Mindfulness in Early Childhood Education:

Supporting Cognitive and Social-Emotional Well-being in Primary Classrooms

by

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Abstract

The practice of mindfulness has grown in popularity in contemporary classrooms; however, much remains unknown about the potential impact of mindfulness practices with young learners. This project reviews the existing literature on cognitive functioning and social and emotional well-being in relation to mindfulness practices, and the impact of mindfulness practices in classroom settings. The research to date suggests that mindfulness may offer a unique, holistic approach to meet students' needs and address recent curriculum changes in British Columbia that prioritize emotional health and personal and social responsibility (British Columbia, Ministry of Education, 2016). Furthermore, current research on mindfulness indicates it effectively supports children's executive function and emotional regulation, two important factors in future academic and emotional health. This project includes a professional development workshop and PowerPoint for teachers, informed by the research, which offers a clear connection between the benefits of mindfulness and the newly implemented BC curriculum.

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Chapter One

"The highest function of education is to bring about an integrated individual who is capable of dealing with life as a whole." (Krishnamurti, 1953, p.24).

The aim of this project is to examine the benefits of mindfulness in early childhood education and how to best implement mindfulness practices in British Columbia primary classrooms to support students' learning and improve their well-being. The area of mindfulness is rapidly growing in many areas of mainstream society (Chiesa & Serretti, 2010; Erwin & Robinson, 2015). For example, scholars and practitioners in the fields of medicine, psychology, business, politics, and athletics are engaging in research on mindfulness as a potential solution for an extensive list of issues including pain management, workplace productivity, anxiety, substance abuse, attention difficulties, and depression (Erwin & Robinson, 2015). With the shift to more holistic education and an increased focus on emotional well-being and social responsibility in the new BC Curriculum (British Columbia, Ministry of Education, 2016), there is an opportunity to consider mindfulness practices in early childhood education.

Although the practice originated in ancient eastern philosophy, many new interpretations of mindfulness have emerged in the past 15 years, most of which have a broader secular appeal and reflect a range of contemporary social needs (Chiesa & Malinowski, 2011). This project examines the most common and well-established of these, the Mindfulness Based Stress Reduction program (MBSR). MBSR follows a specific structure of various focusing exercises, including breath and sensory awareness, yoga and meditation, the promotion of an open and receptive mental state, and the importance of regular practice (Kabat-Zinn, 1994, 2003).

In early years' classrooms, mindfulness programs and techniques based on MBSR are beginning to be utilized to assist with children's attention difficulties, stress, anxiety, and cognitive functioning (Schonert-Reichl, Oberle, Lawlor, Abbott, Thomson, Oberlander, & Diamond, 2015). The challenge for elementary teachers is to provide evidenced-based, developmentally-appropriate approaches that are cost and time effective (Schonert-Reichl et al., 2015). This project will examine the current research in the field of mindfulness and early childhood education and suggest how contemporary BC primary classrooms can most effectively implement these practices.

What is mindfulness?

Due to the broad range of interpretations and uses of mindfulness, and the spread of mindfulness practices across sectors of society, this project aligns with the work of Kabat-Zinn (1994), the founder of the MBSR approach. This perspective argues that mindfulness is the practice of drawing ones' attention to present moment experiences with an open, non-judgmental mindset. Although it takes a variety of forms, Shapiro et al. (2006) have described the active components of mindfulness in similar terms. Mindfulness, they argued, is comprised of three critical elements: i) attention - a mental skill focused on self-regulation and being present that is often achieved through activities such as yoga, focused breathing, or meditation; ii) attitude - the promotion of curiosity, openness, and acceptance; and, iii) intention - the personal motivation for engaging with mindfulness practices (Shapiro, Carlson, Austin, & Freedman, 2006).

Rationale

The motivation to gain a greater understanding of mindfulness and its potential to support the education of my students began with a personal experience. In February 2016, I participated in an 8-week mindfulness course based on the MBSR model. The program was offered to

teachers in my school district with the intention of fostering teachers' understanding and self-practice of mindfulness, as well as promoting their well-being. The program introduced several focus-attuning activities, including a body scan, sitting meditation, walking meditation, and yoga with a group of approximately 20 other teachers. It was guided by an experienced mindful instructor who also led the group through various mindfulness concepts such as viewing a familiar experience as though it was the first time, and listening to a speaker without responding. We also read poems and quotes and had open discussions on topics including the importance of self-compassion, gratitude, and perspective taking.

Before I began the course, I was aware of the growing presence of mindfulness programs in schools but had never used any in my classroom and had no personal experience with mindfulness practices. I had never considered mindfulness as a potentially powerful tool in supporting my students learning. At the same time, I found myself struggling with seemingly unrelated persistent challenges in my classroom, including students experiencing difficulty with emotional regulation, inadequate commitment to mental tasks, heightened anxiety, and difficulty focusing. These issues were frequently interfering with my students' success in school, and I often felt like I did not have the time or adequate tools to address them.

As the weeks progressed and I continued through the program, I was surprised by the number of positive effects I began to notice in my daily life. My ability to read articles and not drift off on a tangent of thought improved, and I was increasingly comfortable sitting in silence and actively listening to others. I began responding to stressful situations with less emotional reaction. My family began to notice and started to participate in body scans and focused breathing at bedtime. I started practicing meditation and yoga regularly, and the cumulative impact of these changes in my life was surprisingly powerful. The focus on kindness, self-

compassion, and gratitude were influencing the way I perceived the world and significantly improved my general sense of well-being. By the end of the course, I came to realize that mindfulness is not just a tool that helps you relax and feel calm but a mental exercise and a particular way of interacting with experiences that was very helpful in my professional practice. It was not only making me a better teacher by allowing me to be less reactive and more present in the moment, I also realized that it could potentially be a useful tool in addressing many of the issues discussed previously in my students.

Despite making this connection, I still had many questions and concerns about integrating mindful approaches with my students. For example, was it possible to implement in a classroom setting with primary students? Specifically, what areas of development would it support in children, and what is the actual mechanism that makes mindfulness effective? A thorough and comprehensive investigation of the current research regarding mindfulness with young children will provide a foundation for incorporating mindfulness into my classroom and address these questions. This research will be the focus of the following chapter. My observations of a growing need for a novel approach to address an increasingly complex array of students' needs is reflected in recent discourse in early childhood education and mindfulness.

Purpose and Significance

Pressure on academic performance has continued to grow over time; at the same time, teachers are facing increasing pressure to support children's emotional needs, as children experience more chronic stress (Van de Weijer-Bergsma, 2012) and stress-related health problems including asthma, stomach disorders, and headaches (Napoli, Krech & Holley, 2005). An increase in attention difficulties and behavioural challenges are also placing more demands on teacher knowledge and skills as these students often find traditional approaches ineffective

(Goleman, 1995). As teachers face these challenges, time and financial resources continue to be limited. Many early childhood education organizations and specialists are recognizing significant limitations in current practice and looking to novel approaches to support the cognitive, as well as the social-emotional development of children (Bennet & Dorjee, 2015; Napoli, Krech &Holley, 2005; Schonert-Reichl, Oberle, & Lawlor, 2015).

In addition, there is a trend, both globally and locally, towards incorporating the values that underpin mindful practices in elementary curriculum. Recently, the BC Ministry of Education included a new emphasis on holistic education in their 2016 curriculum redesign. For example, personal awareness, "the ability to recognize and regulate emotions, manage stress, and recognize the importance of happiness" (British Columbia, Ministry of Education, 2016), has been incorporated as part of the Core Competencies, which form the foundation of education from kindergarten to grade 12 (British Columbia Ministry of Education, 2016). This idea has also been incorporated into more traditional subjects. For example, physical education was changed to physical and health education, and mental well-being was added as one of three curricular competencies under this subject. These changes, linked to mindfulness practices, may provide a practical format to accomplish the curriculum's focus on holistic education and at the same time support traditional measures of academic performance (BC Ministry of Education, 2016).

If feasible in a primary classroom setting, mindfulness practices may offer a solution that addresses emotional well-being, improves cognitive function, and enhances academic capacity through relatively simple activities that require no additional equipment or technology. In this way, mindfulness may be a relatively simple tool to support teachers in meeting the redesigned curriculum requirements. Schonert-Reichl (2015), for example, suggested that educators,

parents, policymakers, and other societal agencies are looking to mindfulness practices to address children's social and emotional competencies in primary school as a way to respond to academic pressures. Early childhood, in particular, is a crucial period to introduce coping skills since the association between stressors and anxiety is stronger for young children than for adolescents (Twenge, 2000). Early years are also a time when the foundation for learning is rooted, and lifelong habits are created, making the promotion of both physical and emotional health in elementary schools a critical issue (Erwin & Robinson, 2015). If mindfulness practices can be acquired by young children, resulting in improved focus, emotional regulation and increased ability to cope with stressors, the effects over their lifetime would be exponential (Hassed, 2016).

Introduction to Theories

This project is framed by two complimentary learning theories - cognitive learning theory (Bruner, 1961; Piaget, 1928) and social-emotional learning theory (Erickson, 1950; Gardner, 1993; Goldman, 1996; Maslow, 1962). Cognitive learning theory emphasizes the brain's functions and the development of mental processes, constructed through experience. These processes include planning, memorizing, and categorizing, and all begin with attention and recognition. According to cognitive learning theorists, Piaget (1928) and Bruner (1961), individuals construct a unique understanding of the world or "schema" which is refined through novel and repeated experiences. Through practice, individuals can build and strengthen cognitive processes that lead to greater awareness, focus, and capacity to learn. Recently, technological advancements in neurological imaging, including electroencephalography and functional magnetic resonance imaging, have allowed for new information about the neural mechanisms that underlie learning, revealing observable changes in the brain (Holzel, Carmody, Vangel,

Congleton, Yerramsetti, Gard, & Lazar, 2011).

