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The Effects of Mindfulness Practices and Activities on Student Attention and
Work Engagement in a Multi-age 4th to 6th grade Montessori Classroom

An Action Research Report

By Jamie L. Schaub

The Effects of Mindfulness Practices and Activities on Student Attention and Work Engagement
in a Multi-age 4th to 6th grade Montessori Classroom

Submitted on May 12, 2016

in fulfillment of final requirements for the MAED degree

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A handwritten signature in black ink, appearing to read "Sandra Wyner Andrew". The signature is written in a cursive style with a large initial "S".

Abstract

The purpose of this research was to test whether the implementation of mindfulness exercises would increase focus and work engagement of students. This study incorporated breathing and visualization exercises three times a week. The 5-week study involved 44 children between the ages of 9 and 12 years in a private Montessori school in Northern Michigan. Data collection included daily tallies of on and off task behavior, daily observations of work engagement, pre and post questionnaires about mindfulness completed by each child, and one-on-one discussions with each participant. Results showed an increase in the number of students on task and more students engaged in work over time. The pre and post questionnaire showed an increase in the number of students who liked mindfulness exercises and thought they were helpful, but expressed mixed opinions related to statements regarding focus and distraction. Eighty-two percent of students responded that they found mindfulness exercises helpful. Thirty-six percent mentioned the words “focus” or “concentrate” in their descriptions of how the mindfulness exercises were helpful. Eighty percent responded that they would use the mindfulness techniques independently. The data showed a positive correlation between the implementation of mindfulness exercises and focus in children ages 9 to 12. Suggestions for further research include increasing conversations about ways students can practice mindfulness exercises independently and an extended research period.

Keywords: mindfulness, meditation, focus, attention, work engagement, elementary

The ability for students to find meaningful understanding in their work is likely related to focusing and attending to the tasks in front of them. A level of concentration is necessary for students to reach a mastery of academic concepts. In recent years there has been an increase in studies related to mindfulness exercises and their ability to help children focus. Much of recent mindfulness research in educational settings tested whether a mindfulness curriculum was able to improve student success. Student success was defined by grades and test scores. Indeed, it is logical that mindfulness practices, which help focus awareness on the present moment, could improve one's focus on the tasks at hand.

With the challenge of a society that is filled with constant stimulation it is no surprise that students find it difficult to focus on what they are working on. There are the distractions of screens, conversations, movement, and thoughts of what is next. Because we as a society are constantly on the move and thinking of the next step and the next plan, it has become difficult to be present in the here and now. As a result, the researcher has observed that students are not able to remain on task and engaged in their work on a consistent basis.

The researcher has noticed some difficulty for students in her classroom to sustain focused work during the school day. Work in a Montessori classroom revolves around students practicing lessons they have been given. It is also involves independent research. Some work is left unfinished because the students are easily distracted from their work. Sustained focus plays a critical role in helping students reach understanding. Seeing a lack of focus among students, the researcher decided to explore ways of improving students' focus and attention. Mindfulness training can be described as calming exercises that help focus the mind on the present moment with breathing and visualizing techniques. Mindfulness training has been shown to support tasks that require attention, working memory, and cognitive control. Mindfulness research has noted an increased ability to control attention, and reduce automatic responses, which tend to be

symptoms of students with ADHD (Van de Weijer-Bergsma, Formsma, de Bruin, & Bögels, 2012). Black and Fernando (2014) discussed the importance of a learning environment that is free from disruption to support focused academic learning. Mindfulness training has shown to result in an increase in self-regulation, attention control, and reduced psychological stress.

Kabat-Zinn (1994) defined mindfulness as "paying attention in a particular way; on purpose, in the present moment, and non-judgmentally" (p. 4). Another way to explain mindfulness is paying attention to what is happening right now with curiosity and kindness. Mindfulness practices have been used in a variety of settings from meditation, to yoga, to religion. However, implementation into workplaces and schools has yet to become common practice despite the clear benefits for children and adults.

Much of the past mindfulness research focused on adults, students from lower-income families, students with ADHD, and students in urban schools. It centered around improving student testing success and lowering anxiety. The subjects in the present study did not fit into these categories as a whole nor was the importance of testing success or lowering anxiety relevant for the students. Montessori schools do not typically use test scores or grades in their educational practice. The students in the present study did not exhibit anxiety symptoms. However, many studies found an increase in attention and focus post mindfulness interventions, which was directly relevant to the researcher's problem.

This research took place in a fourth to sixth grade class in a private Montessori classroom with 44 nine to twelve year olds. Interestingly, Lillard (2011) found a strong link between Montessori education and mindfulness practices. In fact, a Montessori education was also named a mindfulness education. Montessori philosophy and mindfulness practices stress the importance of deep concentration as a way to build focused attention. The purpose of the study was to assess

whether the implementation of mindfulness practices and activities improve student attention and work engagement in a multi-grade fourth to sixth grade Montessori classroom.

Review of Literature

Mindfulness practices consist of intentional training of attention to develop the skill of having present moment awareness. Being mindful can be thought of as a state of being and as a trait. According to Kabat-Zinn (1994), mindful awareness practices encourage nonjudgmental, deliberate present-focused awareness where each thought, feeling, or sensation is received and accepted as it is. Practices that promote developing conscious awareness lead to enhanced attention and self-awareness (Jennings, Frank, Snowberg, Coccia, & Greenberg, 2013). Bakosh (2013) believed that mindfulness exercises could prepare the brain for learning. Mindfulness exercises typically begin with having participants close their eyes, sitting or lying still, and breathing deeply and slowly. From this position participants move into different exercises for example: visualizing a calm place, focusing attention on the rise and fall of the belly during breathing, and focusing attention on parts of the body. Mindfulness can be described as a form of attention training. The goal of mindfulness training is to have an awareness of the present moment (Kabat-Zinn, 1994).

