Mindfulness Education in the Development

of Self-regulation in Elementary Aged Children

by

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Abstract

Elementary teachers are currently required to assess and report on students’ learning skills in Ontario Ministry Progress and Term reports. Among those learning skills is self-regulation. This study supports mindfulness as a potential intervention to help students who struggle with the development of self-regulation.

This study addresses the constructs of mindfulness and what it looks like, as it is implemented in the elementary classroom. Research was conducted as a “snapshot,” examining, observing and collecting data over a 5-week period in a classroom where a mindfulness program was actively implemented from the beginning of the year.

This study can help teachers design and implement a mindfulness practice and corresponding curriculum in their classrooms. Mindfulness education could help children deal with the mounting stresses in their lives, ease difficulties with various aspects of classroom management and help support the development of focus and concentration in young students.
For Lucy
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Chapter 1
Introduction

As an elementary school educator and a yoga teacher for the last twenty years, I have incorporated yoga, breathing exercises and mindfulness strategies into my classroom environment and curriculum. I have observed over time that these mindfulness techniques have beneficial effects on student learning. While there is research in both mindfulness based techniques in the classroom, and self-regulation in learning, there is a lack of research examining the practice of yoga and mindfulness techniques as a means for self-regulation in an elementary school classroom and what that looks like. Over the years I have wondered—what influence could teaching mindfulness-based strategies have on the development of self-regulation in six to eight-year old children?

What is Self-Regulation?

Self-regulation, as defined by Adele Diamond and Clancy Blair (2008) is the “primarily volitional, cognitive and behavioural processes through which an individual maintains levels of emotional, motivational, and cognitive arousal that are conducive to positive adjustment and adaption, as reflected in positive social relationships, productivity, achievement, and a positive sense of self” (p. 4).

The results of an American survey conducted by Rimm-Kaufmann, Pianta, & Cox (2001), indicated that almost half of all of the kindergarten teachers involved felt that fifty percent of the children in their class had significant problems that considerably limited their ability to benefit from school and learning experiences (Pianta & LeParo, 2003). Although a lack of academic skills were a concern, reported by thirty six percent of teachers, the majority were problems related to self-regulation including following directions and focusing attention, more specifically “difficulty working independently, working as part of a group… poor social skills, immaturity and communication problems” (Pianta & LeParo, 2003, p. 25). Problems cited were more apparent in conditions of family poverty. Other studies found similar results (Love et al., 1992) with children lacking social and behavioural skills as well as academic ability, all of this affecting the child’s teachability (Pianta & LeParo, 2003). These findings are commensurate with my own experience
this past year, having had to recommend 8 out of the 20 first and second grade students I was teaching to the Student Support Team. At least two other children were considered high-need, requiring additional resources through the school. The majority of the students were referred for factors such as poor communication skills, poor control of emotions and anxiety levels, attentional difficulties, for not being sensitive to others’ feelings or to the class community, for lacking curiosity or enthusiasm for learning, or for having issues with self-control and impulsivity. One child in my class had been suspended from school twice by the end of grade one for being aggressive and was deemed “too dangerous to be in school” after throwing scissors in his Educational Assistant’s face. Further studies and surveys confirm that an alarmingly number of preschool aged children are being expelled for unmanageable behaviour, an alarming one out of every 40 children enrolled (Gillam & Shahar, 2006).

Stuart Shanker, Research Professor of Philosophy, Psychology and Education at York University (2013), in his book Calm, Alert and Learning, describes the dynamic and synergistic components of self-regulation as interactively and spontaneously influencing each other. He refers to this as the “5 Domain Model (p. xiii) separating self-regulation into biological, cognitive, emotional, social, and pro-social domains. Shanker suggests that control in each one of the domains influences a child’s ability to successfully face the challenges he meets throughout his school day. The degree to which children are able to regulate in these domains is what enables and enhances their ability to learn and effectively face challenges, which arise during their school experience and throughout their lives.

Self-Regulation in the Classroom: What the Spectrum Looks Like

What do these domains of self-regulation look like in the context of students’ behavior at the elementary school level? In the biological domain, it can be present as signs of physical hyper or hypo-alert states of arousal in response to an overloaded nervous system (Shanker, 2013). Some students can have difficulty adjusting their energy levels appropriately to the activity in which they are engaged. Most children require a mild level of arousal to remain engaged in effortful, focused activities like those set in class. It is difficult to think clearly and exercise cognitive control when too aroused. (Arnsten, & Li, 2005; Lupien, Mahheu, Tu, Fiocco, & Schramak, 2007). It is also difficult to pay attention, complete tasks and sustain focus on an activity when
there is insufficient arousal or conversely when students are hypo-aroused. In both cases students may demonstrate behavior such as shutting down, disengaging, or withdrawing from situations or activities. All of the above could result in students performing poorly and consequently developing a poor sense of self-worth. Some students have difficulty sitting still and not fidgeting; they may also be very sensitive to environmental factors such as noise levels or fluorescent lighting. Shanker (2013) explains that difficulties can present themselves such as the student needing to doodle, jiggle, move around in attempt to biologically self-regulate so that they can allow their nervous system to function more optimally.

Foremost in the minds of many educators is the challenge of engaging and sustaining students’ attention. This corresponds to self-regulation in the cognitive domain. “The selective nature of attention and its importance for guiding goal-directed behavior has been one of the most extensively studied areas of western psychology and neuroscience” (Lutz, Slagter & Davidson, 2008, p. 7). The ability to sustain focus on one task while ignoring distractions or other stimuli or to shift one’s attention when needed (Shanker, 2013, p. xii) requires the development of self-regulation. Optimal cognitive self-regulation entails strong executive functioning, good working memory, and the control of impulsive behavior.

Teachers try to accommodate a variety of emotional profiles and emotional difficulties within their classroom ecology. Self-regulation in the emotional domain is necessary for students to be ready to learn in a classroom environment. Shanker suggests that there may be a variety of reasons why there are children who seem “excessively angry or sad or - every bit as worrying - who barely seem to experience positive emotions such as curiosity, interest or even happiness” (Shanker, 2013, p. 22). He cites many examples for this growing trend: “urbanization . . . (and the) physical and psychological pressures that stress children, and for that matter, their families . . . ; the lack of nature-based experiences; the decline of exercise, and organized and impromptu sports; changing family patterns and leisure pursuits; exposure to troubling emotional themes in the news media” (Shanker, 2013, p. 23) Blair & Diamond comment that “emotionality usually acts as the nemesis of cognitive control” (2008, p. 11) suggesting control of emotional reactivity would be one goal in helping children develop self-regulation along with active engagement and motivation for learning, a sense of agency and self-efficacy in the school environment (Blair, 2002).
Students today often struggle to express appropriate responses and/or behaviour in social situations, and find the development of strong, positive friendships difficult in some circumstances. Social and pro-social regulation is essential for the development of positive peer and teacher relationships and to allow students to build strong collaborative working skills. Some students find it challenging to control impulsive behavior, have sensory issues or demonstrate aggressive behavior due to possible undiagnosed or diagnosed disorders. Others seem to misread or not understand subtle non-verbal cues, or don’t know how to be as caring and compassionate in their relationships and friendships. These conditions make teaching and learning in today’s classrooms challenging. It is difficult for students to cope with the stress of having these dominating and distracting influences within their classes, and for teachers to adequately guide students in positive behaviour. Shanker identifies this as a “classroom contagion effect, (the sort of charged emotional current that swiftly spreads through a group of students)” (Shanker, 2013, p. 24). To be able to socially and pro-socially self-regulate are essential in developing and maintaining healthy social relationships in school and in life.

Infant mental health specialists, Connie Lillas and Janiece Turnbull, (2009) argue that alert processing “sustains smooth functioning within the body, awareness of internal stimuli, attention to relevant information, a capacity for the gradual changes of energy and emotion, and the capacity for the interpersonal engagement with expressions of joy” and that “this state is the hallmark of awake regulation because it provides the optimal baseline for learning” (p. 142).

If this baseline is not naturally occurring in each one of the five domains (as described by Shanker earlier in this thesis), what can educators do to support the development of self-regulation in our students? What sorts of interventions or strategies are available to educators to use efficiently and effectively in the classroom so all students can learn optimally?

Blair & Diamond (2008) tell us that there are a number of factors determinate in how well an individual can self-regulate. There is a degree of genetic predisposition but also social and environmental issues also have an impact. There is “regulation at the molecular level (and also) those associated with norms, rules, and standards governing social interaction and social interaction at the cultural-institutional level” (p. 4). What is clear from Blair and Diamond’s research, as well as that of other scholars, is that programs must be designed as intervention, to promote school success and prevent school failure by developing self-regulation in students.
To further aggravate disparity amongst those who are naturally more self-regulating than others is the fact that school is less fun for those who find it more difficult to be compliant, to focus, and to get their work done. Negative self-esteem grows exponentially within children who have poor emotional, attentional, and behavioural regulation. Teachers respond less positively or may get annoyed or frustrated with dysregulated students and give them less praise. Feelings of self-worth decline as teachers and peers respond less positively to poorly regulated students. The powerful ‘self-fulfilling prophecy’ of how a student perceives him or herself or how he or she appears in the eyes of others while meeting classroom expectations are well documented (Leary & Beaumeister, 2000; Skinner, Zimmer-Gembeck&Connell, 1998; Stipek, 2002; Trouilloud, Sarazin, Bressoux & Bois, 2006). Intervention is essential in the early stages of education to ensure a more encouraging trajectory and to prevent negative feedback from making an impact on vulnerable students.

A Positive Intervention

In order to help children increase their focus and attention in the elementary years, mindfulness practices are beginning to be introduced. Mindfulness practices and strategies can be used in combination with other forms or modalities of intervention to help students feel more in control of their emotions, to be able to calm themselves, and to be more emotionally and cognitively ready to learn. It is possible to help children identify stressors and recover from the effects of such experiences more quickly and easily, and build resiliency when faced with these challenges. These practices could also help students build better relationships with peers and teachers. Through mindfulness-based strategies that are learned and practiced, young students can begin to make choices around their reactions and respond with more awareness of their experiences. A combination of mindfulness-based strategies, including a daily core practice of breathing (meditation), mindful movement or yoga, mindfulness education, and brain-focused learning, will be used in this study to explore their influence on the development of self-regulation skills.

What is Mindfulness?

What is mindfulness and what does it mean for children aged seven and eight? It is paying attention but doing so in a particular way. Jon Kabat-Zinn (2003) calls it “the awareness that
emerges through paying attention on purpose, in the present moment and non-judgmentally to the unfolding of experience” (p. 145). What does this mean to children who are frequently asked to “pay attention” throughout their school day? My daughter, a ten year old, put it most succinctly: “It means I get to sit with nothing on my mind.” She helped me see that quieting the mind is of great importance for today’s young student. In those few words, she described an experience of release, an abandonment of external and extrinsic expectations or direction, an opportunity for deep relaxation, and for the dissipation of stress. She expressed a shift in focus, away from anxiety about the future or fretting over past events to experiencing, to just being in the present moment. Through regular experience with this practice a child may open up to his or her own potential to be there for him or herself, to learn to trust himself and to recognize that he is capable of meeting his own needs -- intellectually, physically, emotionally -- whatever they may be. He/she may even experience a sense of interconnectedness and deepen his/her ability to compassionately relate to him/herself and to his/her peers. He/she can develop a relationship with him or herself, through this quiet space he/she experiences everyday through sitting and focusing on the breath. These elements are the intrinsically developed foundations for self-regulation.

A further conceptualization posited by Brown and Ryan (2003) is “an enhanced attention to awareness, current experience or present reality,….. being open or receptive” (p. 822). It is “the moment-to-moment (awareness) of sensory experience” (p. 824). Consider for example, a walk to school, the sounds of the birds, cars, voices, the good or bad smells of the environment; it is a non-judgmental experience. In contrast, Brown and Ryan (2003) suggest “mindfulness is… compromised when individuals behave compulsively or automatically” (p. 823), quoting William James (1911/1924), ‘Compared to what we ought to be, we are only half awake’.

What are Mindfulness Practices in the Elementary Classroom?

Teaching a mindfulness practice to children of this age, including breathing/meditation and yoga may seem, to many educators, to be beyond their professional capacity or experiences, so it is important to define and outline the construct of these practices. Children are naturally very receptive to yoga. The emphasis in class is on safety and the children’s comfort level. Postures
are introduced with a playful attitude and often in the context of a story (especially when first learning the postures). It is best not to introduce partner work initially as things can get silly and this is more about creating a different kind of experience for the children and one wherein they feel they are protected, cultivating what I call ‘their own space.’ Classes are kept short: 15 minutes working up to 30-40 minutes; and students are encouraged to work with their bodies and not their mouths. The shift in energy is often so remarkable when I teach yoga, it can become the most peaceful time of the day.

Breathing is done in short sessions, two or three times a day. This introduction to breathing practice should be kept simple and brief. Challenging instruction, abstract concepts and long sessions where students would be asked to sit still for extended periods of time are not appropriate for this age level. A simple instruction to be present in the moment and to focus on the breath is all that is required. Students are asked to listen to the sound of a chime, which marks the beginning of their breathing session and the same chime to end it. This sound also helps students to focus their minds. They are asked to acknowledge that thoughts move in and out of their minds and that is natural and okay to gently redirect the focus back to the breath. Children are reminded that this becomes easier when practiced. While this practice may have been drawn from Buddhist origins, it is important to note that it is applied in a secular context and that it is not tied to any religious or philosophical tradition. Within the classroom environment, it is simply related to mindfulness and physical release.

Building an optimistic classroom with a peaceful environment is important. The space in which young children work and play affects their state of mind and their ability to focus. Crowded classrooms filled with bright, primary colours can be overly stimulating. Cleaner, less cluttered, clearer classrooms with softer colours, natural lighting and materials are more conducive to focused learning (Reiber and McLaughlin, 2004). Positive and reaffirming teacher talk that is nurturing, supportive and that clearly articulates a growth mindset (Carol Dweck, 2007) has been shown to be helpful for students (Palmer & Wehmeyer, 2003). Teacher modeling of self-regulated behaviour is essential to help regulate students, and a teacher’s own mindful awareness should set the tone at all times. Positive affirmations upon which children can read and reflect, such as the thoughts of French psychologist, Emile Coue (1922) “Every day in every way, I am becoming better and better,” (p. 17) are extremely important in creating a positive environment
for growth and learning. As Shanker (2013) relates, “positive emotions are essential, not only for activating and energizing actions, but also for sparking and sustaining the attention necessary for learning to occur” (p. 27).

Chapter 2
Conceptual Framework

Rationale
“The journey”

As a young teacher, twenty years ago, working in an Independent International School in London, United Kingdom, I put my new yoga qualifications to use. I taught students throughout the elementary and secondary panels, as well as teachers and administrators. I had the attitude of a zealot, believing that yoga was the answer to making us more focused, relaxed, in-tune, present, compassionate and healthy, cultivating better teachers, better students, and better people. We could be more productive and have fun during our day.

Very early on in my career, I had an interesting and surprising experience involving yoga in the classroom. I taught a little boy who had been assessed and diagnosed by our Educational Psychologist as having MID (Mild Intellectual Delay), with a low IQ, somewhere in the 70s. His trajectory for academic success was very low and his potential, the psychologist explained, was limited. He was happy, funny and sweet but seemed incapable of learning in the classroom. This same young boy in my yoga class performed a yoga practice unlike any child I have ever seen to this day. He was able to understand small alignment instruction that demonstrated excellent mind/body awareness. This facilitated his practice to develop to a high level of expertise and he was able to perform advanced postures and balances requiring strength and proprioception. He moved into an entirely different zone when he was doing his practice; no longer silly, distracting and helpless, but focused, quiet and entirely present. He could even bring a sense of expression to a static posture. He performed one concert evening with some of his peers. This was to be the moment Student R shone, when he was the expert and the best amongst his cohorts. Perhaps it would be the one and only chance he would have in his life. His family
was grateful. He was indeed successful. I was advised by more experienced educators and researchers to document this case, to further investigate and keep a record of what I observed.