Cognitive learning theory explains the development of deliberate neurocognitive aspects of learning, including a set of skills known as executive function. Executive functioning (EF) is comprised of specific interrelated neural systems involved in cognitive flexibility, working memory, and inhibitory control (Diamond, 2013). These areas link to self-control, reasoning, creativity, discipline, and perseverance, and are stronger indicators of future academic success than IQ or socio-economic factors (Willis & Dinehart, 2014). Strategies that strengthen children's EF as a whole or its individual components (e.g., such as maintaining attention and managing their impulses) are more effective in supporting future academic success than strategies that focus on delivering academic content alone (Blair & Diamond, 2008; Willis & Dinehart, 2013). Early improvements in EF may also serve as a protective factor for students from disadvantaged or stressful living conditions as these children are at greater risk for poor self-regulatory skills (Lengua, 2002; McClelland & Cameron, 2011).

A social-emotional theoretical perspective, provides a model for aspects of learning that include the effects of stress, arousal, anxiety, and social competency on children's ability to learn. This theory is built on the foundational work of Goldman (1996), Gardner (1993), Maslow (1962), and Erickson (1950). These theorists asserted that emotional regulation is foundational to all higher level cognitive functioning. Resiliency, compassion, optimism, and empathy are critical competencies that should be explicitly taught in school and are influenced by our environment and relationships (Durlak, Weissberg, Dymnicki, Taylor, & Schellinger, 2011). Conversely, chronic stress, anxiety, and deficits in social competencies are important indicators of poor academic success and future life satisfaction.

Both theories address mindful practices in complimentary ways. For example, mindfulness requires attention, reflecting cognitive learning theory. Mindfulness practices facilitate repeated opportunities for individuals to practice building and sustaining attention, both of which are key components of executive functioning. During mindfulness activities (e.g., focused breathing, body scan, meditation) participants are asked to hold their focus on a particular subject, often the sensation of breath or a single resonant sound. They are then required to sustain attention by realizing when attention has involuntarily shifted and re-establish attention on the target subject. By practicing this selective, sustained, and shifting attention, practitioners are strengthening neurological processes critical for learning and future academic success (Diamond, 2013).

In regard to social-emotional theory, mindfulness strategies have been found to mitigate stress and promote prosocial skills (Flook, Goldberg, Pinger, & Davidson, 2015). By identifying feeling and observing in-the-moment sensations, individuals are less likely to bring negative emotional reaction to a given situation. Also, the emphasis on open-minded acceptance of one's emotional experiences may help to calm emotional stress and its interference with higher level cognitive function (Thierry, 2016). Cognitive and social-emotional learning theories are complimentary in that cognitive regulation influences emotional regulation and vice versa. Mindfulness practices provide a way for teachers to bring both theories into practice concurrently, compounding the potential benefits for children, particularly in their foundational academic years (Flook et al., 2010; Willis & Dinehart, 2014).

Project Overview

In this chapter, I provided a brief description of mindfulness and its emerging use and relevance across multiple contexts. I also described how mindfulness became an important topic

for me over the last year through personal experience and practice. In addition, I highlighted the social-emotional and cognitive theoretical frameworks that are guiding the literature examined in this project, as well as the significance of this project to current early childhood education in the context of new changes to the BC curriculum. In Chapter 2, I present the current literature on mindfulness in relation to early childhood education, specifically focusing on MBSR-based programs and the impact on cognitive functioning and social-emotional well-being. Chapter 3 connects the research to practice and states the implications of this project for educators. Chapter 3 also includes a professional development workshop for educators based on the major themes found in Chapter 2. Chapter 4 offers suggestions for further research and provides concluding remarks.

Chapter Two

Mindfulness is a relatively new area of scientific study, particularly in the field of early childhood education (Felver, Celis-de Hoyos, Tezanos, & Singh, 2016). To date, research has been largely preliminary and has been diverse both in terms of the interpretations of mindfulness and in the anticipated benefits (Felver et al., 2016). All of the studies discussed in this chapter investigate the effectiveness of Mindfulness Based Stress Reduction informed programs (Kabat-Zinn, 2003) adapted for children. In this chapter, I first present the findings as they relate to cognitive functioning and then turn to the impact of mindfulness on the social-emotional competencies of children.

Mindfulness and Cognitive Functioning

In this review of the literature, several studies looked at the effects of incorporating MBSR programs in classroom settings. For example, Napoli, Krech, and Holly (2005) conducted a study on the effects of a mindfulness program, Attention Academy Program (AAP), on children's attention and attention related behaviours in a school setting. The sequential structure of the AAP developed by Scottsdale Institute for Health and Medicine includes breathing exercises, a body-scan visualization application, a body movement-based task, and a post-session debriefing or sharing of instructor feedback with the class.

The six-month study involved 288 children from two elementary schools in a U.S. Southwestern city. Students who participated in the study were randomly assigned to either the AAP training or a control group. Both groups met bi-monthly for 45 minutes facilitated by professionally trained mindfulness instructors. Those in the control group engaged in reading or quiet activities in a separate room. Participating students were scored immediately before and after the intervention using two measures of attention: the ADD-H Comprehensive Teacher

Rating Scale[1]; and, the Test of Everyday Attention for Children[2], designed to evaluate children's selective visual attention and ability to sustain attention on a selected stimulus. All tests were administered and monitored by the research team.

A comparison of pre and post test results across the mindfulness and control groups showed that mindfulness led to statistically significant improvements in the children's ability to pay attention. More specifically, students practicing mindfulness were better able to choose what to pay attention to after receiving mindfulness training. Improvements in the ability to hold attention on a selected subject and disregard superfluous stimuli were greatest in students with initially lower than average measures of attention suggesting mindfulness is an effective way to support students with pre-existing attention difficulties. The results indicated that mindfulness is a beneficial practice, feasible in a group learning environment and appears to improve the ability of students to purposely direct their attention, a foundational skill for academic achievement.

Flook, Smalley, Kitil, Galla, Kaiser-Greenland, Locke, Ishijima, and Kasari (2010) examined a mindfulness program based on MBSR, Mindful Awareness Practices (MAPs) developed by Kaiser-Greenland (2005). Program sessions include three repeated sequences of exercises. Similar to practices for adults, MAPs promote a state of heightened and receptive attention to moment-by-moment experiences through age appropriate exercises and games. In this study, there were 64 research participants, seven to nine-years, all of whom attended an elementary school in Los Angeles. In regard to cultural diversity, the students were 45% Caucasian, 23% Latino, 14% Asian, 9% African-American, and 9% of the children were from

[1] The ADD-H Comprehensive Teacher Rating Scale (ACTeRS) was developed by the University of Illinois Institute for Child Behaviour and Development to assess classroom behaviour, diagnose ADHD and evaluate an individual student's response to an intervention. The ACTeRS relies on a 24 items questionnaire including 4 subscales: Attention, Hyperactivity, Social Competence and Oppositional Behaviour.

[2] The Test of Everyday Attention for Children (TEA-Ch) consists of five subtests. Two tests measuring visual attention that requires students to scan and identify matching items on a field of distractors and three tasks measuring sustained attention.

other cultural groups. The students were randomly assigned to the MAPs training or to a control group. Both groups attended 30 minutes, bi-weekly sessions over a two-month period. MAPs mindfulness sessions included a brief period of sitting meditation, an activity or game that promotes sensory awareness, attentional regulation, awareness of other people or the environment, and/or a lying down body scan. During each session, the control group read silently.

To test the effects of mindfulness practice on executive functioning, parents and teachers independently completed a Behaviour Rating Inventory of Executive Function (BRIEF) to measure global executive functional before and after the 8-week MAP program[3]. Both parents and teachers were unaware whether the child was in the experimental or control group to help control bias. While collecting information from two sources improves validity by allowing researchers to assess for consistency, exclusive reliance on questionnaire data means that the analysis is based only on perceived changes in behaviour. Despite this limitation, the design of this study allows for an important assessment of mindfulness by leveraging the familiarity teachers and parents have with the students. Researchers analyzed teacher and parent data and compared the pre-and post-intervention scores. Based on both sets of reports, the difference in the increase in the executive functioning scores between the MAPs group and control group was statistically significant, but only for those who had initially low scores to begin with. In other words, mindfulness practice improved executive functioning; however, only for children with poorer executive functioning.

[3] The questionnaire asks teachers and parents to observe 86 distinct behaviours (e.g., whether their child reacts negatively to change or have outbursts for no apparent reason). The questionnaire included the following descriptors: sometimes; never; or, often.

Testing the MindUP program (Hawn Foundation, 2011) Schonert-Reichl, Oberle, Lawlor, Thomson, Oberlander & Diamond (2015) conducted a randomized controlled trial of the effects on the cognitive and social-emotional development of elementary students. The study took place in a suburb of a large western Canadian city and involved four elementary schools, selected for their particular focus on social/emotional education. In total, 100, nine to eleven-year-old students from average income neighbourhoods participated in the study: 84% came from two-parent homes; 9% lived with mother only; and 7% lived in dual-custody arrangements. Participants were predominantly from English-speaking homes (66%); however, 25% of the participants' home languages were of East Asian origin, and 10% were other languages.

Two of the four selected classrooms were randomly assigned to the MindUP Program, the remaining two were allocated to the control group. The control group participated in a social responsibility program based on performance standards provided by the British Columbia Ministry of Education (2001), but without a mindfulness component. For 12 weeks, 40-50 minutes per week, teachers delivered either the MindUP or the control social responsibility program.

