

Independent Study EDUC 399
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Investigating “The Mindful Revolution”
An exploration of the emerging field of mindfulness in education

Introduction

While meditation and mindfulness practices have only recently begun to gain attention and a foothold in a few traditional American schools, by no means are these practices new to the realm of the collective human experience. The word “meditation,” derived from the Latin word *meditatio*, originally “referred to all types of physical or intellectual exercise” (Fischer, 2006). This word has taken a significant journey through the ages and has grown to have arguably distinct meanings for people of different cultures and tongues. It came to mean contemplation when Christians “meditated” on the sufferings of Christ, and with Descartes it came to refer to philosophizing about the nature of existence and reality. By the late 19th century, this word was most often linked to the various spiritual practices of Eastern religions. However, stripped of any religious dogma, meditation can simply be defined as “a range of mental states relating to attention, including states of consciousness, concentration, or contemplation”(Fischer, 2006). As it is a personal experience, there is a great deal of subjectivity in establishing what exactly the practice of meditation is. “Mindfulness” is a word often used in meditative vernacular, and in this context, it commonly refers to becoming aware of one’s conscious state, shifting one’s focus from external stimuli to internal awareness to sort out thoughts, emotions and impulses in a non-reactive way.

Why is this age-old practice worthy of our investigation today? According to

Herbert Benson, American cardiologist and pioneer in the field of mind/body medicine, “various cultural practices such as meditation and yoga, as well as progressive relaxation and autogenic training are techniques that evoke the changes of the relaxation response” (Benson, Beary, & Carol, 1974). The relaxation response, as described by Benson, is the “physiological relaxation characterized by decreases in metabolism, blood pressure, rate of breathing and heart rate as well as slower brain waves” (Kasamatsu & Hirai, 1966). It is the counterpart of the fight-or-flight response to arousal or stress. “Whereas the stress response is accompanied by increased anxiety, depression and anger, the relaxation response is associated with feelings of calmness and control” (Benson et al., 1978). Because of the evidence base that has been established with regards to the effectiveness of the relaxation response, practices that trigger the relaxation response have gained greater acceptance as adjunctive treatment for a variety of medical conditions. Despite having trickled into mainstream medical practice, meditation’s “incorporation into academic settings as a means of contributing to positive psychological and behavioral changes has been limited” (Benson et al., 1994). This paper will identify the problem of childhood and adolescent stress in the school setting, highlight examples of existing mindfulness programs that have been incorporated into school settings throughout the U.S., and review existing literature and research of the feasibility and effectiveness of mindfulness programs in schools. From this investigation coupled with our own experiences in West Philadelphia public schools, we will identify the obstacles and barriers to the acceptance and success of academic mindfulness programming and then make our recommendations on how to best catalyze *the mindful revolution in schools*.

Statement of Problem

Having spent time volunteering in West Philadelphia public school classrooms, we have both witnessed first-hand how stress can hamper the performance of students. From our observations and discussions with teachers, we have found that worry, anxiety, and excessive stress carried from home plague students much more than most teachers and administrators might think, and these invisible disabilities can cripple students' ability to focus, think constructively, retain information, and behave compassionately in a classroom setting. A relatively peaceful classroom can dissolve into a volatile mixture of shouting, disrespectful exchanges, and silent emotional breakdowns within minutes. How are we to expect children to develop a love for learning and gain self-confidence in such a setting? As more and more scientific studies grant us greater insight into the consequences of stress on the brain, it is easy to imagine how a stressful learning environment might adversely affect the health of its students and impede their success.

