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The Effects of Mindfulness on Students' Attention

An Action Research Report
By Rose Bringus

The Effects of Mindfulness on Students' Attention

Submitted on

in fulfillment of final requirements for the MAED degree

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Date _____

Abstract

This action research project examined the effects of mindfulness and meditation on concentration among elementary students. The research was conducted at a private Montessori school in an upper elementary classroom for twenty-six children ages nine to twelve. Baseline data was collected for three consecutive days. The intervention was implemented for four weeks. The teacher led the students in mindful movements in the morning and daily meditation took place in the afternoon. The average percent of on-task behavior was collected for baseline data using observational records and journal notes. Observational records included what percent of the class was on-task for specific intervals. Journal notes contained what specific behaviors were observed as off-task. Data collection during the intervention included observational records, journal notes, group discussions and questionnaires. Data analysis showed that concentration did not increase during the intervention. However, students reported meditation and mindful breathing as useful in their daily lives. Further research could include the effects of student chosen mindful activities on concentration and student well-being. A similar study of a longer duration may also yield different results.

Keywords: Mindfulness, meditation, concentration, focus

My first year as a Montessori elementary teacher I went to great lengths I to capture the attention of my nine to twelve-year-old students. Children were often preoccupied with conversations about videos, on-line gaming and social media instead of their work. When I spoke with other teachers, they bemoaned the same problems: short attention spans, the need to entertain during lessons and ongoing conversations about the on-line world. Their solutions, however, varied. Some allowed children to engage in conversation freely but intervened when it was off topic. Some used meetings with the class to address the problem and attempted to look to the children to find a solution. Some required the children to frequently work in silence so they didn't have the opportunity to speak about topics that were not academic. No one was satisfied with the results as they felt the needs of the child compromised, or their approach wasn't successful.

Elementary children are social in nature. They want to discuss their world and find their place in society. They learn how to respect others' opinions through careful listening. They want to engage in group projects. Some projects may take a day, and some a month so they learn to manage time effectively. By working in groups, children see how the behavior of each member affects the community. They may be forced to ask a non-contributing member to leave the group, or be asked to leave themselves if they are causing the group to get off-task.

Listening and discussing with a group requires attention. Not all elementary children possess the skills necessary to remain attentive when given the opportunity to work with others. Montessori elementary teachers place a high value on collaborative work. They are willing to make any possible change to the environment that allows each child to participate. Students with challenges in maintaining attention often require the teacher to make significant changes in the physical environment. However, the environment is not the only factor that affects attention,

sometimes training of the mind is needed. Focused attention requires discipline and practice. If the children are not allowed to engage in activities where their concentration is challenged or cultivated, they may not learn how to regulate their behavior.

Central to the Montessori pedagogy is the idea of deep concentration. Children engage in academic and practical life skills while concentrating deeply on the task at hand. When attention is lacking, the results can be a non-productive environment in which no one is reaping the full benefits. Conversely, when children concentrate on their work the results are as intended. The children are exposed to a variety of subjects and are given the opportunity to explore their interests.

Even when teachers provide the appropriate environment for deep concentration, they are still competing with what the child experiences at home. Evenings and weekends consist of moving from one activity to the next for many elementary children. They often spend more time watching videos, playing on-line games or chatting with multiple friends than spending time with their family. The busy life of a family can affect how a child responds to environmental stimuli. The student may appear listless, distractible, agitated or tired. A specific kind of mental and physical training in which children learn to participate the present moment could be extremely beneficial to foster the ability to concentrate in the classroom.

My initial class of nine to twelve-year-olds was severely lacking in their ability to attend in lessons and during group or individual work. Through observation, I noticed that a significant amount of children were using their bodies and voices in ways that lacked control. Their voices were at competition with one another in volume and they frequently chatted about non-academic subjects while working. At the beginning of my second year of teaching, I observed more children engaged fully in their work individually and with others, but a select few still appeared

to lack the self-discipline necessary to work in groups or sit for a lesson for more than a few minutes.

In response to the lack of concentrated attention observed, I decided to employ mindfulness and meditation practices in my Montessori classroom. Twenty-six children in the fourth through sixth grades participated. The number of boys and girls was equal. Mindfulness practices consisted of a sequence of movements by Thich Nhat Hanh (Hanh, 2008) each day before class started in the morning. I also spoke about the importance of allowing your mind to clear on occasion so you can have a more productive and peaceful day. Meditation consisted of a short meditation time each day in the early afternoon before work. I read a few guided meditations and also used music.

Mindfulness and meditation practices not only change the structure and function of the brain when practiced over time but also focus on living in the present moment. Therefore mindfulness practices have an effect on attention (Monteiro, 2015, Thornley-Hall, 2015). Being in the present moment is an essential, observable component of attention. When a child is attending to a particular task or lesson, he or she makes eye contact with the materials or person speaking. The child also exhibits purposeful movement. It's as if the rest of the world does not exist. The child is completely absorbed in work.

Literature Review

According to the literature on students' attention, one of the contributing factors of success in school is the ability to maintain attention for a specific task (Fredricks, Blumenfeld, & Paris, 2004; Smith, 2014; Vuontela et al., 2013). According to Monteiro (2015), the ability to control impulsive behaviors, as well as self-regulate and adjust behavior, leads to positive outcomes in school. Monteiro (2015) also suggested that effectively learning new skills requires control of

attention (p. 12). In order to experience success in school, children may need strategies implemented by adults to help them maintain focused attention.

According to Monteiro (2015), mindfulness is the ability to use attention to stay in the present moment while maintaining a non-judgmental status (p. 24). Mindfulness has been shown to help students achieve balance, experience less stress and maintain attention (Monteiro, 2015, Thornley-Hall, 2015). In addition to mindfulness practices, researchers have successfully implemented other interventions that have increased attention among students. Smith concluded that programs involving technology can be effective in sustaining attention in elementary students when designed to challenge their intellectual abilities and problem solving skills (Smith, 2014). In a study of middle school students, Rathunde (n.d.) reports that the prepared environment and the freedom to choose work are most likely integral components leading to focus, concentration and a sense of importance in the work of students (p. 258). Further investigation into each of these practices is necessary to determine which method of increasing attention might be suitable for a particular classroom.

