Spring 2017

Mindfulness in Learning

Melissa Davis
mhudson87@gmail.com

Mindfulness in Learning

Melissa Davis

Murray State University

19 April, 2017

Abstract

This paper focuses on the concepts of mindfulness and how it can be applied to early education to reduce stress, encourage positive behavior, and help students be more empathetic successful productive human beings. The mindful based curriculum includes mindful movement, mindful eating, mindful breathing, mindful rest, self-regulation skills, empathy, and compassion building skills. Teaching these skills to youths has proven effective in increasing self-esteem, lowering stress levels, reducing bullying and increasing compassion. Children that are taught in an environment that promotes mindfulness are more likely to succeed according to research. With an introduction to the history of mindfulness and the mindfulness movement in Western culture, this paper gives a full and comprehensive understanding of not only why mindfulness is a valuable tool but also demonstrates how studies reflect positive results which encourage further research and application.

When a child enters the world they have no knowledge of what will be expected of them in this life. They have yet to experience the stress of test taking, meeting deadlines, and any instances of mental health challenges have yet to emerge. With the exception of special needs children, babies have very basic needs that their caregivers must attend to. Despite differences in culture and circumstance, children respond well to more relaxed, soothing methods much better than they do stressful, erratic responses, which often only succeed in making the child more fitful and the caregiver more stressed. With this is mind, it stands to reason that children, as they grow and become more aware of the world and the stresses in their environment, should use these early methods to cope with the world around them. The concepts found in mindfulness can be applied to teach students to handle the stresses of not only school, but life as well in such a way that they can be more productive, empathetic, and successful throughout their lives.

School age children are, on average, energetic and constantly learning. They learn from teachers, parents, peers, and in general the world to which they are exposed. If they are only exposed to chaos and lack of structure and true understanding, they will have a difficult time finding clam and focus within themselves. Mindfulness, in conjunction with other mindful elements, goes back to those early days of calm soothing and purposeful thought and turn away from the over sensitized nature of the world most children find themselves trying to learn and grow. In order to understand how these practices work it is important to learn what exactly mindfulness and extended elements of mindfulness are and how they apply to learning.

History of Mindfulness

The concept of mindfulness has its roots in the Buddhist faith. According to the Buddhist faith, it is wholly important to know the mind, train the mind, and free the mind. Through combined meditation and purposeful movements, those following these lessons become aware of

how they think and what drives those thoughts. While this is the first step, it is the cornerstone for building the foundation of this effective teaching. For instance, when mindfulness instructor and writer Ed Halliwell began first exploring mindfulness as a study, he realized he had a pattern of rushing through life and activities, both mental and physical, then collapsing in what he perceived as a restful state; though it was really exhaustion on several levels. "The more I engaged with mindful movement practices, the more I felt it was showing me my habitual style of engagement. Instead of avoiding the unpleasant feelings that arose when I slowed down, I was now paying attention to them, seeing how they affected me, and choosing to stay with them" (Halliwell, 2013, para. 3). This revelation is the first step in the Buddhist process of becoming and practicing being mindful. According to Buddhist teachings, to truly know the mind a person must spend time with the mind, evaluating not only what they think but how and why they think.

This does not mean the person is intent on changing their thoughts, but rather just being aware that those thoughts and reactions exist (Fronsdal, 2006, para. 4). A good analogy might be a person being in a crowded room or event where everyone is busy and moving, engaging, and they stop within themselves apart from the activity and realize while they are a part of the swirl of excitement, they are also a separate single observer, calm and still in the moment of the excitement.

The next step in the mindfulness process is training the mind. This concept is a bit more difficult because it requires the person to accept and forgive themselves for the way they think. It can be a difficult process because in general people would rather think they have a healthy outlook on life and deal with obstacles well, when in many cases that may not be so. Perhaps a person is quick to anger or become frustrated when faced with challenges great or small. Perhaps they would rather "not dwell" on an issue when really they are just avoiding dealing with the

problem. All of these responses are very natural and to a degree encouraged by the world in general. They are however counterproductive to the mindfulness process. Training the mind focuses on facing these realities for what they are and forgiving the self and treating the self with kindness. This allows for the practitioner to open themselves to further training which benefits their overall outlook.

The main method of training the mind is active meditation. Active meditation does not mean forced. Rather, it is more of a letting go process in the beginning; then later once a level of acceptance and understanding has been reached, a more focused study of an attitude. (Fronsdal, 2006, para. 8-9). Being able to change the way a person thinks becomes a very powerful tool. They may be able to find acceptance in chronic pain and find ways to let some of that pain go. A person plagued by depression may find the strength in their battle instead of seeing it as a weakness. Change and acceptance of perception of self can lead to change and acceptance in the external world.

The last step in truly being mindful is learning to free the mind and thus the self. Buddhist believe the things people hold onto hold them back form true peace. The processes of learning how a person thinks and being aware, of forgiving themselves for how they see things and finding better approaches, leads to a fuller understanding of what they are doing to hold themselves back form true peace and understanding. "The more we know ourselves, the easier it is both to train ourselves and to know what needs to be released. The more our minds are trained, the easier it is to know ourselves and the more strength and wisdom we have to let go. And the more we let go, the fewer the obstructions to understanding ourselves and the easier it will be to train the mind" (Fronsdal, 2006, para. 10). This concept can be applied to every aspect of life.

Society is bombarded with images of how they should think, look, or act on a daily basis. There is no doubt it has in impact of how people perceive themselves and those around them as well as how they react to these destructive ideas. This leads to fad diets, erratic behavior, bullying, self-doubt and an increasing amount of desired instant gratification just to function and feel fulfilled for most people. With the uses of these methods and tools practitioners of mindfulness are able to have a better understanding of their bodies and their selves so that they may cope better with the world around them. The lessons of mindfulness in the Buddhist faith provide the chance for the practitioners to not only find inner peace, but to also handle the stresses of the world around them with ease. Benefits have been has proven to extend into medical conditions, learning environments, mental issues, and even prisons.

These elements are the foundation for the mindfulness movement. They are only the beginning however. As all movements evolve, the mindfulness movement has evolved to include other elements that build on the foundation principles for a more complete experience.

Elements of Mindfulness

The mindfulness movement as evolved from simple breathing and meditation techniques to a broader definition of activities. While the core of this movement is breathing and thought, those utilizing these methods have discovered ways to take the core values and apply them to eating, movement, emotional awareness, and rest. Particularly in the Compassionate Schools Program, which will be discussed later, these additional aspects of mindfulness are proving to be the foundation of an overall system benefitting many students, teachers, and even parents. To better understand why these other aspects of mindfulness are so important, it is first necessary to have a full understanding of mindful eating, mindful movement, emotional awareness, and mindful rest.

It is hard to pinpoint a beginning to the mindful eating concept, as it seems to have evolved with the mindfulness movement, but the core values and principles behind mindful eating are very clear. As discussed earlier, mindfulness is the act of being very in tune mentally, physically and emotionally with one's body. This translates to eating in that when someone eats mindfully, they are also in tune in those same ways. "Applied to eating, mindfulness includes noticing the colors, smells, flavors, and textures of your food; chewing slowly; getting rid of distractions like TV or reading; and learning to cope with guilt and anxiety about food. Some elements of mindful eating hark back to Horace Fletcher, an early 20th century food faddist who believed chewing food thoroughly would solve many different kinds of health problems" (Harvard Health, 2016). What this means in practice mentally is, taking the time to prepare a meal thinking about the food to be eaten, how it will benefit the body and being present in the moment to make good food choices. A common problem with many people is simply eating for the sake of eating. Eating is a social activity for many people. Eating is something to do while watching TV or reading. It becomes habit rather than necessity.

This is where mindful eating is very different. Mindful eating is being aware what one eats and why they are eating. Also making healthy food choices instead of convenient ones. Leo Babauta, a practitioner of mindful eating explains this concept from personal experience. "What I ate (junk) was a big part of it, but just as big a part was how I ate — emotionally and mindlessly. These bad eating habits built up over time, after years of eating to socialize, to relieve stress, to make myself feel better, to satisfy cravings. When I finally started changing my eating habits, I realized how bad things were. I realized how hard it was to change, simply because eating was filling so many needs, and because I ate mostly without thinking" (Babauta,

n.d.). When thought is aligned with eating it becomes more than an activity and becomes part of taking care of the whole body.

