started to penetrate into classroom settings from elementary schools all the way to higher education. Randomized research studies of various contemplation programs and techniques have shown significant outcomes for adolescents with stress and anxiety-related disorders (Carmody & Baer, 2008; Carmody et al., 2009; Reibel, Greeson, Brainard, & Rosenzweig, 2001; Semple, Reid, & Miller, 2005; Lee et al., 2008) and Attention Deficit and Hyperactivity Disorder (ADHD; Semple, Lee, Rosa, & Miller, 2010; Smalley et al., 2009), which are common struggles of students who receive services for special educational services. Based on these research findings with effect sizes ranging from small to large (Cohen's  $d = -.2 - 1.2$ ), mindfulness-based meditations, a contemplative technique, may enhance adolescents' ability to cope with stress-related symptoms and behaviors (Burke, 2010; Carmody et al., 2009; Grossman, Niemann, Schmidt, & Walach, 2004).

### **Mindfulness for Students with a Disability**

Mindfulness is intentionally paying attention to one's thoughts as they surface without making judgments about them (Kabat-Zinn, 2003), and it is also the state of being fully present to one's thoughts and actions without reacting out of habit (Salzberg and Goldstein, 2001). Through the use of a contemplative technique such as mindfulness meditation, a student with a disability may learn how to objectively observe his or her own moment-to-moment experiences and decrease their sense of "going through the motions". For example, a student with Specific Learning Disability (SLD) due to a reading comprehension deficiency may become automatically stressed

and anxious, which is his or her typical moment-to-moment response, when given a reading assignment. Through mindfulness practices, the student may learn to reduce these automatic feelings of stress and anxiety and become more open to employing strategies that can improve the outcome of the reading assignment.

The number of quantitative research studies measuring the effectiveness of contemplative techniques; such as mindfulness, with secondary students with a disability is very limited. Therefore the significance of this pilot study is to determine the extent to which a guided mindfulness meditation practice can provide secondary students who receive special education services additional skills for managing stress and anxiety related to everyday academic and social challenges faced in the school setting. Mindfulness meditations are designed to reduce stress, enhance attention, and decrease negative self-judgments (Semple et al., 2010), which can break the counterproductive cycle of stress, anxiety, and self-blame that many secondary students who receive special education services face on a daily basis. Through the practice of mindfulness-based meditation each student who receives special education services will learn to (a) cultivate patience and acceptance towards one's self, (b) react nonjudgmentally to events and emotions, and (c) release positive and negative emotions connected to events.

The following questions were asked to guide this study:

- 1) After a student is taught how to use guided mindfulness meditation, is there a statistically significant increase in his or her level of mindfulness awareness?
- 2) From the pretest measurements to the posttest measurements, is there a statistically significant change in the student's perceived stress levels and anxiety?
- 3) Do the teachers involved in this study observe a statistically significant (a) decrease in concentration problems, (b) decrease in disruptive or aggressive behavior in the classroom, and/or (c) an increase in positive social interactions from the beginning to the conclusion of the intervention?

The purpose of this paper is to discuss the parameters of the research project, the results of the study, and the findings of the study based on the results compared to current research. Lastly, this paper will offer recommendations based on the findings of the study that would benefit future research conducted with the use of contemplative techniques; such as mindfulness, and secondary students who receive special education services.

### ***Materials and Methods***

This pilot study employed a quantitative, experimental, randomized, pretest-posttest, waitlist control group design to assess the impact of guided mindfulness meditation on secondary students who receive special education services in a public school setting. This design was chosen because "true experiments comprise the most rigorous and strong experimental design because of equating the groups through random assignment" (Creswell, 2008, p. 313). The benefits of using this type of research design minimizes threats to internal and external validity

(Dimitrov, 2008) and uses the same research methodologies and scientific methods as other fields of research (Gersten et al., 2005, Klingner & Boardman, 2011).

### **Setting**

The mindfulness meditation intervention took place as an after-school program that was located in a secondary public school in a suburban community in the mid-Atlantic region of the United States. The meditation intervention was not part of the existing school program. A classroom in the school was utilized to provide adequate space and privacy for the participants to receive the intervention and was large enough to accommodate the students.