For both the control and the MindUP groups, researchers measured three dimensions of cognitive executive function: 1) attention; 2) working memory; and, 3) inhibitory control (the ability to ignore irrelevant stimuli) by using two computerized tasks performed on laptops[4]. Although specific individual scores were not given, in the aggregate, the group practicing mindfulness through the MindUP program outperformed the group that was not exposed to

[4] One of these tasks, the Hearts and Flowers Task, required students to learn and follow a rule (press the key on the same side as the heart) then switch to a second rule (press the key on the opposite side of the flower). The second computerized tasks (Flanker Task) was similar in structure but required students to ignore distractions on the screen. For both tests, student response time was measured in milliseconds, and accuracy of task performance was recorded by the computer for analysis.

mindful practices; the former had better reaction time, accuracy, and were better at selectively attending and inhibiting distractions. Schonert-Reichl et al. (2015) also looked at conventional measures of academic achievement, using year end math grades. Students receiving mindfulness training had a 15% higher year-end academic achievement in math than those in the control group, suggesting that mindfulness not only improves isolated cognitive skills but that the skills also translate to more conventional measures of academic success.

Thierry, Bryant, Nobles, and Norris (2016) investigated the effects of MindUP training on cognitive elements of executive function and language skills of pre-school children over three years. The researchers compared two consecutive cohorts of students, which included 47 four to five-year-old children in an urban area of southwestern United States. Half of the students used Spanish at home and the other half used English. The ethnic makeup of participants was predominantly Hispanic (85%) from low socio-economic backgrounds (72% qualified for free lunch).

The experiment cohort received a MindUP curriculum in addition to the standard school curriculum in the second year. Classroom teachers delivered 15, thirty-minute MindUP lessons throughout the groups' preschool year. Students also engaged in core mindfulness practices, such as deep breathing with a focus on the sound of a chime, three times per day. In the third year of the study, students continued to be encouraged to use core elements of mindful practices including focused breathing and meditation; however, they received no additional training. The control cohort received a social/emotional curriculum that mirrored the MindUP curriculum in principle without the inclusion of mindfulness practice component. Like Schonert-Reichl et. al (date needed), Thierry et al. (2016) were testing whether mindfulness offers added value above and beyond a regular social responsibility curriculum.

To test the impact of the addition of mindfulness, teachers and parents completed a BRIEF questionnaire to measure changes in executive function at the beginning and end of prekindergarten. All students were also given a test of receptive vocabulary at the beginning and end of their preschool year which required students to identify which of four illustrations best fit an orally delivered vocabulary word. Finally, at the end of their kindergarten year, all students were administered a computer-based reading assessment measuring vocabulary, phonemic awareness, letter knowledge, decoding, and listening comprehension.

Analysis of changes in executive function based on teacher BRIEF scores indicated moderate improvements in working memory as well as in planning and organizing in the MindUP group. Benefits were greater at the one-year post intervention after a period in which students were encouraged to use the skills they had learned the previous year in real-life situations. This suggests that students continue to integrate mindfulness into their lives, strengthening their skills over time (Van de Weijer-Bergsma, Brandsma, Bögels, Langenberg & Oort, 2014). The control group, on the other hand, had lower levels of attention regulation in these areas of executive function. Although there was no significant difference in specific measures of receptive English language vocabulary observed after one year of intervention, students in the MindUP cohort received higher overall scores on their year-end kindergarten literacy assessment than students in the control group. These findings indicate that the addition of mindfulness practices may have positive effects on both specific cognitive skills and more general conventional measures of academic achievement.

Social/Emotional Outcomes

According to social-emotional learning theory (Erickson, 1950; Gardner, 1993; Goldman, 1996; Maslow, 1962) emotional well-being is not only important to children's overall well-being and happiness but leads to enhanced cognitive ability and greater school success (Lawlor, 2016). This section focuses on the research that looks at how mindfulness effects the social-emotional health of school age children including, test anxiety, self-regulation, rumination, stress management, and prosocial skills such as compassion and empathy.

In addition to their assessment of the impact of Attention Academy Mindfulness Program (AAP) on students' cognitive abilities, Napoli, Krech, and Holly (2005), administered a Test Anxiety Scale[5] to the experiment and control groups, both before and after the mindfulness intervention. In addition to the positive effects of mindfulness on subjects' ability to sustain attention discussed in the previous section, a statistically significant reduction in general test anxiety was observed in the group that received AAP mindfulness training, which was not seen in the control group.

In addition to the cognitive outcomes discussed in the previous section, Schonert-Reichl et al. (2015), also explored the impact of MindUP on a broad range of social-emotional outcomes relying on both self and peer-assessments. The study, which involved 100 students ages nine to eleven years from four elementary schools, assessed the effects of MindUP training by comparing students who received social responsibility programming with mindfulness to a group who received social responsibility with no mindfulness component. Questionnaires were administered verbally to students before and once after mindfulness training, and targeted seven specific indicators of social-emotional well-being: empathy; optimism; emotional control;

[5] The Test Anxiety Scale (Sarason, 1978) is a 14 item, true or false style questionnaire that measures general debilitative test anxiety. The test-retest reliability is reported by Napoli et al. (2005) as .86

academic capacity; mindlessness; depression; and, social responsibility. Pre to post-test comparisons revealed that children in the MindUP group had significant improvements in empathy, optimism, emotional control, and school self-concept. In contrast, a decrease in these social-emotional well-being measures were observed among students in the control group. The experiment group exposed to mindfulness also reported a significant reduction in depressive symptoms that were not seen in the control group.

In addition to the verbal questionnaires, Schonert-Reichl et al. (2015) utilized peer reports to capture the impact of mindfulness from the perspective of someone other than the student. Researchers had students nominate their peers who demonstrated prosocial behaviors including cooperation, trustworthiness, helpfulness, kindness, and an understanding of other kids' point of view, and two antisocial behaviours, breaking rules and starting conflicts. One of the ways peer acceptance and positive feelings towards others was measured was by asking students who they "would like to be in school activities with" (p.58). Post-test analysis showed that MindUP students had greater improvements in every measured dimension of peer acceptance than their control group counterparts. MindUP students also demonstrated an increase in overall positive feelings towards their peers, while students exposed to social responsibility programming without mindfulness experienced an overall decrease in positive feelings toward their peers. The results, taken together, demonstrate that social responsibility programs that incorporate mindfulness practices appear to be more effective in supporting students' social-emotional well-being than a program that does not.

Flook, Goldberg, Pinger, and Davidson (2015) investigated social-emotional outcomes of the Kindness Curriculum (KC). The study included 67 preschool children from seven classrooms, across six different public elementary schools in a Midwestern U.S. city. The ethnic

make-up of the participants was 58% white, 11% Hispanic, 6% African-American, 10% Asian/Pacific Islander, and 11% mixed ethnicity. Researchers randomly assigned participants by classroom to either an experiment group receiving mindfulness KC training or a control group that received no intervention until after the experiment was concluded. The experiment group received two, 30-minute Kindness Curriculum lessons taught by experienced mindfulness instructors during regular school hours over a 12-week period. The control group received the unaltered standard preschool curriculum.

Flook et al., (2015) collected data on social and emotional outcomes in three ways: 1) teacher-rated questionnaires[6]; 2) two task performance tests – a sharing test and a delay of gratification test; and, 3) school grades in the relevant subjects. In each case, the results indicated important positive impacts of mindfulness. For example, while teachers scored both the control group and the intervention group significantly higher on prosocial behaviour and emotional regulation following the 12 weeks of intervention, the increase was much more substantial for students receiving the curriculum that included mindfulness. Students were also much more likely to share and delay gratification when they had received mindfulness. Students were asked to distribute stickers in four envelopes labeled with student's names and students who did not receive mindfulness kept significantly more stickers (33%) for themselves than those who had been exposed to mindfulness. Similarly, students were asked by researchers to forgo a smaller prize for a larger, future prize. Those who had practiced mindfulness were willing to wait longer for the larger prize than those whose did not. Due to these measures, mindfulness appeared to have a positive effect on peer relationships and on personal regulation.

[6] The Teacher Social Competency Scale (Conduct Problems Prevention Research Group, 1995) is a 6-point Likert-type scale comprised of a seven-item prosocial behaviour subscale and a five-item emotional regulation subscale.

Finally, the research team investigated year-end grades. The Kindness Curriculum students received higher year-end school grades over the control group in four areas: Approaches to Learning; Health and Physical Development; Social and Emotional Development; and, Social and Emotional Learning. The Kindness Curriculum students scored on average, almost a full point higher on a four-point scale than their peers who were not participating in a mindfulness program. As in previous studies, individual students who initially had lower levels of social competence and executive functioning showed the largest improvements when exposed to mindfulness practices.

Van de Weijer-Bergsma et al. (2014), studied the effectiveness of MindfulKids (Langenberg & Brandsma, 2010) on stress and mental health indicators in students. The study included 199 eight to twelve-year-old students in eight classrooms in Amsterdam. The three participating schools were selected to ensure variation in ethnic diversity; one school had 10% of their students coming from immigrant families, the second school had a 30% student immigration population, and in the third school, 81% of the students were from culturally and linguistically diverse backgrounds. The eight classrooms were paired by grade, with only one of the pairs randomly assigned to the intervention group to receive MindfulKids training, the other class was allocated to the waitlist to receive the same training on a delayed schedule. The mindfulness program was delivered by experienced mindfulness instructors and included twelve 30 minute sessions over a six-week period. Classroom teachers participated in all sessions and provided additional practice of key skills throughout the school day.