To mentally be mindful while eating can be done by planning out meals based on sound nutritional principles. Instead of buying the frozen dinner that can be quickly made and eaten in front of the TV, selecting fresh vegetables, fruits and meats that take time to prepare is a better option. This allows the person to make the conscience decision to eat instead of it being something convenient to do when they are bored perhaps. Also, slowing down when eating is an important aspect of eating mindfully. "Digestion involves a complex series of hormonal signals between the gut and the nervous system, and it seems to take about 20 minutes for the brain to register satiety (fullness). If someone eats too quickly, satiety may occur after overeating instead of putting a stop to it" (Harvard Health, 2016). By slowing down while eating the body has time to register when it is actually full, and the person has time to think about what they are eating, how it was prepared, and why they are eating among other ideas. Another step in eating mindfully is changing some eating habits, such as eating with a non-dominate hand, using chopsticks, taking small bites and chewing well, and even eating silently while thinking about the food and the whole process of how it came to be on the table. All of these ideas require the person to really focus and be in tune with their body. (Harvard Health, 2016).

The emotional aspect of mindful eating is tied to the mental, but has its own benefits and methods. Some people eat to fill and emotional void from depression, stress, and other mental issues. These problems can result in binge eating as well as guilt associated with food. A study was conducted in 2006 on ten over weight men to explore the benefits of mindful eating on the test group. They were given six weekly two-hour group classes (with two monthly follow-up classes). Content included training in mindfulness meditation, mindful eating, and group

discussion, with emphasis on awareness of body sensations, emotions, and triggers to overeat. (Dalen, J., Smith, B., Shelly, B., Sloan, A., Leahigh, L., &Gegay, D., 2010). What they found in conclusion was the men in the study had significantly positive results to the mindful eating approach. "Ten obese patients enrolled with a mean BMI of 36.9 kg/m2 [SD ± 6.2]. The mean weight was 101 kg/m2 and the mean age was 44 years (SD = 8.7; range = 31–62). Compared to baseline data, participants showed statistically significant increases in measures of mindfulness and cognitive restraint around eating, and statistically significant decreases in weight, eating disinhibition, binge eating, depression, perceived stress, physical symptoms, negative affect, and C-reactive protein" (Dalen, et al., 2010).

Other studies support the link between emotional eating and how using mindful eating can provide therapeutic results, decreasing not only the binge eating, but also the guilt associated with binges, which in turn can, in some cases, help with other associated problems such as depression and eating disorders. "Psychologist Jean Kristeller at Indiana State University and colleagues at Duke University conducted an NIH-funded study of mindful eating techniques for the treatment of binge eating. The randomized controlled study included 150 binge eaters and compared a mindfulness-based therapy to a standard psychoeducational treatment and a control group. Both active treatments produced declines in binging and depression, but the mindfulness-based therapy seemed to help people enjoy their food more and have less sense of struggle about controlling their eating. Those who meditated more (both at mealtimes and throughout the day) got more out of the program" (Harvard Health, 2016).

As with many aspects of mindfulness, the mental and emotional are tied into the physical. Part of mindful eating is listening to the body and understanding the reason behind eating. As stated earlier, some people eat out of habit "mindlessly". Mindful eating encourages asking the

questions, “Am I actually hungry?” and “Am I full?” These are very important questions to ask and consider before simply eating. It may be that the person is bored or even thirsty. Taking the time to consider the motivations behind eating is an important step in eating mindfully. It allows the person to take a self-assessment in order to make better, healthier food choices.

Mindful eating has applications in many areas that can benefit not only the average person, but especially children. By teaching children the principles of mindful eating from an early age, with parents taking an active role in setting the example, children will potentially avoid learning poor eating habits, have over all better health, lower chance for obesity, and generally have a better relationship with food and their bodies as supported by previous research. As with most learned behaviors, good and bad, the earlier they are taught the longer then tend to last.

Mindful eating has shown to be a very beneficial practice that when utilized has resounding positive results supported by studies. Among the more concrete benefits of mindful eating are, being aware when hunger occurs and when satiation has been reached as this is important for proper weight management. Other benefits include learning to enjoy tasting food, discovering healthy foods, and realizing less healthy options no longer taste as good and actually made the person feel more run down than healthy alternatives. Learning which foods best fuel the body to allow for more activity and a better over all feel throughout the day is a considerable benefit. All of these benefits translate into a better relationship with food emotionally due to better physical and mental outlook towards food (Babauta, n.d.). When a person feels better and looks better they are more likely to take the positive attitude and apply it to other parts of their life; which is key to mindfulness in general.

As important as what is put into the body is what the body does in reaction to mental and emotional triggers. Mindful movement is the conscience awareness of the body and what it is doing. This may sound like a simple idea, but it is less common for a person, not accustomed to mindful movement, to really think about what their body is doing when they do an activity. Most people simply just do. There is no thought as to the process of movement. Some activities such as yoga, tai chi, martial arts, and even dance do require much more thought towards movement. For that reason these types of activities are used in some mindfulness programs to find a deeper understanding of self and being mindful.

Mindful movement is more than a good yoga class. As with mindful eating, a singular definition is more difficult to develop. Mindful movement is part meditation, part listening to the body on a more focused level, part relaxation of the mind by relaxing the body, and other aspects. It is a deep connection between mind and body through focused activity. Mindful movement has proven to have far reaching effects in many different fields, proving to be a valuable tool in the mindfulness program.

One study looked at the benefits of using mindful movement to help those with Attention Deficit Hyperactivity Disorder (ADHD). One of the more common symptoms of ADHD is unconscious movement, foot tapping, finger drumming, etc. This study noted a cognitive connection between these types of movement and lack of focus for people with this disorder. "We elaborate a spectrum of mindfulness by considering ADHD, in which deficient motor control correlates with impaired (disinhibited) behavioral control contributing to defining features of excessive distractibility and impulsivity" (Clark, D., Schumann, F., &,Mostofsky, S., 2015). The premise is that by incorporating mindful movement practices, people with ADHD can learn to make focused movement and transfer that focus to other tasks. Thus, helping to

control and alleviate some of their symptoms. “Given the strong evidence for a relationship between movement skill and attentional and other forms of cognitive control, we propose that this relationship stems from profound overlap between the computational problems being solved in motor learning and executive function” (Clark, et al., 2015). In the course of their study, it was the conclusion of researchers that by isolating movement to intentional movement, mindful movement, they discovered there was a significant mind-body connection which is the foundation of mindful movement. Becoming aware of the process of moving and what is required to move requires focused attention; something ADHD patients have difficulties accomplishing in certain situations. “Much as motor decision processes may be the result of reciprocal inhibition and excitation both within and between cortical representations, higher-order cognitive processes such as attentional control or response switching may likewise result from competitive selection among sensorimotor representations (cf. Smith et al., 1999; Fuster, 2001; Cisek and Kalaska, 2010). We propose that core shared features across attention and motor control provide the mechanistic basis for the effects of mindful movement practices” (Clark, et al, 2015). The study poses that due to the deep connection between action and thought by using mindful movement along with focused attention techniques, people with ADHD can effectively train their brains to sustain focus longer. “We argue that mindful movement practice encourages mindful learning driven by awareness of sensorimotor distinctions and alternatives… Thus, we propose that mindful movement may train control skills that can coordinate goals, attention, and motor programs (Figure (Figure1)—particularly1)—particularly in cases wherein the learner may struggle in his intentions due to dysregulated mechanisms of cortical inhibition and selection, as in ADHD or other developmental challenges” (Clark, et al., 2015). The conclusion reached by the findings of this study was attention is a type of motor skill that like all other

motor skills can be trained using the right tools. In this case, it was determined that in part mindful movement is one of the tools that can benefit people with ADHD by making them more aware of their bodies, and building the connections between focused movement and focused thought. Through mindful movement training they can training their brains to not only think about what they are doing, but also sustain focus on other topics (Clark, et al., 2015). For those using more traditional treatment for ADHD, such as medication and behavioral therapy, adding the element of mindful movement training may be a benefit to their quality of life.

Another application for mindful movement can be found in addressing difficulties of higher risk urban youths. Some of these students grow up in highly charged and at times dangerous situations where they have little control over their environment. These students are often exposed to more violence and which can result in learning to use violence as a way to solve even minor problems. Groups like the Holistic Life Foundation are helping schools, youth groups, and communities combat these problems by providing mindfulness, to include mindful movement, training for these youths. "Students in Holistic Me benefit and grow in many ways from their participation. They learn a combination of yoga, mindfulness practices, meditation, centering, and breath work that empower them with skills for peaceful conflict resolution, improved focus and concentration, greater control and awareness of thoughts and emotions, improved self-regulation, anger management, as well as stress reduction and relaxation" (Holistic Life Foundation, 2016). By having the tools learned in these classes, these children might deal with a stressful day at school by coming home and doing yoga, taking the time to calm their bodies and minds. Also when in a charged situation where previously they may have lashed out, after mindfulness training, they are more inclined to take a moment to calm down and

make a better choice. Further information on how this type of program is working will be discussed later.