Data Collection Examples Used in the Previous Mindfulness Studies

Many studies have used pre- and post-test questionnaires for data collection including studies by Jarutawai et al. (2014), Black and Fernando, (2014), Kanagy-Borofka (2013), Jennings et al. (2013), and Mendelson et al. (2010).

Jarutawai et al. (2014) used an emotional quotient (EQ) assessment for students, EQ assessment for teachers, and an EQ assessment for parents. Participants in this study showed improvement in self-control, sympathy, and problem solving (Jarutawai et al., 2014). Black and Fernando (2013) asked teachers to use a rubric to answer a pre-, immediate post-, and seven-

week post-treatment behavioral questionnaire. Kinder Associates, LLC (2007) developed the student behavior rubric that was used.

In the study by Kanagy-Borofka (2013), teachers rated students through a standardized questionnaire. Teachers answered questions related to attention-to-task behaviors and social relations. The researcher interviewed the teachers for information about their experiences with their classes.

Participants in the study by Jennings et al. (2013) completed a self-report pre- and post-questionnaire with questions about well-being, efficacy, burnout/time pressure, and mindfulness. The mindfulness questions were from The Five Facet Mindfulness Questionnaire (FFMQ) created by Baer et al. (2006). This FFMQ is a 39 item Likert scale questionnaire with five sections: observing, describing, acting with awareness, nonjudgmental, and nonreactive.

In a research conducted by Mendelson et al. (2010) participants completed a 57-item Responses to Stress Questionnaire, a self-reporting assessment, developed by Conner-Smith, Compas, Wadsworth, Tomsen, and Saltzman (2000), to collect data on their responses to stress. Questions were related to rumination, intrusive thoughts, emotional arousal, physiological arousal, and impulsive action. Data was collected on the students' response to stress as they stated the level at which they experienced these feelings, from 1 (not at all) to 3 (a lot).

Mindfulness Exercises and Their Benefits

Mindfulness training in adults has shown to help with depression, stress, pain, and illness. Van de Weijer-Bergsma, Formsma, de Bruin, and Bögels (2012) studied the effectiveness of mindfulness training on behavioral problems and attention in adolescents with ADHD. Mindfulness training helped to increase the ability to control attention, and reduced automatic responses, which tend to be symptoms of students with ADHD. Research by Van de Weijer-

Bergsma et al. (2012) has also shown that mindfulness training can help support tasks that require attention, working memory, and cognitive control

Black and Fernando (2014) discussed the importance of a learning environment that is free from disruption to support focused academic learning. Mindfulness training was shown to result in an increase in self-regulation, attention control, and reduced psychological stress. In their study measurements included: paying attention, self-control, participation, caring and respect for others. Black and Fernando (2014) found an increase in pre- and immediate post-test scores in all four categories. The effects of the mindfulness training sustained to the seven-week post-test where scores remained at the improved level from the immediate post-test (Black & Fernando, 2014).

In a study by Wilson and Dixon (2010), several mindfulness exercises were implemented. First was “The Silent Game” which had five rules for participants to follow: 1) must be still in your seat, 2) keep hands to yourself, 3) no making faces at your neighbor, 4) eyes must be closed, 5) have good posture. This activity lasted for 30 seconds initially and increased over time to three minutes. Students who maintained following the rules received a reward of candy at the end. This exercise occurred once or twice a day, and a breathing exercise was also included. The Breathing Exercise focused on the breath of the participants. Most mindfulness exercises are guided by the breath. The Breathing Exercise asked the students to follow the rules of the Silent Game and also pay attention to the cold air entering their noses and warmer air leaving their mouths. The Silent Game 2 asked the students to notice the feelings in their chests, noses, and mouths, notice the sounds in the room and of their breath, and notice what they saw with their eyes closed. This Silent Game 2 exercise was most preferred by participants (Wilson & Dixon, 2010).

Wilson and Dixon (2010) had two additional exercises: Noticing Self Exercise and Mindful Eating Exercise. In the Noticing Self Exercise students began by engaging in a breathing exercise for at least one minute. After this time, the instructor began reciting questions with pauses to allow for thought and reflection. Questions included: see if you can notice your body as you sit in your chair; see if you can feel any sensations; take notice of what your toes feel like; notice the point where your thumbs hit your body. The eating exercise involved inviting children into a discussion about mandarins and where they came from. After the discussion, students were asked to follow a series of instructions beginning with peeling the mandarin, which took five minutes. After each peel, the students described the smells, textures, and their feelings about peeling the mandarin. Discussions occurred throughout this process as students slowly ate the pieces of mandarin. This exercise lasted around 30 minutes in total (Wilson & Dixon, 2010). Both exercises required participants to slow down and focus on the present moment and what feelings and sensations existed. Researchers found an 18% increase in attending to classroom activities after implementing mindfulness exercises. Attending was defined as a child being engaged in what was happening at that particular moment in the classroom. This experiment demonstrated a link between mindfulness practices and improvement in attention in students (Wilson & Dixon, 2010).

In a study by Kanagy-Borofka (2013), students from a fifth grade class received instruction in forms of yoga postures, breathing exercises, visual imagery, body scanning, ethical children's stories, and mindful eating and walking. A control group was used as a baseline. The mindfulness exercises occurred in the treatment classroom in 20-minute sessions over five weeks. Students received varied mindfulness instruction three times per day. This research concluded that participants demonstrated an increase in attention and a decrease of impulsivity and hyperactivity (Kanagy-Borofka 2013).