This literature review examines the effects of multiple strategies to increase attention and concentration in elementary school classrooms. In attempts to improve attention and concentration among elementary students, researchers and educators have observed the use of mindfulness techniques, programs using technology and freedom of choice in the classroom. While all of these interventions have met some success, given demographics, age group or school culture, teachers may choose to use some of the interventions with their students. The basic elements and successful interventions of each strategy will be explained in the following sections of this review.

The Relationship Between Attention and Engagement

Attention is defined by Monteiro (2015) as a state of focused awareness in which an individual perceives information (p. 24). Wolfe and Noguchi (2009) state, "Attention, by definition, is a cognitive process that relates to the immediate, at the moment, experience of an individual; a state of current and selective awareness" (p. 70). If students demonstrate focused awareness in the present moment, we can expect learning to take place because they will adequately process information that will help them acquire new knowledge. Selective attention yields the ability to be fully engaged in one's work, filtering out extraneous activity in the classroom or learning environment.

Fredricks et al., (2004), stated that cognitive engagement leads to school success. Engagement means individuals exhibit not only the ability to solve problems, but also the willingness to solve them and acquire new skills (p. 60). Fredricks et. al (2004) also believed that educators have an influence on student engagement due to their ability to manipulate the environment (p. 82). Therefore, there is reason to believe educators can have effects on student engagement by how they choose to structure the classroom and learning experiences. If adults can increase attention in the classroom, either by changing the environment or providing tools to change the thought processes of individuals, then we are likely to see more engagement in the work of elementary students. However, we must also take into consideration the processes of the brain that determine how likely a person is able to demonstrate attention skills.

The Brain and Attention

Executive functions, or a set of mental processes that involve the brain and frontal lobe, allow an individual to self-regulate and maintain attention in order to complete tasks (Monteiro, 2015, p. 29). The development of executive functions plays a large role on self-regulatory behavior (Vuontela et al., 2103, p. 116). Vuontela et al. (2013) stated that children who are 8 or 9

years of age do not have the emotional or behavioral control that 10, 11 or 12 year olds exhibit. This is because their executive functions are still developing and therefore they do not have the same ability to self-regulate in the same way as a 10 to 12-year-old child (Vuontela et al., 2013, p. 116). Because a person's ability to maintain attention for specific tasks improves with age, the further development of concentration, and therefore better performance, becomes apparent as individuals mature (Monteiro, 2015, p. 30). As children mature they may benefit from education about how to make choices in the structure of their own environment to optimize their level of concentration.

Vuontela et al. (2013) conducted an experiment that included 54 children in Helsinki with a median age of 9.8 (p. 107). A goal of the study was to investigate the processes involved in working memory, attention to tasks and tasks requiring inhibition for school-aged children (p. 107). The researchers concluded that the attention component of the executive functions for the 8 to 12-year-old children increased as the children aged (p. 115). The researchers also stated that the executive functions in the 8 to 9-year-old children are still developing. Therefore, the executive functions in the 10 to 12-year-old children are operating at a higher level in terms of control of emotions and behaviors (p. 116). The study yielded important results as attention is closely related to self-regulation. Because the ability to self-regulate depends on age, we can conclude that age-appropriate interventions should be used when trying to increase attention and self-regulatory behavior among young children. The same holds true for mindfulness practices as they should suit the developmental level of the children.

Mindfulness Practices

Mindfulness programs, have been implemented in schools to increase attention and awareness. Monteiro (2015) conducted a study with 24 students in the third through sixth grades.

Data included parental reports, student self-perception questionnaires and standardized measures of attentional self-regulation (p. 5). The study involved a series of mindfulness sessions and also computer activities that were designed to enhance memory and challenge visual attention (p. 19). Monteiro (2015) found that the students exhibited a 40-50% increase on the standardized measure of attentional skills (p. v).

Wilson and Dixon (2010) conducted a study at an Illinois elementary school to determine if mindfulness techniques would have an impact on attention. They had 12 participants, seven females and five males, all of whom were in the third grade (p. 138). Unlike Monteiro (2015), Wilson and Dixon (2010) did not include technology in their study. The children were lead in a series of exercises, such as: Silent Game exercises, Breathing exercises, Noticing Self exercises and Mindful Eating exercises (Wilson & Dixon, 2010, p. 139-140). The observations were conducted during regular academic work in a variety of subjects such as mathematics, reading, social studies and science (p. 142).

“Attending” was the term used by Wilson and Dixon (2010) as the primary observable behavior. Attending, was defined as the child being engaged in what was occurring at that particular moment in the classroom. This included looking at or in the direction of the teacher or student who was talking, following instructions, looking (and/or completing) a worksheet, and engaging in classroom activities (p. 138). To collect data, the researchers observed each student, and used a 10 second momentary time sample procedure (Wilson & Dixon, 2010, p. 138). They found there “was an 18% increase in attending across students during the implementation of the mindfulness exercises” and also that “removal of the intervention yielded a decrease in percent attending...” (Wilson & Dixon, 2010, p. 142). The ability to use attention to complete tasks

helps children develop the ability to self-regulate and also gives them the opportunity establish control over their own learning.

Student-Centered Learning

Rathunde (n.d.) conducted two studies involving Montessori and traditional middle school students in the 6th and 8th grades. He observed in the classroom and collected data by having the students listen for a beep from a watch and then recording how they felt at that moment. The students were asked to report on their general mood, energy level, if they felt the activities were important or not, if they felt motivated by the task, and their level of focus or concentration (p. 225). Rathunde found that Montessori students felt highly motivated, and thought their activities were important 40% of the time; whereas traditional students only reported feeling this way 24% of time. He proposed that the Montessori students felt higher levels of concentration because they had freedom of choice with their work (p. 258).