This experience made me question our model of education. What was this young boy, who obviously had incredible mind/body intelligence capable of learning in a different educational context? Was he a kinesthetic learner? How could his potential be maximized? What would he be like if every morning he woke up and worked to his maximum physical potential? Could he learn math skills through alternative strategies and methods like using rhythm, movement, pace and timing? Having read the research of Clinical Professor of Psychiatry at Harvard Medical School, John Ratey (2008) in his book *Spark: The Revolutionary New Science of Exercise and the Brain*, and educator and brain expert, Eric Jenson’s (2005) *Teaching With the Brain in Mind*, I now question how physical activity and other environmental factors like diet and sleep, could have sparked his brain activity and development, by a possible 40 IQ points, Clinical Professor of Psychiatry at George Washington University Medical Centre, Frederick Goodwin suggests (cited by Jenson, 2005, p. 31). Would the world begin to make sense for him through a context of movement, activity and being in his body? Could he learn to read and write through specified interventions? This and other experiences remained in my mind over the years, cultivating greater conviction that perhaps yoga and breathing could have an important place in our school system.

I began to observe the power of yoga and meditation on my own distractible and tangential mind and how it is able to calm and focus me. I have become aware that when my concentration is engaged or I am focused on work for an extended period of time, I have a natural inclination to occasionally get up and stretch or to do a yoga posture to release energy. I have the same desire to move or dissipate energy when I am faced with strong emotions. I have come to recognize that certain yoga postures have differing effects on my state of mind or my ability to focus and can perform differing functions on my physical or mental state. I am more drawn to certain postures over others and their precise effects on my mind and body, depending on my specific physical, emotional or even cognitive needs. I possess a tool bag of strategies that involve yoga and breathing to respond to when I need physical and mental recharging (up-regulation) or when I need calming or to reduce stress (down-regulation). I have gained this awareness over many years of practice and training. I want to teach my own three daughters these strategies to cope
with academic and emotional challenges and to bring these strategies into my classroom as possible interventions for an increasingly challenging student body.

I took ten years away from the classroom, when my children were being born and growing through their toddler years, to further deepen my yoga studies; during that time, I immersed myself in various yoga and meditation practices. I brought my understanding of the practice to a more advanced level and constantly made connections supporting convictions of how this practice could be relevant for learners in a school system.

My skills adapted to my immediate surroundings. I began to teach baby yoga and baby massage to newborns and saw how very young babies responded to touch and gentle manipulation of the body. Research and teacher training in this field taught me of the possibilities to calm and generate bonding experiences for both mother and baby in a supportive context while supporting and stimulating physical and brain development (Walker, 2011). I carefully observed these effects on my own daughters. I played with them throughout the day, gently encouraging their bodies to open, stretching their bodies with mine: linking our practices. I then began teaching older children. I went into my daughters’ classrooms, welcomed by their teachers to do weekly yoga classes. I had an after school yoga club at their elementary school. I taught yoga in my own home to interested children and spoke to their parents who told me stories of how yoga was helping them deal with school stress or, in one situation, to deal with a very sad parental separation. These yoga classes helped my young students with their other sports and dance classes and impacted their behavior in positive ways.

Stuart Shanker’s (2010, 2012, 2013,) writing and research caught my attention when I began my graduate studies at OISE in 2010. His research through The Milton and Ethel Harris Research Initiative (MEHRI) describes the importance of having or developing self-regulation in students, which helps them become better learners. This idea resonated with me and gave me hope for students and their capabilities beyond IQ measurement. Shanker (2013) points to ongoing and extensive research that indicates self-regulation as a greater determiner of academic and life success than IQ (p. xi). In Shanker’s (2010) York University publication, “The Development of Self-Regulation”, he relates the concept of separating the components of self-regulation into five domains allows us to understand their unique influences on the learner. It also demonstrates how,
on every level of being, interwoven and interdependent on one another, the individual reacts and responds to stimuli and the world around him and must learn how to manage himself effectively within these constructs. An individual who is well-regulated can adjust his state of arousal to a required activity, allowing him to be present and focused, socially appropriate and accepted, to demonstrate appropriate behavior for a variety of learning and social contexts, to be able to control impulses, and to have an ability to consider consequences and be an optimal learner. When an individual cannot naturally adjust or control his state of arousal, it is difficult for him to attend to a task or activity, to interact with peers in an appropriate way, to be a successful group learner or collaborator, to make and keep friendships, and to be able to be still and calm when it is appropriate. That individual struggles to self-regulate. These concepts that Shanker articulates have shaped my philosophy for teaching and learning and as a result influenced the work of this thesis.

After years of study and research at MEHRI, Shanker (2010) found that a student’s ability to self-regulate could be identified through testing, observation, and assessment. Researchers observed that those identified as having strong self-regulation were on a trajectory for success, both throughout their school days and beyond, scoring higher on tests, having more friends, getting good jobs and enjoying healthy family relationships. Those who had poor self-regulation stayed on a lower trajectory of success throughout their entire lives. The next challenge for researchers and educators was to intervene, to support the learning of self-regulation strategies and skills, and to change the trajectory of students at risk.

Shanker (2010) believes that stress has an enormous influence on self-regulation. He feels students today experience unparalleled amounts of stress. How well a student can identify a stressor, respond to it by doing something to alleviate the stress and recover from it, is also a measure of how well that student can self-regulate. After reading Shanker’s writing, I realized that yoga and breathing could have an enormous potential for helping children become better self-regulated. My observations and experiences as a teacher, currently working in the Toronto District School Board and with yoga directly integrated into the curriculum as part of Daily Physical Activity (DPA), suggest that yoga seems to help students calm down and feel better about themselves, giving them a time to wind down or re-charge their energy levels. The inclusion in my class of a mindfulness corner where students can remove themselves from the
group and be in a place where there were pillows, yoga blocks, a mat set out at all times, and some books about meditation and ways to relax, offered a small oasis when students needed a break from their structured work. Overwhelmed or “hyper stimulated” students were able to visit this place and release building tension, stress, or remove themselves from an overly stimulating environment. In *Calm Alert and Learning*, Shanker (2013) also recognizes yoga, breathing practice and a quiet center in the classroom as beneficial in helping children cope with the effects and symptoms of stress.

Each time I introduce yoga and breathing practices to a new set of students, I hear positive responses like “I love the way my body feels when I do yoga,” “my back feels great when I do this,” or simply, “this feels so good.” These students are being given the same opportunity for doing something positive to respond to feelings of stress, an overloaded nervous system or feeling overwhelmed as I did when the practices of yoga and mindfulness were introduced to me many years before. Yoga, alongside other mindfulness practices, Shanker suggests, could help students learn strategies and coping mechanisms to help them self-regulate more effectively (Shanker, 2012).

For many years before I began my research, I asked my students, when I noticed their behavior or productivity waning: “What do you think you need to do to help yourself calm down? Wake yourself up? To help yourself focus on what you’re doing? …To stick to that job? Do you need to go for a walk? Should we sing a song or play a game? Do you need to go to a quiet place right now? Do you want to do some wall push-ups? Do you need to do some finger-knitting, put your head down, have a stretch?” I began to shorten it as a very busy teacher….. “What do you need to do?” or “do what you need to do.” Students would invariably do something to help themselves settle down. They would get a drink, go for a walk to the washroom, busy themselves with some wall push-ups, without disturbing the class.

I could see how children desire the ability to self-regulate but lack the skills to know exactly what to do, or feel that they are not allowed to do what they need to in a conventional classroom environment. I planned, in my research, to spend time teaching children to identify specific feelings within themselves, acknowledge that they were normal and acceptable, but also to carry out some interventions by themselves so that they might feel better and be able to return to their
work. The time I spent teaching students these skills would be well repaid by freeing up my time as a teacher to be with them in a productive way, rather than managing behavior, or as my teaching colleague, Alison Cheung, describes it “taking care of their needs” and “being their external nervous system” (personal communication, 2013). In my experience, teaching students which yoga postures can help achieve different states of arousal, and which are most appropriate for the activity in which they are involved or about to perform helps them with their learning. For the purposes of this thesis, I wanted to observe if it were possible to teach the children to use yoga postures and breathing techniques to help them develop self-regulation skills. I have observed that when young children are introduced to and begin to comprehend basic brain biology, they can begin to make connections between what they are experiencing and their emotional responses. Could students learn to identify what helps them up-regulate, down-regulate, and learn also to remove themselves from situations that present external or internal conflict so that they can return to a task with a more pro-social strategy? Could students recognize what causes them to be impulsive, to call out and be attention-seeking? Could they observe and recognize their own sensory issues? Could students use yoga as a way to help them develop and practice self-regulation? These are all questions I wanted to answer through my own research.

After 13 years in the classroom, I have seen many examples of dysregulation, but I understand, with humility, that I have seen only a fraction of the challenges that children bring with them to school. I have had a wide variety of students in my class who struggle with school readiness, some with diagnosed disorders such as moderate to severe Attention Deficit/Hyperactivity Disorder (ADHD), whose sympathetic and parasympathetic nervous systems are so challenged they can barely be in their own skin, let alone be asked to learn to read and write, and some with autistic spectrum disorder, or with challenges around communication and over-sensitivities. These disorders were sometimes compounded by oppositional disorders. I have had students with social and emotional challenges as a result of getting used to family restructuring or disputing parents; mental illness from which they themselves suffer or to which they have been exposed. I have seen children traumatized, with physical symptoms of stress or PTSD (post traumatic stress disorder) from witnessing horrors and violence due to war and political instability in their country of origin. I have seen children who have been harmed by parents, criticized or neglected. I have also taught children whose ability to focus attention may have
been compromised by the damaging effects of over-exposure or addiction to screens (Biederman & Vessel, 2006).

Every day, elementary aged children are expected to come to school and learn, or at least be in a classroom with up to twenty other children, relying simply on the teacher to move effectively through the curriculum. If the child is struggling with personal hardships at home or stressors in their lives, they carry these with them throughout the day. Yoga and breathing may not be sufficient in offering a panacea for these challenges but they may contribute to a variety of modalities of therapy that could help support our most vulnerable students. Yoga may also help students who do not suffer from such problems, “the high achievers” who struggle with a host of their own challenges due to achievement-linked stress. What could yoga and breathing exercises offer students in terms of opening them up to their creativity and harnessing their learning potential as well as helping them to be happy, more balanced people who are able to face life’s challenges with greater internal strength? Initially my research question was to focus on how yoga could affect self-regulation in elementary-aged students. I wanted to specifically examine the impact of yoga on developing self-regulation. What is the impact of regular yoga sessions in a conventional class in affecting children’s ability to focus, to attend and to be more “ready to learn”?

After meeting Lisa Davies, an elementary guidance counselor from the Yukon Territories, I broadened and evolved my topic of study and the parameters for my research and data collection. Lisa Davies introduced me to the MindUp Curriculum and The Hawn Foundation. She told me of the work that was being done in the British Columbia and Yukon schools, of their progressive approach to including mindfulness strategies in the classroom and its positive effect on student behavior, classroom management and academic achievement. She shared stories of her own clients and students in the Yukon, and of extremely dysregulated youth who responded positively to mindfulness work. She gave me an enormous reading list that has inspired me to research and write on this subject; she introduced me to the writings of psychology and educational scholars like Dr. David Walsh and Gordon Neufeld and to Mindful Schools. Org. My research topic and thesis, newly revised after our introduction, now extends to observing the effects of Mindfulness Education in developing self-regulation in early elementary students.
For the purposes of this thesis, I explore what the influences of mindfulness strategies, including a core practice of daily breathing, mindfulness movement or yoga, brain-function learning, mindfulness awareness and mindfulness sensory awareness have on the development of self-regulation in five, seven and eight year old children.

The Need for Mindfulness Education in Today’s Classrooms

This study affects all areas of the curriculum. I have observed that when children are mindful and focused, time is saved during the instructional day. I have to spend less time re-directing distracted behavior and asking for the class’s focus and attention when I have begun the day or the session with a mindfulness practice followed by clearly communicated expectations for transition to a set activity. These transitions are often more successful, I have noticed, when students are happy, calm and relaxed, engaged and feel part of their own learning. In my experience and through observation, mindfulness strategies are beneficial for developing classroom management and control for an efficiently run classroom.

Self-regulation is a learning skill that teachers are currently asked to evaluate and assess in our reporting system. As teachers, we are asked to recognize the importance of teaching self-regulation and other learning skills as a priority over content. We consider, when planning for learning outcomes and assessment, what skills will help a student succeed throughout his/her academic career and beyond. To be a strong student, successful in a 21st century classroom and beyond, one has to become a motivated, engaged, independent thinker, with collaborative working skills, one who can think innovatively and be able to regulate states of emotion, and who can form friendships and partnerships in order to communicate effectively.

The teaching of mindful and sensory awareness could apply to all strands of the Language Curriculum: reading, writing, listening and oral communication. I question whether it could help students become more self-aware, sensitive to others and to the world around them and help them to articulate and respond to instruction and material experienced in the classroom more effectively. I have often led my classroom with creative visualizations and meditations to help students connect with their creativity. If students can experience a mindfulness practice during their day, a time to focus on their breath and create a space in time where they are free from
stress, perhaps this could help them open up to intuitive ways of learning and give them confidence to persevere in the face of challenges. As one of my current students said last month, “breathing doesn’t take away your stress and worry” but it could, I suggested, allow us a moment in time where stress and worry is not at the forefront of our mind and allow us to be peaceful and present in this moment. This kind of shift could help clear mental space and make way for creativity and productivity. In my classes, students develop the ability to articulate feelings and observations and to respond in writing in their mindfulness journals, which is an important part of the Language Curriculum. Mindful listening is an essential component of the school curriculum. We need students to become sensitive and responsive active listeners. The inclusion of mindfulness awareness and mindful listening might help to strengthen language skills in our students.

Chapter 3
Contextual Framework

The Origins of Mindfulness Education

Jon Kabat-Zinn is widely regarded as having merged the worlds of mindfulness meditation and yoga with science. Influenced by the teachings of meditation practices brought to the west by Thich Nhat Hanh, a Vietnamese Buddhist monk, Kabat-Zinn developed the Mindfulness-Based Stress Reduction Clinic and The Centre for Mindfulness in Medicine, Health Care and Society at The University of Massachusetts Medical School in 1979. Kabat-Zinn was able to help treat pain, anxiety, stress and chronic illness using meditation, yoga and mindfulness techniques. He was able to integrate the teachings of Zen Buddhism and yoga with emerging knowledge and understanding in the fields of neuroscience and psychology and apply them in the treatment of chronic illnesses. (Kabat-Zinn 1990). In Mindfulness-based Cognitive Therapy (MBCT) (Segal et al. 2002), patients suffering from depression and anxiety are taught mindfulness techniques to help disrupt the cycle of repetitive, negative thoughts before they escalate into a depressive crisis. Meta-analysis of these interventions has indicated success in the treatment of depression and anxiety in adults. (Bear 2003; Grossman et al. (2004).

During the 1990s, neuroscientists were using technological advances to discover new information about the brain’s functioning. Brain imaging gave us the ability to treat brain injury,
understand brain disorders and treat those disorders with medications. Scientists learned how and under what conditions or environments the brain is stimulated. This had great significance for educators who began to consider the inclusion of brain physiology in teacher education programs. Brain theories from the 1970s and 1980s, which suggest that an individual’s ability to learn is influenced by brain activity in certain hemispheres, are now outdated. Currently educators are embracing a more “whole systems approach” to understanding the brain (Jenson, 2005). This led to the 1990s as being a time when traditional educational practices began to be questioned in light of new models and paradigms where learners are influenced by conditions of learning and differing learning environments.