A chronic overreaction to stress overloads the brain with powerful hormones, such as homocysteine and cortisol, which are intended only for short-term action in emergency situations. Their cumulative effect damages and kills brain cells. Robert Sapolsky, a Professor of Neurology at Stanford University and author of *Why Zebras Don't Get Ulcers*, emphasizes that "chronic" is the key word when it comes to stress being problematic. Stress hormones that are secreted into the brain can actually enable a student to think more clearly over a short period of time – for the first thirty minutes, glucose (the main fuel of our brains) will have enhanced delivery to the brain; however, with continued stress, glucose delivery is inhibited and the same student will be thinking less clearly, the performance of the neurons will be poor and the capacity for memory

retrieval will fade. According to Mendelson et al., “chronically-stressed children are at risk for difficulties with cognitive and emotion regulation.” It has been found that exposure to multiple poverty-related risks will increase a child’s risk for “poorer emotional self-regulation” (West et al., 2001) according to a representative sample of over 20,000 youth across the United States. However, it has also been shown that continued meditation practice results in more lasting changes that counteract the hormonal changes that are induced by stress.

Stress is the physiological and emotional reaction to psychological events. Any classroom event that triggers the formerly life-saving, biological “fight or flight” response is a stressor. This being said, social constraints most often, but not always prohibit fleeing from or physically resisting most stressful events (i.e., running out of the classroom when a teacher distributes a difficult exam, punching a hole in a glass door when provoked by a fellow classmate, or maybe even yelling at a teacher). We actually have seen all three of these situations play out in our experiences volunteering in West Philadelphia public schools. However, we have also seen many students coil inward in response to stressors and have this internalization of stress affect them negatively for the rest of their day. As mentioned earlier, any unrelieved and cumulative physical strain induced by psychological stressors can adversely affect the body.

In one of our experiences volunteering in an after-school program where we helped middle-school children complete their homework, we witnessed how their collective anxiety related to not finishing the work in time, completing it wrong or not being “smart enough” to complete it, could paralyze them and prevent them from accomplishing anything. Many students complained to us that they just “couldn’t focus.”

According to William James, a pioneering American psychologist and philosopher, “the faculty of voluntarily bringing back a wandering attention, over and over again, is the very root of judgment, character, and will. No one is *compos sui* [a master of himself] if he have it not. An education which should improve this faculty would be the education *par excellence*. But it is easier to define this ideal than to give practical directions for bringing it about” (James, 1890). With all of the current debates surrounding education reform, we find that the words of James are poignantly applicable.

Our Experience at West Philadelphia High School

Adolescence in general is a difficult period of adjustment, and for many it is when problematic behaviors peak. An association has been made between having low self-esteem and an external locus of control (believing that forces outside of oneself affect one’s ability to succeed) and negative behavior, all of which can contribute to feelings of depression and anxiety (Benson, 1994). To explore the world of adolescents in West Philadelphia, we recently visited West Philadelphia High School, a struggling urban public school. It was immediately clear that this was an environment that could benefit from mindfulness training. When one walks through the front door the very first thing that one confronts is a long line of students waiting to go through a metal detector. As visitors, we were allowed to skip the entire line, which seemed somewhat backwards to us. We were granted much more respect than the students who actually attend the school. While the students waited in line, the security guards yelled at them and the students were required to take all of their belongings out of their pockets and relinquish their cell phones. This is the first thing these students face early every morning and it is the way they transition into their “learning environment.”

After we made it through the metal detector ordeal, we went to an English class that was supposed to meet for two periods, or slightly less than two hours. To our initial surprise, the teacher and the intended substitute were absent, so for the first hour the only adult in the room besides us was a City Year worker. City Year is a full-year service program that gives young people an opportunity to give back to their community as tutors, mentors and role models. Eventually a substitute sauntered into the classroom, but he resigned himself at a desk in the corner and read the newspaper for the remainder of the class. There was no structure and there was no teaching during the entirety of two periods.

We also stayed for the third period science class. The science teacher was completely overwhelmed and taught his lesson to the 1/10th of the class that was paying attention while the other students walked around the room and sold food to each other. While there were a few motivated students who tried to follow the lesson, it was extremely difficult for them to focus their attention with all of the distractions

From talking to the students during what would have been their two-hour “English” class, we learned that suspensions are a common occurrence at West. One of the students we talked to had already been suspended and was now being transferred to another school. The City Year worker told us that the class was smaller than usual because there was a group of students who would be returning from their suspensions soon. This constantly changing group dynamic must be very stressful for the students and teachers.