In a study by Mendelson, Greenberg, Dariotis, Gould, Rhoades, & Leaf (2010), 97 fourth and fifth grade students from Baltimore public elementary schools participated in a mindfulness study, in hopes of reducing social-emotional and behavioral problems among youth. Participants attended the mindfulness instruction during school hours four days a week for a total of 12 weeks. Each session was 45 minutes. The interventions were similar to those of Kanagy-Borofka (2013) which included the following: yoga poses, breathing techniques, and guided mindfulness practices. Participants were also trained to use their breath to calm and center themselves and use the skills they learned in the training sessions outside of class. An important aspect of the study by Mendelson et al. (2010) was the training given to students in order to apply the practices independently. A significant improvement in attention to tasks was found between the pre- and post-test in the treatment group. These improvements were predicted to help in the students' social, emotional, and behavioral development. Additionally, researchers concluded that mindfulness practices enhanced self-regulation and reduced anxious thoughts (Mendelson et al. 2010).

In a study by Jennings et al. (2013), a program called Cultivating Awareness and Resilience in Education (CARE) was implemented with teacher participants. This program included emotional skill instruction, mindful awareness practices, and compassion building activities. The emotional skills instruction consisted of reflective exercises and role-plays to help teachers become more aware of their emotional states. The mindfulness practices included focusing on the breath, mindful walking and standing, and listening to others. The compassion practices involved a guided reflection of loving kindness for the self and others. This program consisted of 30 training hours over four days throughout four to six weeks. Participants received phone coaching between training sessions and a follow-up training session two months after the initial training. This study found significant differences between pre- and post-interventions in

all five of the FFMQ sections. Researchers found that the implementation of practices that promoted developing conscious awareness resulted in enhanced attention and self-awareness (Jennings et al. 2013).

Rechtschaffen (2014) writes about mindfulness having the power to foster kindness and attentiveness without the teacher needing to explicitly tell the children to be kind and attentive. Mindfulness practices support the cognitive, emotional, physical, and relational aspects of learning. Rechtschaffen also writes about the importance of teachers training in mindfulness for themselves before and while coaching their students through the practices to be most successful (Rechtschaffen, 2014).

Lillard (2011) found a strong connection between Montessori education and mindfulness practices. Children in Montessori classrooms, where they have a three-hour work cycle, have shown to have better executive function skills than children in traditional classrooms. When comparing Montessori education and mindfulness training, both have shown an emphasis on deep concentration and having healthy relationships with other people. Both mindfulness and Montessori education encourage attention to the body and its movement. They both place a value on simplicity, and an absence of judgment. Dr. Montessori's research showed that even young children have the ability to focus their attention on meaningful work. She also believed that children would be thoughtful and mindful in their actions with the support of a loving adult (Lillard, 2011).

Conclusions

Previous mindfulness research has focused mainly on the effects on the adult population, children with ADHD, and students with testing anxiety. Much of the research explored in this paper occurred in schools in urban areas and within low-income districts using a curriculum implemented by researchers as opposed to the teachers. Mindfulness research related to children

is fairly new and some of the struggles have been related to finding age-appropriate exercises and long lasting, consistent implementation. The research gathered suggests that a mindfulness intervention strategy, using breathing and visualization exercises, is the most effective for children. Knowing the strong connection between mindfulness and Montessori education, the implementation of mindfulness exercises in a Montessori elementary classroom is predicted to be successful.

Methodology

Participants and Setting

The study was conducted in a classroom located in a private Montessori elementary school in Northern Michigan. Participants included 44 students (female N=26, male N=18) in the fourth, fifth, and sixth grade. The participants were between nine and twelve years old. The classroom was chosen by the researcher because she was the teacher of the participants.

Intervention Strategies and Data Collection

Mindfulness exercises were implemented on Monday, Wednesday, and Friday. On Mondays and Wednesdays the mindfulness exercise was immediately following the students' Physical Education (P.E.) class. On Fridays the participants started their day with a mindfulness exercise and then completed a timed mathematics test. The students began their day with P.E. on Mondays and Wednesdays, so the mindfulness exercises occurred during a transition time as they entered the classroom. On Fridays students began their day in the classroom, therefore the mindfulness exercise occurred first. The mathematics test was part of the schedule and unrelated to the experiment. With the exception of holidays and snow days, the students participated in the mindfulness exercises three times per week for five weeks.

The first mindfulness exercise asked students to sit silently in a chair or on the floor. Rules were given: 1. Eyes closed, 2. No talking, 3. Have a good posture, 4. Do not disturb others.

Students were read two definitions of mindfulness: "paying attention in a particular way; on purpose, in the present moment, and non-judgmentally" and "paying attention to what is happening right now with curiosity and kindness." They were asked to breathe in and out counting their breaths beginning with a count of 1-2-3 up to six counts.

Every exercise began by reading the rules, reading the definition of mindfulness, and counting the breath 1-2-3 in and 1-2-3 out. Additionally, a quote was read (Appendix C), or a discussion occurred to inspire individual practice of the mindfulness exercises. The students sat in the classroom with the door closed while the researcher stood giving instructions. Students were dismissed from the exercise by a tap on the shoulder and asked to silently move back to their work space. Each exercise was rotated through the intervention, with the exception of The Breathing Exercise, which only occurred the first week.

