# *SMILING MIND MINDFULNESS IN SCHOOLS* PROGRAM AS A CLASSROOM-BASED SELF-REGULATION INTERVENTION: A CASE STUDY

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Abstract

The number of Canadian children experiencing mental health concerns, including both internalizing and externalizing difficulties, continues to be on the rise. Coincidingly, the education system in Saskatchewan continues to experience strained resources. Thus, finding an efficacious, cost-effective, and accessible mental health intervention is vital. Both internalizing (e.g., anxiety, depression) and externalizing (e.g., hyperactivity, aggression) mental health in children are correlated with poor self-regulation. Recent reviews of the literature suggest mindfulness is a promising self-regulation intervention, particularly for clinical populations, as it targets the underlying neural mechanisms related to emotion dysregulation. The current case study aimed to provide insight into the potential value of a specific mindfulness intervention, *Smiling Mind,* within the context of the *BALANCE classroom* in Saskatoon, SK. The research questions were as follows: (a) How does incorporating a mindfulness intervention into a tier-three (high support) elementary school classroom routine affect the self-regulation (e.g., ability to appropriately manage thoughts, emotions and behaviour) of students with internalizing or externalizing mental health difficulties/disorders? (b) How does a mindfulness intervention help or hinder student readjustment to the classroom setting following a prolonged absence from school due to COVID-19? And (c) What opinions, attitudes, and feelings do the students have towards incorporating mindfulness into their school day? Data sources for this study included audiotaped semi-structured interviews, a self-report measure on self-regulation, and a Daily Recording Checklist. Semi-structured interviews were completed in place of direct observations due to COVID-19 pandemic related restrictions and the requirement of completing the research virtually. Four methods of data analysis were employed in this case study: categorical aggregation, pattern identification, direct interpretations, and naturalistic generalizations. This in-depth process led to the formation of three main themes: The *Smiling Mind Program*: A General Overview; Students with Exceptionalities: “Mindful Considerations”; and Responsive Teaching and Pedagogical Considerations. Results from this research could influence educators as they attempt to meet the mental health needs of all their students within an inclusive classroom environment. Having one more tool in their professional toolboxes, like the *Smiling Mind* Program, can empower teachers while at the same time enhance the overall well-being of their students. Additionally, future researchers will benefit from seeing how completion of an intervention case study during the COVID-19 pandemic demands flexibility, creativity and

determination.  The need to pivot and adapt to changing public health or school division policies and directives became the norm during this innovative study.

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# 1. Introduction

## 1.1 Statement of Problem

Children's ability to learn varies day-to-day and is dependent on a variety of neurodevelopmental and environmental factors, as well as their mental health and wellbeing. Learning cannot happen unless children feel physically and psychologically safe (NASP, 2020). Feelings of unsafety trigger the body's stress-response system, releasing stress hormones and activating the parasympathetic nervous system (Blaustein & Kinneburgh, 2019). When the body's stress-response system is activated, the body enters a state of dysregulation, and memory, attention, and higher-order cognitive functions required for learning become impaired (Blaustein & Kinneburgh, 2019).

Children can have trouble with self-regulation in response to adverse childhood experiences (ACEs; Felitti et al., 1998) or trauma (e.g., they are in "fight, flight, or freeze" mode). In addition, deficiencies in self-regulation have been linked to both internalizing (e.g., anxiety, depression) and externalizing (e.g., ADHD, behaviour problems) difficulties and disorders in children (Cole & Hall, 2008). As many as 14 – 25% of Canadian youth experience significant mental health difficulties (Mental Health Commission of Canada [MHCC], 2013), with 25% experiencing at least one ACE (Blaustein & Kinneburgh, 2019), and as many as 12% of children will experience four or more ACEs before reaching adulthood (CDC-Kaiser, 2019).

In addition to these striking statistics, with the ongoing COVID-19 pandemic researchers suggest that, amongst children, both mental health concerns and potential exposure to ACEs have increased (NASP, 2020). As suggested by Kevin Cameron, expert in traumatic stress, trauma response, and threat assessment, the COVID-19 pandemic in itself is a collective traumatic experience (Cameron, Wong, Pollack, & Rivard, 2020), and children may have experienced additional trauma in the extended period away from school (for example, food or housing instability, unsafe home environments, social isolation).

In the MHCC's *Final Report on School Based Mental Health* (MHCC, 2013), three general conclusions were offered:

1. Universal programs are effective at improving the wellbeing of youth;
2. Social emotional learning can be effective at enhancing students' coping ability and addressing a multitude of emotional and behavioural problems; and

3. Programs are more effective when skills are taught systematically (i.e., in a class-wide manner and remain consistent throughout the school year).

In addition to concerns surrounding children's mental health, a secondary problem, specific to Saskatchewan's current social and political context, is the underfunding of education. In Saskatchewan, teachers and school counsellors are facing strain (and often burnout) while trying to help their students succeed with limited resources. As stated in a press release by the Saskatchewan Teacher's Federation (STF) in March 2019, teachers and school counsellors are "always putting out the biggest fires, but something is still smouldering" (para. 3). Unfortunately, students who need additional school-based supports are those most likely to be affected by government funding cutbacks (STF, 2019).

However, as the MHCC (2013) notes in their review, there is clear evidence that school-based strategies are effective in mental health promotion, prevention, and intervention (including treatment of both internalizing and externalizing disorders). One such type of intervention that is continually increasing in popularity is mindfulness-based interventions. As noted by Weare (2013), "well-conducted school-based mindfulness interventions are inexpensive to implement, appear to be popular with students and teachers, and may reduce the overall burden of health spending by focusing on preventive interventions" (p. 150).

### 1.2 Statement of Purpose

The purpose of this case study was to introduce a technology-based (smart-device 'app') mindfulness program (*Smiling Mind*) to students in a Response to Intervention (RtI) tier three (e.g., intensive/individualized intervention; Felver et al., 2013), high support, mental health classroom and to explore potential outcomes related to self-regulation, teacher feedback, and student approval. More specifically, in this case study, the potential usefulness of a mindfulness program as an intervention for students identified as having internalizing (emotional) and/or externalizing (behavioural) difficulties related to poor self-regulation was explored. In addition, as the current social context involving the COVID-19 pandemic will be inextricably intertwined with the current case study procedure and findings, this study explored the potential impact of mindfulness on student readjustment. *RtI* refers to a common systematic approach to intervention delivery in school settings, that involves three levels or "tiers" of intervention intensity (Felver et al., 2013). Each of the three tiers are defined and discussed in Chapter 2. *Mindfulness* is operationally defined as "the awareness that emerges through paying attention on purpose, in the

present moment, and nonjudgmentally to the unfolding of experience moment by moment" (Kabat-Zinn, 2003, p. 145). *Self-regulation* involves the management of attention, emotion, and behaviour to fulfill personally valued goals and standards (Duckworth & Carlson, 2013).

This study falls under the case study research tradition; more specifically, the design was a single intrinsic illustrative case study, where the case was the *Smiling Mind Mindfulness in School* Program. The study was guided by the following research questions:

1. How does incorporating a mindfulness intervention into a tier-three (high support) elementary school classroom routine affect the self-regulation (e.g., ability to appropriately manage thoughts, emotions, and behaviour) of students with internalizing or externalizing mental health difficulties?
2. How does a mindfulness intervention help or hinder student readjustment to the classroom setting following a prolonged absence from school due to COVID-19?
3. What opinions, attitudes, and feelings do the classroom teacher and students have towards incorporating mindfulness into their school day?

### 1.3 Significance of Study

The intention of the study was to provide insight into the potential value of a specific mindfulness intervention within the context of a RtI tier three (e.g., intensive/individualized intervention; Felver et al., 2013) elementary school classroom in Saskatchewan. The significant aspects of the study are fourfold. First, in addition to preliminary evidence of mindfulness as beneficial to mental wellbeing at a tier one/prevention level, promising, current research demonstrates the advantages of mindfulness as a tier two (targeted) and tier three (intensive) intervention for executive function and self-regulation difficulties (Zoogman et al., 2015) as well as in children who have experienced trauma/ACEs (Bethell et al., 2016; Ortiz & Sibinga, 2017). Beyond the benefits of self-regulation for mental health, researchers have found a direct link between self-regulation and academic achievement, demonstrating self-regulation as a basis for school readiness and capacity for learning (Blair, 2016), which suggests the importance of early intervention. While previous studies have explored the effectiveness of mindfulness-based interventions with both clinical and non-clinical populations (Zoogman et al., 2015) as well as mindfulness-based classroom-interventions (see Felver et al., 2016), this was, to the researcher's knowledge, the first study to examine the use of *Smiling Mind* as a tier three classroom intervention.

Second, the ongoing COVID-19 pandemic presented a novel research environment. The research provided insight into the potential benefits of using mindfulness for vulnerable students in the return-to-school phase during a pandemic. Kevin Cameron, among other mental health professionals, have brought forward the mental health challenges that students (and staff) were likely to experience as they re-entered school in the fall (Cameron et al., 2020). Additionally, there was the potential that children have experienced higher rates of ACEs and stressors in the extended period away from school (NASP, 2020). As research suggests that ACEs/trauma can negatively impact children's self-regulation, the current study explores the potential benefits of a mindfulness intervention in mitigating the impact of COVID-19 related stressors on students. Thus, the current study could provide insight into how mindfulness can help with student readjustment in their return to the classroom environment.

Third, as mentioned previously, resources in Saskatchewan have and continue to be strained (STF, 2019), with coinciding increases in children and youth mental health challenges. Accordingly, it is critical to find empirically based social-emotional learning opportunities and tiered interventions with the greatest benefit using minimal time and financial resources. One efficient way to accomplish this is by utilizing the increasing availability of technology (i.e., *Smartboards*, smart-device applications or 'apps') in schools. The free app, *Smiling Mind*, whose mission statement is "to provide accessible, lifelong tools to support healthy minds," (Smiling Mind, 2020) fits seamlessly with the goals of the current study (e.g., finding an accessible tier one mental health intervention that uses minimal resources). In addition, with the ongoing COVID-19 pandemic, technology has been increasingly utilized to maintain flexibility in the face of ongoing challenges and possibility of remote-learning, as children's mental health challenges resume even when in-person learning does not.

Lastly, qualitative researchers have highlighted the importance of conducting research *with* children rather than *on* children and respecting that children are the experts of their lived reality (Mayall, 2008). This is of particular importance when the research concerns social policy that affects the lives of children (Grover, 2004). Therefore, the current research has also intentionally included childrens' voice and feedback through their participation in interviews.

### 1.4 Epistemological Assumptions

Following a critical-realist epistemological framework (Maxwell & Mittapalli, 2010), I intended to gain an understanding of how mindfulness can impact children's self-regulatory

abilities from varying perspectives, including a familiar observer (the teacher), an unfamiliar observer (the researcher), and importantly, from the children themselves. Following the realist epistemology, I have taken the stance that there is an underlying common or objective reality, however, we can only know reality from our own perspectives (Hays & Singh, 2012). Therefore, because reality can only be understood "imperfectly" via individual perceptions, data and findings must be drawn through multiple methods and perspectives (Haverkamp & Young, 2007). The goal of research in a realist epistemology is to look for a "common reality" for the phenomenon of interest (Hays & Singh, 2012, p. 191). In this case, mindfulness in the classroom using the *Smiling Mind Program* is the phenomenon of interest. In the current study, multiple perspectives (self, teacher, and researcher) and methods (observations and interviews) were used to gain insight into students' experiences with mindfulness and how mindfulness may have impacted their self-regulation capacities.

Within the realist approach, there are underlying assumptions to which I have adhered to throughout my research. Within a realist framework, it is assumed that there is only one reality, but there are different (and valid) perspectives of reality. Therefore, findings that emerged from the current study would not be considered representative of objective reality, but rather, they represent varying perspectives of the same reality and common or shared themes amongst these perspectives. In addition, in line with critical-realism, it is acknowledged and accepted that individual mental states and personal attributes play a role in individual perceptions of an experience (Maxwell & Mittapalli, 2010). Specific to the current study, this means that the participants' experience of internalizing and externalizing difficulties, and perceptions of mindfulness, are considered part of reality. It is recognized that I, as a researcher, and the research participants will likely have some degree of bi-directional influence on each other, and therefore objectivity and the absence of bias is unlikely, if not unattainable. However, researcher and participant independence will still be sought (Ponterotto, 2005). Although I have tried to minimize my biases (described below) as much as possible, I acknowledge that they are present and will have inevitably influenced the participants and/or outcomes to some degree.

### 1.5 Reflexive Statement

In qualitative research, it is essential to address potential known sources of bias to demonstrate *confirmability* (the degree to which the findings of a study are true reflections of the participants and not the researcher; Hays & Singh, 2012), a key criterion required to maximize

the trustworthiness (e.g., credibility, rigor) of the study (Hays & Singh, 2012). For this study, the primary researcher (hereinafter referred to in first person) was a 25-year-old female working towards a Master of Education degree in School and Counselling Psychology. I was raised in a family of educators; my mother, father, stepmother, grandfather, and grandmother are/were all educators in Saskatchewan. I also have younger siblings who have diagnosed learning disabilities and mental health difficulties, and in addition, I have experienced my own mental-health related challenges beginning in my childhood. As a result, I have observed first-hand the detrimental outcomes associated with inadequate support in classroom settings, from both a teacher, student, and personal perspective. With age, I began to self-advocate and experiment with varying self-help strategies, one of which was mindfulness. I found mindfulness to be so beneficial in mitigating some of my challenges, it became an area of research interest for me, and I began to advocate for others experiencing mental health challenges to experiment with it as well. I strongly believe that mental health should be amongst the highest priorities in education as it will enhance student academic success and overall wellbeing. That is, I believe socioemotional wellbeing should come first, and curriculum-learning second. This comes from the belief (based in research) that learning cannot happen unless you feel safe and well. I also believe that social-emotional learning programs must be implemented more widely because they not only benefit students with self-regulation difficulties, but rather they benefit the entire classroom, making them practical for teachers with limited additional classroom support.

The literature review that follows provides seminal background information and research on the concepts of self-regulation and mindfulness, which in turn informed the methodology and analysis detailed in the later chapters.

## 2. Literature Review

### 2.1 Social Emotional Learning

Social emotional learning (SEL) is a fundamental aspect of childhood education and development (Humphrey et al., 2019). *Social emotional learning* refers to providing opportunities for children and adolescents to learn about, acquire, and practice *social-emotional competencies*, including self-awareness, self-management, social awareness, positive relationship skills, and responsible decision-making skills (Humphrey et al., 2019). *Emotional competence* can be broken down into competency in *emotional expressiveness* (being able to purposefully and fully express one's emotions) and *emotional regulation* (the ability to control the intensity and duration of one's experience and expression of emotion to fit the demands of the social and/or academic world) (Humphrey et al., 2019). *Social competence* refers to the ability of an individual to perform social tasks (e.g., having a conversation) and is based on the judgements of others (Humphrey et al., 2019).

Increasing knowledge regarding the importance of social emotional learning in childhood education and development has prompted the emergence of programs to foster the development of SEL competencies, with schools being considered key contexts for social emotional learning because of the significant portion of time children spend in school. Successful social emotional learning programming has been linked to improved social, emotional, behavioural, and academic outcomes (Humphrey et al., 2019). Preliminary research on the link between academic and social emotional learning domains suggest a bi-directional relationship, meaning that improved competencies in one domain positively influence the other, and deficits in one area are linked to detrimental outcomes in the other (Humphrey et al., 2019). Additionally, social and emotional competencies serve as "core protective factors" against rising mental health concerns as well as risky or problematic behaviour in children and adolescents (Domitrovich et al., 2017; Humphrey et al., 2019, p. 11).

### 2.2 Mindfulness

*Mindfulness* refers to a state of insight that comes from persistent attention and inquiry into an individual's current state of consciousness (Kabat-Zin, 2003). Kabat-Zinn (2003) notes that, although mindfulness historically has roots in Buddhism and Dharma tradition (i.e., relating to a religious belief system), the Dharma can be seen as a universal phenomenological description of the nature of the human mind and emotion, opposed to being representative of a religious belief

system. Likewise, Kabat-Zinn (2003) has been credited with the "secularization" of mindfulness and mindfulness-based interventions, focusing on the universality of human emotion, attention, and overall wellbeing (Maloney et al., 2016). Being mindful involves five key processes: (a) observing one's experiences, (b) describing one's experiences, (c) awareness of one's actions, (d) being non-judgemental of one's thoughts and feelings, and (e) acting non-reactively to one's experiences (Zelazo & Lyons, 2012).

Brown et al. (2007) propose five underlying processes that make mindfulness beneficial. The first is *insight*, which points to the benefits of the "decentered perspective" mindful processing can have on the way individuals perceive their thoughts and feelings—making them "just thoughts" and "just feelings" rather than reality (Brown et al., 2007). *Exposure* refers to the "desensitisation" (i.e., habituation) that comes from sustained attention to current emotional and psychological states. Through this desensitization individuals can limit emotional reactivity and thereby achieve more effective emotional regulation (Brown et al., 2007). Next, Brown et al. (2007) denote the self-composure that can come from a position of *non-attachment*—a state of accepting things the way that they are rather than longing for things to be what they are not. Brown et al. (2007) also note the potential benefits to physical health that come from e*nhanced mind-body functioning,* specifically from decreased subjective stress. Finally, when the first four processes are combined, an individual experiences *integrated functioning,* resulting in enhanced executive functioning (defined in section 2.4), self-regulation, autonomy, and improved relationships (Brown et al., 2007).

### 2.3 Mindfulness Programs in Education: Tiered-Intervention

A common approach to intervention delivery in education and school psychology is *Response to Intervention* (RtI) (Felver et al., 2013). RtI involves a systematic provision of supports with intentional monitoring and adjustment to meet individual student needs (Fox et al., 2010). RtI is represented by a three-tiered *Pyramid Model* which can be applied to both academic and behavioural functioning (Fox et al., 2010). *Tier one* (or *primary tier prevention*) involves universal approaches and school-wide preventative programs that all students are exposed to to prevent later problems (Felver et al., 2013; Fox et al., 2010). Regular screening at the Tier one level identifies students who are not succeeding or meeting expectations following general classroom instruction. *Tier two* (or *secondary tier prevention*) involves targeted intervention for "at-risk" students who need additional support beyond general classroom instruction (Fox et al.,

2010). Finally, *Tier three* (or *tertiary tier prevention*) involves more intensive and individualized interventions intended to remediate academic challenges and severe problematic behaviour (Fox et al., 2010).

Mindfulness-based interventions are growing in popularity as tier one interventions (preventative programming) in educational contexts (Felver et al., 2013). Most often, they are either incorporated into existing preventative programs, such as the SEL curriculum, or they can stand alone as an intervention (Felver et al., 2013). Previous research on mindfulness in schools has found mindfulness to have positive impacts on emotional wellbeing, learning, mental health, physical health, social emotional learning, and externalizing behaviour (Weare, 2012).

Although mindfulness-based interventions are growing in popularity as tier one interventions, the surge of interest in mindfulness psychology is due in large to the success in clinical samples (Felver et al., 2013). Previous research has found tier two mindfulness interventions effective with populations including those with internalizing disorders (e.g., Semple, 2006), externalizing behaviours (e.g., Bögels et al., 2008), executive function difficulties (e.g., Flook et al., 2010), and learning disabilities (e.g,, Beauchemin et al., 2008; Felver et al., 2013). Moreover, mindfulness-based interventions have been built into school-based psychotherapeutic interventions with children and adolescents, such as Acceptance and Commitment Therapy for Student Avoidance Behaviour (Felver et al., 2013) and *DBT Skills in Schools: Skills Training for Emotional Problem Solving (DBT STEPS-A)* (Mazza et al., 2016).