We witnessed an almost constant stream of students insulting, belittling and confronting each other. Much of it was done in jest, but the interactions seemed

generally negative. This may come with the territory of being ninth graders, but it seemed exacerbated by the fact that there was not much positivity from the adults in the building – guards, teachers, etc. It is true, however, that the adults are dealing with a very difficult situation as well. The school has gone through several principals recently and there is a lack of strong leadership at the top. It is difficult to run a well-ordered classroom when there is not enough support from the administration in terms of discipline.

In addition to the social and environmental stressors mentioned above, the students do not receive proper nutrition. We heard from numerous students that the lunches the school provided were terrible and in fact, many of the students would not eat lunch at all. Perhaps this would be a good time for students to have mindfulness training. In the morning class, we watched kids eat hot dogs and sugary candy for breakfast or not eat anything at all. We learned from a guidance counselor that the lunchtime at West Philadelphia High School has been “marginalized” because it is seen as a “hand-out.” Every student that goes to West qualifies for the free lunch because of his or her socioeconomic status; for this reason, many students do not want to eat in the cafeteria. Others told us that the food is horrible and that they would rather be hungry. Both hunger and the consumption of unhealthy food will have adverse effects on the body of an adolescent.

During our time with the students we had the opportunity to ask them about the major stressors in their lives. One of the main themes we heard was that they attributed much of their stress to their peers. Some of the students complained of their classmates’ “bad” behavior. The students who wanted to take full advantage of their education were

frustrated by other people talking in class and being generally disruptive. Besides the frustration of not being able to learn, the students were stressed by the chaos of the environment. Not knowing what to suspect was difficult for them, and they were on edge waiting for one of their classmates to act out.

Another major stressor that the students discussed was home issues. The students did not seem to want to discuss their home lives in much detail, but we got the impression that their homes were not peaceful refuges for them. In fact, many of them said they were more stressed at home than at school. Several students mentioned that their homework caused them stress at home. While this is a normal comment from a ninth grader, it is made all the more stressful for students in schools in which it is difficult to learn in class and one has to teach oneself much of the material. Of course these students also have the same stressors that all ninth graders have. One student said that his girlfriend is his biggest stressor and many other students laughed in agreement. Another student said his biggest stressor was his parents “getting on him”.

Program Review

It is fascinating that William James’ “ideal” vision of an education that would place a focus on mindfulness is actually starting to be put into practice in schools in New York, San Francisco, and many other cities across the United States. As a result, research and testimonials are becoming more available for us to evaluate their effectiveness.

A growing number of schools are using “mindfulness trainings” to combat increasing levels of anxiety, stress, social conflict, and attention disorder among their students. For this independent study, our initial ambition was to advocate for and facilitate the incorporation of the Youth Empowerment Seminar (YES!) into a school in

our community, such as West Philadelphia High School, and propose a method to evaluate the program. Due to obstacles and barriers that will be discussed later, we realized our goal had been too lofty and idealistic for one semester's work. While we would have liked to study the effects of the Youth Empowerment Seminar (YES!) on an academic and social basis, there are a handful of other mindfulness programs for schools that are worth our consideration as well as research studies from different groups studying various meditation/mindfulness school pilot programs.

The Inner Kids Foundation came about because Steve Reidman, a teacher from Toluca Lake Elementary School, was concerned by the conflicts developing in his classroom and his difficulty managing these escalating problems. He confided in his friend Susan Kaiser about his concerns and she volunteered to teach mindfulness to his classroom. Reidman's classroom had a very positive experience with the mindfulness training and this initial success helped it spread to other classrooms at the school and helped launch Kaiser's career as founder and director of InnerKids, a non-profit funded through private grants. The Inner Kids Foundation has taught mindful awareness programs in under-served schools and neighborhoods in Los Angeles since 2000. Kaiser's curriculum is inspired by the work of Jon Kabat-Zinn, the founder of Stress Reduction Programs at the University of Massachusetts. InnerKids has served hundreds of schools across the country.