The Breathing Exercise asked students to focus on the cool air entering their body and the warm air exiting. Participants were asked to breathe in and out slowly, keeping their focus and attention on their breath, letting go of the thoughts that came to them. This exercise lasted between three and five minutes. This exercise was implemented for the first week of the intervention (a total of three times).

The Visualization Exercise expanded the breathing exercise. This exercise asked students to begin by focusing on their breath. After the initial counting of their breath students listened to the researcher give suggestions of a peaceful place. Students heard a list of examples like, "sitting on the beach, an entirely white room, sitting under a tree." They were asked to think about what they heard, thought, smelled, touched. This exercise lasted between five and ten minutes. Students reported that they liked this exercise the most, therefore it was most often the exercise given.

The Index Finger Exercise began with the Breathing Exercise and asked the students to place one index finger on the middle of their forehead. They were asked to focus on the pressure they felt in their finger and on their forehead. This exercise lasted between five and seven minutes.

The Tree Visualization Exercise began with the Breathing Exercise and asked the students to visualize a very large old tree. They were asked what it looked like in each season. They were asked to notice the details of the bark, branches, and leaves. They were told to visualize doves sitting on the branches and then flying away. This exercise lasted between seven and twelve minutes.

The Color Visualization Exercise began with the Breathing Exercise and asked students to focus on a color in their mind. They were asked to notice if it changed. They were asked to let go of any other thoughts and just keep their attention on the color. This exercise lasted between five and seven minutes.

Students completed a pre- and post-questionnaire about their understanding of mindfulness and perceived attention and focus (Appendix A). The researcher had daily tally sheets (Appendix B) and observation data sheets (See Appendix B) to record the number of on and off task students as well as written observations of students' work. The researcher used a data collecting sheet (Appendix D) when she had a discussion with the participants regarding their reflections on the mindfulness exercises.

Participants were asked to have an individual one-on-one discussion with the researcher after five weeks of mindfulness intervention. Students were verbally asked two questions and their responses were written on a data form by the researcher (Appendix D). This occurred in a quiet corner in the classroom and participants were asked to be honest. Students were asked: 1.

Did you find the mindfulness exercises helpful? If so how? 2. Will you use the techniques you have learned independently?

The pre-questionnaire (Appendix A) was given to all of the students at the same time. They were asked to be silent and answer the questions honestly. When they were finished they turned the questionnaire in to the researcher. This occurred on the first day of intervention. No mindfulness exercise was implemented on this day.

The post-questionnaire contained the same questions as the pre-questionnaire and was given after five weeks of mindfulness exercises. Students completed this in the same manner as the pre-questionnaire.

Observation notes and on and off task tallies (Appendix B) were taken daily during the morning work cycle between 9:00AM and 11:00AM for one week before intervention and during the five weeks of intervention. The researcher sat in an observation chair for five to ten minutes each day, marking whether each student was on task or off task. The observation chair is a chair that has a view of the majority of the room and is placed against a wall for the teacher and guests to use in order to observe the classroom. After the tallies were taken of all of the students present in the room, three tables of students were individually assessed whether they were working engaged, working distracted, or distracted. The groups of students to be observed were chosen by finding tables of students working on the same task. This was important to see whether the collaborative conversations were facilitating engagement in the work or distracting students from the work. Working engaged was defined as: working on the task in front of them and having conversation related to the work, thus the conversations contributing to the work. Working distracted was defined as: working on the task in front of them, but the conversation was not about the work. Distracted was defined as: neither working on the task in front of them,

nor having a conversation related to the work. Written notes were taken on the work choice and focus.

Data Analysis

Participants completed a pre-intervention and post-intervention questionnaire which was analyzed to see whether there was change between the responses. The responses were ratings one through five, one representing “not at all” and five representing “all the time” for seven questions related to mindfulness. See Table 1 for the statements.

Table 1
Pre- and Post-Questionnaire Statements

Number	Statement
1	“I like to do mindfulness exercises”
2	“I am able to focus on my work most of the time”
3	“I pay attention to my breath to calm down”
4	“I am able to pay attention to my work without being distracted”
5	“I can redirect my attention to my work when I get distracted”
6	“I think mindfulness is helpful”
7	“I feel distracted during the work cycle”

Pre- and Post-Questionnaire Statements

In the pre-questionnaire, the average rating was 2.43 for statement one (Figure 1). The most occurring response was 2, with 1 representing not at all and 5 representing all the time. This was a relatively low rating, which showed that initially students did not particularly like mindfulness at the beginning of the intervention. The participants had limited exposure to mindfulness exercises in their Physical Education class prior to the beginning of this study. In the post-questionnaire there was an increase in students’ rating, showing an increase in liking mindfulness exercises. The average response to the same question in the post-questionnaire was 2.74. Interestingly, the post-questionnaire responses showed more students rating question one either 4 or 5 than the pre-questionnaire, which shows an increase in the number of students liking mindfulness after the five weeks of intervention. See Figure 1.



Figure 1. Responses to "I like to do mindfulness exercises"

In Figure 2, where the results of all of the statements are recorded, one can see that the average ratings from pre- to post-questionnaire increased for statements one, three, six and seven.

It was interesting to see that the average response for the third statement, "I pay attention to my breath to calm down" increased 18% from 2.49 in the pre-questionnaire to 2.93 in the post-questionnaire. Students rated a higher frequency of using their breath to calm down after the implementation of mindfulness exercises, which shows an indication that they used the techniques they learned independently to benefit themselves. The mode was 2 in the post-questionnaire, which kept the mean around this number. The mode in the pre-questionnaire was 1, which shows that students more positively rated this statement after the five weeks of mindfulness exercises.