### 2.4 Executive Functioning

With a longstanding history of research and advancements in our understanding of human cognition and neuropsychology, it is now well established that for humans to function effectively in society, the brain must have some sort of executive system responsible for regulating, managing, and organizing our thoughts, emotions, and behaviour (Goldstein & Naglieri, 2014). This concept is referred to as *executive functioning*, defined as "the efficiency with which individuals go about acquiring knowledge as well as how well problems can be solved across nine areas (attention, emotion regulation, flexibility, inhibitory control, initiation, organization, planning, self-monitoring, and working memory)" (Goldstein & Naglieri, p. 4). In simpler terms, as described by Roth et al. (2014), executive functioning is "the conductor of the orchestra" responsible for controlling and organizing our cognitive activity, goal-directed behaviour, and emotional responses (p. 301). It is noteworthy to mention that executive functioning is not

exclusively related to cognitive control – a common misconception – and that control (regulation) of emotion and behaviour are also included as important parts of executive functioning (Goldstein & Naglieri, 2014).

An effective executive functioning system is not innate, but rather develops throughout childhood and adolescence, and even into young adulthood (Goldstein & Naglieri, 2014). Researchers suggest that development of an effective executive functioning system requires interaction between typical neurological development and specific environmental stimuli (cultural, historical, and social) (Goldstein & Naglieri, 2014). Optimal gene-environment interaction will therefore result in more efficient executive functioning. On the other hand, individuals can also lose the executive functioning skills they have developed, for example, with an acquired brain injury to the frontal lobes (Blair, 2016). Deficits in executive functioning are directly linked to impairments associated with numerous psychopathologies and disorders (Blair, 2016).

As summarized in a chapter by Goldstein and Naglieri (2014), the prevailing consensus is that executive functioning is housed in the prefrontal cortex (PFC), reaffirmed by observations and case studies on individuals suffering PFC damage. These observations contributed to a further understanding of executive functioning, as they demonstrated that individuals with PFC damage could perform executive functioning tasks that focused in on a specific component of executive functioning (e.g., memory), yet outside of a controlled laboratory type setting, their actions during everyday tasks were disorganized. In addition, these observations support the notion that executive functioning involves an overarching system responsible for coordinating cognitive resources and regulating emotion and behaviour (Goldstein & Naglieri, 2014). The PFC is unique in that it shares connections with a wide range of other brain systems responsible for generating and regulating behaviour, such as the motor and sensory systems, the subcortical regions such as the amygdala responsible for emotion and reward, and the medial temporal region responsible for learning and memory (Wagner & Heatherton, 2016).

### 2.5 Self-Regulation

Self-regulation is defined as “a broad set of both conscious and unconscious processes that individuals use to regulate (e.g., control, modulate, inhibit, initiate) both their internal states (e.g., attention, emotion) and observable behavior” (McCoy, 2019, p. 64). It involves the management of attention, emotion, and behaviour to fulfill personally valued goals and standards (Duckworth

& Carlson, 2013), as well as the ability to modify or manage one's attention and behavior in response to a specific situation (McKown et al., 2009). Self-regulation has received growing attention in recent years, as researchers have recognized its predictive power in determining individual trajectories of health and well-being (McClelland et al., 2018). Individual self-regulation is predictive of various outcomes, including school readiness, academic achievement, educational attainment, and long-term physical and mental health outcomes (McClelland et al., 2018).

Self-regulation involves cognitions, emotions, and actions that can range on a continuum from automatic (subconscious) to intentional (conscious) (McClelland et al., 2018). Automatic self-regulation occurs below the threshold of consciousness, for example, the cardiovascular system automatically regulates blood-oxygen levels. In contrast, intentional self-regulation involves conscious influence of cognitions, thoughts, and actions within the context of the surrounding environment (McClelland et al., 2018). These intentional versus automatic actions can further be described as either *top-down* (intentional, controlled) or *bottom-up* (automatic, subconscious). Effective self-regulation depends on an "optimal balance" of interaction between bottom-up emotional sensitivity and top-down cognitive and attentional control (Kaunhoven & Dorjee, 2017; Zelazo & Lyons, 2012).

Appropriately developed self-regulation is critical to achieving adaptive developmental milestones throughout the lifespan (McClelland et al., 2018). It has been recognized that individuals with self-regulation deficits as children are significantly more likely to experience mental and physical health problems, addictions, and engage in criminal behaviour as adults (Kaunhoven & Dorjee, 2017). Fortunately, self-regulation skills are highly malleable in that they can be influenced by interventions at varying levels (i.e., primary, secondary, or tertiary), contexts (i.e., home, school), and stages of development (McClelland et al., 2018).

The importance of self-regulation for academic success begins as early as pre-school age. The greatest determinant of classroom success in early school years is children's ability to "sit still, pay attention, and follow rules" (Rimm-Kaufman, Pianta, & Coz, 2000, as cited in Duckworth & Carlson, 2013, p. 213). Researchers have also demonstrated the link between self-regulation of attention and interpersonal behaviour and successful completion of high school. Well-developed self-regulation skills robustly predict students' grades in school, and students with greater self-regulation abilities out-perform their more impulsive peers on standardized tests

of achievement (Duckworth & Carlson, 2013). Similarly, researchers have found student self-regulated behaviour to be a more accurate predictor of grade point average (GPA) than standardized assessments (Duckworth & Carlson, 2013).

### *2.5.1 Bidirectional Psychobiological Model of Self-Regulation*

Executive functioning, as described above, involves a set of cognitive abilities that are necessary for organization, problem solving, monitoring and regulating thought, emotion, and behaviour in a goal-directed fashion (Goldstein & Naglieri, 2014). The cognitive abilities involved in the executive functioning system are an important component of self-regulation (Blair, 2016) because they modulate the underlying cognitive processes such as inhibition, attention, and working memory (McClelland et al., 2018). However, executive functioning is not synonymous with self-regulation; executive functioning is necessary for rational thought and behaviour, whereas individuals are not always thinking rationally while self-regulating, or, they may be thinking rationally, yet experience an inability to self-regulate (Blair, 2016).

Research supports a bidirectional relationship between executive functioning and self-regulation (Blair, 2016). From a top-down perspective, executive functioning plays an important role in directing attention and delegating cognitive resources required for the goal-directed behaviour of self-regulation (Blair, 2016). However, executive functioning is also reliant on the bottom-up process of self-regulation responsible for regulating attention, emotion, and behaviour. Without bottom-up (automatic) self-regulation (occurring in the brainstem and limbic system), individuals experience impairment in their higher-order cognitive processes and executive functioning (Blair, 2016).

However, the bidirectional relationship between executive functioning and self-regulation does not occur in isolation. In the psychobiological model of self-regulation, it is posited that early experience primes a child's physiological response to stress (Blair, 2016). Individuals' physiological response to stress are shaped through both acute and long-term stressors. In response to acute stress, the sympathetic nervous system causes arousal to prepare the body for action (fight, flight, or freeze), for example, by increasing the heartrate and inhibiting digestion. According to Blair (2016), children's physiological response to stress, which is shaped by their early environment, plays a key role in the development of self-regulation. High-resource environments that offer appropriate stimulation and support are conducive to the development of executive function and self-regulation skills. Conversely, low-resource environments with high

unpredictability are less conducive to the development of executive functioning skills, and as a result, self-regulation of attention and emotion tends to develop in a manner that is more reactive (e.g., bottom-up) (Blair, 2016).

The relationship between self-regulation, executive functioning, and early environment is significant, and as discussed in section 2.5, self-regulation plays a critical role in socio-emotional wellbeing and is a robust predictor of many positive developmental factors, including academic achievement. Accordingly, this supports the necessity for early self-regulation intervention, particularly for children from high-risk backgrounds (Blair, 2016). Recent school-readiness programs have focused on the development of emotion-regulation and executive-functions as the primary skills needed for school success. One well-known program is the Chicago School Readiness Project (CSRP), an early prevention/intervention for behaviour problems in preschool age children from low SES communities, that focuses on promoting emotion regulation skills in the classroom setting (Blair, 2016). Researchers have found lasting positive social-emotional impacts for students who participated in the CSRP; however, the lasting impacts (or lack thereof) are impacted by many risk and protective factors (McCoy et al., 2018).

### *2.5.2 Trauma and Self-Regulation*

As alluded to in the previous section discussing the bidirectional model of self-regulation, trauma/ACEs are detrimental to the development of self-regulation (Blaustein & Kinniburgh, 2019). The DSM-5 classifies traumatic experiences as experiencing or observing actual or threatened death, actual or threatened serious injury, or actual or threatened sexual violence (APA, 2013). However, experts suggest that this definition is too narrow, and should include overwhelming childhood experiences that often occur within the attachment relationship including abuse, physical neglect, emotional neglect, psychological maltreatment, attachment separations, and impaired caregiving relationships (Blaustein & Kinniburgh, 2019). Children can also be deeply affected by ongoing stressors such as poverty, racism, or bullying (Blaustein & Kinniburgh, 2019).

The detrimental impact of trauma, or ACEs, on self-regulation is well established in research. As summarized by Blaustein and Kinniburgh (2019) “children who have experienced chronic trauma demonstrate core deficits in the capacity to regulate physiological and emotional experience. They may have difficulty understanding what they feel, where it comes from, how to cope with it, and/or how to express it” (p. 30). In addition to the detrimental effect trauma has on

the development of self-regulation, trauma also impacts children's intrapersonal (e.g., self) development, interpersonal (e.g., social) development, and cognitive development (Blaustein & Kinniburgh, 2019).

Blaustein and Kinniburgh (2019) propose a three-part model for understanding children's behaviour in response to traumatic experiences. The first part of the three-part model is the "assumption of danger" (p. 22). Everyone has an internal "system or meaning" or "frame of reference" that shapes how we understand the world around us. Our frame of reference is primarily developed within the attachment relationship with our primary caregiver(s). However, for children who have experienced repeated stress, chaos, danger, and harm in their attachments and/or environments, their internal frame of reference often becomes rigid leading to the assumption that all people and/or situations are dangerous as a mechanism of self-defence and survival (Blaustein & Kinniburgh, 2019).

The second part of the three-part model involves physiological and behavioural responses. Human behaviour is mostly functional (e.g., not random); even behaviour recognized as "pathological" often serves a purpose. For children who have experienced trauma there are two prominent behavioural responses that are critical to understand: safety-seeking or danger-avoiding and need-fulfillment strategies (e.g., survival instincts).

The human response to trauma is regulated by the subcortical structures of the brain, including the limbic system, the autonomic nervous system (ANS), and the hypothalamic-pituitary-adrenal (HPA) axis (Goodman & Calderon, 2012). When humans encounter something perceived as dangerous, the body automatically mobilizes the sympathetic nervous system, which increases the arousal of organs and glands needed for immediate survival—the heartrate increases, digestion pauses, and pupils dilate. At the same time, the limbic system activates the HPA axis which prepares us for action, while our higher order cortical structures, such as the prefrontal cortex (responsible for executive functions), decrease in activation.

There are four options in terms of behavioural responses when the body goes into survival mode: the commonly known responses include fight or flight, but there are two other responses including freeze or submit, which are the most common reactions for children who are more likely to have difficulty fighting off or escaping a threat (Blaustein & Kinniburgh, 2019). This range of survival responses are not only reasonable, but required, when in the face of a legitimate threat. However, following trauma, the limbic system can become dysfunctional causing ANS

arousal in the absence of a threat or in response to a "perceived threat" (Goodman & Calderon, 2012). When your brain labels something as "dangerous," the ANS and limbic system will respond in the same manner, even if the threat is only perceived to be real.

As discussed in part one, children who have experienced adverse, stressful, or chaotic environments and/or attachments are often hypersensitive to perceived threats and assume they are in danger. As a result, the survival-response is activated frequently, and often indiscriminately, which results in the child experiencing abrupt changes in physiology, arousal, and losing access to higher cognitive functions (including executive functions). Moreover, trauma disrupts the process of explicit memory formation and consolidation by releasing hormones that suppress hippocampus activity (Goodman & Calderon, 2012). Evidently, being in a state of heightened arousal (fight, flight, freeze, or submit) with limited access to higher cognitive processes and impeded memory consolidation would make it very challenging to succeed in a classroom setting. Although the survival-response is necessary as a survival mechanism in the face of danger, it is much less helpful in the absence of threat. In fact, it can be harmful, as persistent stressors can permanently alter the stress-response system which predisposes individuals to mental health conditions, such as depression (Selhub, 2007). Learning becomes next to impossible when the higher order cognitive functions are not accessible. As explained by Blaustein and Kinniburgh (2019), "the child's capacity to engage his or her 'thinking brain' is derailed by the activation of the 'survival brain'" (p. 198).

The third part of the three-part model looks at interference from developmental deficits due to early gaps in care, and reliance on alternative adaptations (Blaustein & Kinniburgh, 2019). As summarized by Blaustein and Kinniburgh (2019), frequent and prolonged activation of the survival response (the sympathetic nervous system and limbic system) results in changes to brain structure, biology, and function. Trauma impacts children's language, attention, and concentration. Executive functions are also impaired over time, including inhibition, organization, planning, and problem solving. Further, the hippocampus, which is important for memory and learning, is highly impacted by trauma, resulting in difficulty with information retrieval and memory consolidation (Blaustein & Kinniburgh, 2019).

These changes and barriers to children's higher cognitive functioning often cause frustration, which can lead to maladaptive behaviour (alternative adaptations), such as emotional numbing, withdrawal/avoidance, substance use, self-injury, sensation-seeking, internalizing or

externalizing behaviours. Often, these maladaptive behaviours are what leads to the referral for treatment, which results in treatment of the child's coping mechanisms opposed to the treatment of the processes that have been impacted by trauma.

Current research, such as described in the ARC (Attachment, Regulation, Competency) Framework (Blaustein & Kinniburgh, 2019), suggests that self-regulation is one of three core areas of intervention for children who have experienced trauma. Strategies such as grounding techniques, movement (e.g., yoga), and imagery are common strategies suggested to encourage self-regulation (Blaustein & Kinniburgh, 2019). Another self-regulation intervention that aids the parasympathetic nervous system return to baseline, discussed in later sections, is mindfulness (Goodman & Calderon, 2012). Of note, Blaustein and Kinniburgh (2019) suggest that self-regulation activities should be incorporated into the daily routine, opposed to only during times of distress, in order to have the greatest effect. This is helpful for increasing baseline regulation or a "window of tolerance" (National Institute for the Clinical Application of Behavioural Medicine, 2019). In the current study, *Smiling Mind* was incorporated into the daily classroom routine, completed shortly after the students' lunch recess each day. Another important part of learning self-regulation is co-regulation, which involves active participation from the trusted adult (Blaustein & Kinniburgh, 2019); in the current study, the teacher and educational assistants assumed the role of the trusted adult and engaged in the mindfulness activities with the students. Ideally, the teachers and educational assistants could eventually be able to engage in co-regulation with the student(s) in times of distress.

### 2.6 Self-Regulation and Psychopathology in Children

While high scores on measures of self-regulation are predictive of positive outcomes in wellbeing, deficiencies in self-regulation have been linked to a variety of social, emotional, and behavioural difficulties and disorders (Cole & Hall, 2008; King et al., 2013). Specific to children, poor self-regulation is correlated with increased social and behavioural problems (King, Lengua, & Monahan, 2013). In adolescence, poor self-regulation is linked to maladaptive behaviours including internalizing problems, externalizing problems, alcohol and substance abuse, and problems with social and academic competencies (King et al., 2013). Researchers have found that individual capacity for self-regulation develops throughout childhood and adolescence; however, it is also worth noting that children who fail to develop self-regulation skills early on are at greater risk for internalizing and externalizing problems (Monahan et al.,

2009; Weyandt et al., 2014). In addition, children who have experienced ACEs have comorbid mental health conditions 80% of the time (Blaustein & Kinniburgh, 2019).

### *2.6.1 Emotion (Dys)regulation*

Emotion regulation has been defined as "the process by which people influence which emotions they have, when they have them, and how they experience and express these emotions" (Hoffman et al., 2013, p. 413). Like self-regulation, emotion regulation can be either automatic (unconscious) or voluntary (conscious), and regulation can occur either before or after the activation of an emotion. Emotion regulation can either amplify, maintain, or diminish the intensity of an emotion (Mullin & Hinshaw, 2007).

On the other hand, researchers have found that *emotion dysregulation* is a salient feature of psychopathology (Cole & Hall, 2008). Emotion dysregulation is a prominent feature in contemporary conceptualizations of many psychological disorders, including attention deficit hyperactivity disorder (ADHD), conduct disorder, depression, anxiety, bipolar disorder, borderline personality disorder, and eating disorders (Cole & Hall, 2008). van Stralen (2016) defines *emotion dysregulation* as "an inability to modulate emotional responses, resulting in extreme responses of an internalizing or externalizing nature that would be considered inappropriate for the developmental age of the person" (p. 176). Where emotion regulation is characterized by the ability to control one's experience and expression of emotion (Humphrey et al., 2019), emotion dysregulation is characterized by enduring emotional states, emotions that interfere with appropriate behaviour, inappropriate expression of emotion, and emotional lability (i.e., emotions that are intense and change quickly) (Cole & Hall, 2008).

### *2.6.2 Self-Regulation and Internalizing Problems*

Mood and anxiety disorders are highly prevalent, costly, chronic, and can last a lifetime when not treated (Hofmann et al., 2012). Further, it is known that the age of onset of half of all mental illnesses is before age 14 (Kessler et al., 2005), emphasizing the importance of early prevention and intervention. Internalizing disorders (e.g., a grouping of emotion/behavior problems, such as anxiety, depression, or somatic complaints; Eisenberg et al., 2010) are strongly correlated with negative affect. On the other hand, positive affect is associated with subjective well-being and happiness (Hofmann et al., 2012). While no single variable accounts for more than 3% of the variance in individual reports of subjective well-being, it appears to be most closely related to personality traits such as emotional stability (Hofmann et al., 2012).

Hofmann and colleagues (2012) describe an emotion dysregulation model of mood and anxiety disorders. This model includes three core components that contribute to mood and anxiety disorders: emotion regulation, affective styles, and affective experience. According to Hofmann et al. (2012), internalizing disorders such as anxiety and depression occur as the result of a feedback loop between dysregulation and negative affect, which impacts the individual's affective style, which in turn results in further emotion dysregulation. Accordingly, based on this model, Hofmann and colleagues posit that the most effective treatment for mood and anxiety disorders would ideally target a) emotion dysregulation by teaching adaptive emotion regulation strategies, b) decreasing negative affect and increasing positive affect, and c) promoting adaptive affective styles (Hofmann et al., 2012).

Individual affective style is closely related to emotion regulation, as maladaptive emotion regulation tendencies can potentially be explained by individual inability (or perceived inability) to tolerate negative emotions. These "intraindividual differences in the sensitivity to regulate emotions" are referred to as *affective style* (Hofmann et al., 2012, p. 412). According to Hofmann et al. (2012), one of the key components of affective style is the (in)ability to regulate negative emotions as they arise. Individuals who primarily suppress their emotions as a regulatory strategy tend to experience poorer well-being and social functioning and experience heightened physiological responses to negative situations. On the contrary, individuals who use reappraisal as an emotion regulation strategy and have an attitude of acceptance towards their emotions experience less psychological distress and greater psychosocial wellbeing (Hofmann et al., 2012).

In the same way there are adaptive and maladaptive affective styles, emotion regulation strategies are not all equal. As mentioned above, when individuals attempt to self-regulate by suppressing or avoiding their emotions, they actually experience increased emotional distress (Hofmann et al., 2012). The mindfulness process of *insight* (described above) or *decentering* is a particularly effective strategy for individuals who supress or avoid emotions as it allows individuals to remove themselves from their thoughts (Hofmann et al., 2012). This will be discussed in further detail below.

Individuals with mood disorders have impaired top-down control due to compromised connectivity between the PFC and the limbic system (in particular, the amygdala) (Farb et al., 2012). As the connection between the PFC and amygdala plays a critical role in the process of

emotional regulation (Hofmann et al., 2012), it follows that individuals with impaired top-down control of emotional regulation find difficult emotions more challenging to cope with (Farb, Anderson, & Segal, 2012). The jeopardized connection between the PFC, limbic system, and anterior cingulate cortex (ACC) leads to an inability to self-regulate in individuals with mood disorders (Beauregard et al., 2006). In a review of the literature by Weyandt and colleagues (2014) on common internalizing disorders in children, the overall results suggest that executive functioning deficits in set shifting, cognitive flexibility, concept formation, interference control, and verbal fluency are found in children with generalized anxiety, separation anxiety, PTSD, and OCD. Moreover, the notion that major depressive disorder is linked to emotional dysregulation has been corroborated using fMRI imaging (Beauregard et al., 2006).

