

Our Students' Minds Matter: Integrating Mindfulness Practices into Special Education Classrooms

Danielle Magaldi, Ph.D.

Lehman College, City University of New York

Jennie Park-Taylor, Ph.D.

Fordham University

This article explores the usefulness of mindfulness practices in special education classrooms. Mindfulness is defined as the ability to regulate and control one's attention with an orientation toward the present moment. Mindfulness practices of breathing, imagery, movement, reflection, and acceptance exercises are described along with research on the social, behavioral, and attentional effects following mindfulness interventions. The article concludes with practical considerations for special educators considering implementing mindfulness practices into curriculum, along with future directions for mindfulness in the field of special education.

Keywords: mindfulness, contemplative practice, attention

Students' well-developed social and behavioral skills are known to facilitate development of a positive student-teacher relationship as well as improved cognitive processing and independent learning behavior, all of which are integral for academic motivation and success (Graziano, Reavis, Keane, & Calkins, 2007). The development of positive social and behavioral skills is important for success in school as these skills may serve as a predictor of academic outcomes (Khudaverdyan, 2010). Of particular concern are educationally at-risk students who may experience greater difficulty in their

development of social and behavioral skills under the weight of increased levels of school-related stress (Lane, Givner, & Pierson, 2004). These students demonstrate consistently lower intrapersonal skills and they experience greater difficulty with stress management when compared to their typically developing peers (Khudaverdyan, 2010). Diminished abilities in social and behavioral domains can negatively impact academic functioning, educational outcomes, and students' overall sense of academic self-esteem (Pang, 2006).

Special education teachers are charged with the task of modifying

curriculum to meet the varied academic needs of their students, at the same time as fostering meaningful support and change in students' social and behavioral domains. Compounding the demands of this task, there is little offered in terms of educational preparation for providing sustained and targeted social and behavioral intervention that can be integrated well into the school day. However, effectively teaching students social and behavior skills is equally important to teaching academic skills, because of the significant impact social and behavior skills have on classroom learning and students' abilities to make their way in school (Richardson, Myran, & Tonelson, 2010). Classroom disruptions because of behavioral concerns impact students' learning and classroom climate, contributing to teacher burn-out (Elias, 2009). Considering the significant task of providing effective academic, social, and behavioral support, authors suggest collaboration with fields "outside of the classroom" for empirically supported solutions to the challenges inside the classroom. Within the field of education, classroom accommodation and management practices frequently address behavioral and attentional skills by teaching self-management techniques (Roberts, White, & McLaughlin, 1997). In the last five years, medical and mental health fields have taken aim at this same goal, and have increasingly implemented mindfulness-based practices into clinical interventions and wellness programs because of its positive effects on self-management (Baer, 2003). Indeed, there has been an "explosion of interest in mindfulness among mental health professionals" which has significantly impacted service delivery in the field (Siegel, Germer, & Olendzki, 2008, p. 18). With these positive outcomes of mindfulness, attention has now turned to educational settings.

Current research suggests that schools are ideal settings for introducing mindfulness techniques (Hooker & Fodor, 2008). Emboldened by empirical support, mindfulness programs used in other settings are beginning to be integrated into general educational classrooms with some promising results (Suttie, 2006). The Garrison Institute in New York - an organization that studies mindfulness in education - identified that within the last five years many schools are offering mindfulness training because it produces a more positive learning environment with students' primed to pay attention, and children become more focused, calm, and responsive as a result of participation. While schools are beginning to offer mindfulness training, this is often occurring within general education classrooms. Special education classrooms have not yet seen a full integration of mindfulness intervention into curriculum.

Mindfulness practices affect social, attentional, and behavioral or self-management skills through the use of some combination of breathing, imagery, movement, reflection, and/or acceptance exercises. Mindfulness Based Stress Reduction (MBSR), developed by Jon Kabat-Zinn, was one of the first mindfulness programs designed, consisting of 8-10 sessions and teaching adults mindfulness practices for stress reduction (Shapiro, Carlson, Astin, & Freeman, 2006). Mindfulness practices for children are often adapted from this model. Programs vary, but can consist of a combination of some or all five different components, including breathing exercises, visual imagery and meditation, movement, reflection, and/or acceptance exercises.