Statement six was "I think mindfulness is helpful". The pre-questionnaire had an average response of 2.97 which increased to 3.05 in the post-questionnaire. This showed a +2.7% change. This slight increase showed that students had positive experiences with mindfulness.

Statement seven was, "I feel distracted during the work cycle". The average rating in the pre-questionnaire was 2.48 and the average in the post-questionnaire was 2.63. This shows a

+6% change. This slight change in the rating response for these questions could be attributed to the discussions the students had with the researcher about what focus looks like, and perhaps more of an awareness from the students regarding whether they are focused or not.

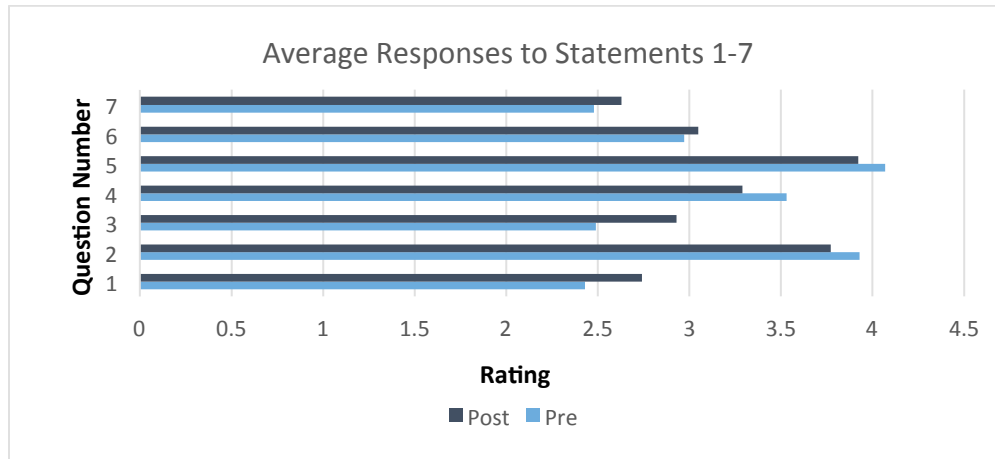


Figure 2. Average Responses to Statements 1-7

When looking at averages, for statements two, four and five the average ratings from pre- to post-questionnaire decreased. Therefore, it seems that for these statements the intervention did not result in much improvement.

The second statement was “I am able to focus on my work most of the time”. The average response in the pre-questionnaire was 3.93 and in the post-questionnaire the average response was 3.77. This showed a -4% change.

The fourth statement was “I am able to pay attention to my work without getting distracted”. The average rating in the pre-questionnaire was 3.53 and the average rating in the post-questionnaire was 3.29. This shows a -6.8% change.

The fifth statement was “I can redirect my attention to my work when I get distracted”. This was the where the researcher hoped to see some change; knowing that there will always be possible distractions, she wanted to give her students an ability to redirect their attention back to the tasks in front of them. The average rating in the pre-questionnaire was 4.07 and the average

rating in the post-questionnaire was 3.92. This is a -3.7% change (Figure 2). Notably, on average students rated this statement positively in the pre-questionnaire as a skill that they were able to use. Twenty-eight students rated either four or five on this statement, showing that this was a skill they believed they had. In the post questionnaire 31 students rated either four or five on this statement. This showed that three more students believed they have this skill. This increase was important in showing improvement with the skill of redirecting. The students believed that they had an ability to redirect themselves when they get distracted. Therefore the actual numbers of students recording a 4 or 5 increased even though the mean decreased. The mean decreased in the post questionnaire because 10 students responded a neutral rating of 3.

During the intervention daily tallies of students on task and off task were taken (Appendix A). Daily tallies were also taken for one week pre-intervention (Figure 3). The first 5 observations occurred pre-intervention, the rest occurred during the five weeks of mindfulness implementation. The number of students is on the y-axis, the observation day from beginning to end is on the x-axis.

When viewing Figure 3, the researcher noticed a larger section of on task students toward the end of the observations, as represented in blue. It seems as though the number of off task students decreased over time as well. There is fluctuation, which can be seen in the wave shape.

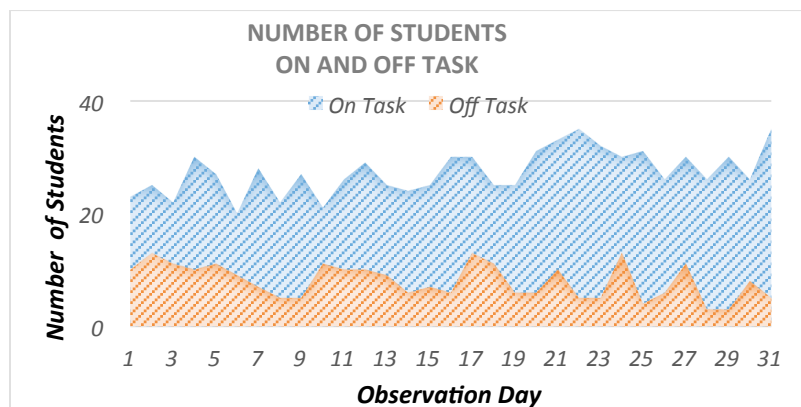
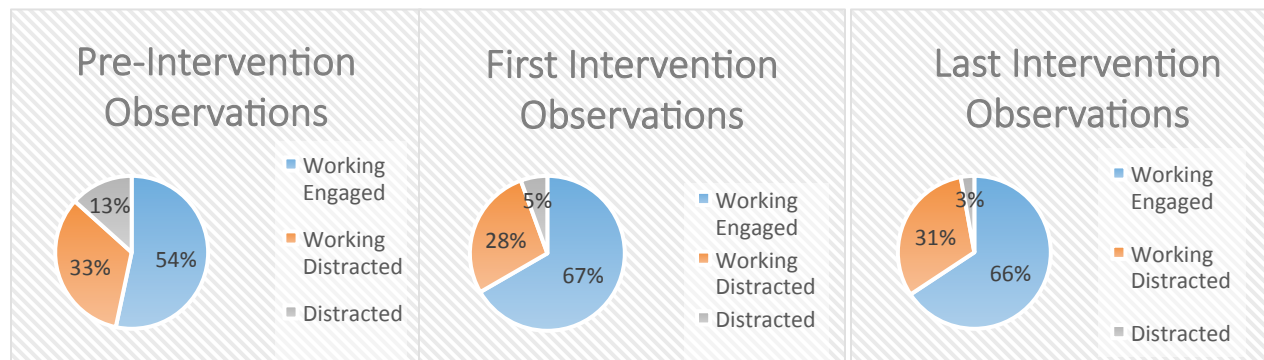