### *2.6.3 Self-Regulation and Externalizing Problems*

Externalizing disorders are the most commonly occurring childhood psychopathology (Mullin & Hinshaw, 2007). *Externalizing* behaviours or disorders serve as an umbrella term for maladaptive behaviour, including hyperactivity/impulsivity, social problems, aggression, and antisocial behaviour (Mullin & Hinshaw, 2007). In the past, externalizing disorders have been thought of as problems of behaviour and cognition opposed to problems with affect. However, it is now recognized that the emotional processes that accompany the behaviours cannot be separated (Mullin & Hinshaw, 2007). In fact, in the Diagnostic and Statistical Manual of Mental Disorders (DSM-5; APA, 2013), emotion-related problems are central to nearly every disorder (Mullin & Hinshaw, 2007).

Within the externalizing domain of psychopathology there are distinct subtypes, namely: inattention and hyperactivity/impulsivity, aggression (further differentiated between overt/covert, indirect/relational, and reactive/proactive types), and antisocial behaviour (Mullin & Hinshaw, 2007). Associated with these externalizing behaviours are DSM-5 disorders such as attention deficit hyperactivity disorder (ADHD), disruptive mood dysregulation disorder (DMDD), oppositional defiant disorder (ODD), and conduct disorder (CD) (APA, 2013).

ADHD is a neurodevelopmental disorder characterized by developmentally inappropriate levels of inattention and hyperactive/impulsive behaviour (Barkley, 2016). According to the DSM-5 (although controversial in the literature; Barkley, 2006), ADHD must begin in childhood (before age 12) even if sypmptoms are established retrospectively (APA, 2013). Barkley's (2006) model of ADHD is widely accepted as the most "unifying theory" of ADHD (Mullin &

Hinshaw, 2007). Barkley's model led to a paradigm shift that deconstructed previous views of ADHD as a behavioural disorder, prompting clinicians (and the general population) to instead recognize it as a chronic neurodevelopmental disorder affecting the "management system of the brain"—namely, executive functioning (Brown, 2013, p. 21). According to Barkley (2016), while ADHD is characterized by problems with attention, impulsivity, and hyperactivity, there are coinciding impairments in motor coordination, executive functioning, self-monitoring, organization, time management, emotion regulation, and difficulties following instructions, that cannot be easily explained as merely secondary to the core characteristics. Rather, Barkley (2016) argues that all of these difficulties can be explained by deficits in executive functioning.

Barkley's (2006) theory of ADHD specifies behavioural inhibition as the foundational component of the model, which is overarching and fundamental to the development and effective performance of the four separate executive functions. *Behavioural inhibition* involves inhibiting an initial response to an event, stopping an ongoing response or response pattern, and interference control (protecting this period of self-directed responses from disruption from competing events). The four executive functions (specific to Barkley's theory) include nonverbal working memory, verbal working memory (internalization of speech), emotion-regulation, and reconstitution (planning) (Barkley, 2006). According to Barkley, *self-regulation* (any action by an individual that will change or regulate his or her behaviour for their future benefit) cannot occur without *inhibition* (Barkley, 2006). This is because inhibition is required to create the delay between an event and our response. Hence, inhibition is the first and fundamental component of the theory, and deficits in inhibition are the key contributor to externalizing behaviours associated with ADHD.

As previously mentioned, apart from the more common hyperactivity and impulsivity, other externalizing problems found in children include conduct problems and aggression. There is a strong link between childhood aggression and emotion dysregulation (Mullin & Hinshaw, 2007). However, when looking at the correlates of self-regulation and aggression, it is important to note the differences in types of aggression. *Reactive aggression* refers to the type of aggression that is emotionally charged, a defensive or retaliatory response to a perceived threat (Mullin & Hinshaw, 2007; White et al., 2012). *Proactive aggression,* on the other hand, refers to unprovoked, premeditated and instrumental aggression, typically for personal gain (Mullin & Hinshaw, 2007; White et al., 2012). White et al. (2012) examined whether self-regulation was a

commonality between reactive aggression and internalizing or externalizing adjustment problems in children referred to outpatient assessment. They found an association between reactive aggression and impaired behavioural regulation. White et al. (2012) argue that the association between reactive aggression and internalizing/externalizing problems may also be attributed to impaired behaviour regulation and executive functioning skills.

To summarize, trauma, internalizing disorders, and externalizing disorders have all been linked to underdeveloped or impaired self-regulatory abilities. Therefore, an intervention that promotes development of self-regulation is a rational treatment strategy for children who are dealing with a variety of mental-health related challenges.

## 2.7 Mindfulness as a Self-Regulation Intervention

### *2.7.1 Neurocognitive Perspective*

According to Zelazo and Lyons (2012), an ideal intervention for promoting the development of self-regulation in children must (a) strengthen the neural networks involved in top-down processing by encouraging reflection and (b) minimize potential negative bottom-up influences that interfere with top-down processing, such as anxiety or the stress-response triggered by trauma. Zelazo and Lyons (2012) posit that mindfulness interventions achieve both of those requirements. Age-appropriate mindfulness exercises contribute to the development of self-regulation skills by strengthening top-down processes (i.e., metacognition, present moment awareness, self-reflection) and lessening bottom-up influences (i.e., reactivity, anxiety, stress-response). Practicing purposeful reflection of one's state of attention and the surrounding environment facilitates self-regulation by promoting top-down control and decreasing bottom-up interference (Zelazo & Lyons, 2012).

Specific to internalizing problems, mindfulness interventions target the appropriate underlying neural mechanisms related to emotion dysregulation in mood disorders (Farb et al., 2011). As described above, individuals with mood disorders, particularly major depressive disorder and chronic dysphoria, have impaired top-down emotional regulation abilities stemming from compromised connectivity between the PFC and the limbic system (Farb et al., 2011). Resultantly, common cognitive-based therapeutic approaches are not always effective because information from the prefrontal cortex does not appropriately impact the limbic system (Farb et al., 2011). Mindfulness, therefore, serves as a promising alternative intervention because it (a) shifts focus to present moment sensations and (b) promotes a non-judgemental attitude, which

both prevent cognitive evaluations that can inaptly lead to rumination (Farb et al., 2011; Zelazo & Lyons, 2012).

Another consideration is that many therapeutic interventions, such as cognitive behavioural therapy (CBT; Beck, 2020), focus on decreasing negative affect to alleviate suffering but focus minimally on increasing positive affect (Hoffman et al., 2013). Conversely, mindfulness-based interventions actively encourage present-moment awareness and increase positive affect (Hoffman et al., 2013). Two specific forms of mindfulness-based exercises, loving kindness meditation and compassion meditation, appear to have the greatest impact on individual positive affect (Hoffman et al., 2013). Further, other recently developed therapeutic approaches, such as Dialectical Behavioural Therapy (DBT; Linehan, 1993) and Acceptance and Commitment Therapy (ACT; Hayes & Strosahl, 2004), also utilize mindfulness as a therapeutic intervention. Clinicians have recognized the inherent value in mindfulness that allows individuals to "disengage from automatic responding" and instead engage in behaviour regulation (Charlton & Dykstra, 2011).

Specific to trauma survivors, mindfulness promotes controlled bodily awareness which can help decrease hyperarousal symptoms (e.g., related to "fight or flight" mode) by focusing on present moment sensations and surroundings (Goodman & Calderon, 2012). According to Goodman and Calderon (2012), teaching mindfulness to individuals who have experienced trauma can help them differentiate their arousal responses, decreasing it in the absence of threat, and trusting it in the presence of threat.

### *2.7.2 Current State of the Literature*

Semple and Burke (2019) offer a thorough review of the literature surrounding the potential mental and physical health benefits of school-based mindfulness interventions for children and adolescents. The review included data from 25 published studies and 5 meta-analyses/systematic reviews. Generally, the findings across the studies reviewed demonstrate promising results, although effect sizes in mindfulness programs for children tend to be smaller than effect sizes found in comparable adult mindfulness interventions (Semple & Burke, 2019).

Carsley, Khoury, and Heath (2018) conducted a meta-analysis on 24 school-based mindfulness studies to examine potential moderating factors when mental health or well-being were the primary outcomes. Interestingly, Carsley and colleagues (2018) found that the relationship that the facilitator had with the students/participants, as well as their training,

affected the outcomes of the mindfulness interventions. More specifically, they found that mental health outcomes were only significant when the mindfulness intervention was facilitated by the teacher. Conversely, mindfulness related outcomes were only significant when the mindfulness intervention was facilitated by an outside facilitator. As a primary aim of the current study involves decreasing internalizing and externalizing mental health difficulties by improving self-regulation, the findings by Carsley and colleagues (2018) substantiate the selection of the teacher to deliver the mindfulness lessons.

A meta-analysis by Zoogman et al. (2015) included both clinical and non-clinical samples, most of which were conducted in a school setting. Of note, they found that the effect size in studies with clinical samples was approximately three times the effect size found in the studies with non-clinical samples. Moreover, measures of psychological symptoms had larger effects compared to other outcomes, such as academics. Zoogman et al. (2015) suggest that mindfulness interventions may be most beneficial for children and youth who are demonstrating symptoms of psychopathology. This finding provides support for the selected case in the current study as the focus is on the development of self-regulation capacity in students placed in a mental-health classroom due to internalizing/externalizing difficulties.

### 2.8 Smiling Mind

*Smiling Mind* is a non-profit organization whose objective is to increase the accessibility of mindfulness, so that everyone has tools to support their mental health (Smiling Mind, 2019). *Smiling Mind* offers a free-of-charge application (downloadable on any smart-device including iOS and Android, as well as through their website). The program was designed by a team of psychologists and educators and offers hundreds of guided and unguided mindfulness sessions for different age groups and for individual use, workplace use, or educational use (Smiling Mind, 2019). *Smiling Mind* also offers (in addition to the free smart-device application) a school-wide curriculum available for educators with more detailed lessons as well as materials to enhance lessons. There is also workshops/professional development, but unfortunately these are only offered in Australia at this time. While it is recommended that teachers receive training as well as practice mindfulness on their own, it is not required. The *Smiling Mind Mindfulness in Schools* program is being used increasingly in Australia and is designed to complement the provincial curriculum (Smiling Mind, 2022).

### *2.8.1 Smiling Mind Mindfulness in School Program*

*Smiling Mind* created a program specifically for educators because: "you can't separate learning and wellbeing" (Smiling Mind, 2019). Predominately, the *Smiling Mind* school programs are designed to support students in developing self-awareness, self-management, social awareness, and social management skills (Smiling Mind, 2019). The program is also intended to be a practical and consistent approach to teaching and exploring these topics for teachers to support the mental health and wellbeing of their students (Smiling Mind, 2019). The complete Mindfulness in School Program is designed to take 8-10 weeks, which requires 2 to 3 lessons to be completed each week. Take-home activities for students are also included in the program, although these were not required in the current study.

The *Smiling Mind Mindfulness in School Program* has two utilizations within the classroom setting: within a group setting or individually (Smiling Mind, 2019). In the current study, students worked through the lessons and practice sessions as a group facilitated by the classroom teacher. Students had the option to utilize the *Smiling Mind* app individually, either as directed by the teacher or at their own discretion, using a classroom iPad or tablet. However, as I was unable to be there in person, I am not sure if the students were aware, or reminded, of this option. In addition, there was the option for students, depending on whether they had access to the appropriate technology, to practice mindfulness at home. To my knowledge, none of the students utilized these options.

The *Primary Year Two Mindfulness Curriculum* was used in the current study as it is designed for the developmental level of children in grade two. This curriculum includes 20 topics or lessons (see Appendix A for a complete list) and each lesson is composed of three parts: LEARN, PRACTISE, and DEBRIEF. The LEARN section guides the teacher through the lesson, including its content and questions to ask. The PRACTISE section involves a guided meditation related to the selected topic, and the DEBRIEF section offers material for a guided reflection and discussion of the lesson (Smiling Mind, 2019). For the elementary school programs, *Smiling Mind* recommends one to two 30 – 40-minute lesson per week, and 10 minutes of mindfulness per day at least four times per week. Although the intended/recommended implementation is one to two lessons per week for elementary students; we unfortunately had to do 3-4 lessons a week to be able to complete the entirety of the program in the remaining weeks of school due to COVID-19 related delays in receiving ethics approval.

### *2.8.2 Empirical Basis*

Researchers at Insight SRC (Social Research Consultants) and Deakin University in Australia conducted a large program evaluation study to provide a preliminary empirical basis for *Smiling Mind* (Smiling Mind, 2016). The study involved 12 schools in Victoria, Australia, which resulted in a sample of 1853 students (300 primary school and 1553 secondary school students) and 104 teachers. Students were placed in one of two groups: intervention or wait-list-control. Teachers and students were asked to use the program a minimum of three times per week, and questionnaires were completed at baseline, mid-way, and at completion of the eight-week program. They assessed the following constructs: positive wellbeing, negative wellbeing, quality of sleep, engagement in learning, mindfulness, teacher-student relationships, and student misbehaviour. The researchers also developed measures of mindfulness and sleep quality for school aged children (Smiling Mind, 2016).

After completing 8-weeks of the *Smiling Mind* program, students reported significant improvements in their sense of safety, a significant decrease in disruptive behaviour in the classroom, as well as a decrease in bullying. There were also significant reductions in psychological distress, while sleep quality, psychosocial wellbeing, emotional-regulation, and concentration all significantly improved from pre- to post-test (Smiling Mind, 2016). Importantly, students who reported lower levels of wellbeing at pre-test appeared to benefit the most from the program based on improvements on all measures from pre- to post-test (sleep quality, psychosocial wellbeing, ability to manage emotions [emotion regulation], concentration, improved classroom behaviour, and feelings of safety at school). Structural equation modeling showed that mindfulness practice directly impacted student's engagement in learning, management of emotions, and positive wellbeing. In addition, benefits were greater at post-test than at the mid-way point, indicating that consistent and prolonged practice of mindfulness leads to greater improvement (Smiling Mind, 2016). Qualitatively, the students also provided positive feedback, such as:

> I thought the *Smiling Mind* program was really beneficial for me because it calmed me down and helped me to relax and concentrate. I found when I was upset or angry and my emotions were getting the best of me, doing the meditation really did help (p. 26).

In summary, the 8-week program revealed a multitude of positive effects based upon the regular practise of mindfulness in a classroom setting.

Literature on the *Smiling Mind* program is still in its infancy. However, recent studies have produced promising results. For instance, it has been related to improved subjective coping abilities in high school students (Arthurson, 2015) and decreased depressive symptoms in university students (Flett et al., 2018). Qualitative studies have also demonstrated the perceived acceptability and enjoyment of the program in elementary school students (Bannirchelvam et al., 2017; McCabe et al., 2017). Finally, Eadie (2021) completed a mixed-methods study exploring the use of *Smiling Mind* in elementary ESL (English as a Second Language) classrooms. While the sample differed slightly from the current study's sample, Eadie's (2021) similarly explored student enjoyment of the *Smiling Mind* program and perceived benefits on student behaviour, emotions, and/or learning. The results of Eadie's research suggest that students felt calmer after *Smiling Mind* and enjoyed the program. Further, the classroom teacher observed improvements in student on-task behaviour and emotional regulation (Eadie, 2021). Eadie's findings substantiate the hypotheses of the current study, and similarities and differences in results will be considered in the discussion.

*Smiling Mind* also fairs markedly well compared to other mindfulness-based apps. Mani et al. (2015) conducted a systematic review to evaluate the quality of existing mindfulness-based smartphone apps. Using the Mobile Application Rating Scale (MARS), *Smiling Mind* ranked 2nd out of 23 mindfulness-based apps with a score of 3.7 out of 5. The MARS scale is composed of five subscales: engagement, functionality, visual aesthetics, information quality, and subjective quality (Mani et al., 2015). *Headspace* ranked first with a score of 4.0; however, while they do have child-friendly guided meditations, they do not have age or grade specific programs such as those found in *Smiling Mind*, and there is a cost for full access to the features/programs included. Thus, although *Headspace* scored .3 points higher, *Smiling Mind* has the advantages of accessibility (e.g., free) and developmentally appropriate, classroom-oriented programing with built in lesson plans.

### 2.9 COVID-19 Pandemic

Case study research must be understood within the context of current social or political circumstances. Of particular importance to the current study is understanding the social context as a result of COVID-19. COVID-19 is an illness caused by a novel coronavirus and was

declared a global pandemic in March 2020 (Public Health Agency of Canada, 2020). On March 20th, 2020, schools throughout the province of Saskatchewan closed and classes were suspended indefinitely in response to COVID-19, which happened to be for the remainder of the 2019-2020 academic year (Government of Saskatchewan, 2020). These extremely unique circumstances reinforce the appropriateness of a case study methodology for the current study. Case studies are best used when the phenomenon of interest (the "case") cannot be separated from real-world context (Yin, 2017). COVID-19 is important contextual information that cannot be parsed out from the student's behaviours and any potential effects of the intervention.

In a document titled *School Re-Entry Considerations: Supporting Student Social and Emotional Learning and Mental and Behavioural Health Amidst COVID-19,* the National Association of School Psychologists (NASP) outlines measures to support student's social and emotional wellbeing within the school setting. According to NASP, although "catching up" on missed academic skills and content will unmistakably be a core concern upon return of students to school, it is imperative that educators, school division leaders, and support staff recognize that "students will not be ready to engage in formal learning until they feel physically and psychologically safe" (NASP, 2020, p. 2).

When anticipating students return to school during the COVID-19 pandemic, it was assumed that the degree of trauma experienced by each individual student would vary significantly. For some students the trauma resulting from the pandemic itself, or home situations during periods of isolation, would have long-term impacts on wellbeing and neurology even after return to "normal" (NASP, 2020). As discussed in the earlier section on trauma and self-regulation, prolonged activation of the stress response can result in changes to brain structure and function, which impacts capacity for learning. One recommendation included in the report by NASP (2020) to remediate the impact of potential trauma was for mental health professionals to facilitate evidence-based psychoeducational classroom lessons that can help address children's social and emotional needs. Further, NASP (2020) recommended establishing an "intentional focus on social and emotional skills building, mental and behavioural health, personal safety and self-regulatory capacity" (p. 5). Incorporation of a mindfulness program into the school day is one possible avenue of achieving this.

On another note, with COVID-19 there was ongoing uncertainty surrounding return-to-school in the fall of the school year this study was to be completed. Given this, a certain amount

of flexibility in methodology was required in the current study. For instance, if there was an outbreak that forced school closures for a second or indefinite number of times, remote learning would occur. Fortunately, as discussed in the following section, Smiling Mind offers flexibility in the accessibility of the program. As teachers were able to connect with students and provide learning opportunities via technology following school closures in the spring (SPSD, 2020), students would also have been able to access Smiling Mind remotely, if they had the proper technology (e.g., a desktop computer, laptop, or any smart device such as a cellphone, iPad, or tablet). Fortunately, during the data collection period in spring 2021, no school closures occurred.

### 2.10 Use of Technology

As alluded to in the introduction, time and financial resources often play a deciding factor in which programs or interventions can realistically be implemented in a school setting. School-based SEL interventions are often costly, even in the absence of a strong empirical basis. One intervention that is currently being used in Saskatchewan is the SEL program *MindUp* (Hawn Foundation, 2011). While *MindUp* is an evidence-based program and has undergone thorough program evaluation *(*Schonert-Reichl et al., 2015*;* Thierry et al., 2016), it also has some barriers; for example, teachers must all be individually trained in the program prior to implementation (MindUP, 2020) and it is expensive to purchase and implement. Smiling Mind (2019) promotes "scale and accessibility" as key factors in providing effective interventions. The technology required to deliver Smiling Mind is readily available in nearly every Saskatchewan classroom (e.g., SmartBoard, computers, tablets, laptops), and does not require the classroom teacher to complete training to deliver it. In addition, with the COVID-19 pandemic, technology could have been utilized to continue the intervention remotely if required. Fortunately, findings comparing mindfulness interventions delivered face-to-face versus via online or using a smart-device app support the use of technology as well (Tunney et al., 2017). Tunney et al. (2017) concluded from their findings that the mechanism of mindfulness that "works" is in the content of the exercises themselves and is not dependent on human interaction. This supports the utilization of technology to deliver the intervention.

