



Dr. Romie Mushtaq, MD

Center for Natural & Integrative Medicine

6651 Vineland Road, Suite #150

Orlando, FL 32819

Phone: 407-494-8086

E-Mail: DrRomie@drromie.com Web: [\[Web Address\]](#)

The Role of Mindfulness in Education

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EXECUTIVE SUMMARY

Mindfulness-based stress reduction techniques and mindfulness-based educational programs provide social and emotional learning for students. In addition, mindfulness-based programs help to improve behavior and academic achievement. Mindfulness is described as cultivating a present-centered awareness.

Examples of mindful exercises implemented in the classroom are controlled breathing techniques, meditation, mindfulness-based stress reduction (MBSR) techniques, and yoga. In developed nations, school systems and educators are introducing mindfulness techniques into the classroom as a means of improving attention, emotional regulation, and academic achievement.

An example of a social and emotional learning (SEL) program utilizing mindfulness-based techniques is the MindUP™ program created and supported by the Hawn Foundation. After completing this program, students exhibited increased happiness, improvements in math achievement, and improved social behavior.

The positive findings of the initial review of medical and scientific literature supports the need for additional future research in introducing mindfulness-based programs into schools to improve well-being, behavior and academic achievement.



DEFINING MINDFULNESS IN MENTAL HEALTH

Definition of Mindfulness in Modern Psychology

Mindfulness is described as an action of two simple words: “pay attention”.

When we pay attention with all of our senses, we are then present in the current moment. By being in the current moment, our minds are not ruminating about the past or worried about the future. Modern psychology defines mindfulness as “bringing one’s complete attention to the present experience on a moment-to-moment basis.”

Over five decades of Scientific and medical studies have confirmed what centuries of people practicing mindful techniques have already known. The benefits of practicing mindful techniques start internally with a person creating emotional, physical, and mental harmony. When an individual has this emotional and physical balance, they are less affected by changes in external circumstances such as stress, anger, fear, and anxiety.

What is the origin of mindfulness?

Jon Kabat-Zinn, the biologist who first coined the term “mindfulness” in the 1970s in the United States. Kabat-Zinn defines it as a state of mind: the act of “paying attention on purpose” to the present moment, with a “non-judgmental” attitude. The origins of mindfulness is a secular philosophy and set of techniques adapted from Buddhist meditation traditions. Jon Kabat-Zinn founded the Center for Mindfulness at University of Massachusetts Medical School, and he is credited with being the first person to introduce mindfulness into a medical setting. He developed the Mindfulness-Based Stress Reduction (MBSR) program, which used specific exercises to help patients dealing with chronic pain. Subsequently, decades of ongoing medical and scientific research has proven other modalities that create present-centered awareness also help improve emotional and physical well-being. Examples of other activities that achieve present-centered awareness are yoga, meditation, controlled breathing techniques, and tai-chi.

Additional thought leaders in the field of mindfulness trace the origin of mindfulness to many of the traditional Eastern based religions including Hinduism, Sufism, and other mystic religious traditions.

However, the modern day practice of mindfulness is not based in any religious practice. Mindfulness is, however, considered a practice to be done on a regular basis without attachment to results or outcome.

The key to any of these practices is being aware in the present moment, and this is achieved by connecting to the breath. There are now many different types of practices of meditation that can bring one to a mindful state. The traditional method of achieving mindfulness is based in meditation.

Current review of medical and scientific literature does not define “one best” or “gold standard” method of meditation to achieve mindfulness.



Stress and the Stress Response

Stress is a biological and psychological response experienced on encountering a threat that we feel we do not have the resources to deal with.

A stressor is a stimulus (or threat) that causes stress, e.g. exam, divorce, the death of loved one, moving house, loss of a job.

For two years in a row, the annual stress survey commissioned by the American Psychological Association has found that about 25% of Americans are experiencing high levels of stress (rating their stress level as 8 or more on a 10- point scale). Another 50% report moderate levels of stress (a score of 4 to 7). Perhaps not surprising, given continuing economic instability in this country and abroad, concerns about money, work, and the economy rank as the top sources of stress for Americans.

Response of the body and brain to stress

Initially, brain is programmed to judge a situation and decide whether or not it is stressful. This decision is made based on sensory input and processing (i.e. the things we see and hear in the situation) and also on stored memories (i.e. what happened the last time we were in a similar situation).

The stress response begins in the brain. When someone confronts an oncoming car or other danger, the eyes or ears (or both) send the information to the amygdala, an area of the brain that contributes to emotional processing. Our amygdala judges the situation and decides whether or not it is stressful by interpreting the images and sounds. When it perceives danger, it instantly sends a distress signal to the hypothalamus.