Mindful movement also translates into a better understanding of how the body works and an awareness of the condition of the person's body. Often people move through their day with little regard for how they feel physically. The rushing through daily activities commonly leads to a general worn out feeling at the end of the day. By using mindful movement techniques, it is more likely a person will notice big and small changes that can effect overall health. In her fitness articles Jennifer Pilotti, a physical and personal trainer, explains the benefits of mindful movement not only on exercise programs but also on the recovery of exercise and general health. "Research also suggests basic meditation techniques may lead to improved motor control, an improved ability to detect subtle environmental changes, and better self-correction to successfully complete a motor task when these changes happen" (Pilotti, n.d.). While meditation is one part of mindfulness, with a focus on movement, a better quality of exercise can be achieved. Pilotti explains in a three part process. She says sensing, feeling and adjusting are the keys to using mindful movement to not only get and effective workout but also to recover quickly and completely. "Sensing refers to the idea of taking a moment before your workout to sense you… If you actively move your joints through various ranges of motion before your session, use this as an opportunity to check in and see how you are feeling and moving…Feeling is the observation of how you are doing a movement… If you are struggling with a specific skill, significantly decreasing load and moving through the exercise slowly is a way to connect with the movement…Adjusting means using the information you learn from sensing and feeling to make a skill more efficient…" (Pilotti, n.d.). These three elements depend on a focused effort to

listen to the body and respond appropriately. Using mindful movement in this way can lead to better workouts and less injury according to Pilotti.

`By introducing this aspect of mindful movement to student athletes there could be benefits for increased performance, as well as less injury. Combined with the calming and focusing effects of mindful movement, athletes could be able to better focus on their sports as well as improve their skills. Overall mindful movement has many benefits mentally, emotionally, and physically. The use of mindful movement in mindfulness programs in schools could significantly help on multiple levels, aiding students in reaching their full potential.

Just as important as the physical and mental state in mindfulness is the emotional state or emotional awareness. Emotional awareness is being aware of the feelings a person is experiencing, why they are experiencing those feeling, and how to process the emotions in a reasonable appropriate manner. While feelings can be complicated, being mindful of feelings can help understanding and dealing with feelings easier, especially in children. Children are in a constant state of discovery, experiencing new ideas and situations on a daily basis. These experiences can bring on a range of emotions, at some point all of which will be new to a child. Emotional awareness is part of a mindful program because it addresses the exploration and understanding of emotions as well as teaching coping tools.

With emotional awareness comes emotional intelligence. Emotional intelligence takes emotional awareness and extends it to other people. Meaning, being aware and accepting of an individual's feeling as well as recognizing feelings in others.

> "…emotional awareness which basically means being aware of the emotions you are experiencing, as well as those of people around you. Being self-aware is the ability to

> notice the emotions you are feeling in the current moment without judgement or alteration (The Emotional Intelligence Framework 2015). Emotionally aware individuals learn to accept who they are because they learn that each person is different and that everyone handles their emotions uniquely. This kind of awareness leads to greater love and compassion for the self as well as the other which is an extremely different experience to simply reacting with anger or frustration" (Oppland, 2017).

Another aspect of emotional awareness is how a person reacts to the emotions they are feeling or emotional management. Understanding appropriate response to feelings and emotions allows a person to feel more in control and also can help them have a better outlook even when experiencing negative emotions. Also, being more emotionally aware and establishing a baseline for what is normal behavior would help someone recognize when an emotional reaction is not normal. "Once you have obtained the ability to be aware of your emotions and are able to harness them for your benefit then emotional self-management becomes essential. Managing your emotions means that you can take stock of how you are feeling consistently throughout the day. You try to be positive, as much as possible, but you are not naïve to the fact that negative emotions are also play a part of life. Emotional management is imperative to gaining control over your life and imploring emotional intelligence when making decisions especially during inevitable stressful periods. Instead of reacting to your emotional impulses and letting your feelings govern your interactions, you can choose to express yourself in more skillful ways" (Oppland, 2017). Through emotional awareness a better understanding of self can be achieved. With a better understanding of self, emotional regulation becomes a more manageable event. A study in titled, *Mindfulness and its relationship to emotional regulation,* researchers addressed the question as to how mindfulness techniques could help emotional regulation. "This experience

sampling study aimed to explore the relationship between mindfulness, emotion differentiation, emotion lability, and emotion dysregulation. If individuals with mindfulness tendencies are less emotionally reactive, then they should show less emotional lability. Furthermore, the more a person differentiates between discrete emotional states, the more effective he or she may be at regulating emotions. He or she would also be likely to show less emotional difficulties, such as emotional lability. Consequently, we hypothesized that higher scores on a mindfulness measure would be associated with higher levels of emotion differentiation" (Hill & Updegraff, 2012).

The study used 70 female and 26 male college students beginning the study with the Five Facet Mindfulness questionnaire which measures mindfulness tendencies naturally present in each individual. Then the students were given a PalmPilot device which beeped roughly every two hours throughout the day to assess their current feelings based on a set of emotions provided on the device. Each student had a 60 second window in which to respond to the alert by entering their current emotional state or the event was noted as a nonresponse. The data collection lasted for one week. Then the devices were returned and a Difficulties in Emotional Regulation Scale which measures how each person responds to their emotions was issued so the participants could rate how they responded to different emotions. The study hypothesized those with higher mindfulness scores would have lower difficulty ratings.

What the study discovered was those students who had better mindfulness tendencies also had better coping skills when measured on the Difficulties in Emotional Regulation Scale. Thus proving their hypothesis correct. "These findings suggest that mindfulness may improve emotion regulation by influencing people's awareness of their emotional experiences. Replications with individuals who practice mindfulness would therefore be important. Some individuals, such as

individuals with Bi-polar Disorder (BPD), report difficulties being emotionally aware even on self-report measures of awareness" (Hill & Updegraff, 2012).

This study shows even in a limited sampling how important emotional awareness can be as well as how mindfulness can aid in emotional regulation and management. By incorporating mindfulness and emotional awareness in school based mindfulness programs students could be better equipped to deal with the emotions they are discovering. Also as the study showed, even those with some emotional disorders, which can begin to manifest in adolescence, benefit from being more emotionally aware. Having the knowledge could help students recognize changes in their "normal" emotional set and let them know something is changing for them. With this knowledge students could begin to get the assistance they need to cope with onset of mental and emotional disorders.

Another important aspect of the mindfulness movement is mindful rest not just for the body but for the mind as well. The brain is like any other part of the body. It can be over worked, stressed, and eventually becomes "tired". Unlike other parts of the body, the brain has an effect on every other system in the body. When people push their bodies, and fail to get proper rest, the brain becomes sluggish and does not function as well. Similarly, if a person is under a great deal of stress with too much going on in their lives, the brain may have trouble shutting down to get the rest needed to function at optimal capacity. Here is where mindful rest becomes important.

Mindful rest is like every other aspect of mindfulness in that it is a focused effort. In this case it is the focused effort to relax the body and mind so that the brain and body can recover from the stresses of life. While it may seem logical to go to sleep when a person is tired, as anyone who has faced a deadline, or worried about a child can tell you it may not be so simple to just shut everything down. Mindful rest techniques can be utilized to help reach a state where

recovery is possible. Mindful rest may not be taking a nap or trying to sleep. I may be as simple as closing your eyes for a moment, taking a few deep breaths, while relaxing your muscles starting from the head down, and just thinking about something calming. It is important to find a method that works for the individual as well.

> "If you tend to become angry, agitated, or keyed up under stress, you will respond best to stress relief activities that quiet you down, such as meditation, progressive muscle relaxation, deep breathing, or guided imager If you tend to become depressed, withdrawn, or spaced out under stress, you will respond best to stress relief activities that are stimulating and energize your nervous system, such as rhythmic exercise, massage, mindfulness, or power yoga. If you've experienced some type of trauma and tend to "freeze" or become "stuck" under stress, your challenge is to first rouse your nervous system to a fight or flight response (above) so you can employ the applicable stress relief techniques. To do this, choose physical activity that engages both your arms and legs, such as running, dancing, or tai chi, and perform it mindfully, focusing on the sensations in your limbs as you move" (Robinson, L., Segal, R., Segal, J., and Smith, M., 2017).

Once a person finds the best techniques for themselves it is then important to make using these techniques a habit. Purposefully setting aside time each day to relax and find the inner quiet to help cope with the day. It is best to avoid practicing these techniques at bedtime, after a full meal or after drinking as they can make you sleepy; unless that is your goal (Robinson et al., 2017).