Figure 3. Number of Students On and Off Task.

Knowing that the tallies were taken once per day sometime between 9:00AM and 11:00AM, this fluctuation could be attributed to the time of day when the tally was taken, special events occurring that day, or people coming and going through the classroom.

During the daily observations of students, the researcher chose three groups of students at random and circled whether they were “working engaged,” “working distracted,” or “distracted.” A total of 85 observations were made over six weeks.

The researcher compared the pre-intervention observations with the first and second half of intervention observations (Figure 4). There is a noticeable change in the percentage of students engaged in work from the post-intervention observations 54%, compared to post-intervention observations, 66% (Figure 4). There is also a decrease in the percentage of



distracted students, from 13 % pre-intervention to 3 % post intervention.

Figure 4. Pre Intervention, First Intervention, Last Intervention Observations

At the end of the implementation of the mindfulness exercises the researcher had a discussion with each participant. These responses were the most meaningful to the researcher in assessing the impact of mindfulness for each individual. The first discussion question was, “Did you find the mindfulness exercises helpful? If so, how?” The researcher determined the number of positive responses and negative responses by coding the participants’ answers. Positive was “yes, okay, sort of, sometimes, in some ways, a little bit,” negative was “no, not too much, not

really.” Thirty-six students responded positively, 8 responded negatively. The researcher was delighted to hear that they found the exercises helpful. A few positive and negative examples are in Table 2. For the complete list of responses, see Appendix E.

Table 2

Examples of Positive and Negative Responses to Discussion Question One

Question: Did you find the mindfulness exercises helpful? If so, how?

Positive Response Examples

- 1 Yes, it helped me concentrate and feel at peace
- 2 Yes, they helped me calm down after gym and helped me focus. They helped me be aware of what’s around me
- 3 Yes, I was calmed by it. I felt more relaxed for my work and I didn’t mind it. I think we can still do them.
- 4 A little bit, it helped me relax and feel more aware

Negative Response Examples

- 1 Not really, but they were helpful to some other people
 - 2 Not really
 - 3 Not too much, they gave me more energy and want to move and talk to my friends
 - 4 Not really, they made me tired.
-

Table 2. Examples of Positive and Negative Responses to Discussion Question One

Eighty-two percent of students responded to this question positively. Sixteen students mentioned the words “focus” or “concentrate” in their descriptions of how the mindfulness exercises were helpful stating that they helped them focus or concentrate better.

The second discussion question was “Will you use the techniques you have learned independently?” Thirty-five students (80%) responded that they would use the mindfulness techniques independently. Only nine said that they would not. Four students stated during this answer that they already have used the techniques, for example one student shared “yes I used it while sitting on a log.”

Conclusion

The student discussions offered the most insight into the opinions and thoughts of the participants about mindfulness. The majority of students found that the mindfulness exercises were helpful and many said that they would like to continue to do them. The majority also said

that they would use the techniques independently. This positive feedback shows that the implementation of mindfulness exercises was meaningful to the students. This research hoped to increase student work engagement and focus by implementing mindfulness exercises. Evidence of this was seen in the daily tallies data which showed an increase in students who were on-task and the daily observations data which showed more students work-engaged over time.

Action Plan

This study aimed to improve 9-12 year old students' focus and work engagement through the implementation of mindfulness exercises. The findings indicated an increase in the number of students on-task and engaged in work over time. The findings also demonstrated that students found that the mindfulness exercises helped them focus on their work. The benefits of these exercises may increase given a longer intervention period.

During the study the researcher varied the times of observation between 9:00AM and 11:00AM in order to collect data at varying times throughout the week. This measurement could be improved by setting a specific time each day for observation, however as the researcher was also the teacher in the classroom this proved to be difficult. Setting the time for daily observation between 9:00AM and 11:00AM may not have reflected an accurate measure of the number of students on and off task due to the nature of the work cycle in a Montessori classroom (Figure 5). Typically, students ease into the classroom for the first 30 minutes, then they begin to work for about 30 minutes, there is a false fatigue, and then students begin the more difficult work before calming down and taking a break for lunch. Perhaps two daily observations (the first between 9-10AM and the second between 10-11AM) would help to more accurately record work engagement and on and off task students.