The hypothalamus takes on the role of the command center for the rest of the brain and body under stress. This area of the brain communicates with the rest of the body through the autonomic nervous system, which controls such involuntary body functions as breathing, blood pressure, heartbeat, and the dilation or constriction of key blood vessels and small airways in the lungs called bronchioles. The autonomic nervous system has two components, the sympathetic nervous system and the parasympathetic nervous system. The sympathetic nervous system functions like a gas pedal in a car. It triggers the fight-or-flight response, providing the body with a burst of energy so that it can respond to perceived dangers. The parasympathetic nervous system acts like a brake. It promotes the “rest and digest” response that calms the body down after the danger has passed.



The Relaxation Response

"The relaxation response is a physical state of deep rest that changes the physical and emotional responses to stress... and the opposite of the fight or flight response", Herbert Benson, M.D.

According to Benson, in his book *The Relaxation Response*, the relaxation response is the process of de-escalating the stress response and inducing relaxation through activation of the parasympathetic nervous system. This is a normal and natural response that the body does automatically. It is also the response of the body when relaxation techniques are used. Relaxation techniques allow you to experience this response when you choose to.

Mindfulness improves brain and mental health

A growing body of peer-reviewed scientific research illustrates the positive effects of mindfulness training. Benefits are reported in mental health and well-being. In addition to improvements in behavior, improvement is also fostered in attention while there is a marked reduction in stress. Mindfulness also creates better emotional regulation and an improved capacity for compassion and empathy.

Mindfulness is widely considered effective in psychotherapy as a treatment not just for adults, but also for children and adolescents with aggression, ADHD, or mental-health problems like anxiety.



THE ROLE OF MINDFULNESS IN EDUCATION

Social and emotional learning is defined as the learning process in which one can "recognize and manage emotions, develop caring and concern for others, establish positive relationships, make responsible decisions, and handle challenges effectively" (Schonert-Reichl et al, 2007).

Social and emotional learning is a critical aspect in a child's development, and teaching these skills positively impacts both personal well-being and school performance. Programs that teach social and emotional skills are effective, and they result in better academic performance, significantly improved social and emotional skills, attitudes and behaviors, fewer negative behaviors, and enhanced mental health.

There is evidence that mindfulness can be cultivated through training, and may contribute to happiness and well-being, as well as improved self-regulation (Brown & Ryan, 2003). Zack and colleagues report that there are encouraging findings around the efficacy of mindfulness-based interventions for youth, and suggest that mindfulness training is well suited to the cognitive processing level of children, who approach the world with a "beginner's mind" that is "open, ready to learn, and creative", and that children are "less confined by verbal rules and rigid behavior repertoires".

The Hawn Foundation behind the MindUP™ movement, "MindUP™ nurtures optimism and happiness in the classroom, helps eliminate bullying and aggression, increases empathy and compassion, while resolving peer conflicts in schools." The Hawn Foundation notes the findings of researchers including Schonert-Reichl and Lawlor (2010) showing that students who participated in MindUP™ demonstrated:

- increased happiness
- improvements in math achievement
- improved social behavior, including social interaction, empathy, and peer acceptance
- enhanced emotional awareness, including compassion, self-concept, and optimism
- gains in executive function and improved planning and organization
- increased emotional control and increased inhibitory response



Also, the MindUP curriculum guide states that the benefits of mindful teaching and learning include:

- improved self-control and self-regulation skills
- strengthened resilience and decision-making
- increased enthusiasm for learning
- increased academic success
- reduced peer-to-peer conflict
- enhanced social skills such as empathy, compassion, patience and generosity
- a joyful and optimistic classroom

MINDFULNESS AND ACADEMIC ACHIEVEMENT

The Hawn Foundation, founded by meditation advocate and actress Goldie Hawn, worked with neuroscientists and psychologist to develop the MindUP™ program. The MindUP™ program is based on mindfulness and kindness exercises and was designed by Goldie Hawn's Foundation to improve academic performance in the classroom. This program is based on mindfulness training, brain science, and psychology, and it is taught in 15 lessons as a part of classroom curriculum by trained teachers.

Schonert-Reichl and colleagues published research results of the MindUP™ program in the Journal of Developmental Psychology in January 2015. The overall results prove the theory that mindfulness improves everything from social skills to math scores. Amongst developed countries, the United States ranks almost last in math test scores and abilities with our children.

The MindUP™ program consists of 15 exercises based on mindfulness training, brain science, and psychology. Researchers followed 4th and 5th-grade students in the program and found in one semester students in the program had 15% higher math test scores. Children did a three-minute meditation three times a day focusing on their breathing. They also acted on their lessons by practicing gratitude and doing kind things for others.

For the four months, researchers analyzed all kinds of in-depth measures in the children such as: behavioral assessments, serum cortisol levels, children's self-reports of their own wellbeing, reviews from their peers about sociability, and the objective academic scores of math grades.

The authors hypothesized that a social and emotional learning (SEL) program involving mindfulness and caring for others, designed for elementary school students, would enhance cognitive control, reduce stress, promote well-being and prosociality, and produce positive school outcomes.