Breathing exercises (including diaphragmatic breathing, alternate nostril breathing, and three part breathing) have

been proven effective in helping individuals remain calm and focused when stressed and display less emotional reactivity (Arch & Craske, 2006). Visual imagery has been found to produce varied behavioral benefits, including improved engagement with activities (Behan, 2004), and has been identified as helping individuals experience greater wellbeing, improved coping skills, and increased capacity to manage stress (Perlman, et al., 2010). Movement exercises (including deep bends, reaches, and yoga and Tai Chi stretches) produce calming effects on individuals, and have been implicated in improved attention and decreased levels of test anxiety (Glanz, 1994). Yoga and Tai Chi movement exercises facilitate the development of stress management skills and offer health benefits (Wang, Collet, & Lau, 2004). Reflection exercises (including exercises to increase awareness of feelings) are implicated in improved well-being (Yearwood & Riley, 2010), and finally, acceptance exercises influence improved mental health and self control (Flaxman & Bond, 2010; Hayes et. al, 1999).

It is unclear why there has been so little integration of mindfulness practices into special education classrooms to date. It may be that quantifying and measuring the independent variables of mindfulness is a difficult task, however research as to the effectiveness and application of these interventions for special education students and the teachers who teach them has recently begun. One recent study of preschoolers who demonstrated gains in self-regulatory abilities following a mindfulness intervention, offers promise to the usefulness of a mindfulness program for special education students. The preschoolers in this study who were less self-regulated prior to the intervention, made

the most significant gains following participation in the program (Flook, et al., 2010). These findings offer promise to the usefulness of mindfulness interventions for students with limitations in social and behavioral skills. In considering the usefulness of a mindfulness program designed specifically for special education classrooms, the authors provide a review of the extant literature to summarize what is already known about mindfulness. Over 40 studies were reviewed on the impact of mindfulness in clinical and educational settings. In the article that follows the definition of mindfulness is provided. Next, research related to mindfulness interventions' effects on the behavioral skills of self control, emotional regulation, and anxiety, along with social skills, and attentional skills is presented. The article then concludes with practical considerations for special educators when considering incorporating mindfulness practices into their classrooms, and future directions for the field.

Definition of Terms

Mindfulness can be defined around two core components. It is the ability to regulate and control one's attention so that it is maintained in the moment, which allows for increased recognition of present events. It is also an orientation toward the present moment, characterized by curiosity, openness, and acceptance, even of negative or unpleasant experiences (Bishop, Lau, Shapiro, Carlson, Anderson & Carmody, 2004). Mindfulness refers to a state of awareness and a process of being attentive to and aware of events and experiences occurring in the present moment (Kabat-Zinn, 1994). It is described as "paying attention in a particular way: on purpose, in the present moment, and non-

judgmentally” (Kabat-Zinn, 1994, p. 4). It is “an awareness of present experience with acceptance” (Germer, Siegel, & Fulton, 2005).

Mindfulness Effects on Behavioral and Self-Management Skills and Self Control

Several studies suggest that increased ability for self control is achieved through participation in mindfulness practices. Mindful individuals show greater perseverance in the face of aversive experience than individuals who are less mindful (Tice, Baumeister, Shmueli, & Muraven, 2007). Research supports that exercising self-control seems to tap a limited regulatory resource, which can become fatigued. It is hypothesized that mindfulness restores the regulatory resource so that self control can be exerted with improved endurance (Posner & Rothbart, 1998; Schmeichel, 2007). With improved attentional control students demonstrate increased self control (Bishop et. al, 2004). When more mindful, one can more accurately perceive the reality of a situation, and respond in a more adaptive and deliberate manner, decreasing impulsive behavior (Brown, Ryan, & Creswell, 2007). In this way, mindfulness allows students improved ability to exert volitional control, rather than rigidly adhering to old, habitual patterns. Individuals from a clinical sample who participated in a mindfulness program demonstrated improved abilities for self control and demonstrated less impulsive behaviors, corroborating evidence for positive effects on volitional control (Kristeller & Hallett, 1999; Lakey, Campbell, Brown, & Goodie, 2007). Additionally, students who engage in the acceptance portion of a mindfulness program and learn greater acceptance of unpleasant or negative circumstances, demonstrate