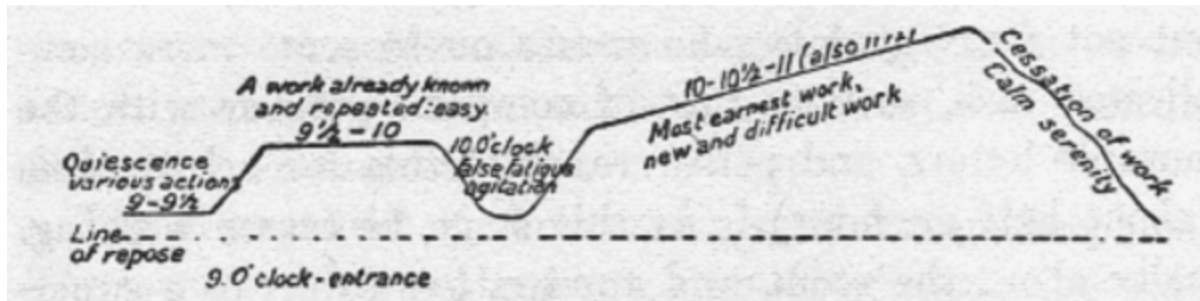


Figure 5. Dr. Montessori's Description of the Work Cycle.

The students were given a pre- and post-questionnaire, which gathered response ratings to statements related to focus and mindfulness. This questionnaire allowed for participants to rate between 1-5. In the future, the questionnaire will omit the neutral rating of 3 in order to distinguish the participants' responses as either positive or negative. This is important in order to more accurately measure the pre- and post-ratings of the students as positive or negative.

This study was limited to 44 students without a control group. Therefore it would be difficult to generalize the findings. The intervention was limited to five weeks. It is recommended to increase the length of the intervention. The researcher was also the teacher, observer, and mindfulness instructor. It may be advisable to have an unbiased observer in order to ensure more accurate measurements.

As with other studies (Kanagy-Borofka, Van de Weijer-Bergsma et al., Wilson & Dixon) most students reported an increased ability to focus during the work cycle after the mindfulness intervention.

The proposed action will be to continue the mindfulness exercises and encourage other classrooms and adults to practice them as well. The adults who participated in the mindfulness exercises in the present study reported enjoying the experience and found them helpful to beginning their day. The researcher will also give lessons in mindful movement exercises to the students. Children aged 9-12 years old have bodies that are rapidly growing which can result in less graceful movements. The researcher would like to implement some walking meditations

with these students in hopes of slowing them down and helping them be aware of their bodies and the ways they move throughout the space.

With sustained focus and engagement in work, students are more able to reach understanding and learn new concepts. This mindfulness intervention showed an increase in focus over time, and with continued implementation the researcher predicts further improvements with focus and on task behavior. The researcher would also increase conversations about ways to practice mindfulness exercises independently so that the students would be able to access these benefits on their own when they need them.

The researcher will encourage other teachers to try mindfulness exercises for their own benefit as well. This practice is beneficial for teachers in order to help them focus on the present moment. Teaching can be a stressful job. Studies (Bakosh, 2013; Rechtschaffen, 2014) have shown that with the use of mindfulness techniques teachers may see a decrease in stress and an ability to focus on the task at hand. It is clear through this study and previous studies that there are benefits to mindfulness exercises. While the present study was concerned with the benefit of focus with regard to student work in the classroom, certainly it is important to explore other benefits. Mindfulness exercises have been linked to stress, anxiety, and depression reduction as well as a strengthened immune system and improved social relationships.

References

- Baer, R. A., Smith, G. T., Hopkins, J., Krietemeyer, J., & Toney, L. (2006). Using self-report assessment methods to explore facets of mindfulness. *Assessment*, 13, 27-45.
- Bakosh, L. (2013). *Investigating the effects of a daily audio-guided mindfulness intervention for elementary students and teachers* (Doctoral dissertation, Sofia University, Palo Alto, CA). *ProQuest Dissertations and Theses*. Retrieved from <http://pqdtopen.proquest.com/doc/1530478287.html?FMT=AI>
- Black, D. S., & Fernando, R. (2014). Mindfulness training and classroom behavior among lower-income and ethnic minority elementary school children. *Journal of Child and Family Studies*, 23(7), 1242-1246. <http://dx.doi.org/10.1007/s10826-013-9784-4>
- Connor-Smith, J. K., Compas, B. E., Wadsworth, M. E., Tomsen, A. H., & Saltzman, H. (2000). Responses to stress in adolescence: measurement of coping and involuntary stress responses. *Journal of Consulting and Clinical Psychology*, 68, 976–992.
- Jarutawai, N., Lowsuwansiri, A., Taechamaneesathid, P., Tangsangob, N., Wong, Y. Y., Vasuratna, V., & Chongphaisal, P. (2014). Mindfulness training at schools in Thailand: An experimental approach. *International Journal of Information and Education Technology*, 4(1), 123-n/a. <http://dx.doi.org/10.7763/IJET.2014.V4.382>
- Jennings, P. A., Frank, J. L., Snowberg, K. E., Coccia, M. A., & Greenberg, M. T. (2013). Improving classroom learning environments by cultivating awareness and resilience in education (CARE): Results of a randomized controlled trial. *School Psychology Quarterly*, 28(4), 374.
- Kabat-Zinn, J. (1994). *Wherever you go, there you are: Mindfulness meditation in everyday life*. New York, NY: Hyperion.