To determine if student choice and self-guidance leads to engagement in the classroom Garrett (2008) conducted a study to compare student-centered and teacher-centered classroom management strategies. He describes the commonly used model of constructivist teaching: when knowledge is constructed by both the student and the teacher, rather than transmitted from the teacher to the student (p. 34). Garrett (2008) explained that in constructivist teaching the children must use problem solving and critical thinking skills (p. 34). In person-centered or student-centered classroom management discipline comes from the self (Garrett, 2008, p. 35).

The study took place at a K-12 science and technology magnet school. The school was comprised of 615 students (Garrett, 2008, p. 36). Three teachers were identified as using a student-centered approach in the classroom and agreed to participate in the study. One class had

25 students in the 1st grade, another 20 students in the 5th grade, and the last had 23 students in the 3rd grade. Data was collected by means of teacher interviews, observations and artifacts.

The results showed all three teachers encouraged active participation by the students through hands-on work, small group work, and discussions (Garrett, 2008, p. 42). However, all of the teachers occasionally used teacher-centered management techniques, specifically when giving instruction. All teachers felt a student-centered classroom required more time and effort to help things run smoothly. The student-centered approach meant the children, “were participating in challenging, meaningful activities have little need or opportunity to be off-task or disruptive” (p. 42). The student-centered approach could be beneficial in maintaining engagement and attention in elementary classrooms because the students are taking an active role in their learning.

Technology

Technology use is now common among elementary schools nationwide, but does not replace the necessity of adult responsibility in modeling mental discipline (Healy, 1990, p. 345). Smith (2014) conducted a five-day study on the effectiveness of using a virtual program to teach science skills to elementary students. The study was conducted in a classroom with 11 computers with internet access (p. 127). The study used quantitative data collection in the form of a student pre-test and post-test, an engagement survey, and teacher observations for data collection (Smith, 2014, p. 129). The questions focused on engagement and if the students are practicing skills that will be useful in the 21st century, including skills such as critical thinking, communication and problem solving (Smith, 2014, p.135).

The data for the study showed students obtained the desired knowledge by working in the virtual world, were highly engaged while participating (data from both teachers and student), and

that work in the virtual world allowed them to practice skills that are applicable in the 21st century (Smith, 2014, p. 134). Smith (2014) believes technology could be useful in education because student learning is a product of student engagement (p. 123). However according to Healy (1990), we have not reached the point with technology that it should be used as a guide for mental development in children (p. 345).

Conclusions

While Smith (2015) believes that technology can be used to promote student engagement, thus increasing attention for elementary students, there are teachers and administrators that ask the public to consider if technology is leading to visibly shorter attention spans in children. Healy (1990) states, "We are deeply concerned about the 'smartness' or our children. But our cultures lack patience with slow, time-consuming handwork by which intellects are woven. The quiet spaces of childhood have been disrupted by media assault and instant sensory gratification (p. 277). Healy expresses her opinion that our culture moves at such a pace that children lack the patience to engage in work that takes time and physical manipulation or labor. As Smith (2014) shows in his study, children show engagement when interacting in virtual worlds. However, it is also necessary for students to exhibit attention skills in all parts of their school day for success not just when they are using technological devices.

Children need confidence they have the ability to accomplish a mental or physical task without becoming distracted (Healy, 1990, p. 153). Mindfulness practices have shown to be successful in achieving improvements in attending behavior in elementary students (Monteiro, 2015; Wilson & Dixon, 2010). Mindfulness practices can also help children learn how to deal with stress and develop deeper concentration habits (Monteiro 2015, Thornley-Hall, 2015). Also, in this way, mindfulness can be used as a tool for classroom management (Thornley-Hall, 2015,

p. ii). Mindfulness programs could parallel the student-centered approach, as discussed by Garrett (2008), in order to achieve high levels of student engagement, attention and self-regulation.

Methodology

Parents were given passive consent forms (see Appendix A). The form included the action research question regarding how mindfulness practices affect attention and a description of my research. I described what mindfulness is, and my intent to measure if mindfulness practices increase attention and concentration among elementary students. Data sources were also listed in the form of baseline observational records, weekly questionnaires, weekly group discussions and daily teacher observational notes. I stated all research was kept confidential and no identifying information was used. Parents had the opportunity to opt-out of having their child's data included in the study. The form was given to parents on August 25th, 2016. They had until September 1st, 2016 to opt-out. Of the twenty-seven children in my classroom, one child's parent opted out.

The intervention included a morning exercise program and meditation in the afternoon. The morning exercise program began in September. It included children from my class and another upper elementary classroom, approximately 50 children in total. We started with running and cardio movements and ended with mindful movements by Thich Nhat Hanh (Hanh, 2008). We ended each session by sitting or standing for a few minutes in silence. To dismiss the children another teacher and I tapped them on the shoulder to walk inside. The program began each day at 8:15am at the beginning of the school day. Children were not forced to participate as the school day officially starts at 8:30am, but most students attended. I took attendance for nineteen days during the intervention period (see Appendix F). Morning exercise was cancelled one day because of rain.

Meditation took place for approximately five minutes each day at 1:15pm. The children chose an assigned spot in the classroom where they either sat upright or laid on their backs. To begin each session, I talked about relaxing into stillness and focusing on the breath. Instrumental music played while the children sat or laid in silence.

Baseline data included observational records and journal notes. I observed in the classroom for thirty minutes for three consecutive days to obtain baseline data. The baseline observational records consisted of printed sheets in which I tallied what percent of the class was on-task (see Appendix B). I recorded the number of children present, the start time and end time of each observation. A Tally mark was placed in each five-minute interval box for a child that was off-task. The behaviors tallied as off-task were: talking with other children about non-academic subjects, singing or reenacting video or movie lines, staring off into space, moving around the room interrupting other children, and reading novels. At the end of the 30 minutes I calculated the percent of children on-task for the observational period.