Most recently, neuroscientists, with the assistance of fMRIs and other brain scanning techniques, have been able examine the effects of meditation on the brain. Scientists are suggesting that meditation could strengthen the brain by reinforcing brain synapses (Davidson & McEwan, 2012). A further 2012 study revealed that the brain becomes denser from the “cortical gyrification”, or the “folding” of the cerebral cortex as a consequence of brain growth, in those who meditate. This process may allow the brain to process information faster (E. Luders, et.al.). In another study in 2011, scientists found increased density of the gray matter in the left hippocampus “known to be critically involved in learning and memory processes (Squire, 1992) and in the modulation of emotional control” (Holzel, Carmody, & Lazar, p. 3). Meditation, another 2011 study revealed, could deactivate the main nodes of the default-mode network (medial prefrontal and posterior cingulate cortices), which is responsible for the wandering mind and plays a part in disorders such as ADHD (Brewer, Worhunsky, Gray, Tang, Weber & Kober, 2011). As well, meditation has been linked to significantly increased theta (and alpha) power (Lagopoulos, et.al. 2009) “which is associated with wakeful and relaxed attention,” (Dvorsky, 2013, para. 16) the optimal condition for learning.

The combination of innovative insights on brain function, combined with the influence of Kabat-Zinn’s mindfulness work created fertile ground for further study in the area of mindfulness cognition and learning. Mindfulness researchers began looking at its effect on depression, cognition, disorders such as ADHD and issues around focus and attention. The Hawn Foundation, in collaboration with the University of British Columbia and the public school boards in the province initiated research and study in examining the effects of mindfulness
education in schools. Thich Nhat Hanh is now associated with bringing Mindfulness in Education to schoolteachers. He led a Mindfulness Retreat for Educators in St. Catherines, Ontario in 2013, supporting the “development of well-being and self-efficacy in teachers and helping them foster resiliency in themselves and their students” (Meiklejohn, 2013, p. 1-2). The conference united current research “demonstrating improvements in working memory, attention, academic skills, social skills, emotional regulation and self-esteem, as well as self-reported improvements in mood and decreases in anxiety, stress and fatigue.” (Meiklejohn, et.al., 2012, p. 1-2). At 86 years old, Thich Nhat Hanh says, “happy teachers will change the world” (2013, para 1).

**Stress, Mental Health and the Child’s Brain**

Stress is currently being identified as a major concern in children’s mental health, impacting academic and life success. I have observed that students today are more stressed than ever. Teachers must learn to recognize signs of student stress or overloaded nervous systems through identifiable behaviors. “Whether they are physiological, emotional, environmental, cognitive or social” (Shanker, 2012), we need to learn how to provide students with strategies and skills to help deal with these stressors.

Chemical imbalances in the brain caused by stress, such as high levels of cortisol, can impair thinking, memory and learning. “Excessive cortisol can make it hard to think and remember—“going blank” during a crisis may be an example of cortisol interference” (MindUp Curriculum, 2000 p. 85). Chronically elevated cortisol levels sustained over a long period of time during critical years of brain development can cause significant damage and result in emotional dysfunction.” (MindUp Curriculum, 2000, p. 85) Stress has also been linked to the depression of the immune system (Jenson, 2005, p. 53), contributing to students being more susceptible to illnesses. Jenson continues by highlighting other research that links chronically elevated levels of cortisol to the damaging of other forms of brain function such as impairing “the ability to sort out what’s important and what’s not” (Gazzaniga 1998). Stress contributes to death of the brain cells in the hippocampus, responsible for explicit memory formation as well as the brain’s ability to form long and short-term memory (Jacobs and Nadel, 1985).
In today’s world, young children are exposed to a broad array of stressors; parental stresses bleeding into their lives, poverty, long hours in front of screens, exposure to violent media, academic pressure, over-programmed lifestyles, long hours away from family members, and a variety of urban or environmental distracters. Children who are taught mindfulness strategies such as regulating their breathing, yoga, mindfulness awareness and the fundamentals of brain function may be better able to recognize stressors, learn ways to reduce their psychological stress, gain control of their emotions, and find ways to stay calm and alert. They can learn to efficiently and effectively deal with stressors and recover from them (Shanker, 2012).

The stressed brain is controlled by the amygdala, a part of the limbic brain. It can be seen as a filter for the brain. When we are calm, focused and ready to learn, information passes freely to the prefrontal cortex where executive functions take place. However, when we are in a stressed state of mind, the amygdala hijacks new learning and prevents information from being executively processed. Children are reacting in this state of mind rather than thinking.

“Leading-edge research in the area of developmental cognitive neuroscience, mindfulness and social and emotional learning (SEL) tells us that when we learn to focus our attention, control our breath, we can learn to reduce stress and optimize the learning capacity of the brain” (MindUp Curriculum, p. 84). In an on-line article for the Huffington Post, Shanker (2012) recommends, children can help regulate their state of emotions by having a quiet time and space in each classroom and the inclusion of yoga and breathing exercises, to improve their (irritable) mood and teach them control (Shanker, 2012). This could help children be more able to stay focused and learn better at school.

Shanker’s research has identified that an individual’s ability to self-regulate is a determinant in his or her future academic and life success. Teaching children how to regulate their emotions, handle stress, control impulses and persevere in overcoming obstacles will help them in everything from developing positive relationships and making good decisions to being socially and self-aware. I have noticed in my own experience that children experiencing stress are less able to learn and face significant academic challenges or obstacles and are socially and emotionally less mature.
Eric Jensen (2009) writes about the influence of stress on children’s brains in *Teaching With Poverty in Mind: What Being Poor Does to Kids Brains and What Schools Can Do About It*. He explains that a child’s brain has a poor chance of learning when it is experiencing stress, and that it cannot seem to function optimally when it is pre-occupied in dealing, on a chemical level, with the stress it is enduring.

The biology of stress is simple in some ways and complex in others. On a basic level, every one of the 30-50 trillion cells in your body is experiencing either healthy or unhealthy growth. Cells cannot grow and deteriorate at the same time. Ideally the body is in a homeostatic balance: a state in which the vital measures of the human function—heart rate, blood pressure, blood sugar and so on—are in their optimal ranges. A stressor is anything that threatens to disrupt homeostasis. Stressors include criticism, neglect, social exclusion, lack of enrichment, malnutrition, drug use, exposure to toxins, abuse and trauma. When cells aren’t growing, they’re in a “hunkered down” mode that conserves resources for a threatened future. When billions or trillions of cells are under siege in this manner, you get problems (p. 23).

**What is Happening Today in Canada?**

School boards all over Canada are beginning to train teachers and educators about self-regulation and its importance in student development. The province of British Columbia seems to be leading the way with Professional Development and evidence-based research. The British Columbia school boards are asking educators to consider using strategies, including Mindfulness, to help children deal with stress and mental health concerns and to help develop self-regulation skills. In August 2014, the Canadian Self-Regulation Initiative held a conference in Vancouver with Stuart Shanker as the keynote speaker. The conference was designed to inform educators with workshops and learning on the science and application of self-regulation in education.

Evidence-based research has been carried out in several school boards in British Columbia using Mindfulness Education program (*MindUp*). Kimberly Schonert-Reichl and Molly Lawlor (2010) report the results of a quasi-experimental study evaluating the effectiveness of Mindfulness
Education (ME) program that took place in one British Columbia school board. The study focused on a teacher-led “preventative intervention that focuses on facilitating the development of social and emotional competence and positive emotions” (p. 137). Its central premise was to engage students in “mindful attention training” (p. 137). The study focused on students in grades four to seven, as this is the age, the authors felt, that children go through significant changes of development and increased self-awareness. The study commented on the recent trend in research that focuses on the development of optimism, resiliency, well-being, happiness and strength in children, potentially heading off future problems before they occur. This is being referred to as the positive psychology movement and has been strongly influenced by the research and writing of Seligman & Csikszentimihalyi (2000). Research that examines strategies for the development of positive emotions is still in its early stages but it is of great importance as optimism acts as a protective factor for mental and physical health and does much to promote self-regulation in young students (Schonert-Reichl & Lawlor, 2010, p. 138). Results of the study of the Mindfulness Education (ME) program showed encouraging evidence of a “modest positive effect” (p. 147). Students involved in the control group showed improvement in social-emotional competence, attention and concentration, and optimism (Schonert-Reichle and Lawlor, 2010). The researchers concluded that evidence-based studies that examine the effects of Mindfulness-Based education on the development of different areas of self-regulation in children, could lead to greater insight in this area.

The Toronto District School Board (TDSB), has made it a “clear priority” to address student mental health and well-being, recognizing that it is key to student success. After findings released from a Parent and Student Census revealed that secondary students were experiencing considerable stress, felt nervous or anxious “often or “all the time,” and worried about their future, A Mental Health strategy was launched in 2013 entitled Healthy Schools. Healthy Relationships, wherein student mental health and well-being is integrated into every aspect of a student’s school experience. A document produced by the TDSB, Children and Youth Mental Health and Wellbeing will deliver professional development and training on foundations of mental health to all TDSB staff. It will also establish “Mental Health Teams” to act as facilitators, increase anti-stigma initiatives within schools, expand mental health partnerships like those with Toronto Public Health, and increase parental engagement with the initiative (TDSB, 2014).
Review of Literature

An emergent field of research

The application of Mindfulness-based approaches with adults has been a burgeoning field of study for some time now with many types of research that could be applicable to this study. The results of current research have been positive, suggesting mindfulness approaches promote mental and psychological health and well-being. Studies show:

* the effects of yoga and mindfulness on the reduction of relapse into depression and anxiety in adult participants (Saeed, Antonacci & Bloch, 2010)
* an increase of positive mood without drug intervention (Kimberly Hoppes, 2006)
* easing symptoms of ADHD without medication (Brewer, Worhunsky, Gray, Yi-Yuan Tang, Webber & Kobe, 2011)
* the effects on mindfulness and the control and reduction of stress (Levy, Wobbrock, Kaszniak & Ostergren, 2012)
* the promotion of positive states of emotion and empathy (Lutz, Bresfczynski-Lewis, Johnston & Davidson, 2008).

There is considerably less literature available on mindfulness intervention with children in the context of the classroom. Christine Burke (2009) notes in her Meta-analysis of current research in Mindfulness-Based Approaches with Children, that the methodology in these studies were often found to be weak and the data incomplete. Consistent with this observation, Schonert-Reichl (2010) found that there was only a 75% implementation in the Mindfulness Education (ME) program she studied. Even though teachers found Schonert’s ME program easy and enjoyable to use, challenges when working with young children are inevitable. This is not surprising. As a teacher, I understand how overextended teachers could be unwilling to commit to partaking in a study or having researchers in their classrooms. When there are so many expectations for teachers to meet and so much curriculum to deliver, the idea of becoming familiar and comfortable with a new program, even in the area of mindfulness, may seem unworkable, and cause stress for the educator. As a researcher, I also understand that the challenges of working with children are considerable; compliance is an issue, especially if the researcher is unfamiliar to the children and the ethical considerations. Ethical review boards can be daunting and taxing of ones time and energy. This should not discourage further study in this
area. Schoenert-Reichl’s (2010) study found teacher’s who did participate in the study made positive comments, noting the program “helped the class become more cohesive” (p. 145). Another teacher comments, “I feel the students became more aware of their inner potential” (p. 145). Burke (2009) suggests that research in this area needs to “move away from feasibility studies towards large, well-designed studies with robust methodologies, and adopt standardized formats for interventions” (p. 133).

Each angle of research I have chosen to examine focuses on and relates to one element of self-regulation at a time. However, as Shanker (2013) describes, each one of the five domains interacts and affects the others. If a child is struggling with self-regulation in the emotional domain, it will have subsequent effects on the other domains as well. I plan to focus on literature that does the following:

A) Examines the use of mindfulness-based interventions as an alternative to medication for attentional difficulties, which constitutes one of the most concerning areas of self-regulation for teachers.

B) Presents an argument between behavioural approaches to developing aspects of self-regulation and mindfulness-based strategies.

C) Explores the role that yoga and breathing plays in cognition or the sparking of brain activity in comparison to more conventional forms of activity previously found to be effective.

D) Outlines one particular area of stress that seems to be impacting children’s emotional, social and pro-social self-regulation: the absence of nature-based experiences in the lives of children and how technology can ironically have a regenerative or transformative role in reconnecting young peoples’ relationship with nature.

Mindfulness as an Alternative Intervention for Attentional Difficulties

There are concerns regarding a growing trend to administer psychotropic medications such as Ritalin to children under the age of 18. Rates have approximately doubled between 1987 and 1996 (Olfson, Marcus, Weissman & Jenson, 2002), while rates of prescription medication for children under age five, such as stimulants and depressants, have tripled (Zito et al., 2003). This
suggests that parents and teachers are turning to psychotropic medication for assistance with behavioural and attention difficulties rather than considering alternative strategies such as mindfulness education for addressing poorly regulated behaviour. The concern with the use of psychotropic medication in such young children is the potential for longer-term developmental consequences (Panksepp, 1998; Stanwood & Levitt, 2004).

In an interview with an eighteen year old student who has used stimulant medication to treat mild to moderate ADHD (inattentive type) for the last eight years, on and off, she comments that the side-effects of Concerta “made me feel lethargic, tired, less engaged. Vyvance, gave me a psychological low in the afternoon as the effects of the medication wore off. Adderall gave me a low as well in the afternoon and made me more tired in the evening with a loss of appetite” (personal communication, 2014). In answer to my question of why do you stay on medication now that you are in university, she relates: “Because I finally understood that my brain works differently from other people and I take the one that has affected me negatively the least. I stay on a low dosage. I need an extra push to have my brain work more “normally” to focus and to stay on task and stay as motivated as my peers” (personal communication, 2014). Another older student (grade twelve) that I interviewed, who was diagnosed with moderate ADHD (hyperactive type), comments: “some of them ruined my appetite and others would give me bad headaches, suck the life out of me or make me feel down, some made me feel sleepy.” When asked why he stays on medication, he related the following: “I found when I took them that I would be much more focused. It only really made a difference at school so I only took them when I was going to school. At 17, I am still on a low dose of Biphentin but I want to change it because it makes me crabby and a jerk. It changes my mood”. When asked about considering non-medication intervention he said he would be very interested in exploring the effectiveness of mindfulness strategies: “I do a lot of sports because it helps me ‘shake the silly’s out.’ I would love to do something else rather than take a pill” (personal communication, 2014). It should be noted that throughout the time these students were prescribed medication both of them experimented with long breaks from taking the medication (a few months) without an alternative treatment and then reverted as they found it was too difficult to cope with their disorders un-medicated.

Recent studies show that aspects of mindfulness education and the application of mindfulness strategies could offer alternatives to drug therapy used to treat many disorders. Many of these
studies have used adult participants but the findings are of great import to the field of education since yoga and other mindfulness strategies are able to release specific chemicals in the brain that are able to mimic psychotropic medication and affect the sympathetic nervous system similar to the medication used to treat ADHD.

Heather Peck, Thomas J. Kehle, Melissa Bray and Lea Theodore, in their Study “Yoga as an Intervention for Children With Attention Problems” (2005), investigated the effectiveness of yoga for improving time on task with ten children who evidenced attention problems. This research group, recognizing the prevalence and significance of attention disorders in students ranging from mild to diagnosed Attention Deficit Hyperactivity Disorder, focused on a non-medicinal intervention that they believed could be effective. None of the research team appeared to be experts in the area of yoga instruction as they used a yoga videotape as the mode of instruction. Ten elementary school students (ages six to ten) volunteered to participate. These students did not have a diagnosis of ADHD but experienced a variety of attentional difficulties. Yoga classes were administered twice a week for a period of three weeks. The research team unearthed relevant research correlating ADHD as being a precursor of oppositional defiant disorder, conduct disorder and adult anti-social personality disorder (Mannuzza, Klein, Bakeoff, & Moulton, 2004). I found this research to be particularly relevant to my own study, as one of the students in my focus group was diagnosed as having moderate to severe ADHD and oppositional defiance disorder. This student also had numerous issues with his behavior, which resulted in daily conduct and peer conflicts. Peck, et.al., located other studies that examined alternative or non-medicinal interventions that addressed attentional difficulties, such as behavior modification and cognitive behavioural treatments and argued their effectiveness (Abramovitz & O’Leary, 1991).