### 2.11 The Current Study

The findings discussed in this literature review suggest the utilization of mindfulness in elementary school classrooms has the potential to improve student mental well-being, self-

regulation, and learning. The purpose of the current study was to introduce a technology-based mindfulness program, *Smiling Mind*, to students in a referral-based intensive needs classroom for mental health and educational support. There were three primary outcomes that were explored. First was the viability of *Smiling Mind* as a mindfulness intervention aimed at enhancing student self-regulation within a tier three classroom, as underdeveloped self-regulation and executive functioning skills are strongly linked to both internalizing and externalizing mental health problems in children. The second outcome that was explored is the use of mindfulness in relation to student readjustment to the classroom upon their return-to-school during a pandemic (COVID-19). The third outcome relates to teacher and students' perceived acceptability of the *Smiling Mind Mindfulness in Schools* program, including the degree of enjoyability, students' subjective reports of how mindfulness made them feel, and any strategies they may have learned while participating in the *Mindfulness in School* program. Inclusion of the children's voice was intentional as the outcomes of the study could potentially affect them or other children in the future. This study aimed to provide data supporting the integration of mindfulness programming as an effective and accessible mental health intervention.

# 3. Methods of Research

## Data Collection and Data Analysis

### 3.1 Research Tradition: Case Study

Stake (1995), a key contributor to the current understanding of case study methodology, describes a *case study* as a "disciplined, qualitative mode of inquiry into a single case" (p. xii). This involves an in-depth analysis of nuances and complexities of a single case in relation to a specific context (Stake, 1995). The objective of case study research is to develop an understanding of a phenomenon and the complex interrelationships within (Stake, 1995). According to Yin (2003; as cited in Baxter & Jack, 2008), a case study should be considered when:

> (a) the focus of the study is to answer "how" and "why" questions; (b) you cannot manipulate the behaviour of those involved in the study; (c) you want to cover contextual conditions because you believe they are relevant to the phenomenon under study; or (d) the boundaries are not clear between the phenomenon and context.

Cases are considered a *bounded system*, meaning that the case itself is the unit of analysis (Baxter & Jack, 2008). The boundedness of a case can be by time and place, time and activity, or definition and context (Baxter & Jack, 2008). Cases, therefore, are typically people or programs, and less likely events and processes, as the latter lack clear boundaries (Stake, 1995). The bounded case in the current study is the delivery of the Smiling Mind program within the BALANCE classroom. It is bounded by time (20 lessons, approximately 10 weeks), place (a specific classroom in a specific school), and activity (Smiling Mind lessons and guided meditations). There are a limited number of sessions in the program, a limited number of students to observe within a limited timeframe, and a limited number of students, and one teacher, to interview.

Program evaluation is typically assessed quantitatively, using formal measurement, and remaining as objective as possible, to be able to make broad generalizations of the program effectiveness (Stake, 1995). However, this purely quantitative approach has been critiqued because it ignores the individuality of the program as well as the situational and political contexts (Scriven, 1978; as cited in Stake, 1995). Thus, using a qualitative case study to evaluate the introduction of a relatively new program (Smiling Mind) into a classroom is grounded in this reasoning: the political, cultural, and situational particularities of the program in relation to the

context can be considered, and behavioural and learning outcomes can be explained in greater depth that is not always evident to a reader via parametric statistics.

Several types of case studies exist, and selection is based on the research questions. To answer my research questions, the current case study is intrinsic in nature. An *intrinsic* case study occurs when the researcher has an internal – or intrinsic – interest in a particular case (Hays & Singh, 2012). In the current study, the potential benefits of a mindfulness intervention program are of particular interest. The aim of the current study is to understand what, and how, Smiling Mind (the case) functions in a particular context (a tier-three elementary school classroom), allowing for a *thick description* (Hays & Singh, 2012) of the program. In other words, a case study is suitable for the current study because the goal is to develop a deep understanding of how the case is experienced by the individuals in a specific context, rather than generating representative data that detracts the uniqueness of individual experience and context.

***3.1.1 Case Study Advantages and Limitations.*** Hodkinson and Hodkinson (2001) provide a detailed discussion of the strengths and limitations of case study research. The first advantage of case studies is that they can help us understand the complexity of inter-relationships grounded in lived reality and gather an in-depth understanding of a phenomenon (Hodkinson & Hodkinson, 2001). Further, quantitative research that aims for objective and confound-free findings eliminates the *noise* that can be highly significant in interpreting certain research, such as classroom behaviour that presents many complexities, that case studies can capture (Hodkinson & Hodkinson, 2001). Case studies can also facilitate the exploration of the unexpected and the unusual that may be missed in hypo-deductive research that focuses on generalizability to the population, and they can represent the underlying processes involved in causal relationships (Hodkinson & Hodkinson, 2001). On the other hand, there are several inherent limitations that come with case study research. One that may be particularly pertinent to the current case study is that the complexity of the case may be very difficult to explain simply (Hodkinson & Hodkinson, 2001). Undoubtedly, an elementary school classroom will present an abundance of complexities. One final limitation is the inability of single case studies to answer research questions such as the effectiveness of the mindfulness intervention in comparison to a control group.

## 3.2 The Selected Case

In case study research, the case is not typically selected for its generalizability or representativeness, but rather based on maximizing what can be learnt about a certain phenomenon (Stake, 1995). A purposeful sample was selected for the current study. Through conversations with stakeholders, the BALANCE (Behaviour and Learning Accommodation in a Needs Centered Environment) classroom was selected as an appropriate classroom to serve as the case in the current study. The BALANCE classroom is a referral-based behaviour support program (tier three intervention) for students with mental health (e.g., externalizing and internalizing behaviour) challenges in grades one to four. In the BALANCE classroom, each student has an individualized education plan and individualized behaviour goals. Most goals are related to self-regulation of emotions and behaviours, and the overarching goal for each student in the program is reintegration into the normative classroom. The aim of the current case study was to gather an understanding of Smiling Mind as a self-regulation classroom intervention specifically for students who have notable internalizing and externalizing difficulties. The individual participants, including the classroom teacher and four students, are described in more detail in Chapter 4 (Results).

## 3.3 Data Collection

### *3.3.1 Materials*

Data sources for the current study included audiotaped semi-structured interviews, a student self-report measure on self-regulation, and a Daily Recording Checklist.

**Self-Assessment of Self-Regulation Measure.** The Self-Assessment of Self-Regulation (SASR; Appendix I) was created by the researcher for the purpose of this study and it consists of three questions relating to the three areas of self-regulation (emotion, behaviour, attention) and students can provide a scaled response of 1, 2, or 3. There are visual cues to aid student comprehension and accurate responding. The attentional and emotional questions are linked to concepts taught in Smiling Mind LEARN component (e.g., the concept of internal weather for describing one's emotional state, and the metaphor of a snow globe for describing one's thoughts/attention). In addition to the scaled responses, there is space for self-reflection (e.g., *tell me about how you are feeling this morning; tell me again now that you are done the mindfulness activity*). This space for reflection allows students to elaborate on or add information that is not captured in the scaled responses.

**Daily Fidelity Checklist.** The Daily Fidelity Checklist (DFC) contains six questions (Appendix J). The purpose of the DFC is simply to keep a record of whether a session was completed that day, if it was completed in full, and if there was any outstanding information relating to student engagement or distress. In addition, there is space to record if a student completed mindfulness on their own (i.e., independent of the class). Similar fidelity checklists have been used in other mindfulness-based intervention studies (e.g., Yaari et al., 2019).

**Teacher Interview Guides.** *Initial interview.* The Initial Interview guide consists of five questions that are used to guide a semi-structured interview with the teacher *before* the intervention begins (see Appendix K). The purpose of the initial interview is to gather information about the BALANCE classroom, the students in the classroom, and the student's self-regulatory behaviour pre-intervention.

*Prolonged interviews.* As the researcher could not be present to complete classroom observations, the teacher served more as an informant rather than participant (Yin, 2018) for the prolonged interviews. The prolonged interviews were completed weekly with the teacher and consisted of five semi-structured questions (see Appendix K).

*Final interview.* Lastly, the final interview guide is a set of five questions (Appendix K), and the focus was primarily on the teacher's experience with, and feedback on, the Smiling Mind *Mindfulness in Schools* program.

**Student Interview Guide.** The student interview guide (Appendix L) consists of a set of pre-determined open-ended questions used to guide the individual interviews with the students. The questions were intentionally constructed to address each of the research questions in an age-appropriate manner.

### *3.3.2 Procedure*

Prior to contacting any of the participants, ethical approval from the University of Saskatchewan Behavioural Research Ethics Board (Beh-REB) was obtained, followed by ethical approval by the Saskatoon Public School Division superintendent and administration of the school where the classroom is located (unnamed for confidentiality purposes). After receiving ethics approval from both organizations, I first emailed an invitation to participate to the BALANCE classroom teacher as she was an essential part of the study. Once the classroom teacher accepted and provided verbal consent (Appendix B), the researcher then provided her with copies of the *Invitation to Participate in Research* (see Appendix C) to distribute to the

parents of the students. Parents were invited to contact the researcher for more information or to ask any questions before consenting for their child to participate. Parents could choose to return the consent form via email, verbally over the phone, or a signed hard copy returned to school which would be scanned and sent via email by the teacher to the researcher (see Appendix D).

After parental consent had been obtained, the classroom teacher read the student assent script and obtained assent (Appendix E) and then introduced the intervention, Smiling Mind (Mindfulness in Schools Year 2 curriculum). Due to COVID-19-related complications, the intended (recommended) length of the program was truncated to fit into the remaining time of the school year. The intended/recommended implementation is 1-2 lessons per week for elementary students; we ended up doing 3 to 4 lessons a week to be able to complete the entirety of the program in the remaining weeks of school. The classroom teacher was responsible for delivering the lessons, which included three components: LEARN, PRACTISE, and DEBRIEF. Before and after each lesson, students were asked to complete the SASR (Appendix I; detailed in materials section). The classroom educational assistants were asked to help the students with the reflection component of the SASR (e.g., read and clarify the question, scribe their response). The teacher was asked to fill out the DFC each day after the Smiling Mind session, as well as on days that a session was not completed for record keeping purposes.

Throughout the intervention (once per week), the researcher conducted *prolonged interviews* (Yin, 2018) with the classroom teacher. The prolonged case study interview described by Yin (2018) can either occur over a period of a few hours or extended over a longer period, at times across multiple settings. Yin (2018) explains that these interviews are helpful to gain insight into people's interpretations, explanations, and meaning about certain people or events. The prolonged interview, in the form of a series of weekly semi-structured interviews (detailed in the materials section above), was selected as a result of required changes due to COVID-19 restrictions. The prolonged interviews in the current study took the place of the classroom observations that were in the original proposed methodology. The interviews were conducted virtually using Microsoft Teams videoconferencing, and audio recorded using a tape recorder. The DFC was completed daily throughout the duration of the Smiling Mind intervention by the classroom teacher.

After the *Smiling Mind* program was complete, the researcher conducted individual interviews with each participating student. As with the teacher interview, the student interviews

were completed virtually over Microsoft Teams and audio-recorded for transcription. The interviews were approximately 15 – 30 minutes each. Following completion of the interviews, participants were thanked and debriefed in an age-appropriate manner (see Appendix F), and a debriefing form (see Appendix G) was sent home to the parents. The *final interview* with the teacher was also completed after the entirety of the Smiling Mind program was complete, and the teacher was provided with a debriefing form (Appendix H). The debriefing forms also included an invitation to receive results.

### 3.4 Data Analysis

There are four main methods of data analysis in case studies: categorical aggregation, pattern identification, direct interpretations, and naturalistic generalizations (Hays & Singh, 2012). However, categorical aggregation lacks guidelines on the process of pattern identification, so I referred to Braun and Clarke's (2006) process of thematic analysis in order to identify patterns in my data. The data analysis in the current study produced themes/patterns, direct quotes, and direct interpretations.

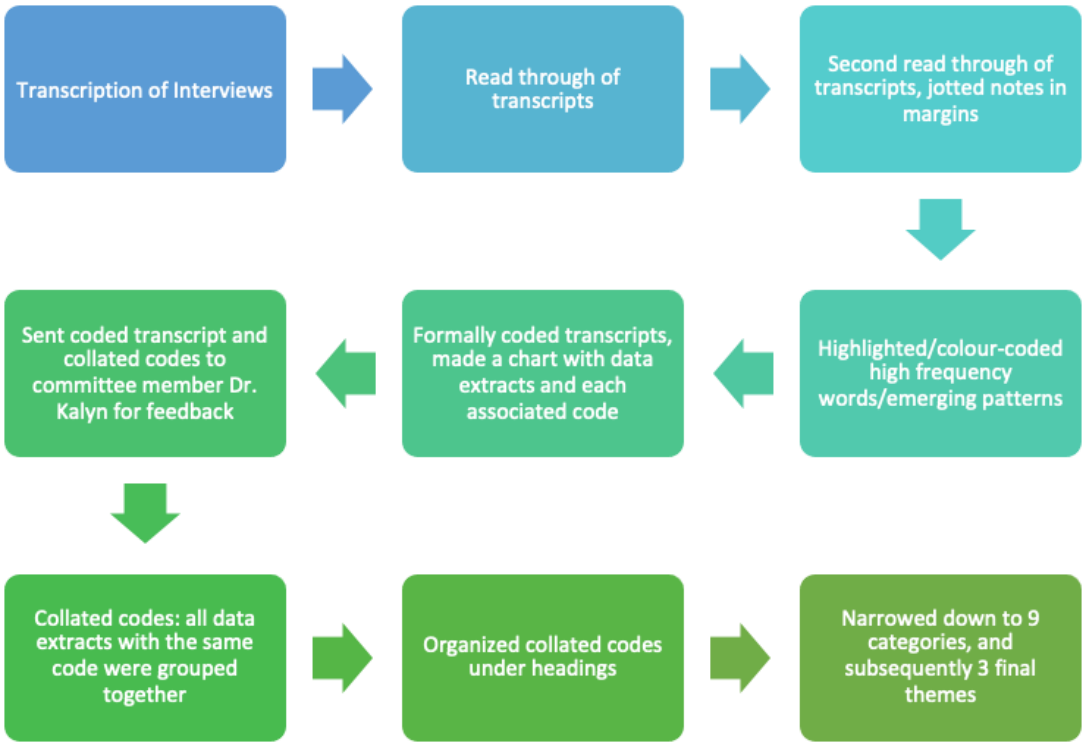


*Figure 3.1 Process of Data Analysis in the Current Study*

### *3.4.1 Categorical Aggregation.*

The first stage of data analysis involved the researcher becoming fully immersed in the data (interview transcripts, student SASR's). This involved reading, reflecting, triangulation (with participants and the thesis committee), and skepticism of the "simple explanations" (Stake, 1995).

Next, patterns were identified through the process of categorical aggregation and pattern identification. *Categorical aggregation* involves "examining several occurrences for critical incidents, concerns, and issues within the data you have collected" (Hays & Singh, 2012, p. 340). Interview transcripts were analyzed closely for pattern identification. As noted above, Braun and Clarke's (2006) guidelines were followed to aid with the process of pattern identification. Specifically, transcripts were first transcribed, then thoroughly read through and coded. Codes were then collated together which aided in pattern identification and eventually the development of themes.

### *3.4.2 Direct Quotes.*

To stay authentic in representing participant experience and voice, direct quotes from the interviews are included in the report amongst the patterns and themes to demonstrate the context in which the themes emerged. The data also required some direct interpretation. Stake (1995) notes that with intrinsic case studies, a considerable amount of time is spent with direct interpretation because the case is complex, the time we have to study it is short, and spending too much time with categorical aggregation may "distract us" from the complexity of the case. In the current study, there was complexity and many "singular critical incidents" – simply from working with children with behavioural exceptionalities in the context of a dynamic classroom. However, direct interpretations still depended upon on searching the patterns (Stake, 1995).

### *3.4.3 Naturalistic Generalizations.*

The last form of findings often reported in case studies is *naturalistic generalizations*: when the researcher "actively interprets the data with an eye toward the ways an audience would be able to transfer or apply the broad categories or findings from the case study to another case(s)" (Hays & Singh, 2012, p. 341). In particular, the researcher may make naturalistic generalizations about student self-regulatory behaviour and the use of mindfulness that may be beneficial for teachers as the intended audience.

# 4. Results

This chapter offers a detailed description of how a classroom teacher and her students experienced the Smiling Mind Mindfulness in Schools program within their needs-intensive classroom. Data were collected from one classroom teacher and four students in a BALANCE classroom (a specialized behaviour program) within Saskatoon Public Schools, in Saskatoon, Saskatchewan. Individual interviews and self-assessments were the methods used for data collection.

## 4.1 Participant Introduction

The following section introduces the four participants who were invited and agreed to participate in the current study. To support the confidentiality of participants, pseudonyms have been selected and no actual participant names are used in this paper.

### *4.1.1 The Teacher*

Taylor is in her fourth year of teaching and who had been with the BALANCE classroom for 2 years at the time of data collection. She obtained her Bachelor of Education from the University of Saskatchewan through SUNTEP (Saskatchewan Urban Native Teachers Education Program). Interestingly, Taylor first completed a bachelor's degree in Psychology with no intention of becoming a teacher; rather, she wanted to work at the Saskatchewan Penitentiary, and she did for one summer. However, she then needed to return to university in the fall to complete the last class of her B.A. While she completed this last class, she worked as an Educational Assistant (EA) where the school administration noticed her natural skill in the classroom and encouraged her to go into Education.

Taylor shared a bit of her family background. She was born and raised in Prince Albert, Saskatchewan with her family, who take pride in their Metis heritage and traditions. Her mother taught one of the first specialized behaviour classrooms in the province of Saskatchewan and maintained this role for 20 years. Taylor explained that she grew up with her mom teaching in behaviour-support classrooms. Thus, when she began her education degree, there was a pre-existing seed of knowledge and interest about the importance of behaviour support classrooms, which was intensified when she realized she could see herself within these students. She shared that she is passionate about learning about trauma, resiliency, brain development (specifically,

how trauma effects its development), and how behaviour is often reflected in these changes.

Taylor began her teacher career at Westmount Community School in Saskatoon, SK. Soon after, she was asked to teach in one of the BALANCE classrooms, where she spent the next two school years. During her second year in the BALANCE classroom, she accepted the opportunity to teach next year in another specialized program in the division, called the Children's Therapeutic Classroom (CTC), which supports students with significant mental health struggles from multiple school divisions in a partnership with Saskatchewan Health Authority. During a conversation post-data collection, Taylor was excited to share that she was recently accepted into a Master of Education program on Mental Health, Trauma, Resiliency, and Brain Development through the University of Calgary. During the time of this conversation, she was also working as an Academic Strategist at the University of Saskatchewan, where she teaches mindfulness and coping skills to university students who were referred by a psychologist.

### *4.1.2 The Students*

"Kyle" is a 6-year-old male in grade one. This was his first year in the BALANCE program and his teacher described him as a "cool kid" and a "stunt devil" who is always doing front flips and other tricks. "Shane" is an 8-year-old male in grade 3 who has been in the BALANCE program for two years. According to Shane, he enjoys watching YouTube videos on his iPad, and his teacher added that he has a "zest for life" and "loves his family." "Jarret" is an 8-year-old male in grade 2. This was his first year in the BALANCE program. Jarret is fascinated with trucks and highway systems and loves Tim Horton's. "Nick" is a 10-year-old male in grade 5 who loves to write stories and draw pictures. Nick had been in the BALANCE classroom for 2 years. He began the study and completed 4 weeks (10 of 20 lessons); however, he was unable to finish the remaining weeks and complete the final interview for personal reasons.