In addition to the observational record for baseline data, I took daily notes in journal form (see Appendix C). This was done at the same time I collected data with the observational record. The date, time and number of children was noted at the top. For journaling I used printed sheets that listed questions to prompt my notes. I noted roughly how much of the class was on-task, if the children were conducting assigned or self-chosen work, and what behavior I witnessed that were off-task. I also noted how settled the class was, in terms of noise level and movement with purpose, as a whole during the journaling session.

At the start of the intervention the meditation exercises used each day were recorded for twenty days (see Appendix F). Attendance for morning exercise with mindful movements was recorded as well. The observational record used to collect baseline data was used during the

intervention. The average percentage of on-task behavior during the observation periods was recorded for twenty days. Eighteen of the days were consecutive school days. The class attended a two-day trip out of town with an overnight stay after the eighteenth day of data collection. I resumed when we returned, continuing the last two days of data collection on Monday and Tuesday of the following week.

During the intervention my assistant collected observational records, using the tally method, and journal notes for fifteen minutes twice a week. This was only for the second, third and fourth weeks of the intervention. The assistant did not collect baseline data. During intervention he completed six sessions of fifteen minute observations and journal notes. The percentage of on-task behavior was recorded and averaged with my records for data analysis.

Students gave feedback in the form of a questionnaire (see Appendix D). The students took the questionnaire once a week with a total of approximately four completed questionnaires per child. The questionnaire contained items to gauge how often students were using mindfulness practices as well as how useful the children deemed the mindful movements and meditation. I asked the students to write their name on their questionnaire so I could account for each child that completed the questionnaire each week. Some children did not write their names each time. I removed the child's data who opted-out of the study.

A group dialogue was also used as a method for data collection (see Appendix E). I met with the whole class once a week for four weeks. I asked four to five questions about concentration and the use of mindfulness techniques and recorded responses from two to three children for each question. The children sat in a circle and raised hands to answer. I attempted to call on a variety of students each time. My assistant led the group discussion for one of the four

meetings. With all data sources complete after twenty days of the intervention, and three consecutive days of baseline data, I began the process of analyzing data.

Analysis of Data

I began collecting baseline data using tally sheets. We had not begun our meditation practice yet this year in the classroom. I observed the class for thirty minutes each day. The tally sheets were meant to determine what percentage of the class was on-task. Simultaneously I recorded observations about the specific off-task behaviors using observational journal sheets. I collected these pieces of data for three days to obtain a baseline.

Figure 1 illustrates the average percent of children on-task for the three days of baseline data which I collected the fourth week after the school year started. The children were settled in with work and lessons at this point. The data shows the children were on-task an average of 89-91% of the time. On-task means they showed focused concentration in their work either alone or in groups.

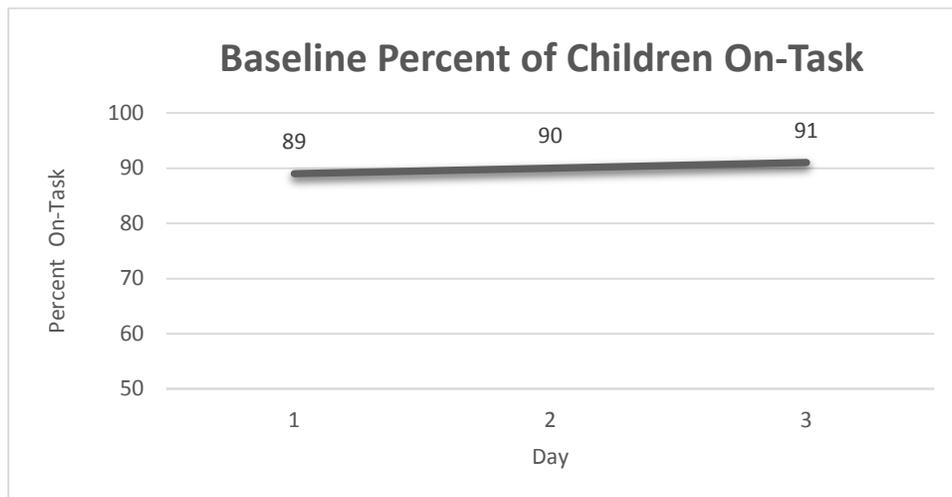


Figure 1. Baseline Percent of Children On-Task

The baseline observation journal records show that conversing with other children was the most frequently recorded off-task behavior. Table 1 shows specific off-task behaviors

observed in the classroom and the frequency at which they occurred. Walking around the room, reading novels for pleasure, and looking around the room were also recorded behaviors. I did not witness children making jokes or singing, but it is possible that I couldn't hear the details of their conversations from my seat.

Table 1.
Observation Journal: Baseline Off-Task Behaviors

Behavior	Frequency
Walking around	2
Conversing	4
Reading	2
Looking around, not talking	1
Making jokes, singing	0

We began our afternoon meditation practice the week after the baseline data was recorded during the fifth week of school. I continued using the tally sheets to record the average percent of the children on-task each day for twenty consecutive days. I also recorded behaviors using the observation journal sheets simultaneously in the same manner as the baseline data. My assistant observed using the tally sheets and journal sheets for fifteen minutes twice a week starting the second week of the intervention. He finished recording the day after me so there are 21 days of data. I averaged his data in with mine on days he observed to obtain an overall percent of on-task children each day.

Figure 2 represents the percent of children on-task for twenty-one days during the intervention. The data shows the children were on-task between 81 and 96 % of the time.

Morning exercise occurred all but one day during the intervention due to weather. Meditation was practiced each day in the afternoon.