Van de Weijer-Bergsma et al. (2012) measured specific aspects of stress, emotional functioning, and the classroom climate using 4 child report questionnaires on non-productive thoughts, emotional awareness, sense of coherence, and subjective happiness. They also used 3

parent report questionnaires focused on child anxiety, social competence, and behaviour. Finally, one teacher report questionnaire, the School as a Caring Community Profile, was used to measure the social climate in the classroom. Across all measures, mindfulness was found to improve social and emotional well-being, including increased ability to verbally share emotions and a decrease in rumination and anxiety. In addition to individual improvements, the data collected from teachers and parents indicated an observable improvement to classroom culture (e.g., student friendships, lower incidences of aggressive behaviour). These effects were even greater at the 7-week post intervention assessment, indicating that mindfulness may have prolonged or compounding effects and longer-term follow-up studies are recommended to see the full range of long term effects. In addition, Van de Weijer-Bergsma et al. (2014) found that mindfulness affects children differently depending on their level of emotional competency before they begin to practice mindfulness. Just as Napoli et. al (2005) observe that those children with lower levels of executive functioning benefited most from the practice, the students with lower levels of social competencies saw the greatest improvements on several measures. For example, students who were more worried (higher levels of rumination) before mindfulness were also more aggressive. After mindfulness, the same students experienced a comparatively larger decline in the aggressive behaviour.

Conclusion

This chapter reviewed current literature on the effectiveness of mindfulness based social responsibility programs in early childhood education. Studies investigated a broad range of effects in both cognitive and social-emotional domains of development. Together these studies revealed several noteworthy conclusions. For example, a review of the research indicated that there are favourable outcomes for students practicing mindfulness in terms of cognitive function,

including selective and sustained attention. In regard to social-emotional well-being, students showed a reduction in stress levels, increased emotional regulation. Notable improvements to class culture were also observed. Some research also indicated the potential for improvements to traditional academic measures; for example, in one case students scored higher grades in math and, in another, language arts and social responsibility scores improved. Several studies also concluded that mindfulness impacts students differently depending on their level of competency at baseline, with the greatest improvements seen in students with lower than average initial measures of executive function.

In Chapter 3, I summarize and connect these findings to the new BC Ministry of Education Curriculum (2016) in a format that is useful to teachers who are considering incorporating mindfulness in their classrooms. I also outline a professional workshop development based on the research, including a sample lesson from the MindUp program (studied in Schonert-Reichl et al. (2015) and Thierry, Bryant, Nobles, and Norris (2016)).

Chapter Three

The intent of this chapter is to help clarify the relationship between implementing mindfulness in the classroom and the requirements of the BC Ministry of Education for current teachers. By doing so, I aim to increase the number of students exposed to mindfulness and the associated benefits, while at the same time exposing teachers to mindfulness-based practices which have the potential to fulfill the new BC curriculum requirements. Grounded in the evidence presented in Chapter 2, I tie the benefits of incorporating mindfulness into the classroom to the new BC curriculum (BC Ministry of Education, 2016). First, I make explicit how including mindfulness practices in the classroom can help teachers meet the BC Ministry of Education mandated core competencies highlighted in the new curriculum - particularly in the areas of Physical and Emotional Health and Career Education. I also highlight the positive impact on students' cognitive and social-emotional development by linking these areas to the new curriculum. Some initial suggestions for teachers considering incorporating mindfulness into their classroom are also offered. In particular, I offer a list of the commercially available studies examined in the peer reviewed studies in Chapter 2 and make suggestions for children's literature to be used in the classroom. The information included in this chapter forms the basis of a professional development workshop I created to share my findings with other teachers. A summary of the workshop, including the accompanying PowerPoint, is also included in this chapter.

Mindfulness and the New Curriculum for British Columbia primary classrooms

Recent curriculum changes to primary education in British Columbia came into effect in September 2016, with full compliance expected in 2017-2018. The Ministry of Education has described the changes as aiming to ensure "students get the skills they need to succeed in our

changing world" (BC Ministry of Education, 2016). A major component of the redesign is the addition of the core competencies. The core competences are a set of intellectual, personal, and social proficiencies that are of primary importance in developing students' ability to engage in deep learning. Core competencies are not organized by grade and subject but rather form a continuum of fundamental skills for students throughout their academic experience.

Based on the review of the literature on mindfulness, incorporating mindfulness-based practices in primary classrooms may provide an avenue for teachers to meet aspects of the core competencies as well as many of the curricular competencies. To present the benefits of mindfulness, I make links to the new curriculum through the lens of cognitive development and social-emotional well-being; the two areas mindfulness has been demonstrated to positively impact.

Mindfulness and cognitive functioning in the New Curriculum

Improving student ability to sustain attention and become aware of their own thinking is a major focus of the new BC curriculum. The core competency of creative and critical thinking includes specific thinking skills, habits of mind, and metacognitive awareness. For example, students are expected to work towards the following "I statements": i) I have deliberated strategies for quieting my conscious mind so that I can be more creative; ii) I am open minded and patient, taking time to explore, discover, and understand; and, iii) I can be focused and determined (BC Ministry of Education, 2016). Since these are listed as core competencies, teachers are expected to support students in developing these skills in K-12 classrooms. The requirement to provide instruction that will improve student's focus and provided strategies for them to avoid distraction is also stated within the Curricular Competencies under the new subject title Career Education (BC Ministry of Education, 2016). To meet this part of the curriculum,

teachers must support students in developing effective work habits, including focusing on a task to completion.

With these skills, the BC Ministry of Education suggested that "students can also become aware of, and use, ways to help their unconscious minds generate ideas -providing the incubation time for the unconscious to work, and quieting the filters and censors in the conscious and subconscious minds that tend to prevent novel ideas and inspirations from rising to the conscious mind" (BC Ministry of Education, 2016). Incorporating mindfulness into their classroom offers one way for teachers to meet these objectives and support their students in developing these skills. The review of the research (e.g., Flook et al., 2010, 2015; Napoli et al., 2005; Schonert-Reichl et al., 2015; Thierry et al., 2016) indicated that even relatively modest exposure to mindfulness practices can have a positive impact on children's executive functioning. More specifically, mindfulness practices can improve student attention, working memory, creative thinking, and cognitive flexibility (Diamond, 2013; Flook et al., 2010, 2015; Napoli et al., 2005; Schonert-Reichl et al., 2015; Thierry et al., 2016).

The focus on core competencies also reflects a move away from grade level expectations and acknowledges that students' progress at different rates both cognitively and emotionally. Mindfulness as a practice in the classroom is consistent with this way of thinking about student skill development because it has been demonstrated to meet students wherever they fall on the spectrum of skills at a given point in time. Put differently, mindfulness can benefit students with both high and low levels of executive functioning through the same program and practice during class time. In no case in the research presented in Chapter 2 did programs need to be adjusted or adapted for individual students with different learning needs or initially lower capacities. Thus,

mindful practices in the classroom can help teachers support all students along the core competency continuum without stigmatizing or isolating individual students.

Mindfulness and social-emotional well-being in the New Curriculum

The New Curriculum outlines several Personal and Social Responsibility core competencies that directly relate to elements of social-emotional well-being. For example, BC teachers are now responsible for supporting students to work towards the following "I statements": i) I can recognize my emotions; ii) I can use strategies that help me manage my feelings and emotions; iii) I can persevere with challenging tasks; iv) I can participate in activities that support my well-being, and show/tell how they help me; v) I can take some responsibility for my emotional well-being; and, vi) I can use strategies to find peace in stressful times (BC Ministry of Education, 2016). This new focus on equipping students to recognize the cause and effect of emotions and to build emotional resiliency is consistent with the fundamental objectives of the MBSR philosophy (Kabat Zinn, 2003). MBSR instruction includes information about the role of perception, mind/body association, stress reactivity, developing inner resources for coping and enhancing mental health. Moreover, the research outlined in Chapter 2 demonstrated the positive effects of a mindfulness practice on the social and emotional health of students (Flook et al., 2015; van de Weijer-Bergma et al., 2012; Schonert-Reichl et al., 2015; Thierry et al., 2016).

The social-emotional well-being of students also appears in the curricular competencies in the new Physical and Mental Health K-3 curriculum. Prioritizing mental health indicates a new importance on this form of well-being among students. Students are now expected to: i) identify caring behaviours among classmates and within families; ii) identify and describe practices that promote mental well-being; iii) identify and describe feelings and worries

including strategies for dealing with them; and, iv) understand the cause and effect of emotions. According to the research presented in Chapter 2, the addition of mindfulness to standard social responsibility programs increases their general effectiveness. Schonert-Reichl et al. (2015) for example found students that participated in 12 weeks of MindUP demonstrated increased measures of empathy, perspective-taking, emotional control, optimism, school self-concept, and showed greater decreases in self-reported symptoms of depression and peer-rated aggression. Mindfulness leads to enhanced student performance in areas of stress management, more prosocial behaviours, and an improved classroom culture leading to an increase in general happiness among students (Flook et al., 2015; van de Weijer-Bergma et al., 2012; Schonert-Reichl et al., 2015; Thierry et al., 2016).

These skills must now be addressed in BC classrooms according to the curriculum redesign. The simultaneous development of both social-emotional well-being and cognitive functioning makes mindfulness a valuable tool in supporting student learning in the context of these changes. In the following section, I offer some initial thoughts on how teachers can implement mindfulness.