Mindful meditation is another element which can be useful in mindful rest. Mindful meditation is a focus directed meditation which allows the practitioner to release mental and physical stress by directing their mind to one single point. "Meditations that cultivate

mindfulness have long been used to reduce stress, anxiety, depression, and other negative emotions. Some of these meditations bring you into the present by focusing your attention on a single repetitive action, such as your breathing, a few repeated words, or the flickering light of a candle. Other forms of mindfulness meditation encourage you to follow and then release internal thoughts or sensations" (Robinson, et. al., 2017). Learning to relax through these methods does take practice, but like other parts of the body, the brain can learn and change even measurably.

In response to mindful meditation, Dr. Richie Davidson, renowned neuroscientist at the Center for Healthy Minds at University of Wisconsin-Madison, says, "We can intentionally shape the direction of plasticity changes in our brain. By focusing on wholesome thoughts, for example, and directing our intentions in those ways, we can potentially influence the plasticity of our brains and shape them in ways that can be beneficial." And the Center is seeing that, "even short amounts of practice," like 30 minutes of meditation per day, "can induce measurable changes in the brain" that can be tracked on a brain scanner" (Wolkin, 2015). By practicing mindful meditation and mindful rest, it appears to be possible to thus train the brain to relax and recover more easily. Where before practicing mindful rest a student might automatically have a stressful response to an up-coming test, after practicing mindful rest and perhaps mindful meditation that same student can over time, train their brain to have a more reasoned response to the news. "The impact that mindfulness exerts on our brain is borne from routine: a slow, steady, and consistent reckoning of our realities, and the ability to take a step back, become more aware, more accepting, less judgmental, and less reactive" (Wolkin, 2015).

Modern Mindfulness

The beginnings of mindfulness in Western culture as a means of providing relief for users was not an easy process and faced much skepticism. The man accredited with bringing this

movement to Western culture and making mindfulness more mainstream is Dr. Jon Kabat-Zinn. His work began due to personal experience with mindfulness. Dr. Kabat-Zinn, a molecular biologist working out of the University of Massachusetts Medical Center, decided to see if he could apply the lessons of mindfulness and mindful elements to helping people with chronic medical conditions (Wiley, 2015, para. 2). People suffering from chronic conditions may not always respond to traditional treatments and often end up suffering through life. This pain impacts not only their ability to function physically, but can also lead to depression and other mental difficulties.

Katba-Zinn took a small pool of volunteers and conducted a 10 week long training session teaching the methods he himself had been taught and practiced using meditation, and yoga as a base for his project. While the initial study was difficult for the participate due in large part to the nature of what they were asked to do and the skepticism of how simply changing how they thought, being aware of how they breathed, and standing in a certain way, yoga postures, could change their pain, the results were undeniable. Dr. Kabat-Zinn's results proved "…that a majority of 51 chronic pain patients reported "great" or "moderate" pain reduction, and even if their pain didn't disappear, they experienced less depression, tension, anxiety, fatigue, and confusion." (Wiley, 2015, para. 5) These results encouraged Dr. Kabat-Zinn not only to continue his research but to also found the Mindfulness-Based Stress Reduction Clinic in 1979.

From such humble beginnings the mindfulness movement gained momentum and continued to find applications in numerous fields from business, sports, healthcare and medicine, incarcerated inmates and the staff in prisons, and especially in the field of education. It is the promising results in the field of education that potentially could make some of the greatest impact. If students were able to demonstrate and utilize the many different aspects of

mindfulness, they could be better equipped to face all the challenges they might encounter in school and later use those skills to become more successful in their adult lives. This matriculation of knowledge from student to adult member of society could have lasting effects on how these student shape the world.

Mindfulness in Education

The Mindfulness movement has been tested in several school ranging from the elementary level all the way up through high school. Elementary students are in the learn phase of self-control, interaction with others in various situation including stressful conflict, problem solving, time management, and many other important skills that will allow them to be successful in navigating the world. While some students field these areas with ease, others struggle in various areas. The Mindfulness curriculums that have been tested show that when implemented students struggle less and are able to manage the stresses of mastering these important skills much easier.

One Mindfulness program, the *Master Mind* program, was tested on two random elementary schools to see how effective implementing the program might be for not only students, but also teachers. "It was hypothesized that students who participated in the *Master Mind* program, in comparison to students who did not, would experience improvements in their cognitive, emotional, and behavioral regulatory abilities, and reductions in their intentions to use substances" (Parker, Kupersmidt, Mathis, Scull, and Sims, 2014). For the teachers is was a question of how effectively they could plan and implement these lessons and if they saw any real improvement for the students in the areas of concern. The method for this study was selecting two classes from elementary schools in the same county and school district both equivalent in

gender, age, and racial demographics. One was given the four-week *Master Mind* Program and the control class continued the regular curriculum. The students all participated in pre testing through simple computer tests designed to assess the target areas of concern. After four weeks of execution of the *Master Mind* Program, there was post testing, repetition of the original test, to assess the impact of this program on the students as compared to the control group. The teachers of the test group weighed in not only on their observations of the students but also on the usability of the program itself (Parker, Kupersmidt, Mathis, Scull, and Sims, 2014). The results showed, students who participated in the *Master Mind* program had higher executive functioning skills and lower social problems and aggressive behavior upon post-testing compared to the control group (Parker, Kupersmidt, Mathis, Scull, and Sims, 2014). Gender also provided variations in results from the control and test groups. Teachers noticed a reduction in anxiety among female students in the test group, and male students showed a slight improvement in behavior after participating in the program (Parker, Kupersmidt, Mathis, Scull, and Sims, 2014). Teachers also responded well to the program and found them easy to prepare, teach, and build upon. "All teachers reported that they greatly enjoyed teaching the *Master Mind* program to their students… Teachers also recommended the inclusion of additional mindful movement activities in the program, given the students' enthusiasm for learning these types of skills…they also suggested extending some of the lessons to allow for more time for reflection and discussion of certain topics" (Parker, Kupersmidt, Mathis, Scull, and Sims, 2014). This particular study showed not only an effectiveness of a mindful program but also a noticeable interest on the part of teachers to take the program to the next level by including more of the mindfulness practices due to positive response from students. While there was not a marked difference in the areas of

attention problems and tobacco and alcohol use, this was only one program and only a 4 week study.

Another study reported in *Developmental Psychology*, *Promoting prosocial behavior and self-regulatory skills in preschool children through a mindfulness-based kindness curriculum*, seven classrooms were recruited from different elementary schools and students were asked to enroll to participate in the study. There were two different groups; one group followed the trial curriculum, the other group continued with the "normal" curriculum similar to that of the *Master Mind* study control group. The study group ended up being sixty-eight children with an average age of four years old.

The "kindness curriculum" was twelve weeks long and focused on cultivating attention and emotion regulation. Each session for the trial curriculum was twenty to thirty minutes long. The sessions were offered once a week and only taught by an experienced instructor. The instructor used books, music, and other age appropriate resources to teach concepts of mindfulness, compassion, and empathy. (Flook et al., 2015).

The effects of the study were measured through several different assessments to accurately gage the effects of this new curriculum for the study group. The first assessment was the teacher-rated scale. The teachers rated the children participating in the study on showing empathy and compassion for others, controlling emotions, and calming themselves down once in a stressful situation or agitated state. The second category for assessment was a sharing task in which children were asked to share stickers between themselves and various peer groups. In order to gain a full evaluation of this task the children shared stickers with a well-liked peer, an unknown peer, and a peer who was sick. The third assessment was a delayed gratification task where the participants were offered a small token now or a larger token later if they were to wait.

The next activity used a computerized measurement such as the dimensional charge card sort, which analyzed the child's ability to sort by one factor (color) then take each group and sort by another factor (shape). The final measure of the success of the study was based on the children's overall grades. The grades were collected from the school during the second half of the year and compared to the first half of the year when the study began.

The results of each assessment showed how the group participating the "kindness curriculum" compared to the wait list control group. The analysis of the sharing task "indicated that the control group kept significantly more for themselves over time relative to the KC group". There was no significant change for the delay of gratification task, the change for both the KC group and the control were small. The last measure, school grades, showed that "The KC group earned higher grades than the control group in Approaches to Learning, Health and Physical Development and Social and Emotional Development. There were not differences between groups on Cognition and General Knowledge or Language Development and Communication," (Flook et al., 2015). It was found that "Children in the KC group with lower levels of social competence and executive functioning at baseline showed larger improvements in social competence over time relative to the control group." This proves that there can be some prediction or expectation for the effects that a "kindness curriculum" will have on preschool age children. (Flook et al., 2015).