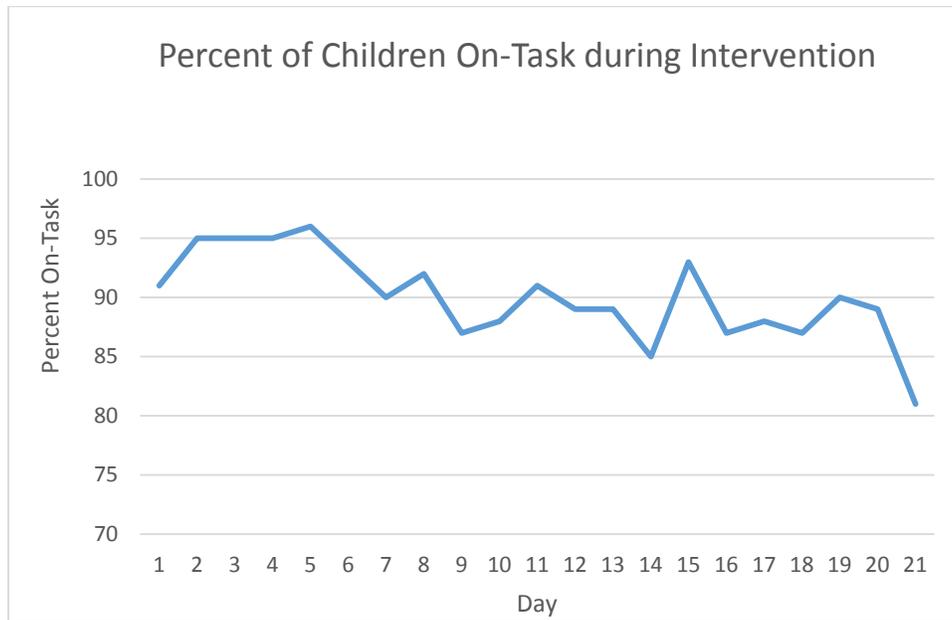


Figure 2. Percent of Children On-Task During Intervention

The observation journal sheets revealed that conversing with other children was by far the most common off-task behavior in the classroom. The frequency of children talking with other children about topics unrelated to their work was forty-three, while other behaviors such as walking around the room, reading for pleasure, looking around and making jokes or singing were recorded much less frequently. Table 2 illustrates the frequency of each behavior.

Table 2.
Observation Journal: Off-Task Behaviors During Intervention

Behavior	Frequency
Walking around	9
Conversing	43
Reading	7

Looking around, not talking	6
Making jokes, singing	8

The children in the classroom had assigned seats for work. However, they were allowed to change seats in order to work with different partners during work-time in the morning and afternoon. If children had difficulty sitting together while maintaining focus on their work, I asked them to return to their own seats. Often children were given the opportunity to attempt to work with a friend. If the pair or group engaged in side-conversations not pertinent to work they would be asked to move back to their original seats.

I asked for student feedback about meditation and mindfulness practices during a group dialogue session once a week. The meetings usually lasted less than ten minutes and I only took a few, usually three, responses for each question. I tried to call on different children each week to answer questions. We sat in a circle on the floor while I read the questions and recorded their responses. The class is familiar with this type of open discussion as we have class meetings once a week. Most weeks the group dialogue was facilitated right after the class meeting. My assistant led the group dialogue once during the intervention in order to ensure the children didn't respond a certain way with me as the leader.

Tables 3, 4, 5 and 6 represent the responses given during the group dialogue sessions. The frequency of responses was tallied across all four sessions. Children felt they focused the best at the beginning of morning work time, working alone, and working with one partner.

Table 3.

Group Dialogue Question: When do you feel like you focused well this week?

Response	Frequency of Response
Beginning of morning work time	2
Working with one partner	5
Working alone	3

Children reported both focusing well, and not well, working with one partner. The end of morning work time, about 11:00 to 11:20am, was also a challenging time to maintain focus as reported by the children. This time is right before a transition. The children go to recess at 11:30am and have lunch at 12:15pm.

Table 4.
Group Dialogue Question: When did you feel like you did not focus well this week?

Response	Frequency of Response
Working with one partner	6
End of morning work time (11:00-11:20am)	4
Working with a good friend	3

The number of children that used mindfulness techniques such as breathing or movement to focus was recorded about the same number of times as those who did not. However, of the children that said yes, ten said they specifically used breathing techniques to gain concentration during work-time. A large number of children also said they plan to use mindfulness techniques before competitive events such as sports or dance.

Table 5.

Group Dialogue Question: Did you use mindfulness techniques this week to help you focus?
What did you use?

Response	Frequency of Response
No	5
Yes	7
Breathing	10

Table 6.

Group Dialogue Question: How will you use mindfulness in the future to improve concentration?

Response	Frequency of Response
Before competitive events	3
Before dance or sports	8

I asked for student feedback in the form of a questionnaire once a week during the twenty-one days of intervention. The children were given the questionnaire at the end of the day before silent reading time. They were instructed to put their names and the date at the top, solely so I would know who completed it or not that week. However, not all of the children put their names on the page every time. They placed their forms in a basket on my table when they were done.

The responses to four out of ten questions showed an increase in agree responses over the four weeks of the intervention. The responses show mindfulness practices had a positive impact on the students. However, six of the ten questions showed a fluctuation in agree responses over time. These graphs either displayed a decrease in agree responses, or the number of agree responses increased then decreased before the last questionnaire was administered.

During the four weeks of the intervention the children believed that mindfulness practices lead to an increase in focus. The baseline data shows the level of focus and concentration in the classroom was high before the intervention. However, many children believed the mindfulness practices contributed to their ability to focus in the classroom.



Figure 3. Questionnaire response: Mindfulness practices help me focus

The children also believed mindfulness practices helped them work on academic subjects. The afternoon work cycle, which is approximately one and half hours, was typically a time I observed a lack of focus from the children. One goal of the intervention was to increase focus and attention for this time of day. An increase in their perceived ability to work in the afternoon after meditation shows the intervention had a positive effect for this time of day.