Treatment with stimulant medication is a common form of intervention for children with severe ADHD (Pelham, et. al., 2005). While medication has been found to have a positive effect on classroom behavior, social interaction and academic performance, (DuPaul, Stoner, Tilly, & Putnam, 1991), there are numerous negative side-effects to stimulant medication including insomnia, appetite loss (Haile-Mariam, Bradley-Johnson, &Johnson, 2002), obsessive compulsive symptoms (Borcherding, Keysor, Rapoport, Elia, & Amass, 1990) and growth suppression (Zeiner, 1995). This makes these treatments an undesirable option for many parents,
including those of the student in my focus group. Despite having to accept two suspensions from school, the parents of one student P in my focus group were keen to try every available alternative before using medication as a treatment option. Peck’s et al. (2005) found promising literature in their review expanding the idea that yoga could be used as an intervention to positively impact on many areas of children’s’ behavior and inattention. (Nardo & Reynolds, 2002).

Peck’s research team explains that yoga promotes the release of tension as well as blood and oxygen throughout the entire body, which in turn, affects the central and autonomic nervous systems (Lalvani, 1999). The autonomic nervous system controls involuntary activity (like breathing) and consists of the sympathetic and parasympathetic nervous systems (Seamon & Kendrick, 1994). The sympathetic nervous system controls our quick reactions and adrenaline is involved in this acceleration. The parasympathetic system uses cortisol to slow the nervous system down for rest, recovery and digestion (Shanker, 2013). Yoga deactivates the sympathetic nervous system and stimulates the parasympathetic nervous system creating that sense of calm, emotional balance and tranquility that one enjoys after a yoga class (Brosnan, 1982).

The investigators used a precise tool for measuring attention or time students were on task by using a structural Behavioural Observation Form (BOF) and measured the intervals students had eye contact with the teacher or with the assigned task. The BOF employs “10-minute observations using momentary time sampling with 10 second intervals” (Peck, et. al., p. 20). As an elementary school teacher, I question whether eye contact on a task can sufficiently or accurately measure the attention a young child is giving to the task. Young learners are taught, through modeling, to constantly check their environment, like anchor-charts and word walls, to support their learning. This would mean that their eyes are constantly moving from environmental print to their task. Research done by David Booth and Carol Thornley-Hall, during their three-year Talk project and subsequent book entitled Classroom Talk (1991), also found that students engaged in on-task student talk were able to deepen their understanding of concepts and classroom tasks. In light of this, the BOF may have misinterpreted a child’s behavior or attention as being off-task instead of recognizing it as the use of a variety of strategies to support his/her learning. The methodology of the study included Peck et al., (2005) removing the ten members of the focus group from the rest of the class for the yoga sessions.
They were then able to observe the difference in attention once the ten students were introduced back into the class. I would like to have employed a similar methodology in this present study as I felt a calm room with fewer students would have helped my students with attentional difficulties derive the greatest benefit from the yoga practice. Peck, et. al.’s results did indicate an increase of focus in accordance to their measures of focus and attentiveness. Their results indicated “effect sizes that ranged from 1.5-2.7 as a function of the intervention. “Effects at follow up were decreased,” (Peck, et. al, p. 424), suggesting the importance of using the yoga practice as a consistent form of intervention. The results of Peck, et. al.’s study supported findings from previous research; that yoga as an intervention could help to improve concentration, reduction of student anxiety, heart rate, headaches and general stress symptoms (Kalayil, 1988).

The investigators suggestions for further research include looking at “social validity from the perspective of the classroom teacher” (Peck, et. al., p. 424), and observing the effects of yoga on stress management and general well-being, social skills and competencies, academic achievement. The investigators commented that the children enjoyed the yoga videos and that the intervention was easy to implement. The conclusions suggested to the investigators that yoga and breathing exercises could indeed be a promising alternative or compliment to traditional behavioural interventions or medication.

The Kentucky Inventory of Mindfulness Skills was used as a measure to assess mindfulness in a control group of adults while their personality was assessed using the Tri-dimensional Character Inventory in a study from 2009 that examines the potential benefits of mindfulness intervention in adults with ADHD. This study had a novel approach to determining the success of mindfulness intervention by analyzing inherent traits of ADHD sufferers (Smalley, Loo & Reise, 2009). The authors found that ADHD sufferers were “less mindful than non-ADHD controls; ‘mindfulness traits’ were self-reported less in the ADHD group.”(p. 1087). The authors of this study found that ADHD sufferers were more “novelty-seeking and less self-directed” (p. 1087). The authors suggests that because these traits are more common in adults with ADHD, they could benefit from mindfulness intervention and that mindfulness may improve their symptoms as well as increase self-directedness and self-transcendence (Smalley, et.al., 2009). The authors
were hoping that results could indicate that mindfulness training could be considered an alternative treatment for ADHD in lieu of medication.

Fascinating literature and research was located by the authors that looked at previous studies that involved examining and measuring attention in both ADHD and mindfulness such as ANT or the Attentional Network Task (Fan, McCandliss, Sommer, Raz & Posner, 2002). This and other studies found the prefrontal cortex is involved with conflict attention; a decrease in ADHD sufferers and an increase in conflict attention with mindfulness training (Davidson et. al., 2003; Giedd, Blumenthal, Molloy & Castellanos, 2001; Holzel et al., 2007; Lazar et al., 2005).

Smalley, et.al. examined personality and character traits of participants, fifty-one of them having lifetime diagnosis of ADHD. The participants were to self-report on traits such as cooperativeness, harm avoidance, novelty seeking, reward dependence, and persistence. The results showed that ADHD participants scored lower on the composite measure of mindfulness (Smalley, et.al.) and most of the subscale, therefore supporting the hypothesis that individuals with ADHD have lower trait mindfulness than non-ADHD participants and that conflict attention “has been shown to change in response to mindfulness training and to be lower in ADHD” (Smalley, et.al. p. 1098). Mindfulness training, the authors propose yet again, may be a viable alternative treatment for boosting attention in ADHD sufferers without the use of pharmaceutical drugs.

**Behaviour Modification Versus the Mindfulness Approach**

The debate rages on between the behaviourist approach to developing self-regulation skills over the use of mindfulness strategies. Psychologists continue to advocate the benefits of a punishment and reward system, instead of helping teachers to understand self and co-regulating behaviours and how to develop them within their students. Shanker (2013) believes, quite categorically, that the “command-and-control” behavior management techniques designed “to induce compliance (giving rewards for good behavior and taking away rewards for “bad” behavior)” simply do not work (p. 82). In his recent book *Calm, Alert and Learning*, Shanker (2013) outlines methods of behavioural modification that are currently used in classrooms. He argues that they do little to develop a sense of self-regulation within students and how teachers can support students to develop these skills and those necessary for co-regulation with teachers
and peers. I am keenly aware of such techniques having been on the other end as a parent whose child comes home weeping because, despite her exemplary behavior, she was not rewarded the promised pencil from the goody bag because “they ran out that day.” What comes to mind is the poodle jumping through the hoop on demand. I also understand the futility of such methods, as the teacher, trying to reward students with points for cooperation only to scratch them out later as a punishment with defeated exhaustion -- a last ditch attempt for classroom compliance. Shanker refers to the “management book” technique wherein the teacher marks with checks for good behavior and x’s for poor behavior. It reminds me of “the black book” that my mother used in her class, where students had to slope off and record their name in perpetuity, for their parents to see on parents’ night. Shanker cites the “discipline mat” (p. 82), where the misbehaving child goes for a time out, or a note, sent home that parents have to sign. I can also add the detention and standing in the doorway as forms on commonly used behavior modification strategies. I have never met a teacher who enjoys using these strategies but know many who give in to using them when, exhausted and frustrated, feel they have no options left. I do not begrudge the teacher who, at his wits end, tries everything to gain control over a class overwhelmed by numerous children with exceptionalities leading that “classroom contagion” into daily fevered chaos. I have been there myself. I have given into threatening a visit to the principal (dis-empowering me), offering table points in return for cooperation (giving me one more task to juggle), and involving parents, who’s job becomes, quite rightly, to defend their child. The question one must ask is: how well are these strategies helping the child develop intrinsic co and self-regulating skills? The children are continuing to act or “behave” for another rather than monitoring their own behavior in a way that promotes their social intelligence through interactions with peers and teachers.

Behavior modification and cognitive behavioural treatments, such as classroom token economies and manipulation of consequences (Abramowitz, O’Leary, 1991) are still maintained as being effective by many educators and psychologists. Kathie Nunley (2003) argues in her work, A Student’s Brain, that punishment has proven to be the least effective way to encourage desirable behavior in young students. Another critic of the behaviourist model, Eric Jenson (2005) argues vehemently against this method, saying behavior modification programs are cheap, easy, often effective and seemingly harmless but they are in fact misinformed or misinterpreted strategies that developed out of the original behavior theorists during the 1960’s. Their theories are effective only for physical actions but they are being applied incorrectly to motivate students in
other areas. New research shows that many mammals, such as rats and humans alike, do not learn from rewards. Instead, mammals seek new experiences and behaviours with no perceivable rewards. More complex behaviours are usually impaired, not helped, by rewards (Deci, Vallerand, Pelletier & Ryan, 1991, Kohn, 1993). Russell Barkley, PhD and expert in ADHD (1990), conversely, argues that, a token program is a powerful behavioural intervention for improving school behavior in children with ADHD, as they respond positively to immediate rewards. His step-by-step program suggests that powerful rewards are given for on-task and motivated behavior. Shanker (2013) would argue that this is, at best, a short term or ineffective form of developing any sort of self-regulation or intrinsically generated behavior. Instead we, as educators, need to work on the “underlying factors: the hyper-arousal, emotion dysregulation and underdeveloped social and emotional skills within students. The methods advocated by the behaviouralists “do little to cultivate such skills, and in many cases have actually impede(d) their development” (Shanker, 2013, p. 83).

My own wise administrator has taught me much about managing behavior, suggesting that it is always a manifestation of something much deeper, usually stress or anxiety, and that it requires a long-term examination to understand and requires a compassionate approach. Without exception, she will sit with a child who has found himself in her office and regard that child with utmost respect, compassion, whilst trying to understand the origin of the behavior. Shanker (2013) encourages teachers to look deeply and search for the root of the behaviour. Perhaps there are issues around nutrition and daily exercise, which could be addressed either in the school with nutrition, breakfast or snack programs or at home through educating parents and caregivers. Sleep issues, overexposure to television and screen time, and inappropriate behavior strategies could be addressed at parenting workshops. The shift in approaching poor self-regulation and changing the behaviours around it helps parents and teachers to think about the causes of the behavior and how they could intervene and mitigate the child’s stressors rather than trying to simply stop the behavior. The goal is to try to tackle the issues causing student hyper or hypo-aroused behavior, issues that stem from dysregulation in the biological domain and consequently affecting all other domains. Shanker (2013) suggests offering a “Fit and Fuel” program where students can come to school and do a power yoga class followed by a healthy snack. Games that help build understanding and vocabulary around social and emotional intelligence can help give students the language to express their feelings and emotions.
effectively. There is much we can do through teacher training and development, as well as through parental support (Shanker, 2013).

**Yoga as Physical Activity**

Physical activity is vital to the healthy development of the brain. Harvard Medical School psychiatrist, John Ratey (2008), writes in his book, *Spark*, about how learning, memory, concentration, and emotional resiliency are improved through activity. Exercise and movement are responsible for the balancing of neurotransmitters- serotonin, norepinephrine, and dopamine – that regulate mood. Ratey’s important discoveries point to the fact that the building of cellular infrastructure, via a brain derived neurotropic factor, (BDNF) enhances cognition by increasing neural communication (Kinoshita, 1997). The building of a brain, Ratey tells us, is developmental and not maturational and it is in fact, by being human in its elemental form --, running, playing, moving that helps our brains grow. Physical activity “enhances metabolic states and influences brain-changing gene-expression” (Jiaxu & Weiyi, 2000).

Yoga can be used with children as both a form of vigorous physical exercise and as a form of mindfulness movement, “sparking” the brain into an optimal state for learning. Current research suggests that yoga’s ability to enhance cognition may be superior to other forms of aerobic activity. The most recent piece of literature found examining the impact of yoga is *The Acute Effects of Yoga on Executive Function* (Gothe, Pontifex, Hillman, et.al, 2013). This research considers the effect of yoga exercise, relative to aerobic exercise. The findings contradict some previous findings in the acute aerobic exercise and cognition literature as it demonstrates that “participation in a 20 minute yoga session resulted in superior cognitive performance compared with aerobic activity and baseline conditions” (p. 494). The implications of this research for students could be relevant as key goals in the treatment for ADHD which aims to increase the speed of neurotransmitters (and reaction time). Participants in the study were adult females and investigators measured various elements of executive function including working memory, an important aspect of good self-regulation in the cognitive domain. The conclusion emphasized the need to further explore non-traditional forms of exercise to increase cognition.

Deborah Rogers (2011) looks at yoga being introduced into the elementary school curriculum as part of DPA (Daily Physical Activity). In her study “A New Approach to Holistic Physical
Education: Yoga in the Classroom,” Rogers argues that yoga could be seen as a beneficial contribution to part of DPA, both being an effective form of moving the body and a way to develop positive attitudes within students. She found that students perceive it as a “personally satisfying form of physical activity” (p.ii). She challenges ideas that yoga may not be seen as a vigorous form of exercise but that, alternatives forms of moving the body, such as stretching and gentle forms of movement, are equally beneficial. As a student and teacher of yoga myself, I can attest to the fact that a yoga class can be considered physically challenging as well. It requires and develops great strength, stamina and power and is not always considered a gentle form of activity. Rogers’ otherwise strong argument, could be weakened by suggesting that yoga is less physically demanding than other activities suggested for DPA and other physical education programs.

Research coming out of Boston University School of Medicine examines the effect of yoga on mood in comparison to “metabolically matched” walking condition (Streeter et al., 2010). The research looked at the effect yoga sessions had on participant’s GABA levels or gamma-aminobutyric acid. This brain chemical affects mood and anxiety, low levels being linked to low mood and anxiety. Participants in the study showed an increase of GABA levels and reported mood-boosting effects, greater than in the control group who did a similar amount of walking intervention. Patients who experience depression or low moods are prescribed drugs to increase activity in the GABA system. The study included analysis of brain scans where researchers could see the changes in GABA levels after yoga sessions and compared them to those observed after walking session. The participants, after a twelve-week intervention using yoga, reported better moods, which included lower anxiety, than those who had been walking. This study has great relevance for supporting my focus of inquiry and others that explore the potential of yoga affecting mood and anxiety through the mediating effects of the GABA system. If yoga and the aspect of mindfulness training is able to affect mood and anxiety level in adults, it may also contribute to helping children develop emotional self-regulation and the treatment for mild to moderate depression and anxiety.
The Reduction of Nature-Based Experience in the Lives of Children and its Impact on Stress and Anxiety

My literature review, especially in regard to the increasing levels of stress in children today, focuses on the current trend in thinking about how increased exposure to screen media and computer games, directly relate to a decline in opportunities for nature-based experiences. The more time a child sits in front of screen, the less time he has for outdoor activities, being in nature and the development of pro-social skills through play and socializing. Shanker (2013) also links the over-abundance of screen time to a decline in nature-based experiences, resulting in an escalation of childhood stress, a contributing factor affecting regulation in the emotional domain. Other research makes positive links between increased cognitive capacity, boosting in children’s intelligence, and the time they spend in nature (Grinde, B., & Patil, G., 2009).