Wellness Works in Schools was created and launched by Kinder Associates LLC in 2001. It offers mindfulness programming in the Lancaster and Reading Public School System, near Philadelphia. According to Wellness Works program materials, the program is "designed to motivate, educate, and support students, teachers and families in

developing the mental, emotional, physical, and social competencies needed to handle life's challenges healthfully, across school, home, work and community. Wellness Works presents mindful awareness practices and curriculums to promote positive nervous system function and behavioral expression" (Kinder Associates LLC, 2009, pp 1-2). Their curriculum includes group discussion, mindfulness skills (such as focused awareness, attention, and concentration), healthy breathing, mindful movements, relaxation and group reflection. These components are taught in a series of fifty-minute sessions. Wellness works also offers teacher programs for professional development, which help teachers respond to their own stress and challenges, and programs for classroom integration teacher training, which will strengthen teachers' mindfulness skills and deepen their understanding so that they can transfer these skills to their students and classroom environment.

Similar to InnerKids, Wellness Works is strongly influenced by training in Mindfulness-Based Stress Reduction and a continuing connection with the University of Massachusetts Medical School, Center for Mindfulness in Medicine, Health Care and Society. Wellness Works conducted an observational research study on the effects of their programming on six students. This study concludes that the data collected strongly supports the positive effects of mindful awareness teaching on student cognitive, physical, and social behaviors for both learning support and emotional support students during mindful awareness lessons. A limitation of this study is that it did not investigate the transference of the positive changes in students' behaviors to their regular classrooms.

The Youth Empowerment Seminar was started through the *International Association for Human Values*, a group "committed to enhancing the quality of life for all

people by building a global community based on the human values we all share in common, while celebrating the diversity of cultural and religious identities.” (IAHV, 2006) The Youth Empowerment Seminar has taken various forms in the different schools that have chosen to adopt its programming. It is a 20+ hour course that is often offered over three to five weeks, taking the place of a health education or a gym class or serving as an after-school program. Currently, it is in place in forty schools throughout the United States. The YES program is built on mindfulness meditation, positive psychology, social-emotional learning, character development, yoga and innovative breathing practices. YES students have reported experiencing improved concentration, improved sleep, reduced anger and depression and a more energized body after completion of the program.

Literature Review

Feasibility and Preliminary Outcomes of a School-Based Mindfulness Intervention for Urban Youth

In May of 2000, Mendelson et al. published their study of a school-based mindfulness intervention for urban youth. According to Mendelson et al., “youth in underserved, urban communities are at risk for a range of negative outcomes related to stress, including social-emotional difficulties, behavior problems, and poor academic performance.” The adversity that urban youth experience “has been found to trigger neurobiological events that alter brain development” (Andersen, 2003). This is why this group of researchers wanted to study whether mindfulness-based approaches of countering the psychological and neurocognitive effects of chronic stress could improve adjustment among “chronically stressed and disadvantaged youth by enhancing self-regulatory capacities.”

Two schools were randomized to receive the 12-week mindfulness-based intervention while two other schools served as the control groups. These schools were Baltimore City public elementary school and the participants were fourth and fifth graders. Fifty-one students were part of the intervention group and forty-six were in the control group. Information about the intervention and research study was distributed to the parents of children in these schools and they needed provide their parental consent and their child to provide assent in order to be considered for inclusion in the study; they were informed that the students chosen from those eligible would be randomly selected. The final sample of students was 83.5% African-American, 4.1% Latino, 4.1% White, and 7.2% other. The experimenters designed this trial with this age group in mind because according to Windle et al. 2008, this is a “favorable time to intervene,” when the ability to exhibit “self-regulation and inhibitory control increases” (Mendelson, 2010). After the study was completed, the two control groups, “wait-list” schools for the intervention, received the intervention; this ensured that the study was ethical because all of the schools involved in the study had an opportunity to receive the benefits from the intervention.