Mindfulness in the classroom

Given the research evidence, mindfulness appears to be a tool with real potential for British Columbia teachers. There are many commercially available programs, including MindUp, Mindful Kids, Kindness Curriculum, MAPs, and AAP all of which are reviewed in Chapter 2. Appendix 2 offers a list of these programs and where teachers can seek more information or purchase the program. Using one of these pre-existing programs has the benefit of providing teachers with explicit instructions, and a scope and sequence that are adapted for use in primary classrooms. All of these particular programs have been assessed by peer-reviewed

studies and have demonstrated positive outcomes for children and classrooms (Appendix 2 provides a list of programs and peer reviewed studies). However, these programs come at a cost and may not be compatible with existing classroom schedules. The professional development workshop includes one sample lesson from MindUp to give teachers a sense of how it may work in their classroom. A range of children's mindfulness literature offers support to teachers in establishing a practice and culture of mindfulness. Suggested books can be found in Appendix 2. Kindness Curriculum in particular uses children's literature to build a connection to mindful values. The books in Appendix 2 are not those specifically used as part of Kindness Curriculum, but reflect the objectives of all of the mindfulness programs – kindness and generosity, mindfulness, and self-compassion.

Professional Development Workshop: Mindfulness for Elementary Classrooms

As part of this capstone, I have designed a professional development workshop for educators. The workshop focuses on the benefits of a mindfulness practice and the connection to the new BC curriculum. The workshop also offers guidance for how it can be effectively implemented in the classroom. A workshop format has the benefit of allowing teachers to ask questions, learn from each other, and experience mindfulness practice themselves. To support the workshop, I developed a PowerPoint to distribute the information as well as a series of handouts to support teachers in establishing mindfulness-based practices in their classrooms. PowerPoint is a familiar and efficient method of communication and will allow me to structure and impart the information through written text and visuals.

Workshop itinerary

The workshop begins with a warmup activity. The activity will pose a series of questions to teachers to access their current understanding of mindfulness. The warm-up discussion will

conclude by asking teachers what their biggest challenges are in the classroom as a way to assess the possible benefits of mindfulness for the attending teachers. Questions to pose to the group include: i) What do you know about mindfulness?; ii) What do you wonder about mindfulness?; iii) Do you have a mindfulness practice?; and, iv) What are the most significant challenges you face in your class room?

I will then present the PowerPoint presentation slides 1-7, which summarize the research in support of mindfulness, with a particular focus on the core competencies that relate to social-emotional wellbeing and cognitive development. Following this, we take a short break to refocus on practical implementation by reading two of the books from Appendix 2, What does it mean to be present? and Peaceful Piggy Meditation (see Appendix 2). These books will facilitate an initial conversation on perceived knowledge gaps and obstacles to implementing mindfulness. A sample lesson from MindUp (Schonert-Reichl et al., 2015; Thierry, Bryant, Nobles, & Norris, 2016) is incorporated to give teachers a sense of what it might look like in their classroom in practice (Uhlig, 2017). The workshop concludes with an opportunity for reflection and to address any remaining questions.

Summary

In this chapter, I linked the research on the benefits of mindfulness from Chapter 2 to the new BC curriculum. To do so, I presented several of the core and curricular competencies through the lens of social-emotional well-being and cognitive development. I then provided some suggestions, considerations, and options for implementation. Finally, I outlined a professional development workshop to share these findings with colleagues. The next chapter identifies important areas of future investigation, provides a final conclusion, and returns to my personal reflections and classroom practices.

Chapter Four

This capstone project has explored the potential benefits of mindfulness practices in early education classrooms. It has been grounded in cognitive and social-emotional learning theories and was motivated by the changes to the BC curriculum and personal experiences. Chapter 1 outlined the project, provided context, and presented the learning theories. Chapter 2 reviewed the research and established the benefits for mindfulness for cognitive functioning and social-emotional wellbeing. Chapter 3 focused on filling a knowledge gap for teachers by linking the benefits of mindfulness in these two areas to the new BC curriculum. A professional development workshop was also outlined in Chapter 3. In this final chapter, I discuss directions for future research and offer concluding remarks.

Directions for Future Research

While there is significant evidence in support of mindfulness practices in the classroom (Flook et al., 2010, 2015; Napoli et al., 2008; Schonert-Reichl et al., 2015; Thierry et al., 2016; van de Weijer-Bergsma et. al., 2012) scholars agree that more research is needed in this area. The field is in need of additional studies to replicate and substantiate the findings of these preliminary studies. Moreover, several specific limitations should be resolved to move the field forward. For example, most of the studies cited in Chapter 2 (e.g. Flook et al., 2010; Napoli, Krech & Holley, 2005; van de Weijer-Bergsma et. al., 2014) relied heavily on subjective questionnaires to collect data. An increased focus on objective, quantitative data using computer tasks or neuroimaging may improve the reliability and validity of findings by removing subjective parent or teacher assessments and possible bias. To date, studies that have used these techniques have focused mostly on adults. Further, Napoli et al. (2005) raised concerns that most instruments available to measure classroom attention traits are intended for clinical diagnosis of

conditions like ADHD and are not ideal for use in non-clinical conditions. The development of more precise and specialized instruments to measure aspects of executive function and emotional regulation in a general classroom setting would improve reliability and enrich our understanding of the impact of mindfulness on children. Current studies also lack a consistent measurement of mindfulness; instruction time, for example, does not account for the amount or intensity of mindfulness delivered and for variations between programs and instructors. In order to provide a more complete picture of how mindfulness affects student outcomes these limitations and ambiguities need to be addressed.

However preliminary, the benefits of mindfulness revealed by the research examined in Chapter 2 also point to some important and promising areas of future research. For example, additional investigation into programs that engage more closely with families and entire school communities is a logical extension as community integrations was speculated to be an important aspect of effective mindfulness integration (Schonert-Reichl et. al., 2015). These programs need further examination to test the broader implications of mindfulness on children, families, and communities. Additional investigation of the benefits afforded to students when teachers themselves practice mindfulness may lead to even greater positive outcomes.

Several studies (e.g., Flook et. al., 2010; Napoli et al., 2005) found that mindfulness practices tended to result in greater benefits for students with initial weakness in areas of executive function and emotional regulation. However, van de Weijer-Bergsma (2012) observed a more complex relationship between mindfulness and several variables of personality traits. Thus, these findings warrant follow up studies that address a greater understanding of how mindfulness affects students with different personality traits and strength profiles.

Finally, some mindfulness studies are occurring in international contexts that may be relevant to British Columbia classrooms. For example, mindfulness programs that incorporate Indigenous approaches, such as those being incorporated into the New Zealand Curriculum (Bernay, Graham, Devcich, Rix & Christine, 2016) may have the potential to inform local Indigenous approaches to education in British Columbia. While this study did not use an MBSR approach and is thus not directly comparable to the other studies presented in Chapter 2, it did indicate a possible avenue for future research and the potential to enhance the benefits of mindfulness in contexts with Indigenous history, culture, and students.

Conclusion

Addressing students' holistic well-being is becoming a priority in education. Increasingly, there is a need for this shift as chronic stress, stress related illness, and behavioural and attention difficulties are all on the rise in children (Napoli, Krech & Holley, 2005; Van de Weijer-Bergsma, 2012). Mindfulness offers a unique and efficient tool to address these challenges as addressed in the research presented in Chapter 2. The practice and the associated benefits of mindfulness are also consistent with recent changes to the BC curriculum which is focusing on a more holistic approve to education (British Columbia, Ministry of Education, 2016).

Recent research provided evidence that mindfulness in the classrooms can support two critical capacities for young children - cognitive functioning and social-emotional wellbeing (Flook et al., 2001, 2015; Napli et. al. 2005; Schonert-Reichl et. al., 2015; Thierry et al., 2016; Van de Weijer-Bergsma, 2012). As discussed in Chapter Two, researchers have found that mindfulness improves children's attention span, reaction time, and working memory - key components of cognitive functioning. Researchers have also found that students who practice

mindfulness experience fewer depressive symptoms (Schonert-Reichl et al., 2015; Van de Weijer-Bergsma, 2012), are more likely to act generously (Flook et al., 2015), and are more able to manage their stress (Van de Weijer-Bergsma, 2012). In addition to these individual benefits, mindfulness helps create a positive classroom culture in which learning can occur (Schonert-Reichl et al., 2015).

There are several requirements of the new BC curriculum that are supported by mindfulness practices as social and emotion well-being now features prominently in the curriculum and mindfulness has demonstrably positive effects in this area, offering teachers a tool to meet this new priority. Measurable improvements observed in emotion regulation, social competencies, and classroom culture associated with mindfulness can help teachers satisfy new requirements in Personal and Social Responsibility (core curriculum) and within the curricular competencies outlined in Physical and Emotional Health.

A Final Note: Returning to Personal Reflections

Taking into consideration the need for additional and ongoing research, I believe I have gained a greater understanding of mindfulness in regard to my initial guiding questions. While I anticipated that mindfulness would be beneficial to the emotional health of students, an area long associated with mindful practices, I was surprised to discover the potential for mindfulness to help teachers meet more traditional measures of student academic success. For example, mindfulness was found in several instances to enhance scores on traditional subjects such as mathematics (Schonert-Reichl et al., 2015).

I am also taking away from this learning experience a better and richer understanding of the new BC curriculum and the focus on critical and creative thinking and personal and social responsibility. On the one hand, much of the content of the new curriculum reflects the values

and motivations behind mindfulness: a focus on mental health, an awareness of and ability to use the unconscious mind, curiosity, and openness. On the other hand, mindfulness provides some small, but concrete and demonstrably effective practices for achieving these learning objectives. Activities to meet these critically important, but socially complex learning outcomes are in high demand. It is not always clear to educators, for example, how one teaches empathy or social responsibility. In this time of change for educators, both in terms of a new curriculum and change student needs, I am optimistic about the future of evidence-based mindfulness practices in the classroom.