- Kanagy-Borofka, L. (2013). *Integrating mindfulness practices into the elementary curriculum to improve attention-to-task behaviors and social behaviors* (Doctoral dissertation, Institute of Transpersonal Psychology, CA). *ProQuest dissertations and theses*. Abstract retrieved from <http://gradworks.umi.com/35/67/3567437.html>
- Lillard, A. (2011). Mindfulness practices in education: Montessori's approach. *Springer Science and Business Media*, 2, 78–85.
[http://faculty.virginia.edu/ASLillard/PDFs/Lillard%20\(2011\).pdf](http://faculty.virginia.edu/ASLillard/PDFs/Lillard%20(2011).pdf)
- Mendelson, T., Greenberg, M. T., Dariotis, J. K., Gould, L. F., Rhoades, B. L., & Leaf, P. J. (2010). Feasibility and preliminary outcomes of a school-based mindfulness intervention for urban youth. *Journal of Abnormal Child Psychology*, 38(7), 985-94.
<http://dx.doi.org/10.1007/s10802-010-9418-x>
- Rechtschaffen, D. (2014). *The way of mindful education: Cultivating well-being in teachers and students*. New York, New York: W. W. Norton & Company.
- Van de Weijer-Bergsma, E., Formsma, A. R., de Bruin, E.I., & Bögels, S.,M. (2012). The effectiveness of mindfulness training on behavioral problems and attentional functioning in adolescents with ADHD. *Journal of Child and Family Studies*, 21(5), 775-787.
<http://dx.doi.org/10.1007/s10826-011-9531-7>
- Wilson, A. N., & Dixon, M. R. (2010). A mindfulness approach to improving classroom attention. *Journal of Behavioral Health and Medicine*, 1(2), 137.

 Appendix B

Daily tally of number of students on and off task (once daily, approximately 1 minute) between 9-11am.

Date:

Number of students on task:

Number of students off task:

Daily observation of student work engagement, (5-10 minutes). I will fill out this form for 5-10 students between 9-11am. I will sit in our observation chair in the classroom to take notes.

Student Name(s):

Work Choice:

Working engaged

Working distracted

Distracted

Notes:

Student Name(s):

Work Choice:

Working engaged

Working distracted

Distracted

Notes:

Student Name(s):

Work Choice:

Working engaged

Working distracted

Distracted

Appendix C

Mindfulness Quote

“The trees, the flowers, the plants grow in silence. The stars, the sun, the moon move in silence. Silence gives us a new perspective.”

— Mother Teresa

Appendix E

Student Discussion Responses

Did you find the mindfulness exercises helpful? If so, how?

1. Yes, on Friday it helped me focus on the quiz
2. Sort of, it helped me focus on my work and not talk to people next to me
3. Yes, when we had gym and came back it helped me relax and it helped me focus on the quiz on Friday
4. Helpful because they helped me concentrate
5. Yes, they made me calm after P.E.
6. No, I don't like mindfulness
7. Not really
8. Kind of, it was helpful because during this time I was calm. Maybe it would be better if we used a recording
9. Yes, because it helped me focus before the math quiz
10. Not really
11. okay, it calmed me
12. yes, it helped me concentrate and feel at peace
13. no
14. yes, they were calming and helped before tests so that I could focus
15. yes, they helped me focus
16. Yes, they helped me calm down after gym and helped me focus. They helped me be aware of what's around me
17. in some ways they were helpful like they helped me relax when I was high on energy and think about all of the things I am grateful for
18. Not really, but they were helpful to some other people
19. not too much, they gave me more energy and want to move and talk to my friends
20. Yes, I was calmed by it. I felt more relaxed for my work and I didn't mind it. I think we can still do them.
21. Sometimes they were helpful. I would think to do it other times and I would close my eyes and I was able to focus
22. Yes, they helped me settle down for the day and think about where I am now and not later
23. Yes, they helped me focus on my work

24. Not really, they made me tired.
25. Yes, it helped me calm down and feel less stressed
26. Yes, it helped people be quiet
27. Yes, helped me quiet down after gym
28. In some ways, it helped me focus on my work better and stay calm when I wanted to be excited
29. Yes it calmed me down after gym. If I was troubled I forgot the troubles and felt better.
30. Kind of, it helped me relax
31. Yes, it made my day better and less chaotic
32. Yes, it helped me calm down after gym
33. a little bit, it helped me relax and feel more aware
34. yes it helped me focus a bit better
35. yes, it made me calm down after gym and get ready to work
36. yes, I was able to concentrate on my work more
37. yes, it calmed me down and helped me work better
38. Yes, helped me calm down from gym and helped me focus on my work
39. sometimes, after tagging games it helped. it helped slow down my heart beat and calm down.
40. sort of, it gave me peace
41. sometimes, it was the only time it was quiet. I was able to calm down.
42. sometimes, I did everything I needed to on those days. I stayed calmer
43. sort of, I did better with my work
44. not really

Will you use the techniques you have learned independently?

1. probably not
2. no
3. probably not, maybe
4. maybe, yes I used it while sitting on a log
5. maybe
6. probably not
7. probably not

8. probably not
9. maybe
10. maybe
11. sometimes
12. probably
13. probably
14. probably
15. probably
16. yes
17. yes
18. yes
19. maybe every now and then, like when I'm stressed
20. yes I have used it when I feel mad and I go and sit in my room and close my eyes
21. not sure, I might
22. maybe
23. yes
24. probably not
25. sometimes
26. yes
27. probably not
28. yes
29. yes, already have
30. probably not
31. yes
32. yes
33. maybe
34. yes
35. yes
36. yes
37. yes

38. yes

39. yes

40. maybe

41. maybe

42. yes

43. yes, the breathing exercise

44. I don't think so