During the study, participants at the intervention schools attended the “mindfulness program” during their “resource time,” a period in which students participate in non-academic activities. The program was four days per week for 12 weeks and in each forty-five minute session the key intervention components were “yoga-based physical activity, breathing techniques, and guided mindfulness practices.” The secular nature of this program is important to note. The instructors, who were from the Baltimore-based Holistic Life Foundation, were males of similar racial and ethnic

backgrounds as the participants.

The results of this study were as follows: “students reported considerable enthusiasm about the program” and there was no difficulty in recruiting participants from the target population; teachers were “uniformly supportive of the idea of training urban youth using yoga and mindfulness-based techniques” and in teacher focus groups, several teachers noted that this training was very helpful to their students who had behavioral problems, poor attention focus and a high activity level. To assess the quantifiable intervention effects, the team of experimenters estimated “general linear models for each outcome, controlling for gender, age, grade, and baseline score on that outcome.” The group of students who received the mindfulness-based intervention reported significant improvements on the overall scale of Involuntary Engagement compared to the controls with $p < 0.001$.

This study revealed that this type of program in an urban public school is likely to be attractive to students, teachers and administrators, and also that this type of mindfulness-based program “shows promise in reducing problematic physiological and cognitive patterns of response to stress among youth.” According to one of the fifth grade girls who participated in this study the tools learned from the intervention “help you relieve stress when you feel really stressed out or you’re really mad and focus on what’s inside of you and just make sure that you stay calm.”

We have found some limitations and points of improvement regarding this program after evaluating the study. There was likely bias in the sample because of the recruitment methods used by the experimenters. More highly motivated students and more engaged parents were likely to have provided the signed consent forms, and while

this bias would have likely affected both the intervention and control groups, it is now hard to generalize that these results can be applied to other students at the school who did not exhibit this same motivation in signing up for the program.

Another point of consideration is that this program was a top-down intervention, and not something as sustainable as a program in which the teachers themselves receive training in mindfulness meditation to share with their students, as was done in the next study's trial. Another difficulty with not having the teachers involved in the fabric of the program is that while they were supportive of the program's intervention, it appears that some of the teachers did not always have the program's best interests in mind. For instance, some teachers had prevented study participants from attending the mindfulness intervention classes "as a punishment for poor behavior in class." This led to some data having to be thrown out because it was incomplete. This study was valuable to our understanding of how a successful trial is carried out and its feasibility in urban school settings, which translates to West Philadelphia schools. We learned all of the difficulties that go into making sure a trial controls for all of the variables in the experimental situation and that the intervention was associated with enhancing regulatory capacities and responses to stress among at-risk youth, which according to the experimenters, "has the potential to facilitate development of core competencies that will promote a range of positive emotional, behavioral, and academic outcomes."

Academic Performance Among Middle School Students After Exposure to a Relaxation Response Curriculum

In 2000, Benson et al. published their study measuring the relationship between exposure to relaxation response curriculum and academic achievement in middle school

students. They also measured if more exposure led to more dramatic changes. Benson describes the relaxation response as being a two-step procedure: “focusing on a word, sound, phrase, prayer, image or physical activity and maintaining a passive attitude toward distracting thoughts” (Benson, 2000). Physiologically, the relaxation response causes decreases in metabolism, blood pressure, rate of breathing, and heart rate. On the other hand, the stress response causes increases in all of these measures. There are also psychological benefits to the relaxation response, as it is associated with feelings of calmness and control.

The participants in this study were students and teachers at the Horace Mann Middle School in South Central Los Angeles. Demographically, the school is almost entirely African American and Hispanic. Teachers were trained to teach the relaxation exercises and self-care strategies, and the students were exposed to the curriculum over three years. The curriculum consisted of “education on the physiology of stress; identification of personal stressors; elicitation of the relaxation response using a mental focus or diaphragmatic breathing while developing a passive attitude toward distractions; ‘mini-relaxations’ consisting of strategies to elicit the relaxation response quickly in response to stress; body awareness and stretching exercises; and mindfulness training” (Benson, 2000).