The results of this study show that even a brief exposure to a mindfulness program can have a marked impact on the students, especially at a younger age. These students exhibited improvement in most areas as noted not only by teachers but also reflected in their grades. While studies support early intervention through Mindfulness curriculum has great benefits, not all

students will be able to receive this training early in their education. Some research and study has been done on older students as well to see how they react to different mindful programs as well.

Not only are average students able to benefit from mindfulness, but this type of teaching has been shown to help those students coping with attention disorders such as Attention Deficit Hyperactive Disorder (ADHD), stress disorder, depression and anxiety disorders. Teachers are expected to not only teach these students who may be struggling in a "normal learning environment" but also help them cope with their disorders so that they may learn to handle the different experiences that are a common part of life. These experiences might include working with peers, meeting deadlines, or problem solving. An integral part of the Mindfulness program is helping students work to handle these stressors in such a way so that they may not be overwhelmed and are open to learning the skills they need to handle the different challenges they may face.

As related to discussion on reducing stress and improving learning "Another study of third, fourth and fifth grade students found that children who participated in mindfulness training reported positive changes in behavior, mood and attitude after being taught to pay attention to their breath. Children in the study also reported feeling more relaxed experiencing less tension and anxiety" (Napoli, Krech, &Holley, 2005, p. 105). One of the keys to learning these skills the ability to focus on the lessons at hand and not be overwhelmed either mentally or emotionally. Students dealing with various disorders and the general stresses of modern society can have difficulties with this concept. A study conducted by the Attention Academy Program (AAP), aimed to test the effects of mindfulness on elementary age students with the focus of "increase their attention to the present experience, approach each experience without judgement, and view each experience as novel and new with a "beginner's eye"" (Napoli, et al., 2005, p. 106).

Two researchers, one male, one female were trained professionally at the Center for Mindfulness Program. They were then sent to visit nine classrooms in two elementary schools along with their research assistants to evaluate the students who were to participate in the study. Of the 300 original core group, 228 students, 120 boys and 108 girls, participated in the study. They were then separated randomly into two groups for training and evaluation. The students in the experimental and control groups were required to attend 12 AAP training sessions and were excluded from the study if they missed a class. A total of 198 students completed the program (Napoli, et al., 2005, pp. 107, 108).

Before the training began, and once again after the training was complete, all students were tested and rated on the following measures. The tests are designed to evaluate all students regardless of individual issues such as ADHD. The ADD-H Comprehensive Teachers Rating Scale (ACTeRS), Test of Every Day Attention for Children (TEA-Ch), and Test Anxiety Scale (TAS). The students were given 12 bi weekly training session in which the experimental group was taken to a separate room and taught various mindful techniques and methods and the control group was left in the traditional classroom to read quietly for the allotted session time (Napoli, et al., 2005, p. 108). The results of this study support the original hypothesis that with mindfulness training fewer issues and better attention and retention would be seen. The ACTeRS results showed fewer problems as noted by the teachers. While the TAS results also showed improvement for the experimental group dropping almost a full 10^{th} over the control group (Napoli et al., 2005, p. 111).

The overall results from this study conclude that "…a difference for group performance would be evident through the practice of mindful practice training. The results showed a statistically significant difference between the experimental and control groups as assessed by

the measures" (Napoli et al., 2005, p. 113). While the long term benefits of early intervention with elementary students is yet unknown, based on the studies thus far, the results are encouraging. It stands to reason that with continued use of mindfulness practices, students will develop a better mastery of these skills.

One of the greater benefits of mindfulness training in younger students is stress reduction and management. In recent years the concept of stress and anxiety in younger students has become an issue that is being addressed more. One study, *The effectiveness of a school-based mindfulness training as a program to prevent stress in elementary school children*, is explores mediation and prevention. This study used three different schools with children ages 8 to 12. The study stated that "It is concluded that mindfulness training can be incorporated in elementary schools at the class level, letting all children benefit from the intervention." (Van de Weijer-Bergsma, E., Langenberg, G., Brandsma, R., Oort, F. J., & Bögels, S. M, 2014). The study measured pre-and post-test. They used Non-Productive Thoughts Questionnaire for Children (NPDK), Emotion Awareness Questionnaire revised, Sense of Coherence Questionnaire for Children, Subjective Happiness Scale, The parent version of the

Dutch Screen for Child Anxiety Related Emotional Disorders, Social Competence and

Behavior Evaluation, and Teacher Report About Class Climate. To get as many points of view as possible, the evaluations were administered different ways. Some were given directly to students, while others went to teachers and parent. This ensured effectiveness of the mindful based program (Van de Weijer-Bergsma et al. 2014).

Results at the beginning showed that there was little difference between baseline and pre-test. However, from pretest to post-test the difference was slightly better for expressing emotions

and awareness of emotions. From pretest to follow-up, there was improvement in children differentiating emotions, sharing emotions verbally, being aware of their bodies, not hiding emotions (shutting down), and there was a decrease in anxiety symptoms (parent reported), and again parents reported a drop in angry or aggressive behavior.

The most important knowledge we gained from these types of long-term studies is that the effects of mindfulness are long term. This explains why follow ups show better results than posttests immediately upon completion. With greater mastery comes a wider ability to apply the skills among different aspects of their lives, in theory. Further research and greater application of the concepts taught in mindfulness programs will produce more definitive data in years to come.

Students of upper level grades, middle and high schools, are increasingly exposed to stressors such as peer pressure, societal and environmental expectations, as well as the normal hormonal and physical changes that come along with these age groups. While there are different experiences demographically, there are some experiences that are universal among pre-teens and teenagers in general. The use of mindfulness programs in schools can help more at risk students develop coping skills that they might not otherwise have at their disposal.

In a discussed in the article *School-based mindfulness instruction for urban male youth: a small randomized controlled trial,* in the journal Preventative Medicine, the authors believe that many urban youths are subject to high levels of stress from failing education systems, community violence, and substance abuse. While the results from studies on mindfulness in adults shows promise, the studies completed on mindfulness for adolescents is not as extensive. It is the hope that implementing a mindful based practice into the youth education system that there will be a reduction in stress, anxiety, depression, negative coping, low self-image, and PTSD (post-traumatic stress disorder) (Sibinga et al, 2013).

For the purposes of this study, participants were given instruction on Mindful Based Stress Reduction (MBSR). MBSR is an element of the Mindfulness program in which participants practice present moment awareness, deep relaxation, and gentle movement. By using these techniques, a person learns to discover and observe their reactions to stressors and to choose how to respond. In this particular study, a selection of 7th and 8th grade urban boys from a low income school were chosen at random to participate in the study. The objective of this study was to determine if this specific subgroup benefitted from MBSR in the areas of handling stress and anxiety as compared to students who only received traditional health education. Out of the 42 students selected, 41 participated, of which 95% were African American. The mean age of the study group was 12.5 years old. The method for evaluation of this these test groups was dividing them into two groups, one receiving MBSR training and the other receiving traditional health education. The Data was collected pre-program, post-program and at a three-month follow-up. The study measured effectiveness based on areas such as psychological function, sleep, and salivary cortisol (Sibinga et al, 2013).

The groups, mindful based group and healthy topic group, were similar at the beginning. The results showed that there was a drop-in anxiety, a drop-in use of negative coping skills, and no rise in cortisol. Cortisol is what the body releases in response to stress. This study shows not only and mental and emotional improvement for the students but also a marked chemical difference in students who received the MBSR training as opposed to those that did not. These results show that with the proper training educators are not only changing the way students think but also how they react physically to stressors. The implication being, when faced with the many stressors in their environment, these students will be able to negate a negative physical response by using their coping skills and allow for more controlled reactions.

> "The study, *Effectiveness of the mindfulness in schools program: non-randomized controlled feasibility study,* includes 522 students ages 12-16 from 12 different schools. This study targets the age group 12-16, believing that this is an age where adolescents must self-regulate and that many students are negotiating social and school stress for the first time. The study period was chosen specifically at the end of the school year so that the results would come in after the students were to take their final tests. It is believed this is a high stress time, therefore, making it the perfect period to test the efficiency of mindful based practices" (Kuyken, W., Weare, K., Ukoumunne, O. C., Vicary, R., Motton, N., Burnett, R., ... & Huppert, F. 2013).

The researchers believe that children from all levels of society and from all different back grounds can benefit from a mindful based curriculum. It is stated that there is also a belief that if all children are to participate in the program it will become more the accepted norm instead of an exclusive programs with stigmas attached. This theory comes from including every child instead of targeting specific groups of children. The authors state "As a universal intervention it also minimizes inequalities in accessing the intervention and the acceptability, stigma and social comparison that often arise when targeting interventions at subgroups of young people within schools". (Kuyken, W., et al. 2013).