Nicholas Carr’s (2010) work, The Shallows, warns of an increasing addiction to and dependence on screens, with children and adults spending as much as eight hours a day in front of them. After a long day on a tablet or a computer, we settle down to an evening of television. Alan C. Logan and Eva Selhub (2012), authors of Your Brain on Nature, asserts that Americans have become more aggressive, narcissistic, depressed, less cognitively nimble, and less healthy. “Today’s easy access and prolonged exposure to gadgetry is leading to nature deprivation” (p.2). Logan and Selhub fear we may be turning away from nature, losing our “empathetic view” (p.3) for its fragile state and the efforts of environmentalists because we are falling out of relationship with it. They suggest that nature has potential healing properties including positive effects on the immune system. Conversely, they warn that our predilection for the screen is preventing the development of a “protective layer against psychological stress and cognitive rejuvenation”(p.3).

Richard Louv (2005), author of the bestseller Last Child in The Woods, suggests we are suffering from what he calls “nature-deficit disorder” (p. 99) and relays a story of a world where children prefer to play indoors because of the availability of electronic devices. The increasing trend to move away from nature-based experience due to our urban driven existence has made us fractured and disconnected and distracted.

A potential balm in this age of screen-induced stress and distractibility is what Harvard entomologist E.O Wilson in the 1980’s -defined as biophilia, referring to our innate and natural
love of nature. An example of the healing and calming effects of nature on the human body and mind can be seen in Japanese research, led by Yoshifumi Miyazki (2004) from the University of Chiba and Qing Li from Nippon Medical School in Tokyo. Miyazki has engaged in studies since 2004, taking subjects into the woods to walk and comparing them to these to the effects of urban walks. A measure of levels of the stress hormone, cortisol reveals a 12.4 decline and a seven percent decrease in sympathetic nerve activity, a 1.4 percent decrease in blood pressure and a 5.8 percent decrease in heart rate when walking in the woods. The participants in his study also self-reported better moods and lower anxiety.

Educational philosopher and curriculum specialist, Dr. Rachel York (2014) suggests in her work, *Reconnecting with Nature: Transformative Environmental Education Through the Arts*, that there may be a possible reconciliation between the age of technology and its incumbent stressors and distractions with a restored relationship with the natural world. (York, 2014). She also argues that a twenty first century anthropocentric world-view has been cultivated through western culture and our current model of education. Our relationship with nature and the natural world continues to become increasing fragile, as does the state of our environment, which she documents, as teetering on the edge of irreversible unsustainability. Technology is an inevitable part of our lives, York reminds us; we are fascinated by it and in some cases, addicted to it. However, it could play an active role in providing another highly available, immediate and far-reaching modality for the expression of nature-experiences and environmental concerns amongst children (York, 2014). Jim Wortley, an expert in digital communications, says that “various forms of social media have become a network of passing information; technology allows children to share their experiences in nature, not in a virtual way, but as digital documentation of nature moments” (personal communication, 2014). Social media can be used to inform its viewers, teach them, harness collective movements, and organize action. The Global March for Elephants and Rhinos, supporting the protection of big game in Africa under threat, organized in Toronto on October 4th, 2014, was widely publicized through social media feeds like twitter and Facebook. Young people were informed of the event, recorded, posted and were urged to repost it on social media. Nat Geo is a popular instagram site where even very young people, like my eight year-old daughter, can follow nature photographers, admire posted images of animals and the natural world and can learn vast amounts about a subject that interests her more than any other. My older daughters, who are lucky enough to spend every weekend and school break in
our cabins in the forest, post images almost exclusively of the natural world, promoting their sense of wonder and appreciation for the “numinous,” defined as the feeling of wonder elicited from experiences of the natural world.

Figure 1: Head in the trees, shared on Instagram

Figure 2: Lake Huron, 2014, shared on Instagram
Any forum or modality that can hope to regenerate our innate biophilia gives us hope for children to come back into relationship with nature, to regard themselves as part of nature, and to recognize the need to urgently address our planet’s vulnerability (York, 2014). Also possible is the ability to reap the potential benefits: health-giving, cognitive-boosting, stress-releasing properties that will foster self-regulation through all domains. The biological domain benefits from balancing states of arousal through burning off energy and balancing the nervous system; the emotional domain benefits through reduction of stress and promotion of well-being; the cognitive domain benefits by boosting mental acumen and the social and pro-social domains benefit by allowing children to be either by themselves, developing a sensitivity for their surrounding or engaged in play with others, instead of being consumed by a screen in front of them. It is conceivable that technology need not be yet another distraction or a force for pulling young people away from their inherent biophilia, but provide a forum for expression, a vehicle for collective rallying for environmental concerns and a network for sharing emotional and profound recognition of wonder in the natural world.

Being in nature has long been associated with meditation and has been considered an important means for arousing a meditative state. Writers and poets like Ralph Waldo Emerson, Emily Dickenson, John Keats, David Thoreau and Walt Whitman have described the power within nature to take us to a more transcendent understanding of our place in the universe. Nature is regarded as a sanctuary in which to meditate and a condition in which to understand more profoundly man’s connection with the natural world and the universe. Emerson (1803-1882) in his “Spiritual Laws” writes of finding spirit and guidance through the soul found in nature. Later poets like William Henry Davies warn of a disconnect from nature;

What is this life if, full of care,
We have no time to stand and stare

No time to stand beneath the boughs
And stare as long as sheep or cows. William Henry Davies, (1871-1940)
The reality, however, is that many of our students today live a decidedly urban life. However, even in the densest parts of the city there are oasis of calm and green to be found, in parks, gardens, ravines, farms, university campuses, nature centers, arboretums and even corners of school playgrounds. Taking children into nature on a regular basis can help them attune their sensibilities and awareness to the natural world. The David Suzuki Foundation does much to foster education and awareness through teacher education programs and in teaching young people across Canada about the importance of connecting with nature and the benefits of outdoor education (DSF, 2014). In our own downtown school, every class from Kindergarten to Grade Six spends one half day a week outside, rain or shine, defying even the coldest days to experience nature and understand it more fully. Children of all ages can be brought outside to experience mindfulness practices. Urban students can also go on nature walks and be encouraged to quiet their minds and voices or go on a listening walk to pay attention to what they can hear in the environment and be in the moment. This is similar to the walking meditations of the Vietnamese Buddhists, but practiced everywhere. Thich Naht Hahn teaches us, “When you practice walking meditation, you go for a stroll. You have no purpose or direction in time or space (Hanh, 2006, para. 5). The purpose of walking meditation is meditation itself….Our earth is truly beautiful. There is so much graceful, natural scenery along paths and roads around the earth….Do you know how many forest paths there are, paved with colourful leaves, offering cool and shade (para. 7)?…A lotus flower blooms beneath each step” (para. 17). Students can be encouraged to keep a nature journal or write nature poetry, responding to their nature experiences or their mindfulness practices in nature.

Chapter 4
Methodology

Research Design

For the purpose of this study, I used the research design of Action Research. Mills’ (2011,) notion of the “Dialectical Action Research Spiral,” inspired me to adopt a four-step guide to use in my action research project. This model is useful “for teachers to use to study themselves . . . where investigators cycle back and forth between data collection and a focus, and data collection and analysis and interpretation” (cited by Creswell, 2012 p.). This was useful in my study due
to the phenomenological approach inherent in my design. It requires self-reflection, regular analysis, interpretation and the extending and refining of analysis. I used it to connect my findings to both my personal experiences and the consequences that arose during the study. It was also useful in order to reconnect to relevant literature and in order to discuss findings with professionals who were helpful, interested or influential in my project. My students, acting as agentive partners, provided me with a variety of data. Their voices, comments and dialogue around the mindfulness focus were essential, and considered part of my data collection and my findings. They also explored the benefits of mindfulness, observing and reflecting on how it impacts their learning and their well-being in structured ways. In accordance with Mills’ approach, I put my new findings into action, which resulted in specific activities that fostered the mindfulness learning in my classroom and the culture of optimism. It was in every way a ‘spiral’ consisting of findings, activities, action, and findings.

The intention of this study is to share my findings with my colleagues in our young school, and discuss whether mindfulness education has a place in our evolving curriculum. The findings will also help inform the pedagogy of mindfulness, and my future scholarship in this field.

Practicalities

I introduced and taught the mindfulness program to my entire class of 20 students, but, for practical purposes relating to time, consistency, and variety, focused on five students from whom I collected data. My data collection time frame consisted of five weeks.

1. I taught a core breathing practice three times a day, once in the morning, another after lunch and a final one at the end of the day. These mindfulness-breathing sessions took no longer than five minutes each.

2. I taught mindfulness education lessons three times a week that were approximately fifteen to thirty minutes long, taking place in the afternoon. These classes included learning about brain function and mindfulness awareness.

3. I taught three, thirty-minute yoga classes every week in the afternoon as DPA (Daily Physical Activity) on days the students did not have Gym or outdoor science.
4. The mindfulness corner was set up in my classroom with a children’s book on meditation, pillows, yoga mats, stability ball, balance disc and a Lycra bag (recommended for students experiencing sensory overload, providing opportunity for stretching with strong resistance and sensory withdrawal). Children were invited to use this space when they needed to. I documented its use and included this in my data collection.

5. Students were asked to keep a mindfulness journal and record thoughts, feelings and observations. Key or leading questions were asked on some days.

Relevant documents are as follows: Appendix A- Smile Centre sheet; Appendix C- Questionnaire; Appendix E - Invitation Letter to School Principal.

Participant Information

I chose a random sampling of five students to observe and collect detailed qualitative data. I ensured there was a representation of both genders and ability levels. The experience for these five students was exactly the same as for the rest of the class, and this project was a normal part of their school day. I asked all parents to consent to the project through an informed consent letter. I outlined the project to the parents on curriculum night, and opened up dialogue and welcomed any further discussion or questions. All of the parents in question were happy about the goals of the project and very enthusiastic about the focus of it. They were informed that they were always welcome to visit the classroom.

Some of the logistics include:

Class size- 20 students
Focused data collection- 5 students
The number of teachers involved was 1, myself. Grade 1/2
The number of school administrators- 2.
School support staff- 0.
Number of parents- 10.

Confidentiality and Consent
This study was a part of our regular school day and many of the activities and strategies taught had been in place since September 2013, with all students participating. The children in the focus group did not know they were being observed in any way other than the rest of the class. I did not inform the children that I would be collecting data from them as I felt that this may have affected the authenticity of their responses and the outcome of the study. I sent to parents an informed consent letter that was returned and kept on file. See Appendix B and D.

Security Safeguards

I kept observations and data collected, including mindfulness journals in a lockable filing cabinet in my classroom which was locked at all times when I was not using it. All electronically collected and stored data was kept on a computer that requires a password and has a secure server. Actual names of students are not used in this thesis. The school’s name will be kept anonymous.

Data was kept until the writing of the thesis was completed. All data will be destroyed at the end of this study, when no further information is required.

Providing Feedback

An informal interview was held with each parent to discuss his or her observations over the course of the research session. I referred back to the questions parents completed for the questionnaire at the beginning of the research session and recorded any changes or developments observed over the session. Parents were very enthusiastic about expressing their own observations and comments about the study.

Chapter 5
Research results

A major consideration of the following collection of data is that it compromises a “snapshot” of observations taken over an allotted period of time. The mindfulness strategies I used and practiced in my classroom were introduced much earlier in the school year. If I had implemented
the mindfulness strategies at the time of my data collection, my observations would be entirely different and possibly scant or less enlightening. Many of the strategies and aspects of mindfulness education program were implemented in September, specifically during the yoga class; the core breathing practice began in December.

I intend to summarize the findings of this research in the following ways:
- Data collected through the initial parent questionnaire (pre-study phase)
- Observations and anecdotal evidence throughout each aspect of the mindfulness program:
  • yoga class
  • core breathing practice
  • brain-focused learning
  • mindfulness awareness classes
- Data collected from student journals and the SMILE CENTRE
- Data collected from final parent questionnaire (post-study phase)

Data Collected (Pre-study Phase)

Before the study began I obtained permission to collect data from parents and immediately sent home parent questionnaires to the five students randomly chosen. (See Appendix B). The questions addressed various aspects of self-regulation that would be apparent at home in the family environment. In general, the responses indicated that self-regulation is often less of an issue when children are at home, in a less stressful environment and when the challenges of being one of many are not present.

1. Does your child go to bed easily?
Most of the parents (four out of five) answered either “often” or “always.” One parent answered “sometimes.”

2. Does your child sleep through the night?
Most parents (four out of five) answered “often” or “always” and one parent answered “rarely.”

3. and 4. Can he/she sit at the table for the duration of a meal?
One parent answered “rarely” (5 min), another “rarely,” (10 min) and the rest answered “often” or “always.”
5. Does your child express frustration?
One parent answered “rarely” (interesting, as he often expresses frustration at school, ADHD)
One parent responded “often” and the other three responded “sometimes.”

6. Does your child have angry outbursts?
Three parents answered “rarely” and the other two responded “sometimes.”

7. Does your child interrupt you when you are speaking?
Two answered “often” and three answered “sometimes.”

8. Is your child easily soothed after an outburst?
All answered “often” or “always.”

9. Does your child accept the answer “no” when asking for a treat?
Two answered sometimes, two “always,” one “often” and two “sometimes.”

10. Would your child accept the answer “later,” when asking for a treat?
Four answered “often” or “always,” one answered “sometimes.”

11. Could you describe your child as exhibiting patience?
One responded “rarely,” two “often” and one “sometimes.”

12. Is it difficult to transition your child from one activity to another? e.g., screen time to outdoor play?
Two responded “rarely,” three responded “sometimes.”

13. Does your child enjoy physical activity?
Four responded “often” or “always,” one responded “sometimes.”

14. Is it difficult to end a play-date?
Four responded “rarely,” one responded “sometimes.”

I found the questionnaire results were, for the most part, commensurate with my experience of the students in the class. As I have mentioned in the Methodology section, the students ranged from having a high degree of self-regulation to having significant difficulty with focus, attention, impulse control and other areas of self-regulation. Although there are fewer stressors at home that affect the ability to self-regulate, I could see that some children continued have difficulty with dinnertime routines and transitioning. Most children had good bedtime and sleep routines except one student who shows attentional difficulties during the day. The questionnaire allowed me to make connections between student S’s poor bed time routines and her arrival at school in an upset or stressed condition, perhaps due to a difficult morning that followed a poor night’s
sleep. I could also make connections between challenges she had with sitting at the dinner table and being able to sit still in class.

The questions asked to parents helped them to identify the aspects of self-regulation to be observed during the data collection period of the study, specifically: delayed gratification, impulse control, the ability to cope with disappointment and to recover from it, communication skills, willingness to cooperate, attention, ability to transition from one activity to another, awareness of energy output in relationship to activity (dinner-time behavior, bedtimes). I feel the questions gave parents parameters around what they could focus their observations on during the study as well as aspects of behavior they could expect to comment on after the study.

**Data Collected during the Research Phase**

The data collected during this phase of research is anecdotal. It consists of my observations and the connections I make between observable behavior and the research question I pose in this study which is whether mindfulness strategies introduced have impact on the development of self-regulation in my grade two students.

**Investigator’s Observational Notes During the Yoga Sessions**

My class was infamous within the school for having difficulty focusing as a group and with making transitions. Getting ready for recess and returning from it took an inordinate amount of time. I had concerns about developing a routine around getting set up for yoga, which included clearing the desks and getting out the mats. It did take a great deal of time and I continued to tweak the process throughout the year. What I found worked best was for yoga to be scheduled immediately after lunch for 30-40 minutes. This gave me a chance to quickly and efficiently move the desks and set out the mats myself. Mats were neatly rolled and placed in the yoga center for storage. The class, while exhibiting characteristics of wildness, was also inherently sweet and helpful. As the year went on their desire to be a part of yoga class set-up and clean up increased. If I had not finished set up by the time the children had come in for lunch, I would ask them to sit on the carpet and choose two or three volunteers to help me with the process.
Students demonstrated enthusiasm to offer assistance and take responsibility to ensure that the class happened. This showed me that the students were taking responsibility for making sure the class happened. It was something they looked forward to, wanted to happen and enjoyed.