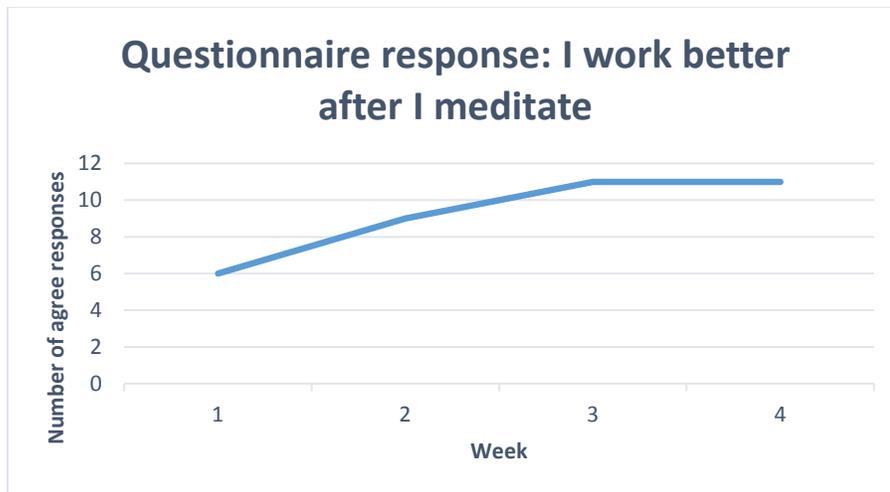


Figure 4. *Questionnaire response: I work better after I meditate*

Mindful movements and a short meditation, five to ten minutes, were part of the morning exercise routine. There was an increase in the number of agree responses that meditation lead to better concentration at the start of the school day. A further study could examine if meditation alone, not coupled with exercise, elicits an increase in concentration.

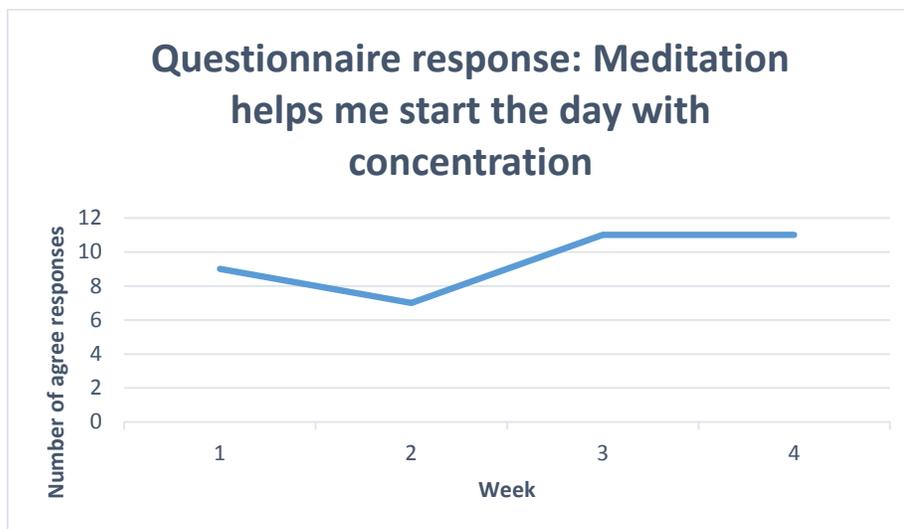


Figure 5. *Questionnaire response: Meditation helps me start the day with concentration*

Over half of the children in the class felt happy with their ability to pay attention during the intervention. Because the level agree responses did not increase during intervention, it is difficult to say if the intervention caused an increase in satisfaction or not. However, it is worth

noting the children possessed internal satisfaction with their ability to attend in the classroom throughout the intervention.



Figure 6. *Questionnaire Response: I feel satisfied/happy with my ability to pay attention.*

The data collected shows that although the percent of on-task behavior did not increase with the implementation of mindfulness practices, the exercises were valuable for the children. Children reported through group dialogue and questionnaires that mindfulness practices had a positive impact on their daily lives. Children frequently used breathing techniques to focus and they plan to use mindfulness techniques in the future, particularly in competitive events.

The questionnaire responses reflect that overall the children felt happy with their level of concentration. The baseline data revealed that a high percentage of the class was engaged in on-task behavior before the intervention began. In Montessori classrooms children have the freedom of movement and speech. Montessori classrooms are ideally buzzing with activity for the majority of the work periods. One of our best measures of success is how the children feel about their work and their level of focus. The children in the class not only felt their level of

concentration was successful, but that mindfulness practices, particularly breathing exercises, helped them with their own self-awareness and interactions with others.

The observational journal notes revealed by far the greatest incidence of off-task behavior was conversing with other children about topics unrelated to work. The children reported in group discussions that working with a partner was equally successful and unsuccessful in terms of concentration. Social behaviors such as singing, making jokes and walking around the room were also present in the observation journal notes and led to off-task behavior.

I did not find that meditation and mindfulness increased concentration in the classroom. A few factors may have affected this result. The baseline data showed that the majority of children were on-task for most of the work period, which indicated that this intervention may not have been necessary with this group of students. Also, I began the study the fourth week of school. The children were still excited about being at school and very eager to work, especially with friends. After four weeks of implementing a meditation practice in the afternoons and mindful movements in the morning, I did not see an increase in concentration during work time. The data revealed that children's level of concentration was slightly lower during the intervention than during the baseline phase which might be because the children were becoming more comfortable in social interactions.

The behavior most frequently observed as off-task was conversing with others. The behavior was prominent in both the baseline phase and during the intervention. Both the assistant and I observed the children chatting with others instead of doing classroom work. Chatting refers to conversations about topics not related to academics such as talk about movies, TV shows and games. The children were free to move and speak during work-time. However, when the behavior served as a distraction to the child and others, concentration was threatened. The noise

level needed to be reasonable and conversations related to academics in order to not serve as a distraction to others. Some children deliberately moved to work with others that they enjoyed chatting with, and some moved about the room interrupting working classmates.