There were four measures of academic outcome that were tracked: grade point average, work habits, cooperation, and attendance. Work habits and cooperation were subjectively determined by the teachers. The results showed that students who were exposed to more than two semesters of the classes had increases in grade point average, cooperation scores, and work habits scores. There were significant effects in work habits

and cooperation in the second year, but not in the first. There were also significant increases with amount of exposure in terms of grade point average, work habits and cooperation.

One important point to take away from this study is that while there were significant effects, it took at least two semesters of exposure to see most of the results.

One limitation is that there was no control school. Another limitation is that the teachers were not randomized, into the study as they volunteered to be involved. The teachers who volunteered could have taught students with higher or lower grade point averages. Additionally, we observed that with the design of this study, there was no sure way of determining whether the increase in the students' scores was due to better student achievement or to decreased stress among trained teachers. However, the Mendelson et al. study and another Benson et al. study reviewed below did not involve training the teachers of the experimental groups in mindfulness technique; because of this, we can hypothesize that the positive effects reaped by the experimental group of this study were not only a function of the teacher element.

Increases in Positive Psychological Characteristics with a New Relaxation-Response Curriculum in High School Students

Prior to the 2000 study above, in 1994 Benson et al. published their study evaluating the effect of training in the relaxation response on self-esteem and locus of control. They found this important because low self-esteem and an external locus of control are associated with negative behavior, depression, anxiety, poor academic performance, and increased drug and alcohol use. In this study, training in the relaxation response was incorporated into a health curriculum for high school sophomores.

Relaxation response training may be ideal for adolescents because the relaxation response is simple to learn and can be incorporated into daily routines without much effort.

The study targeted two groups of students who were sophomores at a high school in Lake Placid, NY. One limitation is that the demographic composition of these students was not mentioned in the published study. One group received the training in the fall while the other group received it in the spring. The 26 who received the training in the fall also received follow-up, while the 24 who received training in the spring did not.

Psychological and physiological responses were measured before and after the semester, and these two groups of students' scores were compared to control groups. This study's focus was not on examining the relationship between the relaxation response itself and student outcomes, as were the other two studies reviewed earlier.

The training was given three times a week and involved "paced breathing, muscular relaxation, focused attention, and a passive attitude toward distraction" (Benson 1994). During each session the group would elicit the relaxation response together and then the students were encouraged to practice eliciting the response throughout the day when they felt anxiety.

After the study the students were given tests to measure self-concept and locus of control. Physiological testing was also done, measuring heart rate and blood pressure.

There were statistically significant changes in self-esteem observed in both experimental groups while they were receiving the relaxation-response training; no such trend was evident following exposure to the control health curriculum. Subjects say that the reason their self-esteem increased is that they felt an increased sense of self-control and

empowerment after being taught the relaxation response. There were no significant effects in terms of change in locus of control. Physiologically, there was a significant drop in blood pressure in one of the groups but no significant change in heart rate for either group. It is also valuable to note that the classroom teachers involved observed that “there appeared to be excellent acceptance of the relaxation response curriculum and few students refused to elicit the relaxation response” (229). Anecdotal reports of classroom observers indicated a reduction in inappropriate classroom behaviors.

Barriers/ Obstacles

The separation of church and state is one of the most cherished concepts in America. The freedom to practice whatever religion one wishes and not have the government interfere in one’s choice is something that most Americans consider a basic right. The 1st Amendment to the Constitution says, “Congress shall make no law respecting an establishment of religion, or prohibiting the free exercise thereof; or abridging the freedom of speech, or of the press; or the right of the people peaceably to assemble, and to petition the Government for a redress of grievances.” This separation of church and state applies in public schools, where religious prayer is prohibited. But is mindfulness like prayer? While it is a component of spirituality in many religions, the two do not need to be connected for mindfulness to provide its positive effects. Teaching students breathing techniques and how to deal with stress does not have to be tied to any religion. These techniques may have been developed by people in Eastern religions, but are universally practiced (meditation is done by people of all religions). Also, teaching children about breathing techniques does not seem very different than teaching about jumping jacks or stretching in a physical education class.