**Cultivating Your Own Space**

I wanted this class to be markedly different from the rest of their day in many respects. I wanted it to be predominantly transmissive rather than collaborative or co-constructive. The children could relax and just be instructed; it didn’t involve their contributions, just their active involvement. I wanted the class to be quiet, a shift from the busy, interactive environment that defines the rest of the day and, most importantly, I wanted the children to be in their own space. I felt this was an important distinction for the yoga class. Children of this age are extremely physical; they are full of hugs for each other and their teacher. They sit on the carpet during lessons, story time, and shared reading and writing holding hands, leaning on each other and cuddling. It occurred to me that physical boundaries may vary amongst my students and that this closeness may be difficult for some, and may affect their ability to self-regulate in the biological domain by causing them to feel stress. In the yoga class I introduced the idea that for this period of time we would be on our own, that our yoga mat would be “like a magic carpet where we do our own practice” This clear instruction to avoid physical contact may have provided a needed break for students. Reminders were necessary at the beginning of class and during Savasana, (final relaxation), to try to be still and focus on the breath. “We can be comfortable and peaceful in our own space.” I would say. This concept became more accepted throughout the year and I observed that the students appreciated this time of being on their own. The students began to self-monitor by suggesting that there neighbour move a little here or there away from them or to give them space. The older students often helped the younger students to line up their mats in the right direction and not overlap into anyone else’s space. Students H and C who were well-regulated students were particularly helpful in sorting out the younger students and arranging their space for them. I observed student H sitting on her mat quickly and waiting patiently for the class to start well ahead of the rest of the class. She would just sit and be still among the comparative chaos going on around her, waiting for the class to begin. We talked about how this modeled good behavior and expectations for getting ready quickly, without being distracted to the other students. Student E did not always participate in all the asanas (postures). He
Sometimes just lay on his yoga mat or I often found him reading a book. When I suggested he try a posture one day, he responded, “no thanks, I’m fine”. It was a slow process for E to join in the asanas but I felt that he really appreciated this time where he was allowed to be in his own space without being asked to interact. Student P was extremely enthusiastic about the class but sensory issues often preventing him from respecting personal boundaries and others’ personal space. I observed that respecting these social norms was something that he needed to learn and the yoga class and its disciplined environment was somewhere he could learn this. Student S became noticeably quieter and much calmer during the yoga class, rarely saying a word.

These observations and comments suggest that the environment of the yoga class could provide relief for students constantly expected to interact with each other and actively engage with the group. I felt my students were able to experience a part of their school day where the rules were different and expectations were to work alone and apart even though they were in a class with others. In order to develop self-regulation and recognize that closeness with other students all the time may cause feelings of stress, students need to feel the relief of being alone and apart during their school day. Many students seemed to demonstrate this connection when they went to the yoga center (or an even more remote corner of the class) and rolled out a yoga mat. I observed the students most sensitive to over stimulation, taking the opportunity to be still, quiet and apart on their mat away from others regularly.

**The Power of Silence**

The need for quiet became an increasingly important aspect of the yoga class for my students. At the beginning there was impulsive calling out, requests for me to watch them in their posture or to check if they were doing it right. These were signs that the class was enthusiastic and enjoying the practice. I would gently assure them that “I was watching them and watching how their bodies were doing their work.” I also encouraged them to make a shift from using their minds and their mouths to using their bodies. This was mindfulness movement and they were encouraged to concentrate on the sensations and effects the asanas (postures) had on their body and mind. They were always keen to comment on which postures made the feel the best and those they found the hardest. I would encourage them to “move inside your body and tune in to how it feels”. Their own desire to regulate the noise level became greater and greater throughout
the year so that by the end of the year, a pin drop could be heard and no one dared break the peace and quiet of the practice. The peaceful environment astonished other teachers, who passed by our class.

Half way through the year, I purchased a CD of yoga music for children. These were sweet and gentle mantras sung in Sanskrit by various artists. The children enjoyed doing their practice to the music and it focused them to listen rather than to talk. They sometimes sang quietly to themselves or hummed sections as they did their practice and they routinely begged for the CD to be played during other quiet activities during the day. At one point, student H asked if we could try doing our yoga class without me speaking, instead, just listening to the music. Initially concerned, I gave it a try. Instead of giving verbal instructions, the students simply followed what I was doing at the top of the class. They became deeply relaxed, calm and quiet. There was a general sigh of sadness when I asked the children to move into their final relaxation. I felt they could have stayed in this quiet state for the rest of the afternoon. I also felt that it was something they needed. After that day, I received many requests from students in the class to do another silent class. Comments like, “I really need this today” from Student S or “please, just today?” asked student H. I explained that sometimes I had to teach them something new but it was clear, what they perceived they required most was quiet. I considered the idea that if teachers are feeling depleted and exhausted by the sound of busy industry during the day, we can be assured that children, with a variety of levels of sensitivity, are going to be as well. In this case, the children were able to express what they needed in order to calm down and reduce feelings of stress. They were communicating a way to help themselves self-regulate. They needed quiet and for the pace and energy of their environment to change. Teachers may never have to stop asking for a quieter noise level in the classroom, but the experience of a student-led or requested silence could bring about more cooperation and compliance when they recognize its value internally rather than being told what to do externally. The experience led my class to a conversation about the brain needing silence. I shared with my class some research I had read by George Prochnik (2011), author of In Pursuit of Silence: Listening for Meaning in a World of Noise. Prochnik reminds us that our world is becoming more and more layered with sounds and that this may be compromising our ability for a reflective and active state of mind. He likens the thinking process to an animal stalking its prey; before it moves it is silent. The students seemed relieved to hear this and it opened up a forum for them to express their feelings about classroom noise and why
we have different tolerances to it. Music and art writer, J. Gabriel Boylan (2010) writes about the dangers of constant exposure to noise in an article entitled *Torch in the Ear*. He explains that brain activity or thinking happens between sounds and when there is too much un-abating noise, the brain tends to flat-line. When I explained this idea to the children in my class, they were both concerned by and agreed with Boylan’s explanation of the brain-dulling effects of noise. Some of the students expressed their concern in the following way: Student S commented that she finds it almost impossible to work when there is too much talking or noise. Many of the children echoed this concern and commented that it interfered with their thinking.

The active-learning classroom is encouraged and seen to have a positive effects on student learning, wherein children can discuss their work, moving around, engaged in learning and discovery. However, I have also seen children genuinely distressed by this environment. These students can barely stand the noise and busyness and have begged me to quiet down the class so that they could think and work. In response to this observation, I purchased earphones for the class at their request (they had seen them used in another class). They help block noise and they are for children requiring a greater degree of silence to concentrate. All the students on a regular basis used the earphones. The understanding of brain function mentioned above, gave the children meaning and context behind the request from students and teachers to “be quiet.” There is a time for talk, and a time for silence. As a learner, I appreciate the benefits of activities of discussion, peer mentoring and the consolidation of concepts by engaging with peers, however, I also feel it is more difficult to think and wrap my head around new learning or problem solving in a busy or noisy environment. This highlights the perennial challenge and possible paradox of teaching and learning in an active-learning environment. Perhaps we, as teachers, can become more aware and sensitive to the unique needs and conditions for learning as it relates to the individual child, and in so doing consider personal preferences and disparate learning environments when designing our days and programs. In this manner, we can make sure there is time for both a busy and a quiet environment within each day, and be responsive to the stress a busy environment may cause some children.

**Commitment to the Practice**
Three students in my focus group would ask me almost daily if our yoga class was going to take place and one would be visibly distressed if for some reason the class had been cancelled. “I don’t care what the reason is, I was really looking forward to it!” student C was noted as saying after class was cancelled due to a class guest. Student C also spoke about how she did yoga at home as a result of our class practice, and how she introduced yoga to her parents so that now they do it most mornings before school.

Student E, currently being assessed for exceptionalities relating to attentional difficulties, compliance and giftedness, found the yoga classes extremely difficult. I would often notice him reading a book on his mat or lying in a supine position. He was unwilling to participate but wouldn’t give me a clear reason why. During the data-collection phase of the year, things improved. His parents were extremely supportive of the program and they may have encouraged him to make more of an effort. He would participate for short amounts of time (5-15 minutes) and then revert to being less focused but not necessarily distracted. He consistently looked forward to final relaxation and would ask, “how long until we can relax?” I observed that he would then enter into a full, complete relaxation, with no distraction, his eyes remaining closed and his body absolutely still. He would remain this way for the duration of the relaxation phase, and his peers would have to rouse him at the end, whereupon he would be annoyed and express his desire to keep relaxing. At the end of class, he often would make a point of telling me how much he enjoyed the class.

Student P, diagnosed with moderate to severe attentional difficulties (ADHD) initially found the classroom environment distracting. He demonstrated impulsive behavior, getting up from his mat, calling out and attention seeking prior to the data collection time. He benefitted from a support teacher redirecting him during the class. His ability to stay focused during the class improved. His parents were extremely supportive of the program, and were using a variety of mindfulness techniques at home. Student P found one of the techniques, the body scan, particularly effective and wanted to share it with the class during final relaxation. I used his request as incentive, and suggested that if he were able stay present and participate fully in the yoga class he could then present the body scan. It retrospect, it occurred to me I was combining behaviour modification techniques with mindfulness. However, it made a positive impact and he persevered throughout the yoga class for many weeks at a more focused level than any time
before or after. After our class, he delivered a very good yogic body scan to the students. This technique is a deep relaxation mindfulness technique that asks the participant to focus his attention on each part of the body from the toes up. The participant is asked to mindfully attune his/her awareness to the sensations of that part of the body, and then ask it to fully relax. I observed that student P was able to recognize the benefits of his own practice and wanted to share them with his peers. This marked an important moment for the development of this student’s self-esteem and leadership qualities. Previously student P he identified himself as “a bad student,” and one that “didn’t have a smile.” Now he was now an involved and appreciated member of our class, fully accepted by all, and able to contribute meaningfully and powerfully while connecting personally to the benefits this practice could give him. Student P often complained of a sore neck or a sore shoulder. I would often help students connect to the physical benefits of the practice by saying, “this posture is good for releasing tension in the shoulders, or this posture is good when you have a sore tummy.” Student P began to request certain postures at the beginning of class to address specific physical complaints. This showed a connection he made between his body sensation of tension and the physical salutary benefits of yoga.

Student S’s behavior was markedly different during the yoga class. She would slip into a very quiet and solitary zone during the practice without needing to chat or interact with her peers. This was very different from the rest of the day where she was consistently being asked to refocus on her work and avoid the distractions such as chatting. Student H showed a deep commitment to her yoga class. “I’ve done yoga before,” she told me, “and I know how good it makes my body feel.” When I asked her what she loved about her other yoga classes she answered, “Melanie (her previous yoga teacher) told us lots of stories when we were lying down with our eyes covered. She led us through forests where we would meet animals and see things.” Student H was describing creative visualization which is another mindfulness practice not used in this study.

**Investigator’s Observational notes on the CORE PRACTICE**

This breathing practice was done two or three times a day for approximately five minutes each session. There was, understandably, a lot of fidgeting, distracting noises and behavior when the practice was first introduced in December. By the time of the data collection, the class was
familiar with the routines, and the students had strengthened their stamina to be able to sit for the allotted time, peacefully. We had experimented with many positions for the breathing practice as some children found it uncomfortable to sit still for so long; this challenge often interfered with their ability to focus. Many children found it helpful to come into the child pose, to breath. During the data collection phase I recorded several reflections and comments from students in my focus group. Two students with attentional difficulties took a longer time to settle into the routine, but student P became one of the most disciplined, often calling the other students to the carpet when it was our time to breathe together. The final breathing session of the day was the most challenging for him. Student E would often take himself out of the circle and breathe away from the group; it was usually difficult for him to remain still and not distract others with his sensory issues (banging the floor, making noises with his mouth or body). When I asked students to discuss the breathing session and comment on any sensations or challenges they encountered, student C described the sensation of floating up out of her body, “like a cloud,” and watching herself sitting on the carpet from above. She once described floating “up like a cloud over the school and the city.” Her descriptions of floating and rising were repeated often and consistent.
Student H, a highly self-regulated student, described how she maintained focus by repeating to herself, “breathe in, breathe out.” She said this also helped her re-direct her attention when it wandered. I asked them to describe how they felt after they did their core practice. Student H said: “I feel sleepy.” Many students agreed. Student S added, “Breathing makes me yawn.” “Ya, I want to go back to bed,” agreed Student P. I asked them if it made any part of their bodies feel different. “It makes my head feel different,” said student C. “I feel it in my tummy,” said Student H. I commented to the class, genuinely, that it made my chest feel different, less tight, softer, many people in the class agreed. I felt it was important for me to share my experiences of the practice as well as to model how to express ideas and responses to sensations, and to help the children develop self-monitoring skills. I wanted to open conversation about reflecting rather than elicit comments by asking leading questions.

The students often came to school saying, “I really need to breathe this morning” and would give their reasons. Student C arrived one morning saying “I need to breath because I have this song stuck to my brain like bubble gum. I had to help my brother practice the song he’s singing for concert . . . over and over again.” “How do you think your breathing will help you?” I asked. “It will stop the song from singing in my head,” she replied.

Student S arrived one morning crying, which was not uncommon for her. She told us that she really needed to breathe because her father “yelled at her” when they were getting ready to leave the house for school. She described the hurried tension and how her father had to raise his voice to get the kids out of the house. This opened up a dialogue allowing the children to express how mornings are often very stressful when parents get cross as they try to get everyone organized and get to work on time. It turned out that many peoples’ mornings were filled with tension, stress, concerns of lateness, uneaten breakfasts, of grumpy parents in a rush. I could relate to their stories on a personal level myself. We connected these stories to a real, authentic reason for giving ourselves time to breathe first thing in the morning.

The comments I recorded and the observations I made suggested a growing connection the students made to how the breathing calmed them down and how they “needed it” to either
regulate their emotions (if they were feeling sad or angry), or to regulate their states of arousal (calm them down or wake them up). There were comments made by the class that they “needed it” to somehow set them up for their day. I observed a shift in attitude to the breathing sessions. Initially the children complained or were unenthused about the practice, but by the end of the data collection period, it was very obvious that the children quickly moved into the practice without needing encouragement, and settled without the fidgeting. They were beginning to self motivate and self regulate. Student E quite regularly, did his breathing practice away from the group, without being asked to do so. I observed that he was quietly following instructions, but recognized that it was easier for him to do so away from the others.

**Data Collected from the SMILE CENTER**

As mentioned earlier in this study, this center consisted of mats, books, yoga ball, a Lycra bag and a balance board. I introduced the board just before the data-collection period as I suspected there may be great interest in it initially due to its novelty. Students were asked to record their visit to the center and any of the effects they could observe or feel were occurring (see appendix A). While many students visited the center (there appeared to be a steady stream at times), not all students in my focus group visited the center. For the purposes of this study, I can only comment on students from whom I received permission to collect data.

Student S visited the center for seven minutes recording the reason for doing so as jumpy, and needing a stretch. The activity was yoga, and the result: “felt better.” This same student visited another two times, for the following reason: tired, and frustrated or need a stretch. On one occasion her activity was that ‘water’ and on another “yoga.” She also recorded that she felt “better.”

An anonymous student recorded the time in but not out for the reason: bored, the activity: all were chosen, felt….

Anonymous recorded time in only, reason: jumpy, activity: all, felt: better (ish)

Student P time: 5 minutes, reason: tired, activity: yoga, balance board, felt: better.

There were many other visits by students outside the data collection group with mostly students feeling better after their visit. It required some getting used on my part, and reminding myself
that the activity in the yoga corner was sanctioned as I was occasionally distracted by it in my desire to keep the class on-task.