Based on this new understanding, I now have a deeper understanding of the mechanisms behind mindfulness and the benefits it brings. For example, we start the day with a "mindful minute" where we focus our attention on the feelings that are present in our bodies. The students know that all feelings are okay to feel and that sometimes it is difficult to identify emotions. I also use a bell to practice focusing attention on a single resonant sound. The students in my classroom have taken to these activities with delight and I have noticed improvements in their ability to communicate about their emotions and to calm themselves with practice. I look forward to building on these mindful routines in the classroom and continuing to grow my own practice at home.

With the knowledge gained through this research, I feel better equipped to support my students as they develop the skills associated with the new core competencies. A mindfulness practice supported by the evidence and grounded in the new curriculum will benefit students. It is my hope that the professional development workshop created as part of this project will also enable other teachers to use this tool as they support their students and adopt the new curriculum.

Like all meaningful intellectual pursuits, the investigation of my initial questions has led me to a new set of compelling questions. I am left wondering about the possible benefits to the families of my students and communities they live in. Mindfulness is a practice richest when it is supported by a community. Students would benefit immensely from communities and families where curious and open minds are valued, and calmness and capacity to focus are priorities. The obstacles and challenges our students face do not end at the bell; I wonder about the potential of mindful communities and families. After all, "The highest function of education is to bring about an integrated individual who is capable of dealing with life as a whole." (Krishnamurti, 1953, p.24).

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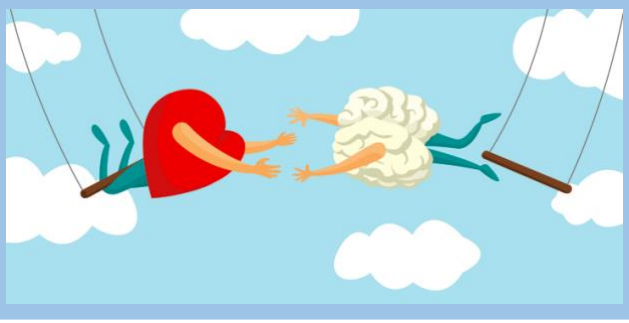
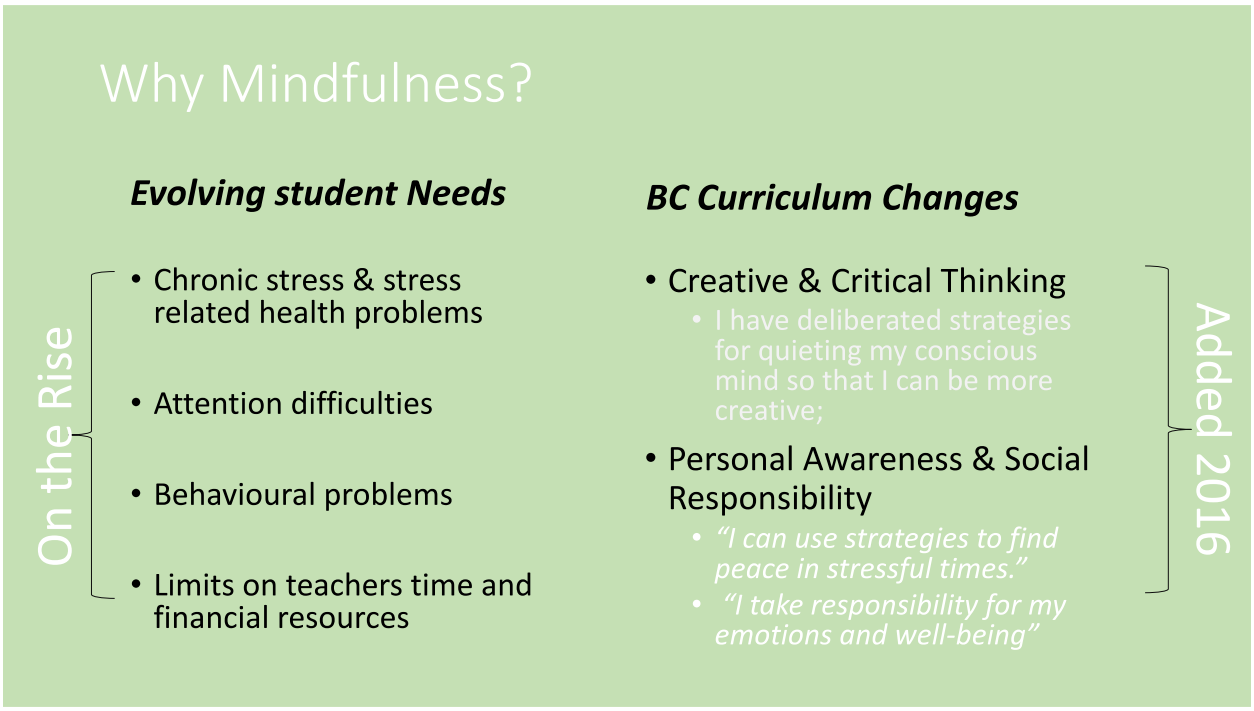
Appendix 1

Mindfulness in Early Education

Supporting cognitive and social-emotional wellbeing in your classroom

Laura Parker



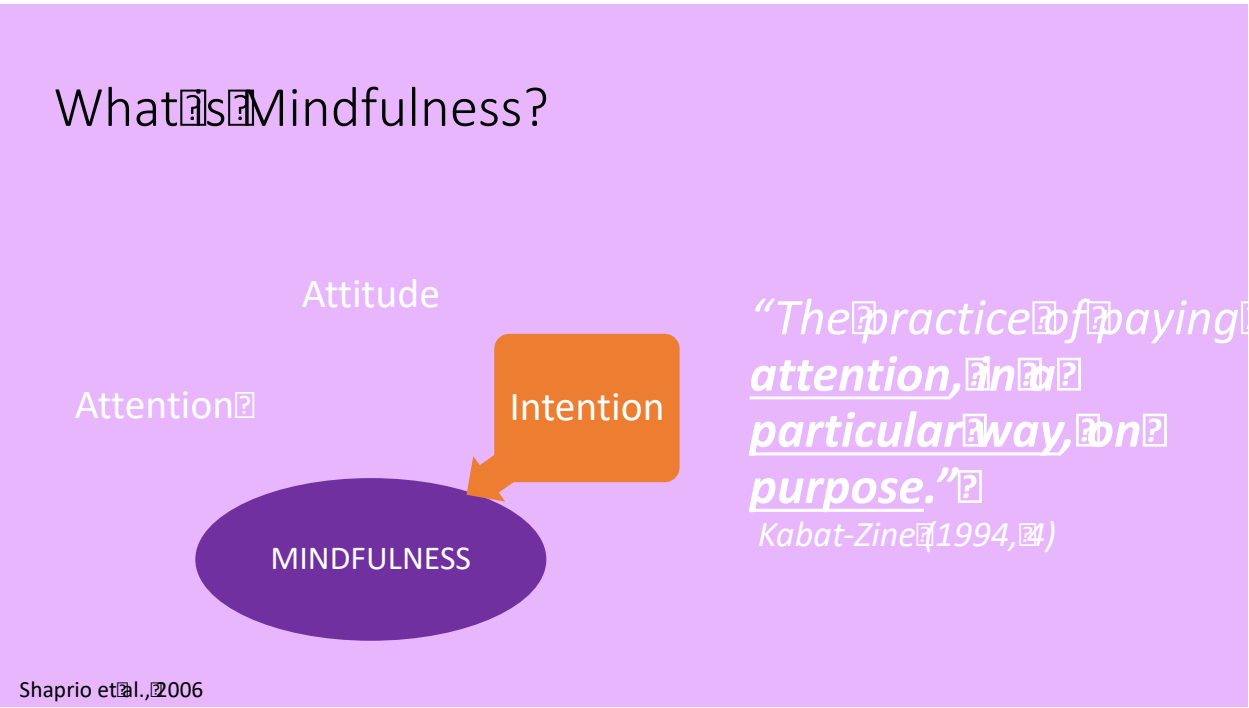


Changing student needs and limited time and resources have created important needs.

Several recent changes to curriculum in British Columbia that can be support and pursued in part with mindfulness practices.

Personal Awareness & Social Responsibility and Creative and Critical Thinking are two of the three core competencies that students work towards these on a continuum from K through 12.

Under k-3 section for physical and mental health are several curricular competencies relevant to mindfulness.

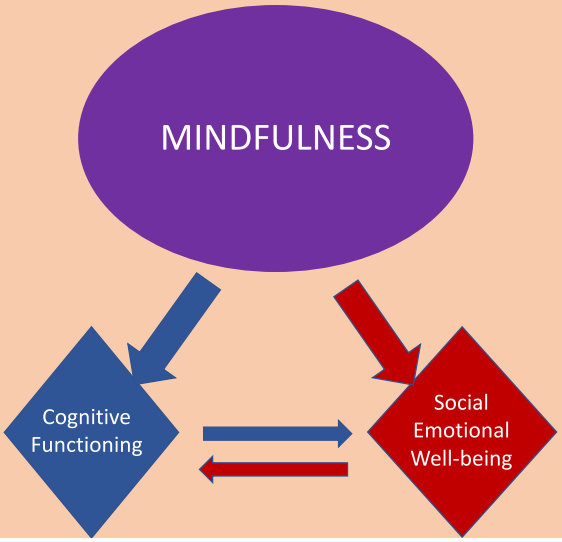


There are many interpretations of mindfulness and a multitude of practices associated with word. How do we make sense of the practice when incorporating it into the classroom? However, common and effective practices share three key components. Attention, attitude, and intention.