### *4.1.3 The Classroom*

The classroom is described as a regular sized classroom but with a smaller number of students (7) and alternative workspaces available, including an "art area," a "toy area" for social skill building through play, and a "extra work area" beside the window. In addition, the class had access to a separate "sensory room" with a galaxy light, colouring supplies, table and chairs, and games to offer a quiet space away from the class if needed. Each student had an adjustable desk and rocking chair for flexible desk seating, and access to "sensory buckets," fidgets, and noise-cancelling headphones. Soft therapeutic music would fill the room with background noise

throughout the day, and the routine was posted on the board at the front of the class for students to see. In addition to the five` students, one classroom teacher and three educational assistants were a part of the classroom that Taylor described as a "happy and light atmosphere that allows for organic relationship building."

### 4.2 General Overview of the Smiling Mind *Mindfulness in Schools* Implementation

Due to COVID-19 restrictions inhibiting the researcher from being physically present, the teacher was asked and graciously accepted to lead the program delivery in the classroom. Again, due to COVID-19 implications, we had less time than anticipated and lessons were delivered on most school days from beginning to end of the intervention. The program was delivered in the student's regular classroom, with the audio projected on speakers. The teacher noted that the program always provided the option of laying down on your back or sitting with your legs crossed, but the students who participated always chose to lay down beside their desks. They would have the lights dimmed or off during the PRACTISE and the students would close their eyes and breathe. The teacher and educational assistants also took part in the guided meditation with the students to model what was expected.

### 4.3 Data Analysis

The patterns are organized into three themes: feedback on the *Smiling Mind* Program, student responses to mindfulness, and pedagogical considerations.

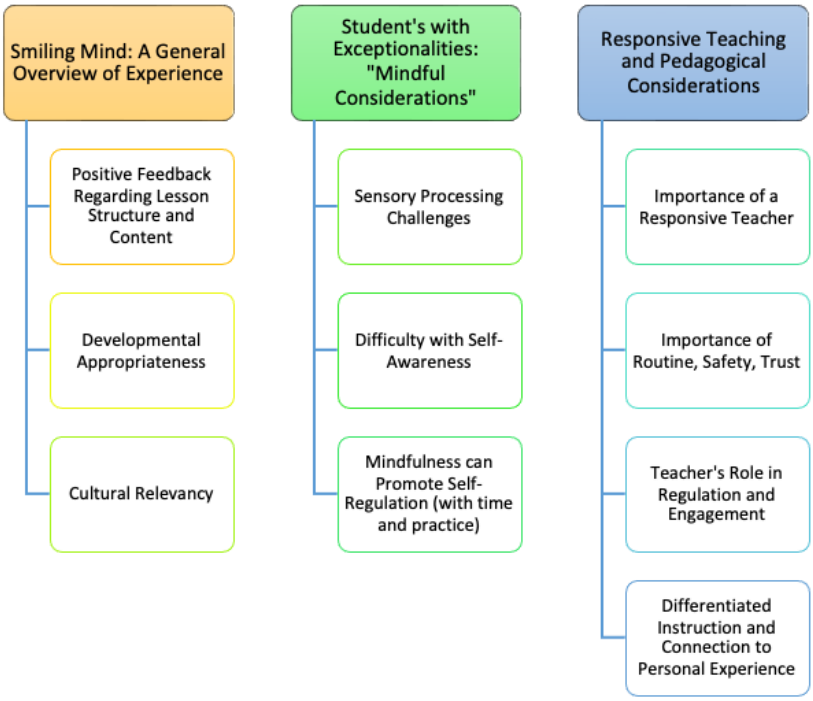


*Figure 4.1 Themes and Subthemes from the Data Analysis*

### *4.3.1 Theme 1: The Smiling Mind Program: A General Overview of Experience*

Positive feedback was received from both the teacher and student-participants. Both the students and the teacher enjoyed the aesthetic of the program interface when displayed on the SmartBoard® (e.g., the colours and presentation). According to the teacher, the student's seemed to enjoy the LESSON component, which included learning about the topics and sharing their thoughts. Specific topics they enjoyed included mindful eating, managing emotions, and strengths. Contrarily, the students were not as fond of the guided meditation (PRACTISE) component and several possible reasons were offered, including students finding it difficult to sit still and be quiet and a dislike of the narrator's voice. The classroom teacher explained:

> The lesson piece they were more engaged with, but again it was the guy talking, I don't know if they like that mindfulness part of it. But they like the lessons, they like to talk, and they like to think and engage with it. But sometimes, I don't know, they just don't like to listen to the meditation part.

When comparing responses in the student interviews, the aspects of the program the students liked and did not like varied between individuals. For example, one student's favourite part was laying down and breathing, whereas this was another student's disliked part. Another student enjoyed talking and reflecting in the lesson and debrief, whereas another student said he

"didn't like talking about it." One commonality amongst all the student-participants was that they did not like the "guy's voice," which the teacher inferred may be due to the unfamiliarity of the Australian accent.

**Positive Feedback Regarding Program Structure and Lesson Content.** In the final interview, when asked about which parts of the program worked well, the teacher reflected on the functionality of the program structure and topics. More specifically, the organization and flow of each individual lesson was effective, with the lesson, practice, and debriefing components. She also noted that the predictability of the lessons was beneficial for students that may require more routine and structure, which was the case for her students. She also noted that the lessons contain effective open-ended questions that encourage discussion. Regarding the entire *Mindfulness in Schools* program, she commented that the order of the topics and how they can build off one another was valuable. She pointed out that many teachers wish to teach social skills in their classrooms but are not sure what topics to teach and in what order. She suggested that even if teachers chose not to use the full program, it offers an excellent road map of important social-emotional learning topics.

**Developmental-Appropriateness.** Although Smiling Mind attempts to tailor the classroom programs to be appropriate for each grade level, the teacher indicated that some of the lesson topics were too abstract for the developmental level of the student-participants. Topics that the teacher specified as too challenging for the students included self-compassion, optimism, and empathy. At times, it appeared that this lack of comprehension led to disengagement or lack of participation:

> I would say they more so enjoyed the Strength one [lesson], because we talked a lot about what is a strength, and how do they, how does a strength, where do they find strengths in their world and their life, so they were able to relate a little bit more to that one than they were, like optimism is kind of an abstract thing, right? So, they weren't really able to wrap their whole minds around it. But the strengths one they were able to come up with concrete examples of what they thought were strengths.

Several recommendations that the teacher utilized to help her students grasp the concepts by accommodating various learning styles is discussed further in the third theme, *Pedagogical*

*Considerations*.

**Cultural Relevancy.** In the final interview, one recommendation made by the teacher was the inclusion of culturally relevant material into the Smiling Mind program. Although the current program does not incorporate culturally relevant material, the teacher exemplified that it could easily be done. She provided the example of discussing the importance of oral communication and storytelling in Indigenous cultures as part of the Positive Communication lesson. The teacher concluded that *Smiling Mind's Mindfulness in Schools* program is "a really good base, it just needs some blooming".

> **"For us, like teachers and education staff, we strive so hard to focus on being appropriate for culture and being appropriate for [pause] meeting a child where they are at, and not needing a child to meet us where we need them to be. So that's kind of, it's kind of like a one size fits all for that program, and that's why I think that it would be so successful if you did break it down and unpack it yourself, because you know where your students are at, and you know where you can get them too. Their level of understanding may not be where like a grade 9 students would be on like, resilience, but they will still have a concept and an understanding a little bit on what resilience means..."**

### *4.3.2 Theme 2: Students with Exceptionalities: "Mindful" Considerations*

Although the literature points to the benefits of mindfulness-based interventions for students with internalizing and externalizing difficulties, the teacher and student participants in the current study divulged some important considerations. First, the students in the current study needed more time to regulate before they could effectively participate and engage in the intervention. The teacher explained:

> I do find too that there is a little bit of fidgeting happening, so I think that sometimes it is hard for them to go so calm. Like, in a normative class it would probably be a little bit easier to get that calm level so fast, but with our guys it takes a little bit longer, so I find sometimes I have to just pause it and just wait for them to kind of catch up.

In addition, the time needed to self-regulate varied day-to-day and week-to-week, and thus required a responsive and flexible approach on behalf of the teacher in facilitating the intervention. External factors contributed to the student's ability to regulate and participate.

During one week of the study, the teacher explained that one of the student-participants was suspended from school and another was going through a traumatic experience, which she felt had a substantial impact on the students' participation:

> My students were very off this week, so there was a lot of struggling happening to even complete the lessons or even listen to me when I was talking about the lesson, kiddos that in the past weeks have been doing quite well, couldn't sit still, couldn't focus, couldn't deal.

*Sensory Processing Challenges.* Contributing to the need for more time to regulate are sensory processing challenges some students with exceptionalities experience. In the initial interview, the teacher explained how this can materialize in the participating students, and some strategies that they already utilize in their classroom to encourage self-regulation:

> I think the biggest sensory issue that my kids face is that other kids in the classroom are too loud, or screaming, or um, like it's not necessarily a physical, like a light or anything, it can be, absolutely it can be, but in class the number one thing is kids being too loud around them. So we try to dull that down using strategies that will also help to create a rhythm with their heartbeat, so I use classical music and music that is really soothing that we have little heartbeat pacers, and we check our heartbeat when we listen to different types of songs. So we listen to songs that help our hearts beat very steady and very slow. It also helps with the breathing, so if our hearts are beating slower than our breathing is a lot calmer. Along with that, the initial sound dulls out (sometimes) the noise that is around them that is driving them bonkers.

Sensory sensitivities appeared to play a large role in whether the guided meditation was regulating, or even enjoyable, for the student-participants. While some students seemed to find the guided meditation regulating and calming (the following subtheme), students with sensory processing sensitivities actually showed signs of *dysregulation*. When asked if she noticed the guided meditation (practice) helped the students self-regulate, the teacher responded:

> It does, but for the ones who are participating. So, the ones who are actually engaged and wanting to do it, absolutely it's helping them. The ones that are being set off by the sensory issues, it is doing the opposite, where they are shutting down and getting irritated.

The teacher further explained that the students were, for the most part, all engaged in the LESSON component, but would become disengaged, and sometimes even dysregulated, during the PRACTICE (guided meditation). When I inquired what aspect of the guided meditation she thought may be dysregulating for the students, she replied:

> The one that doesn't like [the guided meditation], he has a lot of sensory issues. So, I think it is just, I think it's just his accent. I mean like he was complaining about the "wind," he was complaining about the breath in the class, and like the guys talking, the guy's accent, so like there is a lot of sensory stuff going on.

Below, Figure 3 provides an example from one of the student-participant's self-assessment booklets where he acknowledged he had a difficult time listening to the guided meditation because of auditory and tactile distractions.

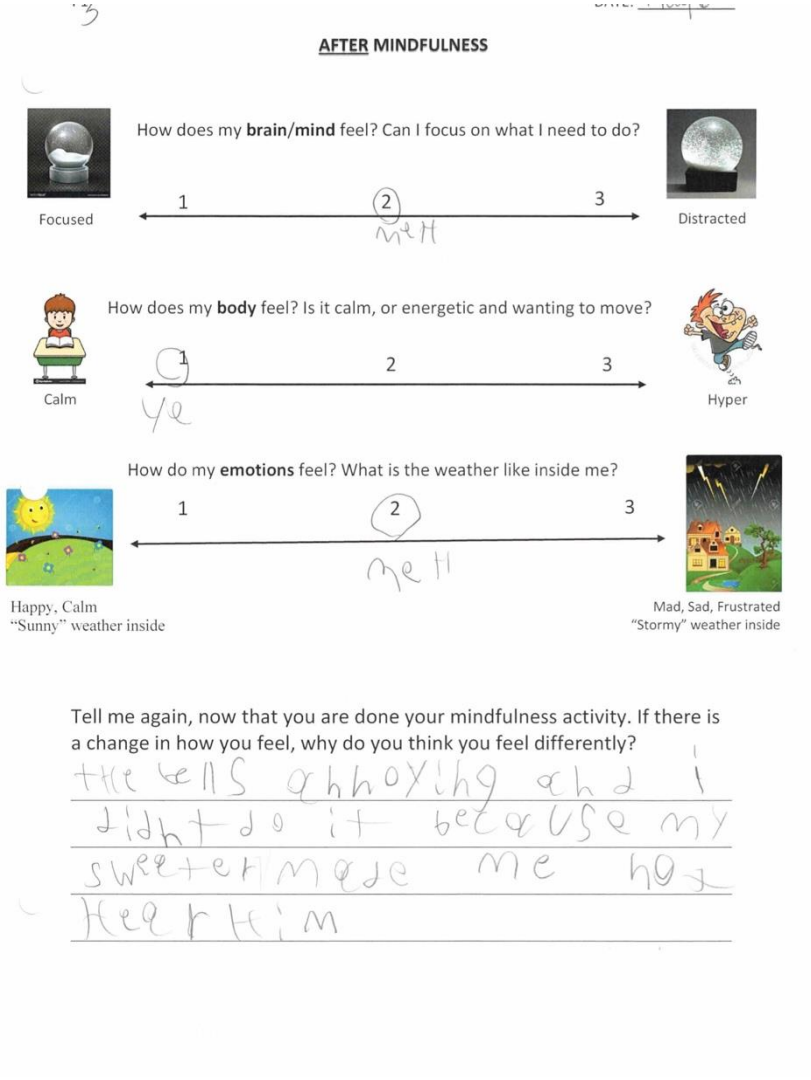


*Figure 4.2 Example of Self-Reported Sensory Processing Sensitivities.*

*Note. The printing reads: "The bells [sic] annoying and I didn't do it because my sweater made me not hear him."*

Sensory processing sensitivities contributed to a consistent pattern of disengagement throughout the weeks:

> Even the two that always shut down, they are always ready to do it in the beginning and then it's just kind of whatever triggers them in the middle … for one [student], I think it is just the length. And then the other one is sensory. (p.3)

One recommendation the classroom teacher proposed to combat potential sensory overload with the unfamiliar narrative voice is to have a script available, so that the classroom teacher could

have the option of either playing the recorded guided meditation *or* reading it themselves to eliminate unfamiliar, potentially dysregulating, components of the intervention.

*Difficulty with Self-Awareness.* Another pattern that emerged was the student-participants difficulty with self-reflection and self-awareness. As detailed in Chapter 3 (materials section,) the student-participants were asked to fill out the Self-Assessment of Self-Regulation (SASR) before and after each Smiling Mind lesson. The self-assessment (created by the researcher) asked them how their brain, body, and emotions were feeling on a 3-point Likert scale, with room for elaboration at the bottom of the page. Throughout the course of the intervention, the teacher described how the student-participants continually struggled to identify their state of regulation (e.g., calm, hyper, distracted, focused, happy, frustrated, etc.), particularly their emotional state. For instance, the teacher described "he only ever says he is mad or he is happy, there is never really a calm, or feeling annoyed, or anything like that, like an in-between kind of word, it's either I'm mad or I'm happy," which she believes is largely attributed to their age and limited emotional vocabulary. The teacher encouraged further self-reflection when the student's responses on their self-assessment did not align with their observable behaviour, for example:

> I think, that *they* think, that they're calm [laughter] after they're done. Sometimes their behaviour tells me a little bit something different, and like, and usually if it is, cause there is only 3 of them consistently doing it and I know their personalities and their body language very well, that I am able to tell like if I have a kid that says he is a 1 but he is *literally* jumping out of his chair I'm like "Are ya *sure* you're a 1 right now? What do you really think you are?" and then he will usually be like "Ok, I don't think I'm a 1 right now."

However, by week three of the intervention, the teacher said she noticed improvement in the students' self-awareness and emotional literacy. In the first two weeks of the intervention, the student-participants would mostly report that they were '3's' (i.e., dysregulated) beforehand, and '1's' (i.e., regulated) afterword, which the teacher inferred may have been a response bias to what they thought they were "supposed" to feel. At the end of week two, the teacher explained how one student was trying to find new ways to describe how he was feeling:

> … one of them used to just always say "I'm happy I'm happy I'm happy" but he, he said something about his body, like "my body feels wiggly" or something, he said something like that. Cause he asked me to spell it for him, and I was like "that's a really good way to

describe it!" ... Something like that, something about his body, ... and not just like 'I'm happy, I'm fine.' (p.13)

Although the student-participants struggled with self-awareness, it seemed like through Smiling Mind, along with teaching and encouragement from their teacher to further self-reflect, the students' ability to recognize and identify their emotions showed slight improvements towards the end of the intervention.

**Mindfulness Can Promote Self-Regulation (with Time and Practice).**

> **"I felt a little bit better, a little bit happier and a little bit calmer" (student, age 8).**

Throughout the prolonged interviews, the teacher shared how some student-participants seemed to be benefiting from mindfulness. Even in the first prolonged interview, the teacher said that during the self-assessment after the guided meditation, one of the students said they felt "comfortable" and that they were in the "green zone" (referring to Zones of Regulation; Kuypers, 2011). The teacher noticed that some students were becoming regulated during mindfulness, both in their observable behaviour and in their self-reflection, especially by week four of the intervention. By week four, the students were in a routine of knowing what to expect with Smiling Mind, which the teacher noticed increased engagement and regulation after the guided meditation:

> Sometimes they are a little bit calmer and are refocusing a little bit faster. I think that they're getting more in-tune with what the program is supposed to be doing, and I think that they're kind of starting to kind of, I think that their bodies are kind of starting to respond a little bit better to what it is, because before in the beginning it was just something they do and they were like "what are we doing, why are we laying on the floor, what's happening?" kind of thing, and now that we are like three quarters of the way in, that's the expectation and they know that this is what's going on. So I think that they have kind of decided now that they're like "ok, I know what I'm doing, this is our job, we're supposed to be listening", you know, and now their bodies are kind of following their brain and responding to it, so I think they're starting to do really good with it.

The teacher observed the most noticeable benefits of mindfulness in one of the older students who struggles with feelings of anger. The teacher described the student as a "little fireball" who can be "very angry, and very fast at being angry, and he stays angry." The teacher said the student sometimes comes in the classroom and "he is growling, and his face is furrowed, and he doesn't want to do it and he is 3's across the whole board [on the self-assessment]". According to the teacher, this student's self-regulation before and after mindfulness was "a 180 … he will write down like 'I am angry' and 'I don't want to do this' and literally the next page [after the mindfulness] he is like 'I feel ok'" and would circle 1's on his self-assessment (see Appendix N for an example). She described a few similar scenarios with the student and another, for example:

> One of my kiddos came in and he was very angry and did not want to be in the room and did not want to do anything that had to do with the room. He came in with a scowl on his face, slammed himself down on the desk, was yelling at us. And then we put [Smiling Mind] on, and then at the end of it, he said in his self-assessment that he felt calm and he felt better. His face didn't tell me he felt better, but his body language told me he was feeling better, so I think that it was… that was a good piece for him to engage in.

The student-participants described their first-hand experience with Smiling Mind in their individual interviews. Regarding how Smiling Mind affected student's subjective state of self-regulation, two students reported feeling "more calm" after the guided meditation. The same two students reported more regulated attention and positive thinking. For example, Jarrett said "I think about good things during Smiling Mind", and likewise, Shane explained "I actually didn't think about nothing about funny stuff." Shane also reflected that he was able to listen to his teacher better after Smiling Mind. On the other hand, the students indicated that meditation did not always improve their self-regulation or mood; for example, one student noted that sometimes, they are mad before Smiling Mind and "stay mad after" (example below).