### **Participants**

All of the students who were eligible to participate in the study were from the same suburban secondary school and received the same curriculum and instruction. The inclusion criteria for a student to be selected to participate in the study included (a) the student must already be identified as currently receiving special education services under the classification of an emotional disability (ED) or a specific learning disability (SLD), (b) the student must have a current individualized education program (IEP), and (c) the student must have been attending the targeted secondary public school.

### **Recruitment**

The researcher completed a Human Subjects Review Board application from the supporting university and for the participating school district to obtain permission to conduct the meditation intervention. When final approval was granted, the researcher identified eligible applicants by contacting the Assistant Principal who oversaw the Special Education Program, within the targeted secondary school.

The Assistant Principal provided a list of students meeting the outlined criteria. Based on this list of identified students, the researcher mailed home a recruitment package to the parents or guardians of the 101 identified students. Twenty students agreed to participate in the study.

### **Group Selection**

With research that implements a waitlist control design, participants are identified into two different groups. The treatment group is designated to receive treatment first and receives the intervention immediately. The group not receiving treatment immediately is designated as the waitlist control group and is required to wait a specified amount of time before receiving the intervention. The specified time that the waitlist control group participants wait to receive treatment is usually the same amount of time it takes to administer the intervention to the first group (Goodwin, 2009; McKay, 2007). "The optimal method for assigning participants to study conditions is through random assignment" (Gersten et al., 2005, p. 155). Randomization of participants to treatment conditions creates "a more sensitive measure of the experimental manipulation" (Field, 2009, p. 17). Thus, the 20 participants were randomly selected to be in either the treatment group or the waitlist control group. Each group consisted of 10 participants.

## **Independent Variable**

The independent variable was the contemplative technique of guided mindfulness meditation. Even though the intervention is based on a contemplative technique, each intervention session was structured to follow a sequence of events. The intervention occurred after-school, twice a week for 45 minutes per session for a total of ten sessions per group. During intervention sessions, participants received a five-minute overview of the upcoming meditation, participated in a 20-minute mindfulness meditation, and completed a five-minute journaling activity. Ten minutes were allotted for the participants to gather and put away their intervention materials and ask questions at the beginning and the end of each session.

The mindfulness meditations chosen for this pilot study were to instruct participants on how to better understand the purpose of sitting or lying quietly without falling asleep and how to focus on one event at a time (Kabat-Zinn, 2005). Each of the mindfulness meditations had been developed and narrated by Kabat-Zinn (2005) for use in the practice of a mindfulness meditation program. Each meditation was designed to be practiced, or heard, while in a seated or lying position, and each meditation was 20-minutes long. The guided mindfulness meditation was administered via individual mp3 players for each participant.

When the meditation ended the participants were prompted to use his or her notebook to write down or draw any thoughts or feelings they may have experienced during or after the meditation. Due to the time constraints of the study, the journaling activity was intended to replace the common mindfulness practice of a group discussion after the meditation.

**Completers v. non-completers.** The participants were expected to attend all 10 intervention sessions. However, if the participants did not attend all of the sessions it was necessary to determine how many sessions a participant could complete to have received the intervention. Bogels, Hoogstad, van Dun, de Schutter, and Restifo (2008) considered a participant to have received the full dosage of treatment and to be a completer of the program if they attended at least five out of eight intervention sessions. This equates to 63% attendance by the participants. Lee et al. (2008) defined a completer as completing at least eight out of twelve intervention sessions. This equates to 66% attendance by the participants.

Based on the definitions outlined by Bogels et al. (2008) and Lee et al. (2008), for the purpose of this study, participants were considered to have received the full dosage of treatment by completing at least seven of the ten intervention sessions. This equates to 70% attendance by the participants. These participants were considered "Completers". If the participants attended less than seven sessions they were considered "Non-completers."

## **Dependent Variables**

The dependent variables were the participants' mindfulness, perceived stress, anxiety, and classroom behavior. These four dependent variables were measured through three different self-reporting assessments and one teacher assessment. The data from each of these assessments were intended to provide the information necessary to answer the research questions related to this study.