This is the quote of John Kabat-Zinn the founder of **mindfulness based stress reduction programs, which form the base of all mindfulness practices studied in this paper.** MSBR is common and well-established.

You can see in this quote, all three key components identified.

What does mindfulness have to offer?



Cognitive Functioning:

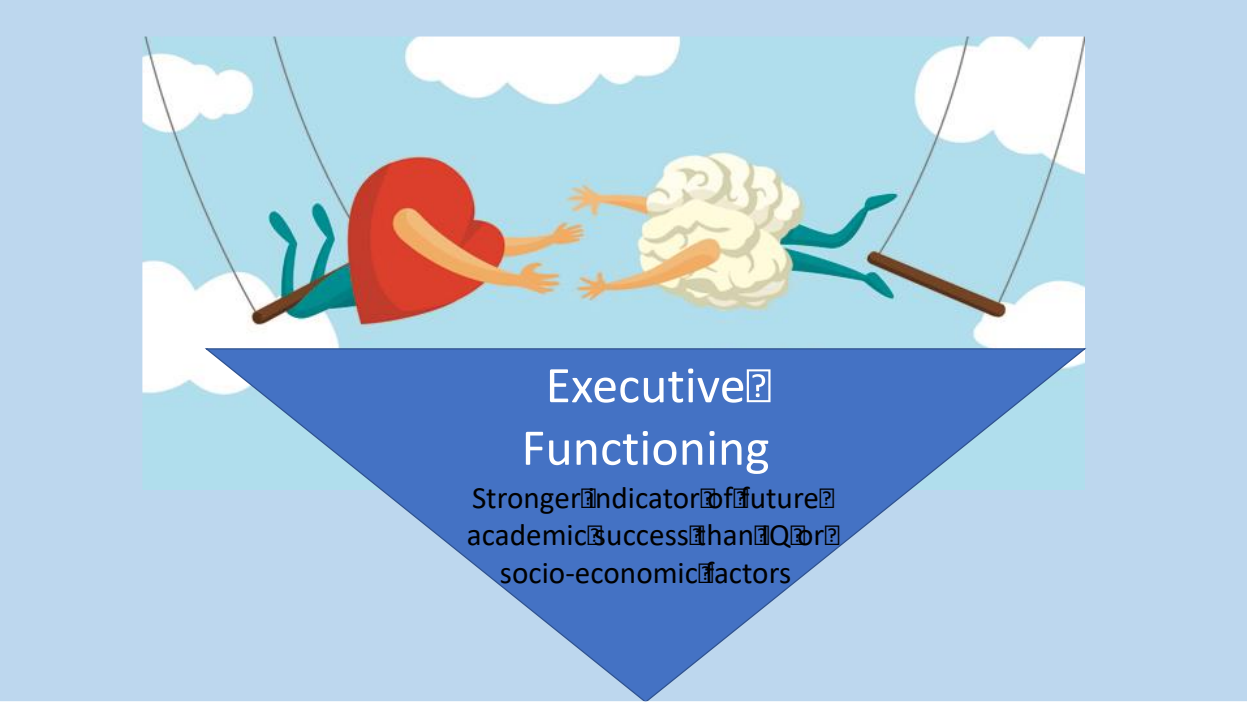
- Skills like planning, memorizing, and categorizing
- Working memory, creativity and inhibition control

Social and Emotional Well-being

- The ability to deal with stressful events
- Manage arousal and anxiety
- Resiliency

Mindfulness's true benefit comes from the fact that it supports **both** cognitive functioning and social emotional wellbeing. In turn cognitive functioning and social emotional well-being mutual reinforce one in other and continue to build student's strength and capacity.

The link between cognitive functioning and learning is clear. However, if students do not also have social and emotional well-being, their capacity for any other learning is significantly diminished.



In combination, cognitive functioning and social-emotional well-being are the key components of a complex set of skills known as **executive functioning.**

EXECUTIVE FUNCTIONING

These areas link to:

- self-control, reasoning,
- creativity, discipline,
- perseverance,

Stronger indicator of future academic success than IQ or socio-economic factors. (Key source if participants are interested: Willis & Dinehart, 2014).

Strengthening children's EF **are more effective in supporting future academic success than strategies that focus on delivering academic content alone** . (Key sources if asked: Blair & Diamond, 2008; Willis & Dinehart 2013).

Moreover, early improvements in EF may also are particularly beneficial for students from disadvantaged, or who live with excess as these children are, as we know, at greater risk for poor self-regulatory skills. (For example: Lengua, 2002; McClelland & Cameron, 2011).

Mindfulness: An evidence based practice to meet new Core and Curriculum Competencies

Core Competencies: Creative and Critical Thinking

- i) I have deliberated strategies for quieting my conscious mind so that I can be more creative;
- ii) I am open minded and patient, taking time to explore, discover, and understand;
- iii) I can be focused and determined.

Evidence in Support of Mindfulness

- Students practicing mindfulness are observed to have improved:
  - Ability to sustain attention
  - Ability to choose what to pay attention to
  - Faster reaction times
  - Increased working memory

(notes on next page)

In 2016, the BC New Curriculum was introduced. Full compliance is expected this calendar year. Mindfulness offers one way for teachers to meet some of the most critical components of this redesign: **The Core Competences.** These Core Competencies are a set of intellectual, personal and social proficiencies that are of primary importance in developing students' ability to engage in deep learning.

Mindfulness offers one critical tool for meeting these new requirements.

Improving student ability to sustain attention and become aware of their own thinking is a major focus of the New Curriculum. The Core Competency of Creative and Critical Thinking includes specific thinking skills, habits of mind, and metacognitive awareness. Students are expected to work towards the following "I statements": i) I have deliberated strategies for quieting my conscious mind so that I can be more creative; ii) I am open minded and patient, taking time to explore, discover, and understand; iii) I can be focused and determined (BC Ministry of Education, 2016).

With these skills, the Ministry of Education suggests that "students can also become aware of, and use, ways to help their unconscious minds generate ideas — providing the incubation time for the unconscious to work, and quieting the filters and censors in the conscious and subconscious minds that tend to prevent novel ideas and inspirations from rising to the conscious mind" (BC Ministry of Education, 2016). In relation to these critical competencies in particular, mindfulness in the classroom offers one way for teachers to meet these objectives and support their students in developing these skills.

Moreover, students receiving mindfulness training had a 15% higher year-end academic achievement in math than those in the control group and demonstrated improvements in the ability to hold attention on a selected subject and disregard superfluous stimuli. Improvements were greatest in students with initially lower than average measures of attention suggesting mindfulness is an effective way to support students with pre-existing attention difficulties

For reference for teachers who would like more information:
Schonert-Reichl et al. (2015)
Napoli, Krech, and Holly (2005)
Flook, Smalley, Kitil, Galla, Kaiser-Greenland, Locke, Ishijima, and Kasari (2010)

Mindfulness: An evidence based practice to meet new Core and Curriculum Competencies

Core Competencies: Personal and Social

- i) I can recognize my emotions;
- ii) I can use strategies that help me manage my feelings and emotions;
- iii) I can persevere with challenging tasks;
- iv) I can participate in activities that support my well-being, and show/tell how they help me;
- v) I can take some responsibility for my emotional well-being; and,
- vi) I can use strategies to find peace in stressful times.

Evidence in Support of Mindfulness

- Students who practice mindfulness are observed to have:
  - Decreased test anxiety
  - Increased social competencies, like optimism and empathy
  - Increased generosity & sharing
  - Greater ability to delay gratification
  - Decrease in depressive symptoms

The New Curriculum outlines several "personal awareness and responsibility" Core Competencies that map directly onto elements of social-emotional well-being that are positively affected by a mindful practice. Teachers are now responsible for supporting students in all grades to work towards the following "I statements": i) I can recognize my emotions; ii) I can use strategies that help me manage my feelings and emotions; iii) I can persevere with challenging tasks; iv) I can participate in activities that support my well-being, and show/tell how they help me; v) I can take some responsibility for my emotional well-being; and, vi) I can use strategies to find peace in stressful times (BC Ministry of Education, 2016).

In and of itself, this new focus on equipping students to recognize the cause and effect of emotions and to build emotional resiliency is consistent with the fundamental objectives of the MBSR philosophy (Kabat Zinn, 2003).

Moreover, the evidence suggests that mindfulness is one very promising tool for teachers as they support their students in developing these skills.

In an interesting experiment where students were asked to give away or keep stickers, students who were exposed to mindfulness were more generous, giving away 33% more stickers than those who were not.

Students who were graded on some emotional competencies scored one point higher (on a four point scale) when they had been exposed to mindfulness than those who hadn't. For some students, this could mean the difference between not meeting expectations to meeting expectations.

References for teachers who would like more information:
Napoli, Krech, and Holley (2005)
Van de Weijer-Bergsma, Langenbenberg, Brandms, Dort, and Bogels (2012)

Mindfulness: Meeting students where they are on the Core Competencies Curriculum

Cognitive Functioning

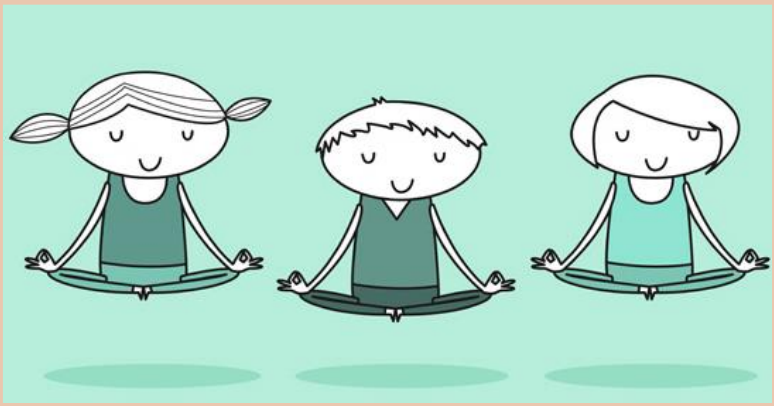
Social-Emotional Well-being

In many cases, researchers found students who started with lower cognitive functioning or social-emotional well-being benefited the most from the practice of mindfulness.