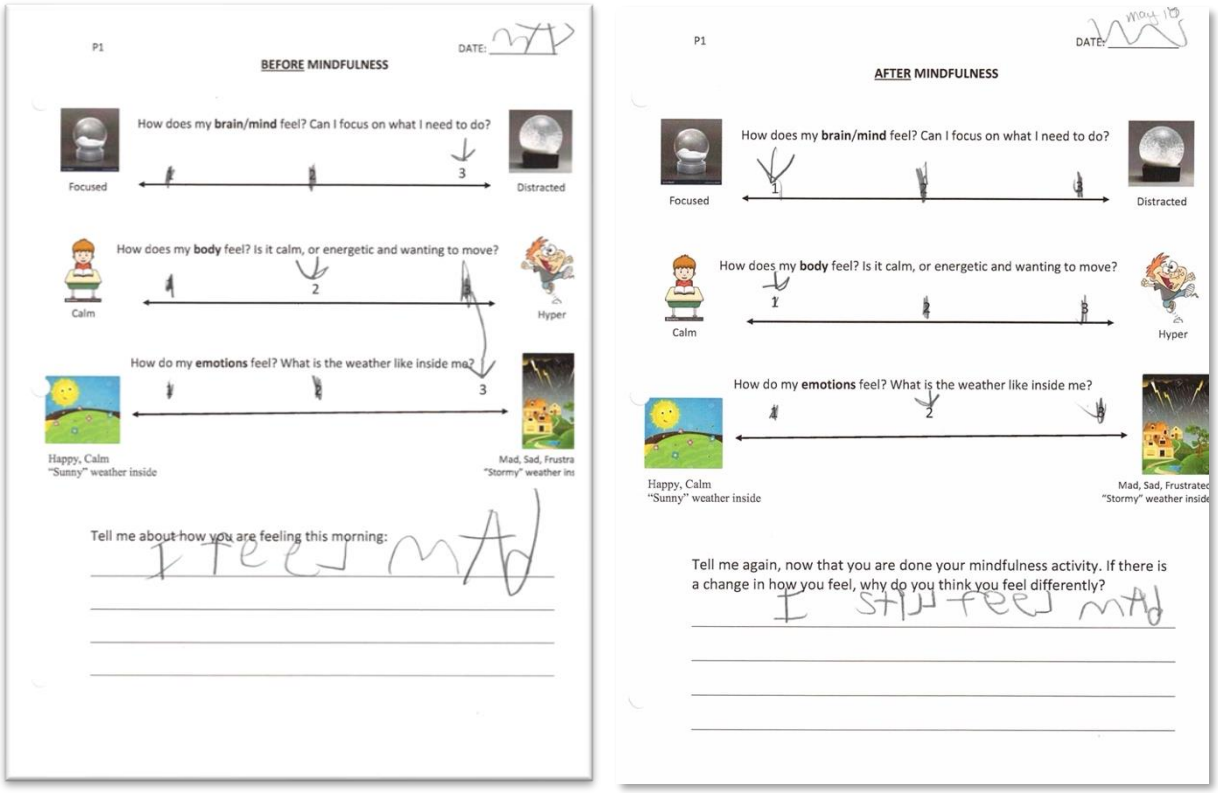


*Figure 4.3 Example of Emotion Dysregulation Before and After Smiling Mind.*

### *4.3.3 Theme 3: Responsive Teaching and Pedagogical Considerations*

**Importance of a Responsive Teacher.** *Importance of routine, safety, trust.* The importance of routine, predictability, safety, and trust in the BALANCE classroom was clear from the initial interview with the teacher. Taylor reflected on the amount of time (typically 5-6 weeks) spent building relationships with the students at the beginning of the year, and how foundational this relationship building is to their success in the program. Further, Taylor explained how structure and routine is built into the student's everyday experience, for example, they start every morning with 20-minutes of "soft-landing" (i.e., a quiet activity of their choice such as reading, fidget toys, puzzles), and after lunch they always have "turtle time" (i.e., silent reading). Having this routine, Taylor explained, also allows the students to demonstrate responsibility that they can follow the classroom expectations independently. Taylor noted that rules and expectations in their classroom are co-created, which further emphasizes the importance of trust in one another, and that the relationships are collaborative.

One benefit of the COVID-related delays was that the students and teacher had already established trusting relationships when the current study began in the spring. However, it still took time for the students to adapt to having Smiling Mind as part of their school day routine. Taylor noted during the prolonged interview in week four that the students were into the routine, understood what was expected of them, *and* seemed to be responding more to the benefits of mindfulness. However, as noted in the previous theme, this may also have to do with the nature of mindfulness being a skill that takes time to acquire and benefit from.

*Teacher's Role in Regulation and Engagement.* When implementing a program such as Smiling Mind into a needs-intensive classroom it is crucially important that the teacher is in-tune with the regulation of the students, as this directly corresponds with their readiness to engage, and consequently, the benefits they may experience. Taylor shared a couple of instances where she used regulation strategies, such as giving the students chewing gum, to help them prepare for Smiling Mind. Further, as they would often become disengaged or off task during the PRACTICE component, she at times had to pause and redirect the students, for example:

> It's taking a lot of effort to kind of reign them in, we do lots of pausing and we do lots of things where we will have to stop and restart, stop and restart. They always finish it, just sometimes it takes a little longer.

In addition, part of being a responsive teacher is recognizing when your students are disengaged because they are not grasping a concept. When this happened, as described in the following subsections, Taylor would modify the lessons or use personal connections to try and engage them.

*Differentiated Instruction and Connection to Personal Experience.* Throughout the prolonged interviews, the teacher's responsiveness to her students' learning needs was evident. She consistently used examples that were relevant to the students' personal lives or that would otherwise engage them in the lesson and boost their comprehension of the topic. She explained:

> I am finding that for the first section [LESSON] I am really having to differentiate for my students, because they aren't understanding the words and I spend a lot of time defining the words and trying to figure out if they understand what I am saying. So I've been modifying a little bit so that they understand, I have also been implementing a lot more examples – real life examples – that they can relate to.

As an example, Taylor told me about Lesson 13, Setting Goals, where she incorporated personal examples:

> I read the lesson to them and then they were kind of staring at it and not really responding to any of my questions. So I wasn't sure if they actually got what I was saying. So then, I kind of tried to modify it in that way. Setting goals, I used examples like "Fun Friday" is what we do, and that means that on Friday, our goal is to do our job all week and then you receive that reward on Friday. So that's setting a goal, setting a goal to graduate from the program, just so that they understood what I was talking about with goals.

Finally, as also discussed in theme one (developmental appropriateness), the current Smiling Mind program primarily focuses on auditory learning and does not address different learning styles (e.g., kinesthetic, visual). Thus, it fell upon the teacher to be aware of their student's learning styles and differentiate the lessons appropriately, and she offered several recommendations for doing so. First, she recommended spending more time on each individual topic to be able to flush out the ideas and concepts, just as you would with a complicated academic concept. Second, she recommended "putting the ideas into action" opposed to only discussing them, as acting on the concepts makes them more concrete *and* accommodates difference learning styles. The teacher explained how she tapped into different learning styles in the Positive Communication lesson:

> … on top of the [Positive Communication] lesson and the practice, we did a zones and different faces emotions through body language exercise. So, I got the kiddos to all show me different ways that they could tell me, just by using their bodies, not by using their mouth at all, how they would show me that they're mad, and how they would show me that they're angry, and how they would show me that they are happy, or calm, and they liked that.

Further, she explained how they practiced and put the concept into action during the school day:

> On the Positive Communication one [lesson], in the practice it tells you to have mindful listening and mindful talking. And so we did the practice but then we expanded it, so it wasn't just the one-time practice, we tried it two more times throughout the day with different people with different subjects. And then we would have to go tell the information that they learned from that person that they were mindful listening to a whole

other person that wasn't part of the conversation so that they could understand that they were listening to hear what the person was saying, and then they could tell that information.

Having the students connect to the material through personal experience enhanced their understanding of the topic in ways that listening to a lesson alone did not achieve.

### 4.4 Summary of Findings

Overall, the findings from the current study suggest that mindfulness lessons have potential to be beneficial in a specialized behaviour classroom; however, this is not without some unique challenges. The teacher requires room to be flexible and responsive to the individual needs of the students, adapting and modifying (or pausing and regrouping) as necessary. Well established, trusting relationships between the teacher and students also seemed to facilitate student engagement. Nonetheless, the students-participants identified some positive effects of mindfulness such as helping them regulate their moods and communicate in more positive and respectful ways with others.

# 5. Discussion

This single intrinsic case study provided insight into a teacher and her students' experience facilitating and participating in (respectively) Smiling Mind's Mindfulness in Schools Program. The primary purpose of this study was to address three questions:

1. How does incorporating a mindfulness intervention into a tier-three (high support) elementary school classroom routine affect the self-regulation (e.g., ability to appropriately manage thoughts, emotions and behaviour) of students with internalizing or externalizing mental health difficulties/disorders?
2. How does mindfulness help or hinder student readjustment to the classroom setting following a prolonged absence from school due to COVID-19?
3. What opinions, attitudes, and feelings do the classroom teacher and students have towards incorporating mindfulness into their school day?

Through the process of data collection and analysis, including triangulation with the teacher and the thesis committee, three main themes were identified highlighting the teacher and students' experiences with Smiling Mind: (a) general feedback on the *Smiling Mind* program, (b) considerations for mindfulness-based interventions in a specialized behaviour classroom, and (c) the importance of the teacher and pedagogical considerations.

## 5.1 Learnings from Student's Experiences

The students in the current study had varying, albeit limited, likes and dislikes about the incorporation of mindfulness into their school day (research question three). The SASR, which was developed in an age-appropriate manner for the students to be able to comprehend and respond to, was useful in providing some insight into the student's thoughts and feelings both before and after the Smiling Mind sessions. Further, the scribing support provided by the teacher and educational assistants was valuable as many of the students struggled with articulating and printing their thoughts and feelings in words. The SASR provided insight into the students experiences as well as corroborated some of the information provided by the teacher during the prolonged interviews, such as the impact of sensory sensitivities, the times the PRACTICE was regulating, as well as the times that it was not.

Similar existing research in this context is limited. Apart from the Deakin University study completed in Victoria, Australia (sponsored by Smiling Mind and the provincial government), a master's thesis by Eadie (2021) was the only other research I found involving the

Smiling Mind Classroom program with a similar sample (i.e., a classroom teacher and seven students aged 9-10 with behavioural, mental health, and academic difficulties). Eadie (2021) found comparable likes and dislikes from the student-participants in their study, such as liking feeling calmer after mindfulness, and disliking having to sit still, being quiet, and difficulty understanding some of the words and the voice of the narrator.

Like the findings of Bannirchelvam and colleagues (2017), the student-participants in my study seemed to enjoy the parts of the intervention where they were actively involved, for example, having conversations about their strengths and practicing positive communication and acts of kindness with peers. While two of the students reported that the guided meditations made them feel calmer, only one of the students reported enjoying the guided meditation (practice component). These findings may be related to some of the developmental considerations discussed later in this chapter.

### *5.1.1 Impacts of Sensory Processing*

A prominent pattern in the findings that I had not anticipated was the prevailing impact of sensory over-responsivity on student engagement and self-regulation during the PRACTICE (guided meditation) component of Smiling Mind. My initial assumption was that the guided PRACTICE sessions would be either helpful (i.e., regulating) or simply have no effect. However, based on the sample of students participating in this study, this was understandable. As Ben-Sasson et al. (2009) explain, sensory over-responsivity is characterized by "behavioural responses to sensory input that are rapid in onset, prolonged, and greater in intensity compared to peers" (Miller et al., 2007, as cited in Ben-Sasson et al., 2009, p. 1). While the link between sensory over-responsivity and conditions such as autism spectrum disorder (ASD) and ADHD are relatively well known, there is a lesser-known connection between sensory over-responsiveness and behavioural disorders (Ben-Sasson et al., 2009).

The findings in this study highlight the importance of considering the connection between behavioural disorders (or undiagnosed externalizing symptoms) and sensory over-responsivity when selecting appropriate SEL and self-regulation interventions. While it has been suggested that mindfulness and related practices may be helpful for individuals with sensory sensitivities/sensory over-responsivity, there is not yet a body of literature on the potential benefits for this population (Lane, 2020), warranting further investigation.

### *5.5.2 Mindfulness Can Be Regulating (But How?)*

Consistent with other research on the benefits of mindfulness for children (e.g., Carsley et al., 2018; Zoogman et al., 2015), the findings of my study suggest that, at times, the *Smiling Mind* intervention appeared to promote regulation of thoughts and feelings in the students. This was both observed by the teacher (i.e., "Sometimes they are a little bit calmer and are refocusing a little bit faster") and reported in the student's own self-reflections such as: "I liked the thing where I just lay down and breathe, it makes me more calm" and, "[after Smiling Mind I] feel a little bit better, a little bit happier and a little bit calmer." Likewise, when asked of a strategy they may continue to use in the future, one student reflected he would use deep breathing.

While the students were able to recognize that laying down and focusing on deep breathing helped them regulate their thoughts and emotions, it may be somewhat speculative to attribute it to the practice of *mindfulness.* This raises the question of whether the students were experiencing mindfulness (which requires a non-judgemental *awareness* of present-moment inner experiences), or rather experiencing a relaxation response achieved through deep breathing that often goes hand-in-hand with mindfulness practices.

In Chapter 2, five processes that make mindfulness beneficial according to Brown et al. (2007) were discussed. Three of the five processes—*insight* (a decentered, meta-cognitive process that distances oneself from their thoughts and feelings), *exposure* (awareness and acceptance of uncomfortable emotions) and *nonattachment* (acceptance of what is rather than avoidance or control) (Brown et al., 2007)—require top-down, higher-order cognitive functions. However, the absence of these higher-order cognitive functions should not suggest that mindfulness practices for children are not beneficial – but is a consideration when selecting and implementing mindfulness-based interventions. Further, due to limitations with data collection methods preventing ongoing observation and conversation, it is possible that the students were engaging in processes such as insight, nonattachment, or exposure, but were unable to articulate or remember such experiences during their post-intervention interviews. Accordingly, it would be beneficial for future researchers to do real-time observations and inquiry of the student's experiences.

Langer et al. (2020) similarly reported that their sample of adolescents (age 12-14) seem to engage most meaningfully with mindfulness when it involves their bodies and physical sensations. This suggests the guided meditations (i.e., where they were deep breathing) promoted

self-regulation via *bottom-up processes*. This is consistent with findings in neuroimaging studies where beginners in mindfulness practice achieved enhanced emotion regulation by increasing control over "lower order" affective brain systems, such as the amygdala, whereas experienced meditators showed top-down changes in thinking (prefrontal cortex activation) that modulated their affect (Taylor et al., 2007).

In line with both neuroimaging studies of experienced versus inexperienced meditators, and colloquialisms such as "mindfulness is like a muscle," it takes time and practice to strengthen one's mindfulness skills. This was consistent with the findings in the current study where the student participants began to demonstrate greater understanding and regulation in the later weeks of the program. Further, the eldest student-participant in the current study, who the teacher reported had some previous experience with mindfulness at school, appeared to benefit the most from the current intervention. Arthurson (2015) reported comparable findings in their classroom mindfulness pilot project with students aged 11 and 12, where the students were restless and fidgety at the beginning, but more focused and able to unwind towards the end of the 9-week intervention (p. 35).

The qualitative findings in the current study add to literature in the field suggesting that mindfulness interventions first benefit children through bottom-up relaxation techniques, and that mindfulness is a skill that takes time and practice. Coupled with neuroimaging findings that support the notion that it takes long-term practice to develop the meta-cognitive skills for top-down regulation, the findings of this study highlight the practical importance of early and school-wide intervention for all ages to have the most significant benefits.

## 5.2 Teacher feedback

A strength of the current study was the use of prolonged interviews, which allowed me to build rapport with the teacher and gave the teacher multiple opportunities to share her experiences, observations, and recommendations throughout the course of the program. Currently, limited literature exists that provides teacher feedback on the *Smiling Mind program*. Ergo, the teacher's unique role in this study offered some insightful, valuable feedback regarding her observations, experience facilitating the program, and considerations for other teachers, especially those with similar student demographics and needs.

### *5.2.1 Developmental Considerations*

A prominent pattern that emerged from the data was that the concepts appeared too

difficult or abstract for the students, which highlighted the importance of the teacher being responsive to student needs. While being responsive to student needs is undoubtedly important to student success in any classroom, the *Smiling Mind* program could be strengthened by taking developmental considerations into account as well as offering suggestions for teaching modifications.

Jennings et al. (2012) point to the importance of understanding the development of executive functioning when designing mindfulness-based practices for children, including sustained and directed attention, inhibition, and metacognition. For instance, even the most basic mindfulness-based practices, such as deep breathing, require some level of sustained attention. Monitoring one's thoughts and bringing them back to the "here-and-now" requires an advanced level of inhibition and metacognition (Jennings et al., 2012). These executive functioning skills (intentional attention, inhibition, and meta-cognition) are typically not fully developed until mid-adolescence (Jennings et al., 2012). On the other hand, children as young as three can focus on and engage with activities involving sensory and movement (Lillard, 2005; as cited in Jennings et al., 2012).

Considering the current understanding of executive function development, many of the challenges reported by the classroom teacher are unsurprising. The *Smiling Mind* sessions were longer than children this age can sustain their attention (many of the PRACTISE components are around 7 minutes long) *and* required some degree of metacognition. These findings are significant as they point to important changes that could be made to the program to make it more developmentally appropriate such as incorporating more mindful movement, story-based psychoeducation, and sensory related mindfulness practices (Jennings et al., 2012; Vekety et al., 2022). Intuitively, the teacher effectively used these strategies at several instances throughout the current study, such as sharing personal stories about feelings, giving the student's chewing gum to help them regulate, and having the student's hand out chocolate bars to practice acts of kindness. However, there were other topics, such as empathy and optimism, that she explained as too abstract for the students; incorporation of age-appropriate story-based lessons could greatly improve the developmental-appropriateness of the *Smiling Mind program.*

### *5.2.2 Responsive Teaching and Pedagogical Considerations*

The third and final theme in the current study pointed to the importance of a responsive teacher and several pedagogical considerations for the delivery of a mindfulness program in a

specialized classroom. The importance of the relationship between the teacher and students in relation to participation and positive outcomes is echoed in the literature (Carsley et al., 2018; Langer et al., 2020). The teacher in this study emphasized that the relationship between the students and teacher must be built on routine, safety, and trust, all of which are critical in creating trauma-informed classrooms (Cavanaugh, 2016).

With the trusting relationship as the foundation, other key parts of the third theme included the teacher's role in regulation and lesson differentiation and modification. The teacher demonstrated responsiveness to her students' needs by assessing their readiness to engage in the lessons combined with their ability to comprehend them, while responding with flexibility and providing adaptations as needed. Further, she was able to differentiate the lessons to meet student learning needs and styles, which is an evident benefit of having the teacher opposed to an outside facilitator delivering the lessons.

Arthurson (2015) reported comparable findings with flexibility of the classroom teacher as essential to successful program delivery, even within a 'typical' classroom. This included flexibility in terms of adapting and modifying the lessons as necessary to meet the student's individual learning styles, as well as being flexible due to barriers inherent in classrooms and schools (e.g., scheduling conflicts, mandatory testing, and curriculum requirements).

Langer et al. (2020) discuss a "pedagogical-relational framework" that emerged from their findings when looking at a mindfulness-based intervention within a classroom. The framework includes three components of pedagogy (lesson content and mode of intervention, teacher's expertise and characteristics, and structure and practices/activities,) which are influenced by the learning environment, trust and freedom, psychological wellbeing, and planning and design (see pg. 10 of Langer et al., 2020 for a visual representation of the model). In the center of their model sits regulatory strategies, influenced by the intersecting components. Langer's pedagogical-relationship framework authentically captures the many traits and roles of the teacher in addition to the lesson content that go into making a lesson successful.

However, others have cautioned that the teacher may not always be best suited to deliver mindfulness programs (Arthurson, 2015). For one, it can be difficult for the teacher to accommodate the demands of large class sizes with varying needs and abilities, and students that are not engaged or taking it seriously can derail the practice for the other students (however, in my opinion, this is a systemic problem and nothing to do with the teacher other than it is their

reality). Second, it is often recommended (e.g., Burke, 2010; as cited in Arthurson, 2015) that facilitators of mindfulness have their own personal practice of mindfulness as well. While some teachers may be doing this or open to it, it certainly could influence teachers' confidence in bringing mindfulness into their classroom. Third, it is cautioned that mindfulness can bring up painful emotional experiences or memories for some individuals, and teachers may not have the expertise to deal with these situations.

In response to Arthurson's (2015) third caution, I would contend that teachers already quite often face these circumstances in their roles as classroom teachers (the classroom teacher referenced multiple instances where her students were experiencing something traumatic just in the duration of data collection). Further, most have a natural skillset in supporting children (or, at the very least, know their supports in the school they could reach out to). Perhaps, instead of labelling this as a barrier preventing teachers from feeling confident at implementing mindfulness-based classroom programs, we should work towards dismantling this barrier by educating teachers in the areas of mental health and trauma-informed classrooms, so they have the tools and confidence to handle these (increasingly frequent) situations.