increased ability for self-control (Hayes et. al, 1999). Finally, a mindfulness intervention with adolescents with conduct disorder resulted in a significant decrease in aggressive behavior (Suttie, 2006).

Emotional Regulation

Mindfulness strategies aim to teach students to regulate their emotional reactivity to stressful stimuli from the environment and to develop the capacity for reflecting on their emotional triggers. Neurological evidence supports a relationship between mindfulness and decreased emotional reactivity (Lieberman, Eisenberger, Crockett, Tom, Pfeiffer, & Way, 2007). Mindful individuals have shown increased activation in the pre-frontal cortex where cortical processing allows emotions to be brought into more conscious awareness, and decreased activation in the amygdala, where emotions are reacted to more reflexively with greater generation of negative affect (Creswell, Way, Eisenberger & Lieberman, 2007). This research suggests that more mindful individuals demonstrate decreased emotional reactivity. Other studies corroborate these findings, with results indicating the same pattern of activation among high-scorers on self-report assessments of mindfulness (Lieberman, Hariri, Jarcho, Eisenberger, & Bookheimer 2005; Lieberman, et al, 2007).

Broderick (2005) corroborates that individuals who participate in mindfulness practices demonstrate decreased emotional reactivity with improved mood repair when compared with control groups. Another study that examined the effects of mindfulness interventions on a small group of middle school students found that students reported an increased sense of calm, connection to nature, and improved sleep following the interventions (Wall,

2005). Additionally, children as young as pre-school age, demonstrated improved self regulatory abilities following an eight week mindfulness program (UCLA's Mindful Awareness Research Center, 2007; Flook, et al., 2010).

Anxiety

One of the most debilitating symptoms of anxiety for special education students is behavioral avoidance which can significantly affect students' functioning in the school setting (Roemer & Orsillo, 2002). Behavioral avoidance is maladaptive for students because the effort of trying to avoid difficult or unpleasant situations can activate the sympathetic nervous system, ultimately exacerbating negative emotional states, causing students to act out (Gross & Levenson, 1997). Acceptance strategies (an element of mindfulness) have been associated with decreases in the maladaptive emotional responses of behavioral avoidance (Hayes, Strosahl, Wilson, Bissett, Pistorello, Toarmino, Polusny, et. al, 2004). In one study with anxious children, teachers reported an improvement in academic functioning and a decrease in students' symptoms following 6 weeks of participation in a mindfulness program (Semple, Reid, & Miller, 2005). Other studies report that student participation was associated with significantly reduced observable internalizing and externalizing symptoms for anxious students (Lee, 2008), and decreased levels of test anxiety for students who participated in mindfulness training when compared to a control group (Napoli, Krech, & Holley, 2005).

It is hypothesized that these acceptance strategies are successful in decreasing anxiety in students, as they work against the suppression of present-moment

thoughts and feelings (Marcks & Woods, 2005). Thought suppression, a natural strategy that children who are feeling anxious employ, has been shown to be ineffective, often resulting in an increased frequency of unwanted thoughts as children struggling to block out thoughts can experience those unpleasant thoughts more often (Salkovskis & Campbell, 1994; Wegner, Schneider, Carter & White, 1987). Acceptance can help students to tolerate negative thoughts in place of expending energy to suppress them (Wegner & Erber 1992). Other studies suggest additional benefits of acceptance strategies, citing a negative association between acceptance strategies and self-reported symptoms of depression, anxiety, and obsessiveness (Marcks & Woods, 2005).