The participants were evaluated three times, pre-intervention, post-intervention and follow up. Pre-intervention was before the 9-week study began. The post-intervention was immediately following the conclusion of the 9-week study. The follow up data was collected after finals. The post-intervention included feedback from the students on how much they

enjoyed the program, are they willing to continue, and would they continue to use the methods taught throughout their lives.

The study used three different measures to determine baseline and post-intervention wellbeing. The Warwick-Edinburgh Mental Well-being Scale (WEMWBS) was used to assess over all wellbeing. Center for Epidemiologic Studies Depression Scale (CES-D) and Perceived Stress Scale (PSS) were used to collect data on mental health.

A total of 6 schools and 256 children participated in the study. Follow up measures showed that "Around 80% of the children had used the practices to varying levels. A similar percentage of the children had focused on their breathing. Far fewer children, however, had used meditation (44%), walked a short distance or eaten a mouthful of food mindfully (52%) or noticed where in the body they were feeling stress (60%)".

> "The following results were the final point of the study "In the unadjusted analyses, there was little evidence of a difference between the trial arms at post-intervention with respect to mental health and well-being. However, after adjusting for gender, age and ethnicity there was strong evidence of lower depression scores in the intervention arm ($P = 0.004$).At 3-month follow-up, the adjusted analyses showed evidence of increased well-being ($P = 0.05$), lower stress ($P = 0.05$) and lower depression scores ($P = 0.005$) in the intervention compared with the control arm" (Kuyken, W., et al. 2013).

As students progress through school, they are faced with greater stresses beyond just social and environmental. Society has become highly competitive and students are under more pressure to perform well on tests and achieve greater success at earlier ages. While not all

students feel the pressure to compete due to lack of familial support or socioeconomic situations, a great number of students are being impacted by the demands of school and society. Along with these pressures has emerged a trend in a rise in mental health issues. "A report by the U.S. Surgeon General (U.S. Public Health Service, 2000) reported that one in ten children suffers from a mental health condition that meets diagnostic criteria, and one in five suffers from problems that significantly impair day-to-day functioning" (Broderick and Metz, 2009, p. 36). While the causes of mental illness are varied and sometime inherited, there is some correlation between increased stress and an emergence of these issues in children. "By most accounts, mental health problems are increasing among young people, possibly reflecting greater awareness of disorders (Achenbach, 1995), and also resulting from the increased number and intensity of stressors on young people (Caspi et al,2000)" (Broderick and Metz, 2009, p. 35). Students are in ever increasing need of coping skills for these developing problems.

Through various Mindfulness programs of varying degrees of depth and application, studies have shown the benefits to ability to pay attention, reduction of anxiety, and better control of aggressive behaviors. A study conducted by Department of Health in West Chester University of Pennsylvania proposed to teach willing high school students how to help control and reduce stress through a mindfulness based programs called BREATH. "It was hypothesized that participants would show reductions in negative affect, greater understanding of emotions, reduced tendency to rumination, and decreased somatic symptoms after completing the program than a control group" (Broderick and Metz, 2009, p. 37).

120 girls in a private high school chose to participate in the program which consisted of six session on the Learning to BREATH program along with their regular health curriculum. The classes were led by professionally trained instructors in a classroom setting. In order to measure

the effectiveness of the program, testing was taken before the session began and again once all the sessions had been completed. The methods of testing included, Positive and Negative Affects Schedule (PANAS) to help assess the levels of possible anxiety and depression in students, Difficulties in Emotional Regulation Scale (DERS) to assess regulation of emotions, Ruminative Response Scale (RRS) to assess the response to depression, Somatization Index of the Child Behavior Checklist (SICBC) to assess how each student felt in general (Broderick and Metz, 2009, p. 39-40).

The groups were divided randomly into an experimental group and a control group. For deeper analytical clarification each group was classified further into age, race, previous meditation practice and precious yoga practice. These further classifications had no bearing on the teaching of the programs and were used strictly for data purposes. The results of this study showed that students who completed the BREATH program had greater overall positive results than those that did not participate in the program. Among the benefits revealed by the study, students showed marked reduction in negative affect, a better understanding of their emotions, a greater sense of calmness and relaxation. They also expressed a greater awareness of their feelings. Researchers believed this awareness might help other students handle negative emotions and understand their thoughts and feelings better with use of this program (Broderick and Metz, 2009, p. 41).

In addition to better emotional understanding, students also reported feeling physically better upon completion of the training program and with continued use of the skills they had learned. Of the group that received the training a portion continued to practice their skills outside of the class and noticed an increased level of fatigue and dizziness, but this may have been a heightened awareness of currently existing fatigue. (Broderick and Metz, 2009, p. 42-43). The

results of this study show that while there is still room for further research and study, the preliminary results show a positive impact for the BREATH program.

A study in the United Kingdom showed that not only was there an improvement for those students that had Mindfulness training but also that when the students continued to practice their skills they exhibited continued improvement. A group of 173 14 and 15 year old boys from a private religious school were divided into two groups, six classes receiving mindfulness training and five classes receiving only normal classes. The mindfulness classes were based on Dr. Kabat-Zinn's original program and consisted of 40 minutes of instruction once a weeks. The classes were compounded, building upon one another each week over a four week period. The method of teaching the classes varied from simple instruction, to videos, to audio instruction as well as encouraged home based practice of learned skills. The students in the control group were given their normal religious based curriculum and had no extra work assigned for home. (Huppert and Johnson, 2010, p. 5).

In order to assess the effectiveness of the program baseline testing was done as well as post program evaluation. To measure mindfulness, the Cognitive and Affective Mindfulness Scale was used. To measure each student's ability to deal with stress and ability to adjust to changing situations, the Ego-Resiliency Scale was used. To measure affective-emotional aspects, cognitive-evaluative dimensions and psychological functioning, the Warwick-Edinburgh Mental Well-being scale was used. The Big-Five personality dimensions were also assessed to define levels of personality traits. Additionally, students were asked a series of questions to determine how much they practiced outside the classroom, how much they had learned, level of enjoyment in the course and other questions to assess they quality and effectiveness of the course on a more personal level (Huppert and Johnson,2010, p. 6).

The results of this study proved once again that while there was not a drastic difference between results for students receiving training and those not receiving training, there was some improvement overall. The more telling results were of the students that not only practiced at home but those whom continued to practice the skills they learned in training. "Sixty-nine percent of the students in the mindfulness group reported that they had enjoyed learning about mindfulness, and 74% thought they would continue with the mindfulness practice.

The main finding of this study was a significant improvement on measures of mindfulness and psychological well-being related to the degree of individual practice undertaken outside the classroom" (Huppert and Johnson, 2010 p. 90). The result of this particular study shows that not only did the program prove effective but also with continued practice the students continued to experience improved benefits.

Time and again studies show the benefits of mindfulness based programs even when the programs are taught in different styles. The core values are the same and the results are positive across the board. Middle and high school students are at increasingly higher risk for stress and in some cases development of mental health issues. Mindfulness programs not only empower these students to handle the normal stresses related to this age group, but it also helps provide them tools to cope with issues that might be unique to the student or the environment in which they live. Due to the limited pool of subjects as well as specialized nature of the testing, results may not be irrefutably conclusive, but the preliminary results have proven positive. As these methods are further researched and implemented, a better understanding of long term results will emerge.

While these smaller studies have yielded some interesting results, studies on such a small scale can only provide limited information. In order to accurately determine the practical benefits

of mindfulness programs, a larger long term study would be necessary. Some schools across the country are implementing elements of mindfulness into their curriculums, but one school district is attempting to take on the challenge of a massive study encompassing all elements of mindfulness and the benefits of a new look at education.

The Compassionate Schools Project based in Louisville, Kentucky is the home of this ambitious program. The Compassionate Schools Project is the collaborated effort of the University of Virginia's YouthNEX Center, Contemplative Sciences Center, and Curry School of Education as well as the Jefferson County Public Schools and Louisville Kentucky city government headed by Mayor Greg Fischer (Compassionateschools.org, 2016). The six-year project is the first of its kind to take on the study of mindfulness on such a large long term scale. 10,000+ students, in 50 schools, crossing urban and suburban lines as well as differing socioeconomic backgrounds will prove whether or not students truly benefit in the short term and long term from the implementation of mindfulness in early education. The developers of this program have a clear mission for this project. "The lessons integrate social and emotional learning, deep self-understanding, stress resiliency skills, mental fitness training, physical regulation and exercise, and nutrition education within a contemplative and compassionate framework based on recent scientific advancements in the understanding of brain function and the body, child and family health, child development, and academic and social functioning" (Compassionateschools.org, 2016). The program is designed so that 25 schools with students ranging from kindergarten to fifth grade will participate as the study group and the other 25 schools will be the control. As this is a long term project that requires the cooperation of many different agencies and groups, the Compassionate Schools Project is starting small using three schools in its pilot year. As of fall 2015 three elementary schools, with 1,300 students

participating began incorporating the mindfulness program into their Practical Living classes twice weekly. The data and evaluation process is still ongoing, but 25 more schools are set to join the first three schools in the 2016 and 2017 school years and will continue with the program over the next two years. 25 other schools in the district will continue with traditional Practical Living classes not containing the mindfulness elements for comparison purposes (Louisvilleky.gov, 2016, para. 5).