**Data Collected from BRAIN-FOCUSED LEARNING AND MINDFULNESS CLASSES**

Our class was fortunate in December to be visited by Lisa Evans, the guidance counselor from the Yukon Territories. She was passing through town, and was interested in our mindfulness program. She came to our class to introduce the brain-focused learning component of the project. Arriving with illustrations of the brain she helped us learn the names of various parts of the brain, and their functions. She was approachable, engaging, and interesting. The children were fascinated by her personal stories of encounters with a bear, which activated her amygdala, and of how she reacted. Instead of acting on prior knowledge of bear behavior, her flight, fight, or freeze, response had been ignited, she explained, preventing her from processing information through the pre-frontal cortex, “the wise leader,” which would have reminded her to turn and quietly walk away. She played games with the children and did some drama that helped the children gain a solid understanding of different aspects of brain function, and learn how these parts interact. I continued these lessons and discussions about basic brain biology after our guests visit. The understanding of brain biology gave us a framework and context to understanding how we learn and a common language to express how we behave, whether we were reacting or making thoughtful choices. We coined phrases like, “I flipped my lid” to describe an amygdala response. We talked about how we can’t learn when we’re feeling stressed out or upset so we had better stop what we’re doing and address those emotions or stressors. During a reading conference with a student last year, she remarked that she loved reading with her father at bedtime, but preferred it when he read the page first before asking her to read it. She explained that this way: “it went through my pre-frontal cortex and the words were stored in my hippocampus so that I could remember them and read them” (personal communication, 2013). This told me so much about what kind of learner she was and what strategies she was (and wasn’t) using when reading.
I chose a few lessons from the *MindUp Curriculum* to help children understand what mindful listening was and used stories like *The Listening Walk* (Showers, 1961). We made charts on what “mindful” behavior looks like and its nemesis, “unmindful” behavior. We read about Sophie’s strategies for dealing with anger in *When Sophie Gets Angry* (Bang, 1999). We discussed things in life that worried us or made us feel stressed out and wrote about them in our mindfulness journals after reading *You’ve Got Dragons* (Cave, 2003).
POST-STUDY PHASE Parent Interviews

Parents were extremely positive about the program and were happy to share their observations. Student E’s parents recognized their child’s resistance to the program and understood that he found the classroom environment challenging due to attentional and oppositional difficulties. “We know that it is hard to deal with every child’s character.” They did, however, comment on some positive changes they noticed. “E has always been very stubborn but in the last couple of months, his tone and argumentative attitude have mellowed . . . he comes around a lot easier than before.” They noted that he still challenges his parents but also recognizes that they don’t give in. “He has improved on his daily chores. Still some reminders are needed, but he gets to them faster and without complaints.” They also observed that “his silly moods” were less frequent. Student E’s father commented that he used language and terminology at home that he felt he learned from our class. He would suggest to his mother that she could take some time away from them if they were in conflict, that perhaps it would help her to calm down. E’s father suggested that the language was important for student E to be able to express himself better.

Student C’s mother was very positive during our interview. Her message was clear; she understood that student C came into this program with good self-regulation and self-control, but
that the program and strategies learned were essential in order for her child to maintain good self-regulation as she grew up and matured. Student C’s mother also said that some people in this world are obviously born with a greater predisposition for self-control but “it is important to nourish it other because other wise, this way or the other, they will lose it and I have seen this happen to her. If it is not nurtured you just lose it. It is almost like a temporary (thing), it becomes shorter and shorter, it may not disappear but there are not enough examples of them to see for them to grow. If I need to grade this, I would say that C is more or less the same but she has a deeper understanding of herself (and of her self-control)” (personal communication, 2013). Student C’s reflections: “I didn’t know about mindfulness before or how to breathe when I was in grade one, and now I know how to do it and I really love breathing.”

“What is that you love about yoga?” I asked.
“It stretches your body. I used to do modern dance so its kind of similar.”
“How do you feel after a yoga class?””, I asked
“Sometimes I feel a little sleepy and other times I feel I have more energy.”
“Oh, I guess it depends on how you felt before the class?”
“Yes.”

Student P’s parents were very grateful for the program this year. This student, with his challenges, had the most to gain from an intervention, such as learning mindfulness strategies to help develop impulse control, as well as help his considerable attentional difficulties and help him to focus and stay calm. Student P’s mother said that “he is a different boy now, a completely different boy.” She talked about how he has recognized that he can trust his teacher (me), and was happy to go to school again. “He knows that you are on his side, and want to listen to him, and help. He felt he was just always just getting in trouble before.” She talked about how he shows great compassion for his little brother, and that she was worried about his ability to be compassionate based on interactions he had with other students and teachers and his inclination to be violent and very angry. She said they planned to continue with a mindfulness practice at home, especially breathing and body scans, and have put considerable effort into making his home environment much calmer by keeping it de-cluttered and simple. “He even wears pajamas with solid colours rather than crazy cartoons on them.” They are committed to continuing to find alternative therapies and interventions for his difficulties.
Student H’s mother was also happy with our mindfulness program. It was not surprising that she said she had not noticed any differences in her behaviour as Student H has great self-control and exhibits many attributes of excellent self-regulation. What she had noticed, she said, was a deeper understanding and greater ability to do the postures. “She comes into them so easily and so well now, she has such a solid understanding of them in her body. She knows them so much better and practices her ‘Oms’ as well as the postures at home.”

It was particularly interesting to talk to Student S’s mother at the end of the data collection period. She is a practitioner of yoga, as is her husband, who is also a yoga teacher. They regularly go to a yoga center for the summer with the children to study and practice. S’s family appreciated the mindfulness program and commented that she will really miss it. Despite the fact that she and her husband engage in a daily home practice of yoga and meditation, they do not invite or include the children. “We know it would be good for them. . . . but we just do it alone. . . . we wait until we have put the children to bed. . . . I guess it’s something we think of as just for ourselves.” We talked about how the time away from the children is definitely important for very busy parents, but that finding a time or place for the children to practice would be very beneficial. Attentional difficulties had been diagnosed in another member of the family and we shared our opinions about how mindfulness would be a great start when considering interventions. We also discussed other interventions, including how she was feeling about considering medication, and her concerns around the issue.

Chapter 6
Data Analysis

The data presented above is anecdotal evidence based on my observations and those of my agentive partners (my students), as well as the observations made by their parents during the study. Evidence was also taken from visits to the SMILE center, as well as documentation from mindfulness journals. The study represented a journey where we, together, experimented, struggled with and discovered the effects of mindfulness practices and what they meant to us.
Through analysis of my action research I am able to reflect on the set of questions that focused this study. I was interested in exploring the effects of mindfulness practices on the development of self-regulation in young students. Research cited above confirmed my own experiences in the classroom: student ability to gain the most from school is limited by poor self-regulation. My own appreciation for yoga, mindfulness practices, and the benefits associated with them to reduce stress and increase ability to focus, inspired me to observe whether these practices had any impact on students. Could mindfulness practices help my students to stay calm and focused so that they were able to learn better, and do so in an environment that was less fraught and stressful? I am able to extrapolate certain themes from my data that support or refute the basis of this research.

I regarded the recommendations made by Stuart Shanker (2013) in his book *Calm, Alert and Learning* as a guiding structure, layering it with my own knowledge, experience and intuition to achieve an environment where my students could begin to become aware of their own reactions and behaviours, and consequently self-regulating more effectively. I feel my classroom both last year, and this year, reflects many of the objectives of a mindful and optimistic classroom where students are empowered to trust their instincts and listen to their bodies and act on what they believe can help them feel better and work better. There is an understood culture and expectation of compassion, hope, goal-setting and mutual trust in my classroom. Based on my observations and findings about how mindfulness practices can help students self-regulate better, my classroom could stand as a model to inspire other educators to include these practices in their own classrooms.

This study suggests that there are many ways to help students with varying degrees of self-regulation. I acknowledge that it is a simplistic view to suggest that mindfulness practices could be the answer to the myriad of challenges and disorders that affect students with increasing prevalence. The various research cited above indicates growing evidence that yoga and mindfulness have both the “brain-boosting” capabilities as well as a means for engendering and nurturing a general sense of wellness within students. For those with more serious difficulties, mindfulness practices may only be able to contribute to a plethora of other interventions, increasing their efficacy.
A re-occurring theme that continued to emerge throughout this study is the nature and profile of attention, and what is considered “normal” within our student body. Statistics tell us that disorders like ADHD and Autistic Spectrum Disorder (ASD) are on the rise (American Psychiatry Assoc., 2013; Ring, 2014) but the model of our present-day educational system does little to reflect these changing trends. Attention and focus are aspects that are difficult to evaluate and monitor in young people beyond traditional psycho-educational testing. I believe it is important to develop new and accurate ways of measuring focus and attention in young children so that we can then assess what interventions are effective. What could look like distraction, inattentiveness or divided attention could be evidence of a child attempting to self-regulate in order to be able to pay attention. On one occasion, I observed Student P repeating a yoga vinyasa (series of postures) over and over again. I was about to ask him to stop fidgeting, jumping around and to try to be more still until it occurred to me that he was doing this unconsciously to control his energy in order to stay in the circle with the rest of the classmates. He was so enthusiastic about the activity, and really wanted to stay. Working with the whole class had been such a struggle previously, and he often had to leave and work with a support teacher when things became too stimulating. Today, he was determined to be able to participate and this was his way of self-regulating. Was it distracting? Yes, but not as distracting as he could have been, or had been in the past. Previously, he was not always capable of staying as an active participant in the group time activities without disruption.

Basic brain biology and cognitive development is not a part of initial teacher training programs, but it could be an enriching part of this training. Its inclusion could help enlighten educators of “the different kind of brain,” referenced in the interview by the college-aged student with ADHD above. As educators, we could serve our students with greater understanding and knowledge of unique learning styles and learning challenges so that we could accommodate them with careful programming, class sizes and in the design of classroom environments.

At some points, I felt that there were sufficient challenges within my student population to prevent this project from yielding fruitful observations. There were times I felt my students were too young to see notable changes in behavior and in self-regulation. Because of this, the structure of starting the program as early in the year as possible, and collecting data as late in the year as possible, was helpful. It allowed time for the students, and for me, to become familiar with the
program and expectations. In turn, this gave me the opportunity to observe and reflect on student behavior, as well as the effects mindfulness education had on the development of self-regulation within my students.

I began the year feeling this was the most challenging and unmanageable yoga class I had ever taught. In June, my feelings were quite different. This class became the most mutually satisfying, focused, and successful class of students I had ever done yoga with. I received ardent, gracious and genuine thanks from this young class for giving them the gift of the practice, the time in their day to do so, and the opportunity to feel the way they did as a result. The experience of this project was moving, heart-rending, and very inspiring.

The single most impactful consideration of this research project is the age of the children I worked with. In none of the research and the literature I read were there any studies of mindfulness-based strategies or mindfulness-based programs used with grade two students, or six to eight year old children. Patience and perseverance was required in delivering the program before its benefits became observable. The implications of this fact shapes the qualitative data collected. I noted comments from the children during their practice, and I recorded observations that I saw were relevant. I encouraged the children to think critically about the practice by asking carefully designed questions to illicit responses, and reflections about their practice. Although I encouraged journal writing, I found this form of data less enlightening as it is sometimes difficult for children this age to express themselves fluently in writing. I saw and recorded a gradual unfolding of subtle changes in attitude and behavior of students rather than radical behavior modification results. I found that the children responded in deeply individual ways as they developed their own unique relationships with the practices. Their outlooks shifted, their independence grew and recognition of what felt right and good for them slowly emerged. They began to connect with a sense of self-efficacy, a feeling that they were capable of dealing with their issues and needs rather than turning to an adult or simply turning off. I observed a gradual but consistently developing confidence in their own abilities to regulate their behavior and their states of arousal; to “do what they needed to do,” so that they could engage more fully in the school work they were so eager to accomplish.
After so many years of teaching, I saw that it was hard work for the children, grappling with mindfulness practices, and rising to what was expected of them. It was new territory and they were being asked to do things they had never before encountered. Sitting still and focusing on the breath demanded self-awareness, great effort and attention but I could see they were ultimately willing and capable. Attempting yoga postures that were new for their bodies elicited a variety of responses from excitement to frustration but evolved into positive statements that showed an appreciation of the benefits that the practice had on their bodies and minds. The changes and developments were exciting to see: something that altered that “classroom contagion,” previously mentioned in this paper, for the better. In generalized terms, I observed children slowing down and reflecting on their responses to situations, or to challenges, making choices around their behaviour, instead of reacting emotionally or “mindlessly.” I saw, in my most challenged students, an increased ability to sit with the class, to control their impulses so that they could listen their classmates, or to the teacher at circle time, and use their hand when they wanted to speak. I observed a marked increase in their ability to persevere when things got tough, and to use the strategies for calming themselves down when they began to feel overwhelmed. Student P had not one incident where furniture or objects in the class were thrown in response to his anger, and I observed him using his breath on many occasions, with determination, to bring his emotions under control when necessary. All students in my focus group could articulate their observations regarding the effects of the practice, and isolate when they “needed” the practice and why. All members of the focus group were able to express a growing trust in the practices to help them achieve states of readiness to learn. I even observed a developed sense of leadership in student P. He became someone who enjoyed modeling calm behavior that showed he was receptive to the class’ focus. He even began to redirect others’ behavior and remind them of what was expected of them during the mindfulness practices. Finally, he became an accepted member of the group.

Was there a steady improvement that continued over the course of the year? No, there was an ebb and flow in all members of the focus group. Their ability and determination varied. There were days when it was difficult for everyone to focus and attend to tasks. It appeared as if there was some development and regression in the self-regulation of all students in the focus group, and I attempted to make connections about the influence of external stresses and variables that may have contributed to this fluctuation. What was consistent, however, was a growing ability
within the students to recognize when they needed to take a break. Instead of being distracting or attention seeking, student P and student E would quietly remove themselves from the group to finger knit in the corner, or to fold paper. They would shout an assurance to me, “I am still listening to you,” instead of negatively attracting attention to themselves, or causing chaos, which were strategies they previously used.

I was able to observe and document clear indication that students and their families enjoyed the mindfulness practices introduced over the year, and that they were able to identify and recognize benefits that contributed to their child’s well-being. I observed behavior in my young students that suggest that mindfulness practices were impactful on their ability to control impulses and respond more positively to their classmates. I could see that my class had developed skills to help them focus and stay calm in a busy and challenging classroom environment. My hope is that they can continue to use these skills and strategies that may help them throughout their lives to identify and control the stresses that they will continue to experience. I hope that these skills and strategies will help them navigate the ups and downs and they will inevitably face as they grow up.

Chapter 7
FURTHER QUESTIONS

When considering further questions related to this research, I cannot help but question the implications of not including mindfulness education into school curriculum. The decision for the TDSB, to make mental health in schools a priority is well placed. This present study warns of the mounting and previously unparalleled stress that children today experience. It voices the concerns of Psychologists like Stuart Shanker (2013) who suggests we must help children deal with this stress through the development of self-regulation. Without taking the time and responsibility to teach children how to recognize stress and the symptoms of stress, give them interventions and strategies to help them cope with it and then effectively recover from it, the question remains, what are the repercussions? Statistics tell us that fifty percent of people with eating disorders meet the criteria for depression, and that eating disorders have the highest mortality rate of any mental illness (Patrick Sullivan, 1995). The average age of onset for this disorder is between the ages of 16 and 20. It is the third most common chronic illness among adolescents (Public Health Service’s Office, 2000), and the mortality rate associated with
Anorexia is 12 times higher than the death rate associated with all causes of death for females 15-24 years of age (Sullivan, 1995).