**Mindful awareness.** The Child Acceptance and Mindfulness Measure (CAMM; Greco, Baer, & Smith, 2011; Greco, Dew, & Ball, 2005) was used to assess each participants' mindful awareness. The CAMM is a self-reporting scale which measures the degree of mindfulness related to a child's or adolescent's acceptance of internal experiences without judging them (Ciarrochi & Bilich, 2006).

**Perceived stress.** The Perceived Stress Scale (PSS; Cohen, Kamarck, & Mermelstein, 1983) was used to assess each participants' perceived stress. The PSS is a self-reporting scale which measures the degree to which situations in a person's life over the past month are appraised as stressful. The scale measures the degree to which situations in a person's life over the past month are rated as unpredictable, uncontrollable, and overwhelming (Carmody & Baer, 2008).

**Anxiety.** The Revised Children's Manifest Anxiety Scale, Second Edition (RCMAS-2; Reynolds & Richmond, 1978; Reynolds, 1985) was used to assess each participants' anxiety. The RCMAS-2 is a self-reporting 49-item scale which measures the level and nature of a child's anxiety, and can lead to an accurate diagnosis for children and adolescents with social-emotional problems (Denzine, 2010). The revised scale provides a total anxiety score and three sub-domain scales, which include physiological anxiety, worry, and social anxiety (Denzine, 2010).

**Classroom behavior.** The Teacher Observation of Classroom Adaptation - Checklist (TOCA-C; Koth, Bradshaw, & Leaf, 2009) was used to assess each participants' classroom behavior. The TOCA-C is a teacher report scale designed to rate a student's classroom behavior in order to assess the impact of school-based preventive interventions on that student's behavior (Koth et al., 2009). The TOCA-C consists of a summary score and three sub-domain scores, which include concentration problems, aggressive and disruptive behavior, and pro-social interaction.

## **Results**

### **Sample Description**

Of the 20 participants who received the mindfulness meditation treatment, 10 ( $n = 10$ ) of the participants completed seven or more sessions, also defined as a "Completer". The data collected for the Completers were analyzed. The data for the Non-completers were not analyzed because they may not have received a sufficient amount of the intervention.

The Completers of the study ( $n = 10$ ) consisted of 70% male adolescent and 30% female adolescent. The average age of the participants was 16 years of age. Of the 10 participants, 70% were Caucasian, 20% were African American, and 10% were Hispanic. There was a relatively even distribution of participants across grade level and 10% of participants received free or reduced lunch.

The average percentage of special education services received during a typical school day by the participants was 33.6% ( $SD = 29.39$ ). Seventy percent of the participants received services for SLD, whereas 30% received services for ED.

### **Preliminary Analyses of Groups' Scores**

Prior to analyses of the research questions the researcher first determined whether the pretest scores between Group A (treatment group,  $n = 5$ ) and Group B (waitlist control group,  $n = 5$ )

were or were not statistically different. Of the 10 participants considered Completers, it was determined by statistical analysis that Group A (treatment) and Group B (waitlist control group) were not statistically different as indicated in Table 1. The researcher therefore combined both groups together into a group of 10 participants for further analysis.

Table 1

Preliminary Analyses of Groups' Scores

Measure	Treatment Group ( $n = 5$ )		Waitlist Control Group ( $n = 5$ )		Levene's Test for Homogeneity of Variance		ANOVA	
	Mean	SD	Mean	SD	$F$	$P$	$F$	$p$
Mindfulness (CAMM)	20.60	5.64	24.80	16.04	(1, 8) = 2.54	.150	(1, 8) = .305	.596
Perceived Stress (PSS)	23.80	4.09	20.60	6.91	(1, 8) = 2.12	.184	(1, 8) = .794	.399
Anxiety (RCMAS)	58.40	6.47	51.80	17.15	(1, 8) = 4.47	.067	(1, 8) = .648	.444
Classroom Behavior – English (TOCA-C)	2.79	.401	2.82	.734	(1, 8) = .593	.463	(1, 8) = .007	.934
Classroom Behavior – Math (TOCA-C)	3.18	.624	2/70	.590	(1, 8) = .526	.489	(1, 8) = 1.54	.250