One of the problems with getting mindfulness training into public schools is that principals are very limited in what they can do. There is a defined curriculum, and teachers have to cover that material. One way to overcome this obstacle is to focus on instituting the mindfulness training in charter schools, which are public schools with more freedom. (This will be discussed below in the “Recommendations” section.)

Even if a principal wanted to incorporate mindfulness training, it is difficult to find time in the daily schedule within a system that is mainly focused on math and reading scores. There is so much pressure on schools to get high scores since schools are graded and even shut down based on these scores. Also, if we focus on the people within these institutions, namely teachers and principals, we see that their jobs sometimes depend on the scores of their students.

Another barrier to the success of mindfulness programs in public urban schools is the difficulty of sustainability. For a school and its students to be transformed by the addition of mindfulness programming into their curriculum, the teachers and administrators need to understand the benefits of the program, be trained in the practices themselves, and help to transform the culture of the school environment. In many cases, such as West Philadelphia High School, there is a rapid rate of turnover of the teaching staff and administration. New programming that may be initially successful becomes fragmented when the administrator/educator infrastructure is no longer in place to support it. Since the adoption of Safer Saner School programming from Restorative Practices at West Philadelphia High School, there has been over a large turnaround in school staff. This included West saying goodbye to their principal who had been a big supporter of Restorative Practices. “Nationally, about 50% of teachers leave their jobs

within the first five years, according to a study last year [2006] by the National Education Association, a teachers union” (Hernandez, 2007).

Another obstacle is that meditation is not seen as “cool” by young people. Even if they want to meditate, they may be embarrassed to do it. One student who has meditated several times with a City Year worker at West Philadelphia High School seemed reluctant to talk about his experiences in front of his friends. While we have spoken extensively to the positive benefits of mindfulness-based meditation, we cannot assume that every student will respond well to this type of experience. Many of the components of these school-based programs discussed throughout this paper involve students sitting in silence, turning their attention inwards. Some students may be unable to do this if they are overly self-conscious and are stressed out by the idea that others may be looking at them and judging them for how they are participating in the activity. Other students may simply not be receptive to the activities, which would likely impede the relaxation response from occurring in these students.

In two of the studies discussed above, the school’s teachers were not used to implement the mindfulness programming. If teachers are not trained in these techniques to begin with, then the programming and culture will likely not be sustainable if the funding for the program is cut. Additionally, the teachers may not be on board with the intentions of the program and may view it as an “extra” experience that can be taken away from their students as a form of punishment. This was a problem in the Mendelson et al. study. Cost is another barrier to these programs that needs to be mentioned. Schools may have a hard time justifying spending on a meditation/mindfulness enrichment program when they are understaffed, need new textbooks and other supplies and have

already cut other programming from the curriculum like art and gym. While school administrators and parents may resist adopting programs which adhere to strict experimental design regimens, such as the trials discussed in this paper, this is an opportunity for schools to have the programming at no cost. However, meaningful outcome data can be difficult to obtain when the integration of the program is very rigid and requires a certain amount of attendance on the part of the students and very tight controls.

Recommendations and Conclusion

As we have mentioned several times, the current education climate forces schools to focus almost solely on standardized test scores. Working within this existing structure, we think mindfulness training should be sold to school administrators as something that would help raise test scores in addition to its other beneficial effects. Meditation has been shown to increase attention span and improve work habits.

If mindfulness training is going to spread to many schools, there needs to be strong evidence linking the training and higher test scores. We suggest that an experiment be designed in which a group of randomly chosen students are trained in relaxation techniques and then instructed to elicit the relaxation response before a standardized test. They would be compared to a control group that was not trained in these techniques and who took the same standardized test. If the data showed that there is a strong positive relationship, we believe that many more school leaders would be open to implementing this type of programming.

Besides school leaders, we believe that organizations involved in education reform and teacher training, such as Teach for America, have the potential to help spread

mindfulness training. Teach for America is an organization that recruits high-achieving recent college graduates to teach for two years in low-income communities. The recruits undergo five weeks of training before they begin teaching and continue their training over the course of the two years. The Teach for America training is data-driven and based on what is successful in the classroom. If mindfulness training is shown to improve academic performance, organizations such as Teach for America would be more likely to adopt it. This would be an efficient way to train thousands of teachers a year and also to introduce mindfulness to many of the future leaders in education.