I also observed children moving around the room interrupting others. Children interrupted friends and other's work. I asked some of these children to sit in their assigned seats, or ask me for permission to move as their behavior was a distraction to themselves or others. Children had assigned seats in the classroom. I sat children near me who commonly circumvented them room interrupting others so I could redirect the behavior as necessary.

Action Plan

While the data does not show that mindfulness and meditation increased concentration for elementary children, the children reported that mindful breathing helps them focus. They also stated they are likely to use mindfulness techniques in the future, especially for competitive events. My observational notes revealed that often the majority of the children were settled working. The off-task behavior usually came from the same individuals during the observation period and baseline phase.

Although my research did not show that meditation and mindfulness practices increase concentration, I plan to continue the practices in my classroom. Meditation is a practice, and therefore changes may take longer to witness than four weeks. McFarland (1993) stated, "Mediation is the continued practice of concentration" (p. 27). Because the practice is continual, improvements take place over time and the work is never done.

Starting meditation practices in the classroom takes time. It took over a week for bodies that weren't accustomed to meditation to settle. At first the children looked around the room, at their friends or found objects nearby distracting. After the first week I designed a map of the

room and the children chose their meditation spot with my approval so distractions were limited. With the appropriate modifications and time, I believe meditation will be a successful practice in the classroom.

Meditation may also have an impact on peer interaction. I observed very few arguments during work-time, and the majority of student seemed to be able to regulate their emotions in order to solve conflicts when they did arise. I plan to introduce meditation and mindfulness in a variety of ways in the future, especially in dealing with conflict management. Meditation changes the way the brain reacts to stressors so I believe continued meditation practice is beneficial for conflict management and empathy as well.

Mindfulness applies to any subject or activity, and having a more integrated approach with choices available may allow the children to self-regulate their on-task behavior to a greater degree. Meditation to music was the most successful with the children in my classroom as they reported during group discussion that meditation to music was the most relaxing. An individual space for listening to peaceful music may be an appropriate option for children who want to practice on their own.

There are other ways to collect data that may provide more insight into the challenges children, or particular children, face with concentration. Recording which children exhibited certain behaviors qualitatively would allow for analyzing if the entire classroom showed lack of concentration, or just certain individuals. If baseline shows that a few children have a significantly more difficult time concentrating, data could just be collected on those children over a longer period of time after meditation has been introduced. The group discussion could also involve their opinions about what types of meditation and mindfulness practices work well

for them or what they would like to try. This might be more effective after the children have been exposed to a variety of techniques.

Future action research studies might involve how choices of meditation practices affect concentration. The researcher could compare the average concentration level in the classroom when only specific times are allotted for meditation, or when individuals are allowed to meditate at times of their choosing. A research study could also be done on how to reduce off-task behavior in the classroom such as off-topic conversations or moving about unnecessarily. This could involve gestures, cards or phrases relayed to the children when they are off-task. Data could be taken on which method is more effective at redirecting off-task behavior.

Most importantly for mindfulness to make an impact on the daily lives of children, it needs to be a part of the classroom culture. Healy (1990) stated, "habits of the mind soon become structures of the brain-and they absorb their habits, either directly or indirectly-from the adult culture that surrounds them (p. 138). Healy also wrote that children need to experience control over their own brains in order to accomplish tasks without distraction (1990, p. 153). It is the duty of educators to demonstrate and introduce habits that lead to focused concentration not only in academic settings, but in practical life activities and social interactions as well. When firmly established these habits help children establish greater self-awareness leading to an increase in productivity and academic success.

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Appendix A
Attention and Mindfulness in Elementary Education
Assent Form

August 25, 2016

Dear Parents,

In addition to being your child's upper elementary teacher, I am a St. Catherine University student pursuing a Masters of Education. As a capstone to my program, I need to complete an Action Research project. I am going to study how mindfulness practices affect attention as attention is an important component in skill building and knowledge acquisition for elementary students.

In the coming weeks, I will be incorporating mindfulness activities as a regular part of my classroom activities. All students will participate as members of the class. In order to understand the outcomes, I plan to analyze the results of mindfulness practices to determine if mindfulness practices increase attention and concentration among students. Mindfulness refers to the ability to demonstrate awareness in the present moment. Mindfulness practices in the classroom will include silent meditation, guided meditation, mindful movement exercises and discussions about mindful living.

The purpose of this letter is to notify you of this research and to allow you the opportunity to exclude your child's results or data (baseline observational records, weekly questionnaire, weekly group discussions and teacher observational records) from my study.

If you decide you want your child's data to be in my study, you don't need to do anything at this point.

If you decide you do NOT want your child's data included in my study, please note that on this form below and return it by September 1st, 2016. Note that your child will still participate in the mindfulness activities, but his/her data will not be included in my analysis.

In order to help you make an informed decision, please note the following:

- I am working with a faculty member at St. Kate's and an advisor to complete this particular project.
- Mindfulness practices in schools have been shown to elicit improvements in attention and concentration for elementary students in educational settings. Mindfulness practices have also been shown to help students manage stress and develop more empathetic responses to others.
- I will be writing about the results that I get from this research. However, none of the writing that I do will include the name of this school, the names of any students, or any references that would make it possible to identify outcomes connected to a particular student. Other people will not know if your child is in my study.

- The final report of my study will be electronically available online at the St. Catherine University library. The goal of sharing my research study is to help other teachers who are also trying to improve their teaching.
- There is no penalty for not having your child's data involved in the study, I will simply delete his or her responses from my data set.

If you have any questions, please feel free to contact me by email at rosebringus@gmail.com. You may ask questions now, or if you have any questions later, you can ask me, or my advisor Karen Anway at karenanway@gmail.com who will be happy to answer them. If you have questions or concerns regarding the study, and would like to talk to someone other than the researcher(s), you may also contact Dr. John Schmitt, Chair of the St. Catherine University Institutional Review Board, at [\(651\) 690-7739](tel:6516907739).