**Data analysis.** Using the combined group of participants ( $n = 10$ ) who completed the intervention treatment, a multivariate ANOVA repeated-measures test was completed to determine if there was a significant difference among the dependent variables from the pretest to the posttest measurements. The multivariate ANOVA repeated-measures test reported no statistically significant difference for any of the dependent variables at the .05 level as indicated in Table 2. Based on the data analysis, this means that for each of the research questions, there was no change in the participants' mindfulness, perceived stress, anxiety, or classroom behavior from the pretest measurement to the posttest measurement as a result of practicing a mindfulness meditation.

Table 2  
*F-Text with the Greenhouse-Geisser Correction Results*

Measure	<i>F</i>	<i>p</i>	<i>ES</i> ( <i>SD</i> <sub>Pooled</sub> )
Mindfulness (CAMM)	(1, 9) = .007	.993	.02
Perceived Stress (PSS)	(1, 9) = 1.86	.205	-.46
Anxiety (RCMAS)	(1, 9) = .604	.457	-.22
Classroom Behavior – English (TOCA-C)	(1, 9) = 4.92	.054	-.31
Classroom Behavior – Math (TOCA-C)	(1, 9) = .326	.582	.09

### *Discussion*

Even though the results of the pilot study revealed no significant changes in any of the four dependent variables in the sample population, two of the dependent variables, perceived stress and anxiety, showed promise by evidence of a low to moderate effect size. The following discussion of the dependent variables compares the results from the current research study to similar research studies and possible reasons why statistical significance was not achieved.

**Mindfulness.** The results from this study did not demonstrate a significant difference in the dependent variable of mindfulness. Which is similar to van der Oord, Bogels, and Peijnenburg (2012), who used a contemplative program, and van de Weijer-Bergsma, Formsma, de Bruin, and Bogels (2012), who used the contemplative technique of mindfulness, also reported no statistical significant difference for mindfulness in both of their studies. In contrast, studies by Lau and Hue ( $p = .01$ ) (2011), Bogels et al. ( $d = 0.5$ ) (2008), and Brown, West, Loverich, and Biegel ( $d = .61$ ) (2011) all demonstrated significant changes in a participant's mindfulness. All three of these research studies consisted of interventions that were structured contemplative programs such as MBSR or Mindfulness-Based Cognitive Therapy (MBCT).

Comparing the results of this study with Lau and Hue (2011), Bogels et al. (2008), and Brown et al. (2011) there is evidence that participants are more successful at increasing their mindfulness with a contemplative program; such as MBSR. As stated earlier, one of the major differences between a structured program like MBSR and practicing mindfulness meditation outside of a structure is the group discussion of experiences. The discussion of the meditation experience helps the practitioner link what he felt to the principles of mindfulness; therefore, possibly leading to an increase in overall mindfulness. The results from this study, which did not include a discussion of the participant's experience, may lead to the conclusion that the group discussion component of a contemplation program increases a person's level of mindfulness.

Perceived stress. With an overall effect size of Cohen's  $d = -.46$  this is an indication that a moderate observable decrease in a participant's stress level occurred from practicing guided mindfulness meditation on a regular basis. Which is similar to Biegel et al. (2009), who reported a significant change with a large effect size of  $d = .89$  in perceived stress. Biegel et al. (2009) used a structured contemplative program, such as MBSR, which included an opportunity for the participants to discuss their meditation experiences. A difference between this research study and the Biegel et al. study was the duration of the intervention interaction time. Interaction time is defined as the number of minutes the participants spend with the researcher or instructor during the intervention. This study included ten sessions at 45 minutes per session for a total of 450 minutes of interaction time. The Biegel et al. study was eight sessions for 120 minutes per session for a total of 960 minutes of interaction time. Resulting in a 510 minute difference between the current study and the Biegel et al. study. Which may indicate that 450 minutes of interaction time is not sufficient to statistically reduce stress with this population of students.