As a school counsellor, part of my role is delivering tier-one lessons in classrooms. While I have knowledge on the topics (e.g., general mental health, healthy relationships, online safety, bullying), I certainly do not have the skillset of *classroom management* (Marzano & Marzano, 2003) that I observe daily in my teacher colleagues. Maintaining the attention of a room of children with varying needs for 7 hours a day is an incredible task (I very often tell teachers they are superheroes). While I ensure my presence in the school community and try to connect with as many students as I can, I still do not have the same level of relationship with the students that the classroom teachers are able to foster due to their proximity and amount of time they spend together. For these reasons, I think the ideal mindfulness-based classroom interventions could be co-facilitated by the school counsellor and the classroom teacher.

### 5.3 Limitations of Study and Implications of COVID-19

Several limitations exist in the current study and were unfortunately compounded by the restrictions in place due to the COVID-19 pandemic. For instance, I was required to modify the data collection methods in the current study post-proposal defense to be able to complete data collection entirely remotely. One of the most significant changes to my proposed method of data collection was that I was unable to be present in the classroom to gather observational data. In

place of observational data, the classroom teacher served as my “eyes and ears” in the classroom and communicated what she observed to me during our weekly interviews. As mindfulness is a “here-and-now" experience, relying on retro-active second-hand observations is evidently unfavourable compared to in-the-moment firsthand observations. Reliance on teacher report throughout is an obvious and critical limitation to this study, especially as she was both delivering and reporting on the intervention. Future research should consider both systematic observations and field notes to fully capture the students' interactions with the Smiling Mind program as they experience it.

Another limitation imposed by COVID-19 restrictions was completing the student interviews virtually opposed to in-person focus groups. Interviewing the students virtually impeded my ability to build rapport and connect with the students in a meaningful way, consequently limiting the amount of meaningful information elicited in the interviews. Finally, with data collection limited to interviews (observations and behaviour rating scales were included in the initial proposal), responses may be biased due to participants, knowingly or not, wishing to describe socially desirable responses, exaggerating or withholding responses, or gaps in memory.

It may also be beneficial for future researchers to operationally define concepts such as self-regulation and mindfulness in ways that can be empirically measured; however, this poses a challenge as subjective concepts and experiences such as mindfulness are extremely difficult to measure objectively. Thus, a mixed-methods approach would likely be a good avenue for future research to include both participants subjective experience with mindfulness and its effects as well as some standardized measures of behaviour, self-regulation, etc. Using a larger sample size (e.g., multiple classrooms) would also be beneficial, as well as a control group to control for potential confounding variables, such as learning the SEL skills without the actual mindfulness component.

### 5.4 Implications for Future Research and Professional Practice

The results of this study contribute valuable information to the contemporary area of research ensuring mindfulness-based interventions for children align with the knowledge in the field of developmental psychology. As suggested in *Smiling Mind’s Evidence Based Guidelines for Mindfulness in Schools* (Smiling Mind, 2018), the earlier you begin teaching mindfulness, the greater the cumulative benefits towards wellbeing are likely to be experienced. This points to the

benefit of implementing mindfulness-based interventions into classrooms in the primary years and continuing through the secondary years—as suggested in the literature, this could promote a transformation from short-term bottom-up regulation, to lasting positive changes in student's perspective, affect, and ability to regulate. However, while mindfulness-based interventions for children undoubtedly show promise, it will be critical for researchers and developmental clinicians to continue to revise and study the programs to ensure they are suitable to children's developmental level. Another consideration that deserves further attention is the impact of sensory over-responsivity on student mental health and wellbeing as well as academic performance.

During the final interview, the teacher offered a relevant and innovative recommendation of including Indigenous teachings, which would strengthen the impact and relevancy of the *Smiling Mind* program to her students and others in the province. However, as *Smiling Mind* is an Australian program, an equally intriguing and important area for future Canadian researchers and clinicians would be to create a Canadian mindfulness-based program—with Canadian content *and* a Canadian accent—to eliminate linguistic and cultural barriers that may exist. Further, as the importance of reconciliation is finally being collectively acknowledged, the program could include Canadian Indigenous history or teachings and storytelling into the lessons, especially given that many traditional Indigenous ways of being align with concepts in contemporary mindfulness (Bird, 2013). This could also tie into provincial curricular requirements within the Ministry of Education's *Inspiring Success: First Nations and Metis PreK-12 Education Policy Framework* (Ministry of Education, 2018) which includes:

- development of culturally responsive and affirming curricula, relevant instruction and assessment;
- emphasis on the value and importance of teaching Métis and First Nations history, languages, cultures, traditional and contemporary ways of knowing in the classroom.

Further, the implications of this research come at a critical time as mental health concerns continue to rise as we face the repercussions of the lingering COVID-19 pandemic (e.g., UNICEF, 2020). Research on evidence-based and easily accessible SEL tools connects to the growing need for supports for students surrounding mental health and well-being that was identified by the Saskatchewan Ministry of Education by having school divisions to develop actions focused on Mental Health and Wellbeing for their Strategic Plans in 2020 through 2023.

As brought forward in the discussion, there are obvious benefits of having the classroom teacher deliver mindfulness-based interventions due to the importance of relationship and responsive teaching. Incorporating trauma-informed SEL and mental-health courses into teacher post-secondary education would empower teachers with another tool in their metaphorical toolbox to best support mental health and wellbeing of all students.

## 5.5 Conclusion

Navigating the process of qualitative research during the worldwide COVID-19 pandemic demanded innovative and flexible research methods. I hope this study may offer insight into some of the challenges and ideas for future researchers looking to complete virtual research (although I hope we never have to mass-isolate and "social distance" again!). This study investigated the potential of an accessible, technology-based, mindfulness-based intervention as a tier three approach to enhancing self-regulation skills in students with identified internalizing and externalizing difficulties/disorders. Despite limitations to this study, it provides insight into the potential of Smiling Mind as a tier three intervention by being the first to complete the *Smiling Mind Mindfulness in Schools* program in an intensive-needs behaviour classroom and one of very few studies that was completed with students in grades 1-4 (most in school mindfulness-based studies have been completed with adolescents). The findings warrant further investigation into the potential of S*miling Mind* as a self-regulation intervention for students with internalizing and externalizing difficulties. However, collaboration between Canadian researchers, educators, school counsellors, and Indigenous Knowledge Keepers to create a Canadian mindfulness-based classroom program would exemplify inclusion, reconciliation, and commitment to the wellness of our children and youth at a significant time in our history.

The results of this study contributed valuable information to the contemporary area of research that connects mindfulness-based interventions with developmental psychology. To best support student mental health and wellbeing, mindfulness-based classroom interventions should start early and be developmentally appropriate (i.e., begin with story-based psychoeducation and sensory-related mindfulness before moving on to more cognitively complex practices), giving the children the opportunity to build on their skills as they progress through their educational journey. The importance of the teacher's relationship-building and responsivity to her students' needs was highlighted, which promotes the notion of teachers delivering the program opposed to

external professionals. Accordingly, including mental health and wellbeing and SEL courses in post-secondary teacher education programs would be beneficial.

## 6. Afterword: Research Trials and Tribulations During COVID-19

Planning and conducting research with humans during a worldwide pandemic proved to a daunting task. In spring of 2020, when COVID-19 restrictions were abruptly implemented in our province, I had already successfully defended my proposal to my committee and had filled out and revised my ethics application. Suddenly, I was faced with the reality that I could no longer conduct my research in person, rendering my entire proposed methodology and ethics application unusable. Back to the drawing board I went, to come up with a way to answer my research questions without stepping foot in the classroom, *with* a backup plan in case the students and teachers were to complete at-home (virtual) schooling (which did happen multiple times province-wide, plus individual school divisions had the authority to decide if virtual learning was necessary to curb an outbreak).

There were various barriers to consider. I could not be in the classroom to complete observations, and virtual observations were not allowed for privacy reasons. I could no longer complete a focus group interview because it would not be practical with social distancing (plus, a virtual focus group interview with grade one to four students would certainly be challenging, to say the least). On the same note, I knew that completing virtual interviews with young students would also be exceptionally challenging, as it is a lot more difficult to engage in relationship building and connect with them than it would be face to face, especially after I would have been present in the classroom for weeks by that point completing observations.

In the winter of 2021 (still mid-pandemic), my partner and I moved to northern Saskatchewan to work in our respective fields at a time when the demand for mental health supports was extremely high. I completed my data collection virtually from my office at the high school, where I worked as a school counsellor. Twice I had to reschedule our interview times because I was dealing with a crisis (one of those times I was with a student at the hospital emergency room until 10:00pm). I am thankful for my time in northern Saskatchewan; I met so many wonderful people and learned so much about the local Woodland Cree culture and developed greater cognizance for barriers that northern communities face in terms of resources and supports.

Figure 5 provides a visual representation of my thesis research journey. It is offered as a reminder that researchers, novice or experienced, often need to be as flexible as they are committed to their respective areas of focused inquiry.

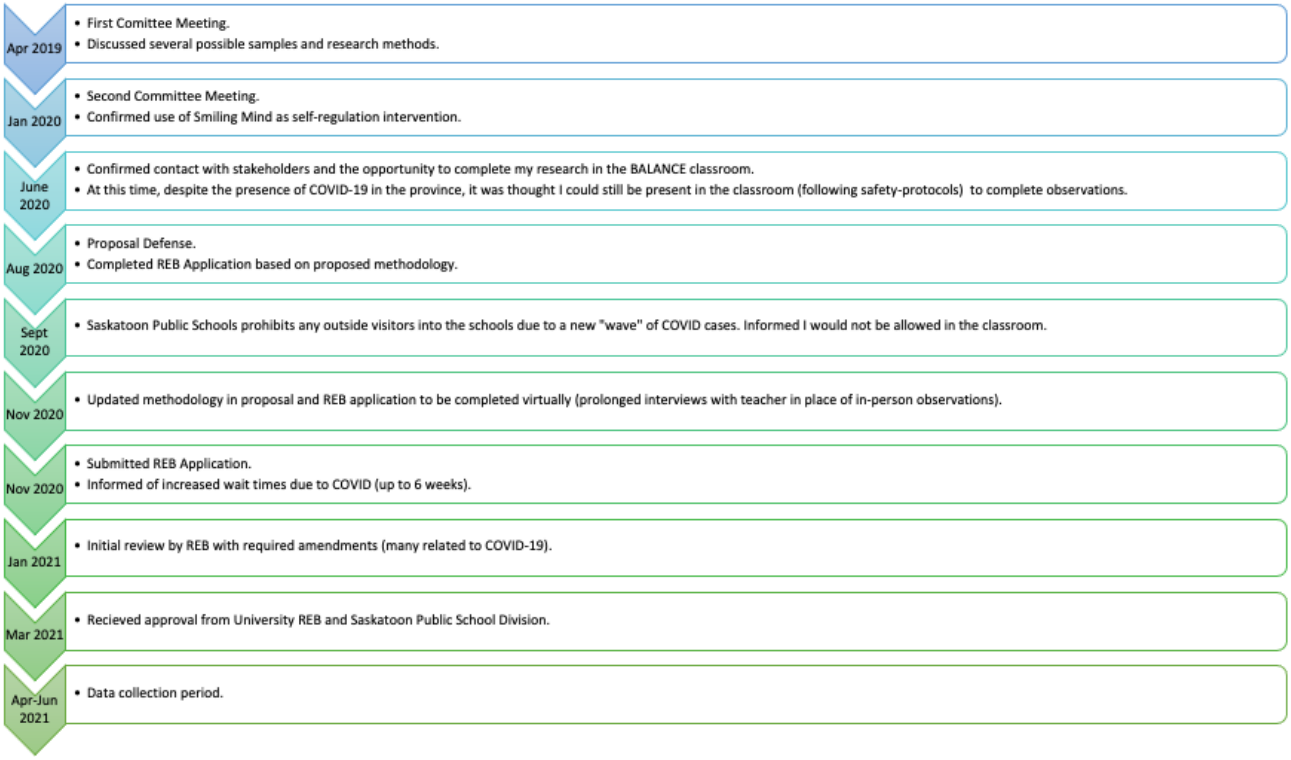


*Figure 5.1 Timeline of Events and Required Changes to Methodology.*

## Appendix A

**Smiling Mind Curriculum complete lesson list:**

1. Awareness
2. Attention
3. The Senses
4. Savouring
5. Movement
6. Recognising Emotions
7. Managing Emotions
8. Self-Compassion
9. Optimism
10. Strengths
11. Gratitude
12. Making Decisions
13. Setting Goals
14. Empathy
15. Acts of Kindness
16. Positive Relationships
17. Positive Communication
18. A Curious Mind
19. Growth Mindset
20. Resilience

(Smiling Mind, 2019)

## Appendix B: Invitation to Participate

UNIVERSITY OF SASKATCHEWAN
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PSYCHOLOGY AND SPECIAL EDUCATION
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***Invitation to Participate***

---

**Dear Parent(s) or Guardian(s),**

I am hoping to complete a study in your child's BALANCE classroom to gain a better understanding of an app-based ***mindfulness*** program, called ***Smiling Mind***. I am interested in whether mindfulness may improve children's ability to control their thoughts, emotions, and behaviour (referred to as ***self-regulation***) in a classroom setting. I am also interested in hearing your child's feedback on the mindfulness program (*Smiling Mind*). I plan to offer this program in a classroom setting (two, 30-minute lessons with two, 5-minute practices/week) across 10 weeks, so your child would be asked to participate with their classmates. The program will be delivered entirely at school by the classroom teacher (no at-home requirements). The classroom teacher will be making observations of student self-regulation and use of the mindfulness strategies and passing her observations on to me throughout the 10-week program. At the end of the program, I will complete virtual interviews with the students in the class.

***Mindfulness*** is a sense of awareness that comes from paying close attention in a nonjudgmental manner to your experiences in the present moment (Kabitt-Zinn, 2003). Research shows that practicing mindfulness **has many benefits, including improved mental health, physical health, sleep, attention/concentration, impulse control, and self-regulation**. I am particularly interested in the potential for **mindfulness to help children improve their self-regulation abilities** (being able to control their thoughts, emotions, and behaviour in order to meet goals and expectations). By participating in this research, **your child may learn skills to better regulate their thoughts, emotions, and behaviour, which may support their academic success**. Your child's participation in this research will also contribute valuable information to educators, administrators, and other professionals about the potential value of teaching mindfulness within a classroom setting.

For more information, please see the *Consent Form* included in the envelope. You can email the researcher at m.adam@usask.ca to set up a **virtual video or telephone meeting** if you would like the opportunity to learn more about the study and ask any questions you may have.

Thank you for your time and I look forward to hearing from you!

Sincerely,

Mikayla

## Appendix C: Teacher Consent Form

UNIVERSITY OF SASKATCHEWAN
College of Education
DEPARTMENT OF EDUCATIONAL PSYCHOLOGY AND SPECIAL EDUCATION
EDUCATION.USASK.CA

***Teacher Consent Form***

**You and your students are invited to participate in a research study entitled: Smiling Mind's *Mindfulness in Schools* Program as a Classroom-Based Self-Regulation Intervention: A Case Study (REB# 2438)**

**Researcher:**
Mikayla Adam, B.A., M.Ed. Candidate, Department of Educational Psychology and Special Education, University of Saskatchewan, 306-425-2255 ext 516, email: m.adam@usask.ca

**Supervisors:**
**Dr. Tim Claypool**, Registered Doctoral Psychologist, Adjunct Professor, Department of Educational Psychology and Special Education, University of Saskatchewan, (306) 966-5253 (Charmaine Spezowka EPSE Graduate Secretary for T. Claypool, Adjunct Professor), tim.claypool@usask.ca

**Dr. Tammy Marche**, Associate Dean, St. Thomas More College, Professor, Department of Psychology, University of Saskatchewan, 306-966-8076, tmarche@stmcollege.ca

**Purpose(s) and Objective(s) of the Research:**

- This case study will introduce a mindfulness app program (*Smiling Mind*) to students in the BALANCE classroom. *Smiling Mind* is an app/webpage that offers free social emotional learning and mindfulness-based programs for personal, workplace, or educational use. The educational programs (Mindfulness in Schools) include lessons for the teacher to introduce the topic, guided mindfulness sessions, and practice sessions. The first purpose of the study is to see if the Smiling Minds Mindfulness in Schools program can help students self-regulate (i.e., control their thoughts, emotions, and behaviour). The second purpose of the study is to gather teacher and student feedback on the Smiling Mind program (e.g., Did they enjoy it? Was it subjectively helpful?).

**Procedures:**

- For this project, you will facilitate your students' participation in the Smiling Mind Mindfulness in Schools Program ("Year 2"/grade 2) curriculum in a class-wide manner within your classroom. The Smiling Mind Program consists of 20 *Lessons*, each of which are accompanied by a *Practice* session. The program will last a total of 10 weeks. You will be asked to deliver two lessons (approximately 20-30 minutes each) and two practice sessions (approximately 5 minutes each) to the students who choose to participate each week using the classroom Smart Board or other appropriate device.
- You will complete an initial and final interview, as well as weekly "informant" interviews, with the researcher regarding student behaviour as it relates to self-regulation as well as feedback regarding student receptiveness to specific activities and the program in general. This weekly interview/meeting will also provide the opportunity for the researcher to provide you with support in terms of program implementation questions or concerns. All interviews will take place virtually via Microsoft Teams. The interviews will be audiotaped for transcription purposes; however, you may request that the audio recording be turned off at any point in the interview without giving reason. If you request for the audio recording to be turned off, I will use hand-written notes to make record of the interview.
- You will be asked to complete the Daily Fidelity Checklist once per day, at the end of the day, throughout the study. The purpose of this checklist is for record keeping of what sessions were completed on which days, and any important notes regarding the specific sessions.

- At the end of the project, and prior to the data being included in the final report, you will be given the opportunity to review the transcript of your interview and to add, alter, or delete information from the transcripts as you see fit. You will have one month from the date the transcripts are provided to you; if you miss this deadline, the researcher may need to move forward with data analysis and writing of the results in the final report.
- Please feel free to ask any questions regarding the procedures, goals, or any aspects of the study or your role.

**Potential Benefits:**

- There are many individual benefits to participating in mindfulness such as improved physical and mental health, improved sleep, and overall wellbeing. Mindfulness has also been shown to improve self-regulation, which has been linked to decreased anxiety, depressive symptoms, and disruptive behaviour.
- This study will provide insight into the use of mindfulness as a classroom-based intervention for social-emotional learning and the development of self-regulation skills. If the outcomes of the study are positive, it may support use of the Smiling Mind program in more classrooms in the future; therefore, future students and teachers may also benefit from this study.

**Potential Risks:**

- Approximately 10 hours of classroom instruction time will be lost due to the time requirements involved in completing the Smiling Mind Mindfulness in Schools Year 2 Curriculum. However, the BALANCE classroom is a therapeutic behaviour program that focuses on supporting students with their academic, behavioural, and social/emotional wellbeing, and mindfulness is an empirically supported socio-emotional learning opportunity.
- Risks will be addressed by ongoing consultation and collaboration between you, the classroom teacher, and the researcher. If, at any point, you feel like the project is causing undue burden on yourself or your students, steps will be taken to accommodate this (e.g., reducing number of practice sessions).

**Compensation:**

- You will receive a $20 Starbucks gift card as a token of appreciation for your participation. You will receive this compensation even if you choose to withdraw from the study.

**Confidentiality:**

- The data will be kept completely confidential and no personally identifying information will be asked nor linked to the data. Your consent form will not be stored with your interview data. Audio tapes will be transcribed by the student researcher without personally identifying information (any names or otherwise personally identifying information will be redacted during the transcription process).
- It is highly recommended that you complete the virtual interviews in a private room in order to protect your privacy and confidentiality. Further, due to your unique role in the study, it is important that you keep information collected from student-participants confidential from anyone that is not a member of the research team.