Meghann Mattingly, a teacher participating in the program stressed the point that the Compassionate Schools Program is making great efforts to make the program inclusive for everyone. In order to avoid specific association with the Buddhist religion and to keep the program more secular, founders and teachers of the program are using terms such as mindful movement instead of yoga and guided ore mindful rest instead of meditation. In this way regardless of faith or cultural background everyone feels included and is able to participate in the program and is able to benefit from the skills being incorporated into the school day. (Mattingly, 2017)

While other studies have focused on specific areas of mindfulness such as deep breathing and meditation exercises, the Compassionate Schools Project is taking a wider approach. Students will not only learn breathing and meditation exercises, but also mindful movement, nutritional focuses, and social and emotional knowledge skills training. These different skillsets are aimed at helping students reduce stress and handle environment obstacles they will face not only in school, but also later in life. “Educating the whole child for self--awareness and self--understanding, the curriculum integrates mindfulness for stress management and self--control; contemplative movements, postures and breathing for physical awareness and agility; nutritional knowledge for healthy eating; and social and emotional skills for effective interpersonal

relationships. Elementary -school students will learn to cultivate focus, resilience, empathy, connection, and well-being as the basis for academic and personal success" (Compassionateschools.org, 2016).

This program has major support form not only city leaders, but also educational leaders as well. Dr. Donna Hargans, Superintendent for Jefferson County Public Schools, is quoted as saying, ""This kind of instruction has been shown to increase attention, determination, and self-awareness – all of which are critical if we are going to reach the goals outlined in our strategic plan," said Dr. Hargens. "While these non-cognitive skills won't show up on standardized tests, they are increasingly vital to our students' academic success by building capacity within themselves to self-regulate and make great choices.""(Louisvilleky.gov, 2016, para. 8). With support from so many different groups focused on making this program a success, there is every reason to believe the results of this long term study will provide a greater understanding of how well mindfulness programs work and their potential for implementation in schools across the country. This study will also be a valuable tool to help fine tune the development of curriculum, instruction, and evaluation for other districts wishing to adopt the teaching method. While it will be a few years before conclusive data will be available, the preliminary feedback is positive enough that the project has continued to gain financial and government support as well as support from the community.

While several studies on mindfulness in schools have focused on incorporating many different elements of mindfulness into their curriculum one study focused on the use of yoga specifically for girls. In *Reducing stress in school-age girls through mindful yoga,* Dr. White explored the hypothesis that "School-age girls who participate in mindful movement stress reduction will report significantly less perceived stress, significantly greater coping, and

significantly greater self-esteem and self-regulation than do school-age girls who participate in a wait-list control group" (White, 2012) She used "fourth- and fifth-grade girls attending demographically comparable public schools who were (a) willing to participate in a weekly class for the length of the intervention; (b) willing to complete daily homework 6 days each week; (c) were able to speak, read, and write the English language; (d) were able to pay attention for 1 hour; and (e) were able to participate in physical poses," for the participants in her study. (White, 2012)

The scales used to measure stress levels were Schoolagers' Coping Strategies Inventory, The Feel Bad Scale, The Healthy Self-Regulation subscale of the Mindful Thinking and Action Scale for Adolescents, and The Global Self-Worth subscale of the Self-Perception Profile for Children. The measures were taken the first week of the study and at the end of the 8-week study. "The purpose of this study was to the test the efficacy of an 8-week stress reduction program using mindful movement as a strategy to decrease levels of perceived stress, facilitate coping, and enhance self-esteem and self-regulation in school-age girls." (White, 2012)

The results were "No significant differences between groups were found. Over time, the intervention group was more likely than the control group to report higher perceived stress scores and greater frequency of coping. Both groups reported significantly greater self-esteem and self-regulation over time." (White, 2012) The amount of time spent doing mindful yoga is inversely correlated with perceived stress and positively correlated with coping, self-esteem, and self-regulation. (White, 2012)

The hypothesis of decreased stress was not supported. In fact, the unexpected finding of increasing stress was found in the intervention group. It could be argued that that amount of

stress itself was not increased, but the awareness of the stress increased, which could lead to better coping and understanding of the stress.

While this study did not prove its hypothesis correct, it did shed light on a different perspective. While the girls participating in this study may not have had a reduction in stress they did manage their stress better because of the skills they learned throughout the study. Those coping skills and the knowledge of implementation are the reason mindfulness is so effective and important.

Further evidence Mindfulness based type of programs are helping students can be found at Robert W. Coleman Elementary school in Baltimore, Maryland. Traditionally students who misbehave in school might be sent to the principal for a lecture or given detention where they often sit in a room with other students for a prescribed amount of time with no activity or direction. At Robert W. Coleman Elementary they have replaced detention with the "Mindful Moment Room". This room is a quiet comfortable space with soft lighting, colorful décor and pillows for sitting. The students are sent there to reflect on their mistakes and given instruction on yoga as well as meditation.

This does diverge from tradition punishment for misbehavior, but according to school administrators, since beginning the program they have not had a single suspension. One student revealed, "Sometimes when I get mad I just breathe deep… I just, like I picture me being in a certain place I like, and I just thought I could overcome everybody and then I just stop being mad…I think of being a bigger person and doing something maybe a wise man would do… I think of something that a stronger, a mentally stronger person would do." (Shinners, 2016).

The school is working with Holistic Life Foundation to provide training for teachers and also support and after school program, Holistic Me, where students can attend classes to further their knowledge of meditation and yoga. The principal of Robert W. Coleman remarked about the foundation and benefits for students, "They love the children, they love the community, and they are an asset to Robert W Coleman. There are some children who have anger management problems. The yoga program has enabled those children to do meditation techniques and instead of them reacting and getting angry, they've learned how to meditate and redirect their anger" (Holistic Life Foundation, 2016). The program has had such positive results, other schools in the area are beginning their own similar programs (Shinners, 2016). It is also important to note the farther reaching benefits of programs like Holistic Me have not only on the students but the community.

One of the questions concerning mindfulness implementation in schools is, will there be visible benefits beyond the classroom and later in life. The Holistic Me program has an 85 percent regular attendance rate and has found that students who graduate from the program often come back to be teachers of the program to up-coming students. Also Holistic Me participants are reaching out to the community. "Students who have graduated out of the program into the Holistic Life Foundation Mentoring Program come back to volunteer as tutors and yoga instructors. The students planned and facilitated several community clean-ups, set up greening projects in their homes, and constructed a raised-bed vegetable garden at their school (Holistic Life Foundation, 2016).

While programs like this are fairly new, they do show the potential benefits of further research and implementation in other areas. These students are not only benefiting in the classroom from the skills they are learning, they are looking beyond themselves, interacting with

peers, community and their families in very different ways than they had before. The results are encouraging for further development of these types of programs. Arguably, if students can be taught better coping skills at a younger age, encouraged the help others in school and at home, then later when they are faced with more difficult situations they would not only have better coping skills but also various avenues of support for navigating those difficulties.

Another program supported by Holistic Life Foundation is the Mindful Moment Program at Patterson High School. This program has taken a focused approach to not only using the program as part of their disciplinary program but to use it to help prevent the necessity for discipline. They have devoted a room where students and teachers can come to take a moment and learn to be calm, relax and cope better with the stresses of their days. Students are able to go the mindful moment room, take the time they need, even talking with what they call Ambassadors. Once in the Mindful Moment room the students begin using the techniques to reduce stress and find a calm way to deal with the issues they face. In addition to the Mindful Moment room, the school started incorporating the mindfulness into its normal day. Patterson High School began in the mornings with a 15 minute break in the mornings where a meditation recording plays over the loud speaker and everyone takes the time to practice their breathing exercises. Mindful Moment instructors rotate through the class rooms during this time and guide the classes in their exercises. Instructors also make a rotation in the afternoons (Holistic Life Foundation, 2016).

Due to the limited number of instructors, the school, in conjunction with Holistic Life Foundation, began an Ambassador program in December of 2014. These ambassadors go through a training program so that they may help lead the exercises (Holistic Life Foundation, 2016). The program decided to provide extra efforts to different groups within the school as well.