Anxiety. With an effect size of Cohen's  $d = -.22$  there is an indication that a low observable decrease in a participant's anxiety levels occurred from practicing guided mindfulness meditation. Based on the studies reviewed there is inconsistency whether contemplative techniques can reduce anxiety for children and adolescents. Three studies reported no significant change in anxiety (Lau & Hue, 2011; Lee et al., 2008; Liehr & Diaz, 2010), whereas three studies reported significant decreases in anxiety (Beauchemin, Hutchins, & Patterson, 2008; Biegel et al., 2009; Napoli, Krech, & Holley, 2005). More specifically, Biegel et al. (2009) reported a high effect size for state anxiety ( $d = .70$ ) and trait anxiety ( $d = .79$ ) and Napoli et al. (2005) reported a small effect size for overall anxiety ( $d = .39$ ).

A factor that may have contributed to the study not reporting a significant difference in the dependent variable of anxiety may be because the participants did not have clinically elevated T-scores as reported by the RCMAS-2 to indicate a clinical condition of anxiety. This is similar to findings in the Lee et al. (2008) study. Of the 10 Completers in this study, four of the participants could have been considered to have a clinically elevated score for anxiety as reported by the RCMAS-2. Therefore as Lee et al. stated, a reduction in the score "may not be clinically relevant even with the overall trend of decreased symptoms" (2008, p. 24). If the participant did not report signs of anxiety to begin with any further reduction in anxiety symptoms would not be captured by the reporting measure, RCMAS-2.

Classroom behavior. The effect size for classroom behavior in both English (Cohen's  $d = -.31$ ) and mathematics (Cohen's  $d = .09$ ) class averages to an overall effect size of Cohen's  $d = -.11$ .

This is an indication that the guided mindfulness meditation had no effect on improving a participant's classroom behavior in multiple settings. From the studies reviewed, nine of the studies measured participants' behavior and reported a statistical difference due to learning a contemplative program or contemplative technique. The results from these nine research studies are based on the significant results of the dependent variables related to social skills and impulsivity as reported by a teacher or parent, which are comparable to the three subscales of the TOCA-C; concentration, disruptive behavior, and pro-social skills.

The main difference between these nine studies is that six of the studies employed a sample population of elementary age children. The six studies that used a sample population of elementary age children may support Bradley et al.'s (2008) speculation that students with disabilities may become resistant to interventions as they reach higher grade levels because of the frequency school-based intervention programs change. Regardless of the number of school-based intervention programs a student who receives special education services experiences, he or she still may have a difficult time accepting that a program or an individual can help them. For example, a student with SLD may be too depressed because of poor grades to be open to learning an intervention program (Elbaum & Vaughn, 2003). Or a student with ED may not trust teachers and therefore does not respond positively to a teacher when they try to teach an intervention program (Hallahan & Kauffman, 2006). Therefore, elementary age children in the six studies who did improve classroom behavior may have done so because they had not built up resistance to trying new interventions as compared to older adolescents. This is supported by Bradley, Doolittle, and Bartolotta's (2008) belief that students with disabilities are at risk of becoming resistant to school interventions as they progress through the education system because of the inconsistency intervention programs are implemented.

One study, Beauchemin et al. (2008) did report a statistical difference in social skills ( $p < .05$ ) for adolescents with SLD. The Beauchemin et al. study used a contemplative technique that consisted of the participants meditating for five to ten minutes at the beginning of every class, five days a week, for five consecutive weeks. With the Beauchemin et al. study producing significant results in improving social skills with an adolescent population with SLD it may be that participants in the current study needed to practice the intervention over an extended period of time and on a consistent basis.

### ***Research Recommendations***

After closer examination of the results from this pilot study and the studies reviewed, two potential factors may have contributed to why this study did not report significant results. Those two factors may be (a) the intervention interaction time and (b) the type of independent variable.