To test this hypothesis, 4 classes of combined 4th and 5th graders (N = 99) were randomly assigned to receive the SEL with mindfulness program versus a regular social responsibility program. Measures assessed executive functions (EFs), stress physiology via salivary cortisol, well-being (self-reports), prosociality and peer acceptance (peer reports), and math grades.

Relative to children in the social responsibility program, children who received the SEL program with mindfulness showed the following improve parameters:

- 1 improved more in their cognitive control and stress physiology
2. reported greater empathy, perspective-taking, emotional control, optimism, school self-concept, and mindfulness
3. showed greater decreases in self-reported symptoms of depression and peer-rated aggression,
4. were rated by peers as more prosocial, and
5. increased in peer acceptance (or sociometric popularity).



MINDFULNESS AND BEHAVIOR MANAGEMENT

As previously discussed, social and emotional learning (SEL) is a crucial aspect of a child's development. Teaching these skills impacts both personal well-being and school performance. SEL programs result in better academic performance, significantly improved social and emotional skills, attitudes and behaviors, fewer negative behaviors, and enhanced mental health.

Researchers conducted a meta-analysis of 213 school-based social and emotional learning (SEL) programs, finding that SEL programs have a significant positive impact on targeted social-emotional competencies and that teachers and other school staff are effective in delivering these programs. (Durlak JA, et al. 2011). An example of a social and emotional learning (SEL) program is the MindUP™ program created and supported by the Hawthorn Foundation.

One hundred percent of the teachers reported that the MindUP™ program had a positive effect on the students in their classes this year.

In assessing executive functioning the BRIEF (Behavior Rating Inventory of Executive Functioning) scale was utilized to assess behavior with the following results:

- 96% of 3-year-olds increased inhibitory response
- 54% of 2nd and 3rd graders increased inhibitory response
- Over one-third of all students demonstrated greater emotional control
- 73% of 3rd graders showed improved planning and organizational skills

Participating in the MindUP™ program improved self-reported well-being in the students. 78% of all students and 100% of all Kindergarten students said MindUP™ helped them to be more relaxed. Two-thirds of all students and 100% of all three-year-olds said MindUP™ made them feel happy

Prosocial behavior in the form of sharing, helping, and cooperating is a hallmark of social competence throughout childhood. Prosocial behaviors can be grouped into three distinct categories: sharing (dividing up or bestowing), helping (acts of kindness, rescuing, removing distress), and cooperation (working together to reach a goal). Implementing the MindUP™ program also improved pro-social behavior.

- 56% of all students and 92% of all three-year-olds reported greater peer acceptance
- 64% of all 4th and 5th graders demonstrated increased empathy
- 90% of all students feel MindUP™ helped kids get along better



DISCUSSION

Mindfulness is the concept of being present in the current moment. Modern psychology defines mindfulness as “bringing one’s complete attention to the present experience on a moment-to-moment basis.”

The role of mindfulness in education benefits the teachers and the students. In the classrooms, teachers can use mindfulness-based techniques to increase responsiveness to students' needs, support stress management, and enhances classroom climate. Introducing mindfulness to the students helps to strengthen attention and concentration and reduces anxiety before testing. Additional benefits for students practicing mindful techniques is an improvement in classroom participation and enhancement of social and emotional learning.

Implementing mindfulness-based programs that teach social and emotional skills result in better academic performance, significantly improved social and emotional skills, attitudes and behaviors, fewer negative behaviors, and enhanced mental health.

The question of how to implement mindfulness-based programs more widely in curriculum needs further study. Initial research data supports that mindfulness-based programs are cost-effective and can be executed by training teachers in the schools.



APPENDIX A- CONTROLLED BREATHING EXERCISES FOR STUDENTS

Controlled breathing techniques are based in yoga (pranayama) and mindfulness-based stress reduction techniques. The “Brain Break” is an example of a controlled breathing technique from the MindUP™ curriculum.

The "Brain Break" is a three-minute meditation utilizing controlled breathing techniques in the MindUP™ program.

Three minutes is a length of time that can accommodate the attention span of a young child. Three times a day is meant to encourage a regular practice. The 3 minute Brain Breaks fit easily into the classroom setting and can be used at key moments during the day with little effort or change to planning.

Script to follow for brain break:

1. Please sit comfortably in your chair, sitting tall so the air can fill your lungs.
2. I invite you to close your eyes.
3. When I ring the chime, listen for as long as you can. When you can't hear it anymore, slowly begin your deep belly breathing.
4. As you take a deep breath and fill your lungs, feel your stomach rise and then fall again as you breathe out. (wait for 30 seconds before moving on with instructions)
5. If your mind wanders, that's okay, just focus your attention on your breath.
6. When I ring the chime again, keep breathing calmly. When you can't hear the sound anymore slowly open your eyes but stay still and quiet.

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