> "Mindfulness is one of the components of the ROTC Program. In March we began partnership to provide 15 minutes of mindfulness in the beginning of every ROTC class on Fridays. The Homeland Security pathway has also partnered with our program, and has participated in seven 90 minute classes during their physical training period. Other partnerships this year have been with the school social workers, Pharmacy Tech, Art, and Nail Tech classes, PGC, the school nurse, the testing coordinator, Psychology class, Patterson for Peace, Ms. Green (senior class advisor), and Ms. Brown (guidance counselor)" (Holistic Life Foundation, 2016).

Since beginning their Mindful Minute Program, Patterson High School has seen a noticeable difference in disciplinary issues as well as overall less stress and better attitudes among students and staff. One Teacher, Ms. Harris says, "Usually around this time of year we have a lot more fights and disagreements. We still have them but they are not as many or as bad as they have been in the past." (Holistic Life Foundation, 2016). The school administrators have collected data since beginning the program, and this data reflects the positive feelings towards the program. Suspensions from fighting dropped from 43 in the 2012-13 school year to 23 in the 2013-14 school year. Suspensions for the hall ways and stairwells were reduced from 62 to 35 during the same years as students were referred to the Mindful Moment Room. Physical or verbal altercations in the classroom were more often referred to the Mindful Moment Room and helped reduce suspensions from 36 to only 17 during that school year. At the same time attendance rose 3 percent and GPA rose .45 percent for the 2013-14 school year (Holistic Life Foundation, 2016).

While the program at Patterson High School is not a clinical study, they do track their progress and have shown the positive benefits for their school with the incorporation of

mindfulness. If programs like this can help students and staff, the results are supportive of the mindfulness movement and the research conducted up to this point. When students can focus on their work instead of behavioral distractions, teachers are more able to teach instead of spending time disciplining students. It is not realistic to expect these type of programs to eliminate all disciplinary issues, but if they can help mitigate them, then having these tools as part of the curriculum could be beneficial for all involved.

Discussion

With origins in the Buddhist religion, Mindfulness has a foundation of central focus and understanding of not only the mind but the body and emotions as well. Those key elements have been the roots of a movement that has taken shape and evolved into multifaceted system. Further concepts such as mindful movement, mindful eating and mindful rest among other show the depth of possibility for mindfulness programs as well as the greater benefits for application in different areas of life.

Researchers have begun to explore the benefits of mindfulness incorporated into schools as well as reaching out to the home and community. While based on research the immediate results of mindfulness may not seem drastic, it is the continued use of these practices that are proving to be most effective. Programs such as those found through the Holistic Life Foundation and the Compassionate Schools Program are embarking on a journey to redesign the concept of mindful teaching. The students are not simply learning material they are learning life skills which they are taking out into the community and in to their home to better the world around them. With reduction of conflict in schools and more support in the community these students are experiencing new ways of controlling their futures.

For those students living with mental and emotional disorders, finding the calm and coping skills that the mindfulness programs teach is showing promise in management in mitigation of their conditions. Further research will need to be conducted to explore if the ideas of using mindfulness techniques to essentially retrain the brains of these individual is truly as feasible as initial study indicates. Even for the average student being able to find an outlet for the stresses of balancing school and life are invaluable.

By continuing with research and challenging accepted standards those seeking to improve the quality of learning and strengthen the educational system are implementing mindfulness in new ways. The potential as supported by research and programs already in place leave little doubt as the benefits of mindfulness in schools. Time will tell the extent of long term results by programs such as the Compassionate Schools Program, but if results continue as they have these programs may eventually supplement or replace more traditional teaching methods.

Bibliography

Babatua, L. (n.d.). Zen habits : breathe. Retrieved April 17, 2017, from https://zenhabits.net/what-is-mindful-eating/

Broderick, P., & Metz, S. (2009). Learning to BREATHE: A Pilot Trial of a Mindfulness Curriculum for Adolescents. Advances in School Mental Health Promotion, 2(1), 35-46. http://dx.doi.org/10.1080/1754730X.2009.9715696

Clark, D., Schumann, F., & Mostofsky, S. (2015). Mindful movement and skilled attention. Frontiers in Human Neuroscience, 9(297). doi:10.3389/fnhum.2015.00297

Compassionate Schools Project. (2016). Retrieved April 17, 2017, from http://www.compassionschools.org/program/

Dalen, J., Smith, B., Shelley, B., Sloan, A., Leahigh, L., & Begay, D. (2010). Pilot study: Mindful Eating and Living (MEAL): Weight, eating behavior, and psychological outcomes associated with a mindfulness-based intervention for people with obesity. *Complementary Therapies in Medicine ,18*(6), 260-264. http://dx.doi.org/10.1016/j.ctim.2010.09.008

Flook, L., Goldberg, S. B., Pinger, L., & Davidson, R. J. (2015). Promoting prosocial behavior and self-regulatory skills in preschool children through a mindfulness-based kindness curriculum. Developmental psychology, 51(1), 44.

Fronsdal, G. (2006, February). Mindfulness Meditation as a Buddhist Practice. Retrieved April

17, 2017, from http://www.insightmeditationcenter.org/books-articles/articles/mindfulness-meditation-as-a-buddhist-practice/

Halliwell, E. (2015, June 19). Mindful Movement. Retrieved April 17, 2017, from http://www.mindful.org/mindful-movement-2/

Harvard Health (n.d.). Mindful eating may help with weight loss. Retrieved April 17, 2017, from http://www.health.harvard.edu/healthbeat/mindful-eating-may-help-with-weight-loss

Hill, C., & Updegraff, J. (2012). Mindfulness and Its Relationship to Emotional Regulation. *American Psychological Association,12*(1), 81-90. doi: 10.1037/a0026355

Holistic Life Foundation (2016). HOLISTIC ME AFTER SCHOOL PROGRAM. Retrieved April 17, 2017, from http://hlfinc.org/programs-services/after-school-programs/

Huppert, F., & Johnson, D. (2010). A controlled trial of mindfulness training in schools; the importance of practice for an impact on well-being. *Journal of Positive Psychology,5*(4), 264-274. Retrieved April 17, 2017, from https://mindfulnessinschools.org/wp-content/uploads/2013/03/Mindfulness-in-schools-pilot-study-2008.pdf.

Kuyken, W., Weare, K., Ukoumunne, O. C., Vicary, R., Motton, N., Burnett, R., ... & Huppert, F. (2013). Effectiveness of the mindfulness in schools programme: non-randomised controlled feasibility study. The British Journal of Psychiatry, 203(2), 126-131.

Louisvilleky.gov (2016, October 06). Compassionate Schools Project announces program fully

under way; grants totaling $4.4M. Retrieved April 17, 2017, from https://louisvilleky.gov/news/compassionate-schools-project-announces-program-fully-under-way-grants-totaling-44m

Napoli, M., Krech, P., & Holley, L. (2005). Mindfulness training for elementary school students: The attention academy. Journal of Applied School Psychology, 21(1), 99-125. Retrieved April 17, 2017, from http://flourishfoundation.org/wp-content/uploads/2014/04/Napoli-Mindfulness-In-Ed.pdf

Oppland, M. (2017, March 10). How Mindfulness grows Emotional Intelligence: In the Moment with Emotions. Retrieved April 17, 2017, from https://positivepsychologyprogram.com/mindfulness-emotional-intelligence/

Parker, A. E., Kupersmidt, J. B., Mathis, E. T., Scull, T. M., & Sims, C. (2014). The impact of mindfulness education on elementary school students: Evaluation of the *Master Mind* Program. *Advances in School Mental Health Promotion*, *7*(3), 184–204. http://doi.org/10.1080/1754730X.2014.916497

Pilotti, J. (n.d.). The Art of Mindful Movement. Retrieved April 17, 2017, from https://breakingmuscle.com/learn/the-art-of-mindful-movement

Robinson, L., Segal, R., Segal, J., & Smith, M. (2017, April). Relaxation Techniques for Stress Relief. Retrieved April 17, 2017, from https://www.helpguide.org/articles/stress/relaxation-techniques-for-stress-relief.htm

Shinners, R. (2016, September 26). This School Replaced Detention With Meditation and the

Results Are Impressive. Retrieved April 17, 2017, from http://www.womansday.com/life/a56446/school-replaces-detention-with-meditation/

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

Van de Weijer-Bergsma, E., Langenberg, G., Brandsma, R., Oort, F. J., & Bögels, S. M. (2014). The effectiveness of a school-based mindfulness training as a program to prevent stress in elementary school children. Mindfulness, 5(3), 238-248.

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

Wolkin, J. (2015, September 20). How the Brain Changes When You Meditate. Retrieved April 17, 2017, from http://www.mindful.org/how-the-brain-changes-when-you-meditate/