Mindfulness Effects on Social Skills

Neurological evidence suggests that individuals who engage in mindfulness practices show more activation in those areas of the brain that detect emotional cues, demonstrating a heightened empathic awareness (Lutz, Brefczynski-Lewis, Johnstone, & Davidson, 2008). The ability to detect emotional cues is associated with improved social ability as students have a greater ability to read social cues and respond more appropriately. With a greater ability to access empathy, special education students may experience more satisfying friendships and improved social relationships in school. Research further suggests that students who participate in acceptance exercises as part of a mindfulness program, learn acceptance of even difficult thoughts and emotions, which reduces the threat potential these feelings have, and allows students to feel more calm and relaxed in social settings (Marck & Woods, 2005). These practices may also

decrease students' reactivity to their own passing emotions, even when those emotions are challenging, and cause students to feel a greater sense of well being and an improved ability to relate to others. Evidence of improved social skills is also supported by a study of typically developing children in grades 1, 2, and 3 who participated in a 12-week program of breath awareness and movement exercises (two components of a mindfulness program), and who demonstrated improved attentional and social skills (Napoli, Krech, & Holley, 2005).

Mindfulness Effects on Attention

Students in a mindfulness program were found to perform better than a control group on a counting task requiring sustained attention. This difference corresponded to the number of years of mindfulness participation (Valentine & Sweet, 1999). Several studies of attention have been conducted employing the Stroop task (a task of selective attention requiring the inhibition of an automatic response of reading, in favor of naming the color a word is printed in) to compare the attentional capacities of mindful versus less mindful individuals. Students given a brief mindfulness intervention performed better on the Stroop task than controls (Wenk-Sormaz, 2005). Other studies also support these findings, reporting that individuals with experience in mindfulness have been shown to perform better on the Stroop task than those without experience (Rani & Rao, 2000). Research found that children who practiced a mindfulness meditation exercise over 18-weeks improved their ability to focus and refocus their attention, and to disregard distracting stimuli when compared with children who had received counseling once a week, and a control group who received no

intervention (Linden, 1973). Further, a 2005 study reported that individuals with long-term participation in mindfulness practices demonstrated thicker cortical regions related to attention and sensory processing when compared with controls (NeuroReport, 2005).

Practical Considerations for Special Educators

Incorporating mindfulness curriculum into the school day can be an extremely practical way to target special education students' social and behavioral skills, and to provide teachers with tools for classroom management. Special educators may consider whether and how mindfulness practices are in keeping with their teaching goals and philosophies. When doing so, authors offer these practical considerations:

1. Mindfulness curriculum is practical and safe, as the tools for this curriculum are internal, including breathing, imagery, reflection, acceptance, and movement. Teachers must assess whether they have the appropriate level of knowledge and competence to modify facets of the interventions to meet the specific needs of their classroom. Teachers might consult the current literature, form study groups, join contemplative practice listservs, or visit websites designed for educators using mindfulness.
 - The Mindful Teacher, www.mindfulteacher.com
 - The Mind and Life Institute, www.mindandlife.org
 - The Garrison Institute, www.garrisoninstitute.org
 - The Association for Mindful Education, www.mindfuleducation.org
 - Mindful Schools, www.mindfulschools.org

These sites offer helpful resources. Mindfulness apps are available that can help teachers develop breathing or meditative practices for themselves that they may integrate or model in the classroom.