Unlike the Curricular Competencies, the Core Competencies are not organized by grade but rather form a continuum of skills that students are expected to progress along from Kindergarten to graduation. This makes mindfulness a critical tool for supporting students developing these skills because the practice has an inherent differentiating quality that allows for support of various learning needs without requiring a lot of adaptations or individual pull-out interventions. Several individual students who initially demonstrated lower levels of EF exhibited EF in the normal range after participated in MAPs (Flook et. al., 2010)

By reaching students in the primary grades, mindfulness not only supports students that may be already struggling with negative behaviours associated with low EF but also vulnerable population that are at increased risk for poor school achievement but not yet identified.

Using Mindfulness in Your Classroom



Again, because of the proliferation of mindfulness in our culture and economy, and because of the many interpretations of the very concept, it's important to discuss what it might actually look like to incorporate mindfulness in the classroom.

Commercially Available Early Education Mindfulness Programs

- Attention Academy Program (AAP)
- Mindful Awareness Practices (MAPs)
- MindUP
- Mindful Kids, Mindful Schools
- Kindness Curriculum

These programs are available for a cost, they are designed for use in classrooms. All are appropriate for ages k-grade 3 and are based on MBSR mode, though the exact practice and activities vary.

All are programs studied by researchers and covered as part of this project.

The programs, however, come at a cost and may not fit in smoothly or easily with existing classroom schedules. Purchasing a pre-developed program is not necessary. There are simple practices and activities you can use in your classroom.

A MindUp Lesson

https://mindup.org/mindup-lesson-3-focused-awareness-core-practice/

Sample lesson from MindUp – studied in Schonert-Reichl et al. (2015) and Thierry, Bryant, Nobles, and Norris (2016)

Concluding Thoughts

- Mindfulness can help you meet students social-emotional *and* cognitive development needs.
- Mindfulness offers an important tool for teachers as they make changes to meet new requirements in the BC Curriculum.
  - **Core Competencies: Creative and Critical Thinking**
  - **Core Competencies: Personal and Social Responsibility**
- There are commercially available programs and practices from these programs can be adapted to add to your existing daily routines.
- Questions?

Appendix 2

Mindfulness Programs Studied

Attention Academy Program

Developed by Scottsdale Institute for Health and Medicine

http://www.stressbeaters.com/mbsr-education/the-attention-academy-program/

Peer Reviewed Study of Program:

Napoli, M., Krech, P. R., & Holley, L. C. (2005). Mindfulness training for elementary school students: The attention academy. *Journal of Applied School Psychology*, 21(1), 99-125. doi:10.1300/J370v21n01_05

Mindfulness Attention Practices program, or MAPs (Inner Kids)

Developed by Susan Kaiser- Greenland, independent contractor

https://www.susankaisergreenland.com

Peer Reviewed Study of Program:

Flook, L., Smalley, S. L., Kitil, M. J., Galla, B. M., Kaiser-Greenland, S., Locke, J. Kasari, C. (2010). Effects of mindful awareness practices on executive functions in elementary school children. *Journal of Applied School Psychology*, 26(1), 70-95. doi:10.1080/1537790090337912

MindUP

The Hawn Foundation

https://mindup.org

Peer Reviewed Study of Program:

Schonert-Reichl, K. A., Oberle, E., Lawlor, M. S., Abbott, D., Thomson, K., Oberlander, T. F., & Diamond, A. (2015). Enhancing cognitive and social–emotional development through a simple-to-administer mindfulness-based school program for elementary school children: A randomized controlled trial. Developmental Psychology, 51(1), 52-66. doi:10.1037/a0038454

Thierry, K. L., Bryant, H. L., Nobles, S. S., & Norris, K. S. (2016). Two-year impact of a mindfulness-based program on preschoolers' self-regulation and academic performance. *Early Education and Development*, 27(6), 805-821. doi:10.1080/10409289.2016.114161

Kindness Curriculum

Center for Healthy Minds at the University of Wisconsin-Madison

https://centerhealthyminds.org/join-the-movement/sign-up-to-receive-the-kindness-curriculum

Peer Reviewed Study of Program:

Flook, L., Goldberg, S. B., Pinger, L., & Davidson, R. J. (2015). Promoting prosocial behavior and self-regulatory skills in preschool children through a mindfulness-based kindness curriculum. Developmental Psychology, 51(1), 44-51. doi:10.1037/a003825

Mindful Kids/Mindful Schools

Developed by George Langenberg and Rob Brandsma and based on Mindful Schools (© 2010-2017 Mindful Schools)

http://www.mindfulschools.org

Peer Reviewed Study of Program:

Van de Weijer-Bergsma Brandsma, R., Bögels, S. M., E., Langenberg, G., & Oort, F. J. (2014;2012;). The effectiveness of a school-based mindfulness training as a program to prevent stress in elementary school children. Mindfulness, 5(3), 238-248. doi:10.1007/s12671-012-0171-

Additional helpful websites

www.compassionatemind.co.uk

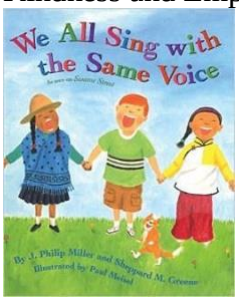
View examples of children participating in mindful activities

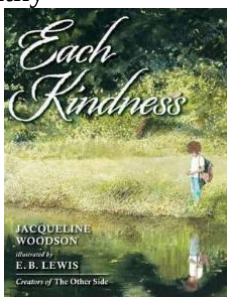
http://www.bcalm.ca/resources/online-resources/

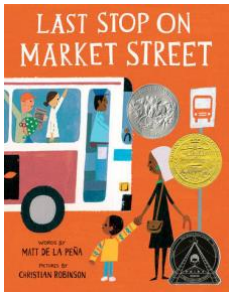
Free resources including guided meditations of body scan, sitting, short breathing space, mountain meditation.

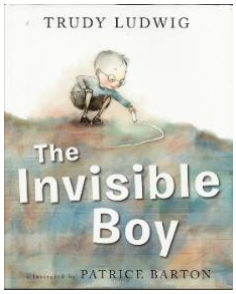
Children's Literature that Support a Mindful Attitude

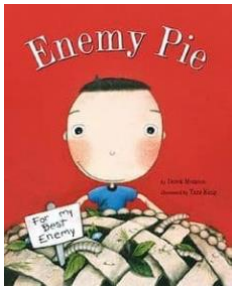
Kindness and Empathy



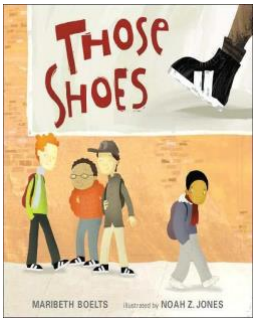


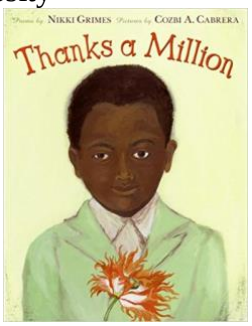


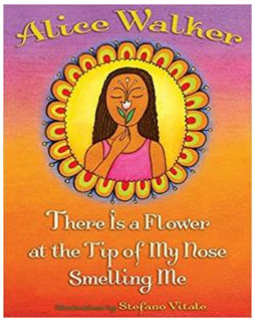


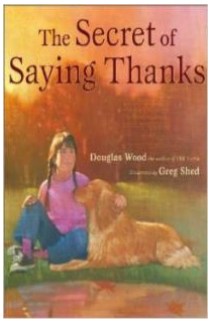


Gratitude and Generosity

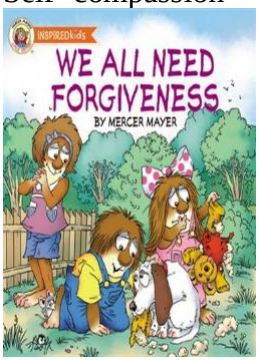


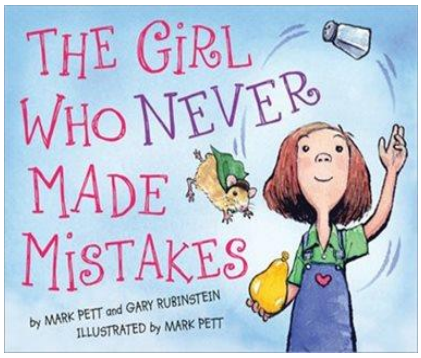


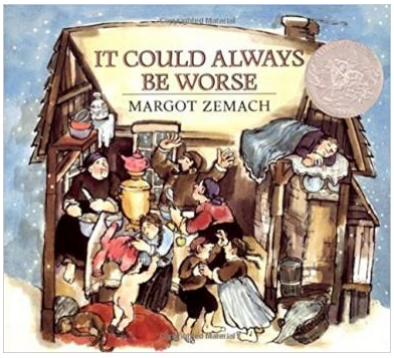




Self- compassion







Mindfulness