You may keep a copy of this form for your records.

Rose Bringus

Date

Parent Printed Name

Parent Signature

Date

OPT OUT: Parents, in order to exclude your child's data from the study, please sign and return by 8/15/16.

I do NOT want my child's data to be included in this study.

If you are not sure, please contact me to discuss.

Signature of Parent

Date

Appendix B
Observation Record: Percentage of Children On-Task

Observation Record: Percentage of Children On-Task

Observer:

Date/Time:

of children present:

Start time:

End time:

	<u>0-5 m</u>	<u>5-10m</u>	<u>10-15m</u>	<u>12-20m</u>	<u>20-25m</u>	<u>25-30m</u>
Number of children not off-task:						

Percentage on-task for 30 minute period:

*Find the percentage for each 5 minute period of on-task children and then averaging the percent for all six intervals.

*Ex.: If 4 out of 24 were not on task for an interval the percent of children on task for that interval would be approximately 83%.

Appendix C
Observation Record: Journal

Observer:

Date:

Start time:

End time:

Notes

Questions to consider: 1) How many children are on-task? 2) If children are not on task, what are they doing? 3) Are the children conducting work of their own choosing or assigned work?

Appendix D

Name:

Date:

Please circle one of the following letters A, D or N for the following questions.

A for Agree

D for disagree

N for neutral/not sure

*There is a front and a back to this sheet.

- | | | | |
|---|---|---|---|
| 1. Mindfulness practices help me focus. | A | D | N |
| 2. When I have trouble concentrating I use mindful breathing to help. | A | D | N |
| 3. I feel focused when I meditate. | A | D | N |
| 4. I work better after I meditate. | A | D | N |
| 5. Mindful Movements help me start the day with concentration. | A | D | N |
| 6. I pay attention better in lessons when I use mindfulness. | A | D | N |
| 7. I pay attention to others better when I use mindfulness. | A | D | N |
| 8. I complete work more quickly after I meditate. | A | D | N |
| 9. Mindfulness helps me pay attention to my surroundings. | A | D | N |
| 10. I feel satisfied/happy with my ability to pay attention. | A | D | N |

Appendix E
Group Discussion

Discussion facilitator:

Date:

Time:

Number of students present:

Questions to facilitate discussion:

1. When do you feel like you focused well this week?
2. When did you feel like you did not focus well this week?

3. Did you use mindfulness techniques to help you focus this week? What mindfulness techniques did you use? Breathing? Walking? Movement?
4. How much and how will you use mindfulness techniques in the future to improve your concentration?

Answers:

Appendix F
Mindfulness and Meditation Practices by Day

9/12/16

Morning Exercise: Mindful Movements, 17 children present.

Meditation: Dr. Kluge, "Water Lilies" (p. 11), 24 children present.

9/13/16

Morning Exercise: Mindful Movements, 16 children present.

Meditation: Dr. Kluge, "Power Shield" (p. 18), 24 children present.

9/14/16

Morning Exercise: Cancelled due to rain.

Meditation: "Quick Confidence" by Andrew Johnson on Insight Timer App, 13 children present (some in music class).

9/15/16

Morning Exercise: Mindful Movements, 15 children present.

Meditation: Dr. Kluge, "Treasure Island" (p. 26), 25 children present.

9/16/16

Morning Exercise: Mindful Movements, 23 children present.

Meditation: Guitar music on Insight Timer App, 25 children present.

*Took a vote: Children prefer music to guided meditation.

9/19/16

Morning Exercise: Mindful Movements, 16 children present.

Meditation: "Wind and Butterfly II" (music) from Insight Timer App, 25 children present.

9/20/16

Morning Exercise: Mindful Movements, 20 children present.

Meditation: "Scarlet to Violet" (music) from Insight Timer App, 25 children present.

9/21/16

Morning Exercise: Mindful Movements, 14 children present.

Meditation: "The Journey" (music) from Insight Timer App, 14 children present (some in music class).

9/22/16

Morning Exercise: Mindful Movements, 15 children present.

Meditation: "Practice" (music) by Peaceful Zen on Spotify.

9/23/16

Morning Exercise: Mindful Movements, 20 children present.

Meditation: "Meditation from Thais" (music) by Jules Massenet on Spotify

9/26/16

Morning Exercise: Mindful Movements, 17 children present.

Meditation: "Meditation 2: Yoga Sounds" (music) on Spotify

9/27/16

Morning Exercise: Mindful Movements, 16 children present.

Meditation: "Practice: Peaceful Zen" on Spotify, 25 children present.

9/28/16

Morning Exercise: Mindful Movements, 22 children present.

Meditation: "Mediation Winds" (music) on Spotify, 14 children present (some in music class)

9/29/16

Morning Exercise: Mindful Movements, 21 children present.

Meditation: Mindful movements and seated meditation outside.

9/30/16

Morning Exercise: Mindful Movements, 23 children present.

Meditation: "Yoga Sounds" (music), Clear Mind Game (Greenland, p. 63).

10/3/16

Morning Exercise: Mindful Movements, 17 children present.

Meditation: "Calming Influence" (music) on Spotify, 25 children present.

10/4/16

Morning Exercise: Mindful Movements, 19 children present.

Meditation: "Deeply Calm" (music) on Spotify, 26 children present.

10/5/16

Morning Exercise: Mindful Movements, 21 children present.

Meditation: "Dream Sound" (music) on Spotify, 14 children present (some in music class).

10/6-10/7/16: Overnight trip for entire class.

10/10/16

Morning Exercise: Mindful Movements, 21 children present.

Meditation: "Magical Vision" (music) on Spotify.

10/11/16

Morning Exercise: Mindful Movements, 19 children present.

Meditation: "Calming Influence" (music) on Spotify, 24 children present.