2. Because of the internal nature of the intervention, students' skill acquisition may be generalizable, and skills can be transferred to use at home, in the school yard, or in other areas outside of school.
3. Special education initiatives and legislation require empirically supported educationally practices to be implemented in our classrooms. Mindfulness is supported by a body of research which asserts its positive effects; however, there is very little research investigating how special education teachers can best use it in schools. Special educators, with the support of school administration, should evaluate whether they feel it is appropriate for use in their classrooms, and may consider pre- and post-test measures of students' social, behavioral, and attentional skills to evaluate its effectiveness.
4. Mindfulness curriculum does not require additional space as these practices can be conducted in the classroom. Students should be comfortably seated in chairs or on the floor to engage in practices. Teachers may consider the best way to implement these interventions based on classroom configuration and the needs of students.
5. Mindfulness practices can be used as part of a daily routine requiring several minutes, or can be incorporated into curriculum taking more time, based on time available and student/teacher

schedules. Teachers may consider how much time they can allocate to these practices based on their goals for the intervention and their scheduling demands. For instance, mindfulness practices may be incorporated into the curriculum following the lunch period – a time in the day where teachers generally make repeated attempts to help students smoothly transition from free time to academic time, or at the start of each day to create a classroom climate of openness, acceptance, and attention to task, if these times are in keeping with teachers' goals and schedule.

6. Teachers may consider using mindfulness as part of a classroom management program, to proactively equip students with emotional regulation strategies for dealing with stress. It can be utilized to influence classroom climate and can empower students with increased coping skills for use at home and in other settings. It is important for special educators to evaluate whether they feel comfortable utilizing these interventions, in that, teachers must participate along with students and would be expected to model its use in the classroom.
7. Mindfulness teaches students concrete strategies to improve their ability to cope with emotion-laden stress, teaching them an awareness of their own mind-body connection through the integration of physiological (breath support, diaphragmatic breathing, visual imagery), psychological (reflection), educational (acceptance), and physical (movement) approaches (Kabat-Zinn, 1994). Special educators would have

to feel comfortable using an integrative approach in their classrooms for implementation of a mindfulness program. Teachers would also need to make modifications to the intervention for students' varied physical, intellectual, and emotional ability.

8. Classroom climate and parent support can be positively affected by mindfulness practices. Over eighty percent of typically developing students and their parents who participated in a mindfulness pilot study endorsed mindfulness training, reporting that they believe schools should teach mindfulness (Lee, 2008). Special educators would need to develop an introductory knowledge of mindfulness practices in order to educate students and parents as to its use in the classroom. Teachers might also consider communicating with parents during the implementation of mindfulness practices to assess parents' response.

Future Directions and Conclusion

Mindfulness interventions are beginning to be utilized in general education classrooms with promising results in social, behavioral, and attentional domains (Elias, 2009). This article supports the expansion of these practices into special education classrooms, and presents research that purports positive effects on skill sets important to the education of special education students. Research may also explore teachers' reactions to its use in the classroom, effects on classroom climate, and the relative effectiveness of each of the five mindfulness strategies. With empirical support and qualitative inquiry, a mindfulness program may be designed

specifically for use with special education students to address their diverse needs and strengths.

Extending and applying findings from the research reviewed in this article, mindfulness practices holds promise for use in special education classrooms. Special educator training in this area has only just begun with limited implementation in special education classrooms, such that research to evaluate the particular application in special education classrooms is needed. Special education students are often in classrooms where there is more than one adult in the classroom because of the presence of support staff, paraprofessionals, and through the practice of team teaching. Research suggests that having more than one adult in the room facilitating mindfulness intervention exercises, increases the benefits and strengthens the students' acquisition of skills while supporting the development of a warm and safe classroom climate (Wall, 2005). Taken together with the need to support special education students in social and behavioral domains, this suggests that special education classrooms may, in fact, be a good setting for mindfulness intervention. Additionally, research asserts that mastery of mindfulness curriculum is much less necessary than a working command of the skills, in providing students with a rich learning experience and in affecting classroom climate (Wall, 2005), suggesting that teachers and support staff who learn the curriculum need not be experts to help students experience the beneficial outcomes, and that students need not be proficient in mindfulness in order to experience positive results. Based on our current understanding of mindfulness, these interventions may produce positive outcomes without requiring teachers and

students to become expert in the intervention, and may contribute to a classroom climate that is characterized by students who are supported, primed to pay

attention for new learning, and able to cope more effectively with school-related stress.

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