Self-injury and self-harm is a consequence of untreated depression and anxiety, conduct and oppositional disorders, eating disorders and other mental health issues. One in five females, and one in seven males, engage in self-harm each year. Ninety percent of individuals who engage in self-harm begin in their teens or pre-adolescent years (Gluck, 2013). Suicide is the most extreme case of self-harm and accounts for about two percent of annual deaths in Canada. In both men and women, “the greatest increase between 1960 and 1991 occurred in the 15-19 year age group, with a four and a half increase for males, and a three-fold increase for females. It is the leading cause of death among young people after motor vehicle accidents (J. McNamee, D. Offord, 1994). “For every youth suicide completion, there are nearly 400 suicide attempts, 100 reports requiring medical attention for a suicide attempt” (D. Culter et.al., 2001, p. 1). New statistics published by researchers out of the Centre for Addiction and Mental Health in Toronto report a sharp increase in the number of survey respondents from Ontario who claim that they seriously considered suicide in the last year and that most of these respondents were between the ages of nineteen and twenty-nine (Hamilton & Mann, 2013). These are the reportable and quantifiable results of children and youth who struggle with feelings of being overwhelmed, stressed, struggling to deal with mental health issues, and possibly lacking sufficient or effective self-regulation skills. There are more causes and consequences of stress including bullying, academic stresses, and pressures, not to mention the alternating narcissism and paranoia created by the over dependence on social media and the need for constant validation of “likes” that have youth living life on the edge of their seats. The current employment crisis for youth under the age of 25 has also opened up new conditions for stress, anxiety, and insecurity. Mindfulness could be one modality among many that could help young people learn how to self-regulate and cope with stress, possibly in conjunction with other methods such as medication, Cognitive Behavioural Therapy, Mindfulness Based Cognitive Therapy, exercise, diet, and other forms counseling and therapies.

There is evidence that when mindfulness education is introduced in the early years (7- 9 year olds) and where children have the most to gain in terms of low executive functions and self-regulation, the greatest effect is seen (Diamond & Lee, 2011; Flook, et.al., 2010). Longitudinal
studies would be helpful in giving us data and evidence of the influence of mindfulness interventions on the development of self-regulation, and other executive functions, by tracking academic achievement and success throughout life (in careers and marriage) of participants from pre-school throughout adulthood. Increasing positive mental and physical health in our children should be our top mandate as educators; to act towards lowering these worrying statistics must surely warrant the inclusion of mindfulness education in the school system. The question remains, can we make this a priority in our school systems to help students live better, healthier and more productive lives with the understanding and skills to ensure this? Is there a way to help educators become familiar and comfortable enough with mindfulness programs so that they can see the benefits of their inclusion in their curriculum and into their regular day-to-day class time? Is there a role for leadership positions within school boards to assist with professional training and support in setting up these programs? I would suggest that attention paid to these questions would be well worth the effort. I would also recommend more evidence-based research be done in schools and classrooms to give us data and feedback on the effectiveness of mindfulness practices on student performance, well-being, and classroom management. Neurocognitive testing of self-regulation and other executive functions in response to mindfulness programs and intervention could further extend the observations and findings of this study.

More extensive research could be warranted to examine the effects of mindfulness intervention to address specific school related issues like overcoming trauma related to bullying. Students are often afraid or reluctant to return to school after incidents involving bullying. Further study in this area could give us insight into whether the implementation of mindfulness strategies could be helpful in reducing stress and help students become comfortable in a school setting again. Mindfulness practices brought into classrooms where there are incidents of bullying could be effective in helping reduce bullying behavior, and help the victims of bullying by clearly advocating their needs.

It would also be interesting to investigate the impact of mindfulness strategies in reference to specific academic concerns like test phobia and stress related to test taking. This is a serious concern that prevents many students from achieving their potential, and from students being able to communicate what they have learned due to the interference of stress. Mindfulness
intervention aimed at dealing with specific concerns such as these could help us focus programs and interventions for population groups with identified needs.

Student athletes and performers could also derive benefit from mindfulness practices. Further investigation would be valuable into the effects of mindfulness on helping develop positive states of mind before race performance in athletes, or artistic performance for dancers, actors or musicians. These groups of individuals experience extreme stress, and could benefit from learning to develop focus, allowing them to excel in performance, and to cope with the associated stress of performance.

Despite mindfulness programs becoming more accepted in schools across Ontario and Canada, there are still questions about what teachers, parents and administrators think of these programs. Perceptions based on equity and confusion around whether these practices could be considered spiritual practices may limit the inclusion of mindfulness programs in schools or the willingness of educators to teach them. Teachers and administrators deal with tightly packed curriculums, especially during years when teachers and students take part in standardized evaluation (EQAO), and as a result may find it difficult to create time in their day for mindfulness practices. It is important to determine if there are any pre-conceived ideas as to whether these practices are useful, and the practicalities of how educators may see themselves including these practices into their demanding days. Do parents, teachers and students perceive value in these programs? Why or why not? These are important questions to consider when designing programs and curriculum that could include mindfulness programs and practices into the daily lives of our students.

**Limitation of the Study**

During the course of my research I became aware of certain limitations that affected the results of the study. The model of Mill’s (2011) “Dialectical Action Research Spiral” approach suggests the teacher in her/his role as active-researcher continuously cycle back to consider the effectiveness of the methodology and reflect on variables. It also suggests reflecting on considerations and influences that may redirect or enrich the study. I was fortunate enough to be working with colleagues who were both interested in and supportive of my inquiry. Many of our discussions and the observations I shared with them helped me reflect, shape, and reconsider
approaches to make my study more meaningful. The biggest limitation of this study, however, was that I was the only investigator. I came to realize how my ability to record and reflect simultaneously was limited by the fact that I was actively engaged in teaching, and in charge of a class with specific high-needs children. I did attempt to tape a few sessions of post-breathing practice discussion as a form of data collection, but I feel that my role of observer and teacher limited my ability to fully investigate the effects of my program. I became most aware of this limitation when a guest visited our class to teach yoga, or, in the case of Lisa Evans, a brain-function session. On one occasion, a guest came to visit to do a restorative circle drama, and as an observer, I was able to collect observations and detailed notes on student behavior. I found the sessions where a guest was leading the class immensely helpful in providing me with opportunity to collect data and rich feedback; in these cases I became more objective and could see so many more angles of the class dynamic. The inclusion of a co-investigator would be required in any further study that I plan to undertake where roles and responsibilities would be clearly outlined.

Another limitation of this study was the inherent but unintentional inclination for the teacher as active researcher to influence student feedback. I was consciously aware of my responses remaining even when students had made particularly insightful or interesting comments, and to not demonstrate a greater or lesser degree of enthusiasm. At times, however, I felt the students could detect that a certain response was one I found important, especially when I would jot down what they had said. I did not want influence students’ responses by encouraging anything but the most authentic comments, but I found this challenging at times and could hear students echoing the responses of peers who may have elicited a “correct answer” or certainly one that got the teacher recording their response. Students at this age love pleasing their teacher and giving an answer they perceive to be “correct.”

After reading the research of Peck et. al. (2005), I admired the opportunity the investigators had to remove the children in the focus group to deliver the yoga lesson. It was difficult for the students in my focus group who demonstrated signs of attentional difficulties to get the most out of their yoga sessions due to the number of students in the room and the stimulating environment. It would have been ideal to observe the students in my focus group after they had experienced a yoga session away from their regular classroom in a less stimulating environment and record observations on their state of well-being, ability to focus, and their energy level.
Implications of the Research

As I complete this study, I look forward to sharing the results with parents, students and colleagues in my school, as well as my board of education. As mentioned above, there has been great support given to me by my faculty, as well as great interest in the benefit of mindfulness programs. I have kindly been invited into the classes of colleagues at my school to teach yoga classes, or lead a breathing practice. I am so delighted to do so as I am interested to see that other teachers recognize the benefits of the practice. I am also offering a yoga class for teachers at the school one afternoon a week so that they may enjoy the opportunity to relieve stress, tension and move their body in a challenging and healthy way, but also to become familiar with, and learn, basic postures that they may share with their students.

Teachers in my school and in my family of schools are being introduced to the MindUp program and are using it with unanimous appreciation. This is an example of one mindfulness program that teachers are finding easy to use and of great benefit to their class. It is exciting to see that teachers are making space in their busy days to incorporate this valuable resource. This could inspire other teachers to engage in evidence-based research of their own.

My study reflects a qualitative investigation of questions I have formed and connections I have made for many years through my combined passions of education and yoga and meditation. It was a satisfying initiation into what I hope will lead to further research in this area. I would value the opportunity to be part of further exploration into how students can become better regulated through their knowledge of mindfulness strategies. There is merit in constantly questioning whether our education system and educational models are supporting the well-being of our ever changing student population so that they can become the best learners they can be, and also lead the happiest and most fulfilled lives possible.

I have enjoyed meeting with the Mental-Health Support team in the TDSB and would value the opportunity to work alongside their inspiring objectives and mandates to create and maintain mentally healthy students and schools. The role yoga and mindfulness could play in enriching these objectives has been recognized and appreciated by many colleagues and professionals in this department.
SMILE CENTRE (self-initiated mindfulness centre)  

Name:  

Time In:  

Time Out:  

Reason for visit:  
tired  jumpy  bored  sad  

  mad  frustrated  need a stretch  

Activity chosen:  
yoga  stability ball  meditation book  

  balance board  Lycra bag  

How I feel now:  
same  better  worse
Dear Parents

I am writing in reference to the research project that I am undertaking this year to support the writing of my graduate thesis at OISE, University of Toronto. I am inviting you to assist me in this project by granting me permission to record observations and data collected from your son/daughter towards the writing of this paper.

Briefly, the study focuses on how mindfulness education can help children develop self-regulation. My rationale is that stress is considered a mental health concern for children today. Research tells us that children now are experiencing greater stress than ever before. Children experience a variety of environmental and academic stressors. Educators and psychologists are recognizing that we must provide our students with the ability and understanding to recognize stressors and use strategies to alleviate or deal with these stressors. Leading psychologist, Stuart Shanker, tells us that an individual’s ability to respond to and address symptoms of stress is called self-regulation. He tells us that a child’s ability to self-regulate is determinate in how successful he or she will be academically and in life. Shanker, amongst many other psychologists and educators, believes that the inclusion of mindfulness strategies like daily breathing practice and meditation, yoga, mindfulness education and brain focused learning can help children develop self-regulation.

We have been practicing many of these strategies and activities from the beginning of the school year but I intend to implement a more structured curriculum with new strategies and different aspects of social and emotional learning (SEL). I will be teaching these classes, activities and strategies to the whole class but will be choosing to focus on a small group of 6 students from which I can collect data. The students in the focus group will not be told that they are doing
anything differently from their peers and they will not be asked to do anything extra. My data collection will consist of writing that your child has done in their mindfulness journal, field notes and observations I have taken throughout the session and analyzing the use of a self-initiated mindfulness corner where they may do yoga or stretches when they need a time out.

I will, however, be asking for a small degree of your input as well. I would ask you to complete a short questionnaire at the outset of the session in February and to have a short informal interview at the end of the research session with me in June to reflect back on the questionnaire and to share observations. I would be happy to discuss more fully the focus of the project or answer any questions you may have. Your child’s name will remain anonymous in the thesis and in any recorded documentation. Please feel free to contact the Office of Research and Ethics at ethics.review@utoronto.ca or 416-946-3273 if you have any questions about your rights as a participant.

Many thanks,
Gillian Thornley-Hall

I …………………………………………………giver my consent to Gillian Thornley-Hall to use data collected from my son/daughter…………………………. in the Mindfulness Education Project towards the writing of her graduate thesis.

Signature…………………………………………………………………….
Date……………………………………………………………………………

I, ……………………………………………….do NOT give my consent to Gillian Thornley-Hall to use data collected from my daughter/son…………………………………. In the Mindfulness Education Project towards the writing of her graduate thesis.
Parent Questionnaire

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Please circle the number that most accurately corresponds to your answer:

1. Does your child go to bed easily? 1 2 3 4 5
2. Does he/she sleep through the night? 1 2 3 4 5
3. Can he/she sit at the table for the duration of a meal? 1 2 3 4 5
4. If not, how long can they sit for? 5min. 10 min 15 min?
5. Does your child express frustration? 1 2 3 4 5
6. Does your child have angry outbursts? 1 2 3 4 5
7. Does your child interrupt you when you are speaking? 1 2 3 4 5
8. Is your child easily soothed by you after an outburst? 1 2 3 4 5
9. Does your child accept the answer “no” when asking for a treat? 1 2 3 4 5
10. Would your child accept the answer “later” when asking for treat? 1 2 3 4 5
11. Could you describe your child as exhibiting patience? 1 2 3 4 5
12. Is it difficult to transition your child from one activity to another? e.g., screen time to outdoor play 1 2 3 4 5
13. Does your child enjoy physical activity? 1 2 3 4 5
14. Is it difficult to end a play-date? 1 2 3 4 5
Appendix D

Dear Parents

I am writing in reference to the research project that I am undertaking this year to support the writing of my graduate thesis at OISE, University of Toronto. I had the pleasure of speaking to those of you who were able to come to our curriculum night about the focus of the project. For those of you who were not, I would like to give you a clearer idea of the focus at this time.

Briefly, the study focuses on how mindfulness education can help children develop self-regulation. My rationale is that stress is considered a mental health concern for children today. Research tells us that children now are experiencing greater stress than ever before. Children experience a variety of environmental and academic stressors. Educators and psychologists are recognizing that we must provide our students with the ability and understanding to recognize stressors and use strategies to alleviate or deal with them effectively. Leading psychologist, Stuart Shanker, tells us that an individual’s ability to respond to and address symptoms of stress is called self-regulation. He tells us that a child’s ability to self-regulate is determinate in how successful he or she will be academically and in life. Shanker, amongst many other psychologists and educators, believes that the inclusion of mindfulness strategies like daily breathing practice and meditation, yoga, mindfulness education and brain focused learning can help children develop self-regulation.

We have been practicing many of these strategies and activities from the beginning of the school year but I intend to implement a more structured curriculum with new strategies and different aspects of social and emotional learning (SEL). I will be teaching these classes, activities and strategies to the whole class but will be observing more closely and collecting data from a small group of 5 students, randomly chosen. The students in this group will not be told that they are doing anything differently from their peers and they will not be asked to do anything additional. My data collection will consist of writing that the children have done in their mindfulness journal, field notes and observations I have taken throughout the session and analyzing the use of a self-initiated mindfulness corner where they may do yoga or stretches when they need a time out.
Although your child has not been chosen for observation, I will be continuing to fulfill my duties as a teacher to all children who will be observed, supported and evaluated as part of their normal school experience. The study would commence at the end of March and be completed by the end of this school year.

I would be happy to discuss more fully the focus of the project or answer any questions you may have. All names, including that of the school will remain anonymous in the thesis and in any recorded documentation.

Many thanks,

Gillian Thornley-Hall
Dear Beth Mills

I am writing in reference to the research project that I am undertaking this year to support the writing of my graduate thesis at OISE, University of Toronto. I would be grateful if I could obtain permission from you to carry out my research in my classroom.

Briefly, the study focuses on how mindfulness education can help children develop self-regulation. My rationale is that stress is considered a mental health concern for children today. Research tells us that children now are experiencing greater stress than ever before. Children experience a variety of environmental and academic stressors. Educators and psychologists are recognizing that we must provide our students with the ability and understanding to recognize stressors and use strategies to alleviate or deal with them effectively. Leading psychologist, Stuart Shanker, tells us that an individual’s ability to respond to and address symptoms of stress is called self-regulation. He tells us that a child’s ability to self-regulate is determinate in how successful he or she will be academically and in life. Shanker, amongst many other psychologists and educators, believes that the inclusion of mindfulness strategies like daily breathing practice and meditation, yoga, mindfulness education and brain focused learning can help children develop self-regulation.

We have been practicing many of these strategies and activities from the beginning of the school year but I intend to implement a more structured curriculum with new strategies and different aspects of social and emotional learning (SEL). I will be teaching these classes, activities and strategies to the whole class but will be observing more closely and collecting data from a small group of 5 students, randomly chosen. The students in this group will not be told that they are doing anything differently from their peers and they will not be asked to do anything additional. My data collection will consist of writing that the children have done in their mindfulness journal, field notes and observations I have taken throughout the session and analyzing the use of a self-initiated mindfulness corner where they may do yoga or stretches when they need a time out.
The study would commence in March of 2014 and be completed by the end of this school year.

I would be happy to discuss more fully the focus of the project or answer any questions you may have. All names, including that of the school will remain anonymous in the thesis and in any recorded documentation.

Many thanks,

Gillian Thornley-Hall

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**Chapter 8**

**References**


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