Another recommendation we have is that the school psychologist and school nurse be educated in these breathing and mindfulness techniques so that they can recognize the problem of teacher stress and advocate for programs that will help to reduce the negative effects of stress. The results of the 1999 Anderson et al. study support the hypotheses that Standardized Meditation would significantly reduce teachers' perception of stress, lower their state and trait anxiety levels, and decrease their experience of burnout. School nurses could also offer mind/body interventions to students seeking help for their anxiety-related complaints.

Alternatives to Mindfulness Training

The students at West mentioned that friends can relieve stress besides just causing it. We saw a terrific example of this at a KIPP middle school that uses a peer counselor model. During each lunch period, a student who has been elected to be a peer counselor eats lunch with a student who is dealing with a problem such as fighting too much. The two students sit separately and in privacy can discuss the issue and look for solutions.

Students at West Philadelphia expressed to us that they want to go outside. We

think that it is very important for the students to have some form of gym or recess at least once a day. With the recent emphasis on testing that began with No Child Left Behind, many schools have made gym class a very low priority. Besides the benefit of simply getting out of the school building, the physical activity that the students would get is very important. Art class and music class are two more outlets that these students do not have anymore. Art class is an opportunity for students to show their creativity and release their stress at the same time.

We observed the classroom in the morning and the energy level and enthusiasm were low. Teenagers' internal clock causes them to start getting tired at 11 p.m. or later. Also, teenagers need about nine hours of sleep to be optimally alert (Mayo Clinic, 2009). If you look at these two pieces of information in tandem, they seem to point to starting the school day at 10 a.m. or later. Even as adults with internal clocks that are oriented towards earlier in the day, many of us are much less productive early in the morning. The students at West Philadelphia High School told us that they were most stressed in the morning and that they found it hard to focus when they were tired.

We think that charter schools have the potential to play a major role in bringing mindfulness programming to children. Charter schools are similar to public schools in that they are free for the students who attend them. One major difference is that charter schools are subject to more accountability than traditional public schools. A charter operator (nonprofit, university, etc.) has to submit a charter to run their own school, and this charter usually lasts for three to five years. The charter is essentially a performance contract that includes sections detailing the schools goals and methods. Although this lower funding level and higher accountability may sound like a raw deal for charter

schools, they have the advantage of more freedom. Charter operators can choose their own curriculum, dictate hours and days of operation, and hire and fire teachers (who are often not unionized). The principal has a lot more flexibility to be creative. In fact, many proponents of charter schools believe that they bring the power of the free market to education.

The jury may be out on the effectiveness of charter schools, but we still think that they are important incubators of innovation in education, where change has traditionally been painstakingly slow. This is where we see the opportunity for some forward-thinking principals to try mindfulness techniques in their schools. If the techniques are successful, they will be replicated and spread to more children who are in dire need of them.

Conclusion

After reviewing the prominent literature from the field of mindfulness in education and reflecting upon our own experiences in West Philadelphia public schools, we have identified the obstacles and barriers to the acceptance and success of academic mindfulness programming. These are the religious associations of meditation, the politics of school districts that make implementing new programs a difficult feat, the cost of the programming, the issue of sustainability with the rapid turnover of American teachers and the embarrassment children may experience while meditating. We feel that for this type of programming to be successful, the school nurse and school psychologist should be trained in the techniques and that more research should be done to determine if there is a relationship between eliciting the relaxation response before standardized tests and higher scores, and other organizations. It has been shown repeatedly through scientific studies that participating in activities that induce the relaxation response (such as

meditation, mindful breathing and yoga) can increase academic performance and well being of students. While we believe that the *mindful revolution* taking place in schools is worth spreading, further research still needs to be compiled to convince schools that the benefit of implementing such programming is worth the cost, time and energy.

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