Interaction time. Based on the studies reviewed, the most successful studies were the independent variables that provided over 700 minutes of interaction time during the intervention. Evidence of a successful study is based on the evidence of a moderate to high effect size as defined by Cohen (1977). For example if the participants were with the researcher or instructor for 120 minutes for eight sessions they received 960 minutes of interaction time as in the Bogels et al. (2008) study that reported an effect size of  $d = 0.5$  related to mindfulness and  $d = 0.9$

related to externalizing and internalizing behaviors and Biegel et al. (2009) study that reported an effect size of  $d = .89$  for perceived stress and  $d = .79$  for trait anxiety.

Therefore, the recommendation is to provide a contemplation program or technique that provides over 700 minutes of interaction time with the intervention. This includes the total number of minutes across the entire intervention, number of minutes per session, number of sessions across the entire intervention, and the number of sessions per week. The number of minutes of the intervention should be spread out over a long enough period of time to be delivered on a consistent basis. With the minutes spread out over a consistent time frame, this would provide the participants more time to incorporate what they learn into everyday life situations.

Type of independent variable. In conjunction with the 700 minutes of interaction time, the interventions were also delivered as structured contemplative programs, such as MBSR. As stated earlier there are several differences between a contemplative program and a contemplative technique. One of the major differences is that during a contemplative program the participants engage in a group discussion. During the group discussion the participants are able to ask questions about the principles of mindfulness, discuss their experiences with meditation, and connect the principles of mindfulness to real world scenarios. The evidence from the current study is consistent with Kabat-Zinn's (2003) caution that mindfulness meditation, or contemplative techniques, may have limited effectiveness if contemplative techniques are taught outside of a structured program.

Therefore, the recommendation is two-fold. One, as an intervention, provide a contemplative program as opposed to a contemplative technique. Two, within the intervention provide at least one group discussion for the participants. For adolescents who receive special education services, the group discussion will provide the key ingredient for linking the principles of mindfulness and how those principles relate in everyday life situations.

In conclusion, in order to determine whether adolescents with an emotional disability or a specific learning disability may benefit from a guided mindfulness meditation intervention they may need to participate in a contemplative program with at least 700 minutes of interaction time and participate in a group discussion related to mindfulness. These conclusions echo Flook et al. (2010), when they stated that the format for delivery of the intervention and the optimal time duration of the intervention should be examined to determine the most effective intervention.

### *Conclusion*

The purpose of this pilot study was to examine the effectiveness of mindfulness meditation used by secondary students who receive special education services for an emotional disability or a specific learning disability. The researcher hypothesized that through the use of guided mindfulness meditation the participants would experience an increase in mindful awareness, and lower levels of stress and anxiety, which in turn might increase each participants' classroom performance. Although no statistically significant results were found relevant to each of the research questions, there was evidence indicating that secondary students with emotional disabilities or a specific learning disability experienced lower levels of stress and anxiety. These findings are based on the effect size of Cohen's  $d = -.49$  for perceived stress and  $d = -.22$  for

anxiety. Based on these effect sizes for stress and anxiety, there is evidence that more research should be conducted to establish how mindfulness can benefit adolescents who receive special education services in the school environment.

There is little evidence that secondary students who receive special education services under the classification of an emotional disability or a specific learning disability benefit from learning a contemplative program or technique. Of the studies reviewed, only Cullen-Powell, Barlow, and Bagh (2005) and Powell, Gilchrist, and Stapley (2008) targeted children with a classification equivalent to an emotional disability and only Beauchemin et al. (2008) and Lee et al. (2008) targeted children with a classification equivalent to a learning disability. Out of those four studies, only Beauchemin et al. used a sample population equivalent to the current study, with the participants mean age of 16.61 years old. Therefore, more research will provide sufficient evidence that students who receive special education services can benefit from learning a contemplation program or technique. Researchers must continue to demonstrate how a contemplative program or technique may help improve the academic scores and behavior achievement of high school adolescents who receive special education services for an emotional disability or specific learning disability.

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### *About the Author*

**Ernest Solar, Ph.D.** Ernest is an assistant professor of special education at Mount St. Mary's University in Emmitsburg, Maryland. His research focuses on the use of mindfulness in the classroom for students with disabilities, with veteran teachers to increase self-efficacy, and incorporation into a teacher preparation program.