Microsoft Teams will be used to complete the virtual interviews for this project. Microsoft Teams is a highly secure streaming tool that has two-factor authentication and end-to-end encryption to protect user privacy. The following is a link to Microsoft Teams' Security and Compliance website, which contains an overview of Security, Privacy, Information Protection Architecture, Licensing, Location of data in Teams, Compliance standards as well as individual links to further information: https://docs.microsoft.com/en-us/microsoftteams/security-compliance-overview

The University of Saskatchewan has an agreement with Microsoft Teams where all data is routed through servers located in Canada and the researcher will be using her USask Microsoft Teams account to schedule and conduct the interviews. Therefore, no participant data will be routed through or stored on servers outside of Canada.

Microsoft Teams uses commercially suitable physical, electronic, and managerial procedures to safeguard and secure the information transmitted or collected, including but not limited to firewalls, encryption, intrusion detection, platform monitoring, as well as limiting access to any personally identifiable information to the greatest extent allowed. However, no data protection procedures in existence are entirely infallible. As a result, while we strive to protect your personally identifiable information, platforms used for the purposes of this study cannot guarantee to be 100% secure.

- For information on Smiling Mind's privacy policy, please see: https://www.smilingmind.com.au/privacy-and-terms**.**
- The data collected in the current study will be used for a master's thesis and may potentially be published in an academic journal or presented at a conference. Although direct quotations from the interview may be reported, you will be given a pseudonym, and all identifying information such as your name, the name of the school, and the name of the program, will be removed from the report. Other results will be analyzed for themes and patterns throughout.
- Because the research activities will take place in the classroom, the teacher and other students will be aware of who chose to participate, or not participate, in the study.
- Because the participants for this research project have been selected from a small group of people, all of whom are known to each other, it is possible that you may be identifiable to other people on the basis of things said or by others who are familiar with the program you teach.
- **Storage of Data:**
    - As data collection must occur virtually due to the COVID-19 pandemic, all research data will be stored in the student researcher's fireproof/flood proof home safe of which requires a key and combination to open. This includes paper data and a password protected external hard drive containing any electronic data collected, until it can be safely transferred to the University of Saskatchewan for long term storage.
    - Once data is safely transferred to the University for storage, it will be stored by one of the Principal Investigators, Dr. Tammy Marche, in a locked filing cabinet in a locked private office for a minimum of 5-years post-publication. The audio-recording of the interview will also be stored in a locked cabinet in a locked office for a minimum of 5-years post-publication. Electronic data will be saved on encrypted USB drive to be additionally placed within a physically locked cabinet. In addition, electronic data will be stored on the principal investigator's password-protected University of Saskatchewan computer and backed up on a USask supported OneDrive account accessible only by the researcher and principal investigator.
    - Consent forms with personally identifying information will be securely stored in a filing cabinet separate from the data. A master-list with participant identities and link to the pseudonym used in the data set will also be kept in the secure cabinet with the consent forms, separate from the data, until the Thesis is complete and successfully defended, at which point the master-list will be destroyed beyond recovery.
    - When the data are no longer required, it will be confidentially destroyed beyond recovery.

**Right to Withdraw:**

- Your participation is voluntary, and you can participate in only those activities that you are comfortable with. You may withdraw from the research project for any reason, at any time without explanation or penalty of any sort. Whether you choose to participate or not will have no effect on your position, employment status, access to services, or how you will be treated.

- Should you wish to withdraw your consent to participate, you can notify the student researcher or supervisors at the contact information at the top of this form. Data collection will stop immediately, and any data collected will be destroyed beyond recovery. Due to your role in facilitating the study, if you choose to withdraw the study will discontinue and the students' will also be withdrawn from the study.
- Your right to withdraw data from the study will apply until observational and interview data have been aggregated for data analysis one month after your participation has ended (i.e., approximately May 30th, 2021) at which point it may not be possible to withdraw your data.
- At the end of the project, and prior to the data being included in the final report, you will be given the opportunity to review the transcript of your interview and to add, alter, or delete information from the transcripts as you see fit.

**Follow up:**

- To obtain results from the study, please contact the researcher at the email listed above.

**COVID-19**

- The research site is located Roland Michener School, under the jurisdiction of the Saskatchewan Ministry of Health, Ministry of Education, and Saskatoon Public School Division. You will be asked to continue with the safety protocols put forth by Saskatoon Public Schools and the Chief Medical Officer.[1] This includes frequent and proper handwashing, social distancing whenever possible, using hand sanitizer when entering or exiting a room, and not sharing materials or supplies. Physical distancing will be maintained whenever possible. Students and staff are encouraged to wear a mask when physical distancing is not achievable.

**Questions or Concerns:**

- Contact the researcher or research supervisors using the information at the top of page 1;
- This research project has been approved on ethical grounds by the University of Saskatchewan Research Ethics Board (REB #2438). Any questions regarding your rights as a participant may be addressed to that committee through the Research Ethics Office ethics.office@usask.ca (306) 966-2975. Out of town participants may call toll free (888) 966-2975.

**Oral Consent (*to be completed by the researcher*):**

**I read and explained this consent form to the participant before receiving the participant's consent. They have had the opportunity to ask questions and their questions were answered. The participant had knowledge of these documents' contents and appeared to understand it.**

| _____ | _____ | _____ |
|---|---|---|
| **Name of Participant** | **Researcher's Signature** | **Date of Consent** |

**Renewal of Consent (to be obtained orally prior to each weekly informant interview)**

| | |
|---|---|
| ***Week 1*** | ***Week 6*** |
| ***Week 2*** | ***Week 7*** |
| ***Week 3*** | ***Week 8*** |
| ***Week 4*** | ***Week 9*** |

| | |
|---|---|
| ***Week 5*** | ***Week 10*** |

***A copy of this consent form will be emailed to the participant, and a copy will be kept by the researcher.***

## Appendix D: Parental Consent Form

UNIVERSITY OF SASKATCHEWAN
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# *Parental Consent Form*

**Your child is invited to participate in a research study entitled: Smiling Mind's *Mindfulness in Schools* Program as a Classroom-Based Self-Regulation Intervention: A Case Study (REB #)**

**Researcher:** Mikayla Adam, B.A., M.Ed. Candidate, Department of Educational Psychology and Special Education, University of Saskatchewan, 306-425-2255 ext 516, email: m.adam@usask.ca

**Supervisors:**
**Dr. Tim Claypool**, Registered Doctoral Psychologist, Adjunct Professor, Department of Educational Psychology and Special Education, University of Saskatchewan, (306) 966-5253 (Charmaine Spezowka EPSE Graduate Secretary for T. Claypool, Adjunct Professor), tim.claypool@usask.ca

**Dr. Tammy Marche**, Associate Dean, St. Thomas More College, Professor, Department of Psychology, University of Saskatchewan, 306-966-8076, tmarche@stmcollege.ca

**Purpose(s) and Objective(s) of the Research:**

- This case study will introduce a mindfulness app program (*Smiling Mind*) to students in the BALANCE classroom. The first purpose of the study is to see if Smiling Mind can help students self-regulate (i.e., control thoughts, emotions, and behaviour). The second purpose of the study is to gather student feedback on the Smiling Mind program (e.g., Did they enjoy it? Was it subjectively helpful?).

**Procedures:**

- For this project, your child will participate in the Smiling Mind Mindfulness in Schools Program ("Year 2"/grade 2) curriculum. The Smiling Mind Program consists of 20 *Lessons*, which are each accompanied by a *Practice* session.
- The classroom teacher will deliver the Smiling Mind Lessons and Practices in a class-wide manner and within your child's classroom (your child will not be responsible for downloading the app and will not interact with it directly). The program will last a total of 10 weeks. Two lessons (approximately 20-30 minutes each) and two practice sessions (approximately 5 minutes each) will be completed each week.
- The Smiling Mind app is free to download on any smart device or on any computer; we encourage you to download it and check it out! (visit www.smilingmind.com.au or search for *Smiling Mind* in the App Store). (*not required for the study).
- Your child will be asked to fill out a self-assessment of their self-regulation twice a week before and after the mindfulness session. The self-assessment includes three (3) questions about their thinking, feeling, and behaviour, answered on a scale.
- The classroom teacher will make observations of participating students' behaviour throughout the study as it relates to self-regulation (e.g., ability to control their thinking, feeling, and actions). In a weekly interview with the researcher, the classroom teacher will share her observations with the researcher as well as provide feedback on student engagement and perceived enjoyment of the program in general.
- Following completion of the 10-week Mindfulness in Schools Program, the researcher will conduct a individual interviews with the students to obtain feedback regarding the program and their subjective experience with mindfulness. This interview will be approximately 15-30 minutes and it will take place virtually via Microsoft Teams, and will be moderated by the classroom teacher or Vice Principal (VP). The teacher or VP will only be present to facilitate the technical aspects of the interview (e.g.,

getting them logged in to Microsoft Teams and joined to the correct, private meeting) as well as to help keep the student focused on the task. The teacher/VP will be asked to keep the information shared in the interviews completely confidential. The interview will be audiotaped for transcription purposes; however, your child may request that the audio recording be turned off at any point in the interview without giving reason. If the request for audio recording to be turned off is made, the researcher will use hand-written notes to make record of the interview.

- Please feel free to ask any questions regarding the procedures, goals, or any aspects of the study or your child's role.

**Potential Benefits:**

- There are many individual benefits to participating in mindfulness such as **improved physical and mental health, improved sleep, and overall wellbeing.**
- Mindfulness has also been shown to improve **self-regulation**, which has been **linked to decreased anxiety, depressive symptoms, and disruptive behaviour**. Research has suggested that individuals with well-developed self-regulation are likely to have better attention, impulse control, interpersonal skills, and academic achievement, whereas poor self-regulation has been linked to physical and mental health problems, impulsive behaviour (e.g., in children, disruptive or oppositional behaviour, in adults, addictive or criminal behaviour), and poor academic achievement.
- This study will also provide insight into the use of mindfulness as a classroom-based intervention for social-emotional learning and the development of self-regulation skills. If the outcomes of the study are positive, it may support use of the Smiling Mind program in more classrooms in the future; therefore, future students may also benefit from this study.

**Potential Risks:**

- At times, adults who have participated in mindfulness interventions have reported unpleasant feelings such as agitation, anxiety, discomfort, or confusion that arise from the sustained attention to one's experience that is encouraged in mindfulness (Creswell, 2017). This has not yet been reported in children. There are no other known risks to participating in mindfulness interventions or in the study in general.
- Risk(s) will be addressed by close and ongoing monitoring of student behaviour for any signs of discomfort related to the mindfulness activities. Students in the BALANCE classroom have many supports available to them, including the school counsellor, classroom teacher, educational assistants, and behaviour consultant. Your child will be encouraged to discuss their thoughts and feelings with members of their support team.
- While not anticipated, if your child demonstrates signs of discomfort directly related to the mindfulness activities that appears to outweigh positive experiences, it will be recommended that their participation in the study be terminated.
- If you or your child need additional support, you can contact community resources such as:
    - Family Services of Saskatoon: (306) 244-0127
    - Catholic Family Services: (306) 244-7773

**Compensation:**

- Your child will receive a small "fidget" toy as a token of appreciation for their participation. Your child will still receive compensation should they, or you, decide to withdraw their consent to participate. However, they will not receive the compensation until the 10-week program is completed.

**Confidentiality:**

- Virtual interviews will be completed in a private office or room of the home inaccessible to any individuals apart from the interviewer. It is recommended that participants also complete the interview in a private room, with only the classroom teacher or vice principal present.

- The data will be kept completely confidential and no personally identifying information will be asked nor linked to the data. Signed parental consent forms will not be stored with participant data. Audio tapes will be transcribed, by the researcher, without personally identifying information.

Microsoft Teams will be used to complete the virtual interviews for this project. Microsoft Teams is a highly secure streaming tool that has two-factor authentication and end-to-end encryption to protect user privacy. The following is a link to Microsoft Teams' Security and Compliance website, which contains an overview of Security, Privacy, Information Protection Architecture, Licensing, Location of data in Teams, Compliance standards as well as individual links to further information: https://docs.microsoft.com/en-us/microsoftteams/security-compliance-overview

The University of Saskatchewan has an agreement with Microsoft Teams where all data is routed through servers located in Canada and the researcher will be using her USask Microsoft Teams account to schedule and conduct the interviews. Therefore, no participant data will be routed through or stored on servers outside of Canada.

Microsoft Teams uses commercially suitable physical, electronic, and managerial procedures to safeguard and secure the information transmitted or collected, including but not limited to firewalls, encryption, intrusion detection, platform monitoring, as well as limiting access to any personally identifiable information to the greatest extent allowed. However, no data protection procedures in existence are entirely infallible. As a result, while we strive to protect your personally identifiable information, platforms used for the purposes of this study cannot guarantee to be 100% secure.

- For information on Smiling Mind's privacy policy, please see: https://www.smilingmind.com.au/privacy-and-terms.
- The app, Smiling Mind, will not collect any information on your child as they will only be engaging with the app *indirectly* as a whole class, facilitated by the teacher's use of the app. Therefore, with respect to any collection of data, the teacher will be the only one interacting directly with the app.
- The data collected in the current study will be used for a master's thesis and may potentially be published in an academic journal or presented at a conference. Although direct quotations from the interview *may* be reported, your child will be given a pseudonym, and all identifying information such as your child's name, the name of their school, and the name of the program, will be removed from the report. Other results will be amalgamated and analyzed for patterns.
- Because the participants for this research project have been selected from a small group of people, all of whom are known to each other, it is possible that your child may be identifiable to other people on the basis of things they said or by others who are familiar with the program your child is enrolled in.
- As the student-interviews will be conducted during class time and will be moderated by the classroom teacher or VP, there are limitations to confidentiality regarding what your child shares in the interview, and others may know if your child participated or not.
- **Storage of Data:**

As data collection must occur virtually due to the COVID-19 pandemic, all research data will be stored in the student researcher's fireproof/flood proof home safe of which requires a key and combination to open. This includes paper data and a password protected external hard drive containing any electronic data collected, until it can be safely transferred to the University of Saskatchewan for storage.

    - Once data is safely transferred to the University for storage, it will be stored by one of the Principal Investigators, Dr. Tammy Marche, in a locked filing cabinet in a locked private office for a minimum of 5-years post-publication. The audio-recording of the interview will also be stored in a locked cabinet in a locked office for a minimum of 5-years post-publication. Electronic data will be saved on encrypted USB drive to be additionally placed within a physically locked cabinet. In addition, electronic data will be stored on the principal

investigator's password-protected University of Saskatchewan computer and backed up on a USask supported OneDrive account accessible only by the researcher and principal investigator.
    - Consent forms with personally identifying information will be securely stored in a filing cabinet separate from the data. A master-list with participant identities and link to the pseudonym used in the data set will also be kept in the secure cabinet with the consent forms, separate from the data, until the Thesis is complete and successfully defended, at which point the master-list will be destroyed beyond recovery.
    - When the data are no longer required, it will be confidentially destroyed beyond recovery.

**Right to Withdraw:**

- Your child's participation is voluntary, and they can participate in only those activities that you and your child are both comfortable with. You or your child may withdraw your/their consent to participate in the research project for any reason, at any time without explanation or penalty of any sort.
- Whether you choose to consent for your child to participate or not will have no effect on your child's class standing, access to services, or how they will be treated in any way.
- Should you wish to withdraw your consent for your child to participate, you can notify the student researcher or supervisors at the contact information at the top of this form. Data collection will stop immediately, and any data collected will be destroyed beyond recovery.
- Your/your child's right to withdraw data from the study will apply until observational and interview data have been deidentified and aggregated for data analysis one month after your participation has ended (i.e., approximately June 30th, 2021) at which point it may not be possible to withdraw your child's data.

**Follow up:**

- To obtain results from the study, please contact the researcher at the email listed above.

**COVID-19**

- The research site is located Roland Michener School, under the jurisdiction of the Saskatoon Public School Division. Your child will be asked to continue with the safety protocols put forth by Saskatoon Public Schools and the Chief Medical Officer.[1] This includes frequent and proper handwashing, social distancing whenever possible, using hand sanitizer when entering or exiting a room, and not sharing materials or supplies. Physical distancing will be maintained whenever possible. Students and staff are encouraged to wear a mask when physical distancing is not achievable.

**Questions or Concerns:**

- Contact the researcher or research supervisors using the information at the top of page 1;
- This research project has been approved on ethical grounds by the University of Saskatchewan Research Ethics Board (REB#). Any questions regarding your rights as a participant may be addressed to that committee through the Research Ethics Office ethics.office@usask.ca (306) 966-2975. Out of town participants may call toll free (888) 966-2975.

**IF YOU ARE INTERESTED IN HAVING YOUR CHILD PARTICIPATE IN THIS STUDY, PLEASE CONTACT THE RESEARCHER AT m.adam@usask.ca TO SET UP A TELEPHONE OR VIDEOCONFERENCING MEETING TO DISCUSS THE CONTENTS OF THIS FORM. THANK YOU.**

**Consent:**

Your verbal consent indicates that you have had an opportunity to ask questions and that your questions have been answered. Although assent will be obtained from your child, your verbal consent consents to your child's participation in all phases of the study (e.g., observations, mindfulness intervention, and interview).

***Please keep the extra copy of this consent form for your records.***

**Oral Consent and Assent (*to be completed by the researcher*):**
**I read and explained this consent form to the guardian and the information sheet to the participant before receiving the guardian's consent and the participant's assent. Both the guardian and the participant had knowledge of these documents' contents and appeared to understand it.**

| | | |
|---|---|---|
| **Name of Guardian** | **Researcher's Signature** | **Date of Consent** |
| **Name of Participant** | **Researcher's Signature** | **Date of Assent** |

***A copy of this consent form will be emailed to the Parent/Guardian, and a copy will be kept by the Researcher.***

## Appendix E: Student Assent Script

UNIVERSITY OF SASKATCHEWAN
College of Education
DEPARTMENT OF EDUCATIONAL
PSYCHOLOGY AND SPECIAL EDUCATION
EDUCATION.USASK.CA

***Student Assent Form/ Information Sheet***

**SCRIPT FOR OBTAINING ORAL ASSENT:**

You are invited to participate in a research project on a mindfulness app called Smiling Mind. Mindfulness means paying close attention to yourself and the sights and sounds around you. It also means being kind to yourself.

My name is Mikayla and I am the researcher doing this project. My supervisors' names are Dr. Tim and Dr. Tammy. You can talk to any of us if you have any questions or worries about the project.

The goal of my project is to see if you like Smiling Mind, and to see if the mindfulness activities that you do through Smiling Mind can help you better control your thinking, feeling, and actions.

For this project, your teacher will use the Smiling Mind app to do mindfulness activities with you and your classmates in the mornings for 10 weeks. During the 10 weeks, you will often be asked to answer the same questions about how you are thinking, feeling, and acting before and after doing a mindfulness activity. Your teacher is also going to pay attention to see if she notices any changes in your thinking, feeling, and actions and then tell me what she notices. After the 10 weeks, I would like to interview you to hear what you think about Smiling Mind and if you think it is helpful to you.

There are no bad things that happen because of mindfulness. There are good things that can happen from doing mindfulness, like feeling better, sleeping better, paying better attention, and having more control of your thinking, feeling, and actions.

You do not have to do this project if you don't want to. Nothing bad will happen if you don't want to. If you start the project and later decide you don't want to keep going, that is OK too and you can let your teacher or me know at any time and there won't be any consequences.

If you choose to participate in my project, everything you tell me will be kept confidential – this means that things like your name and where you go to school won't be told to anyone else. However, because the project will take place in your classroom with people you know, others may know if you participate or not, and your teacher or Vice Principal will know what you choose to share with me in the interview, but they will have to keep the information confidential, too. I won't use your real name when I write my paper about this project. All of the information will be kept in a safe place. I am going to use my findings from this project to write a big paper, called a thesis, so that I can become a school counsellor. My project and paper will also let others learn about using Smiling Mind in classrooms like yours.

Do you have any questions about the project or what your job would be?

## Appendix F: Student Debriefing Form

UNIVERSITY OF SASKATCHEWAN
College of Education
DEPARTMENT OF EDUCATIONAL
PSYCHOLOGY AND SPECIAL EDUCATION
EDUCATION.USASK.CA

***Student Debriefing Form***

REB #2438

The reason I asked you to do the *Smiling Mind* program is to see if it can help you have better control of your thinking, feelings, and actions. For example, taking deep breaths instead of yelling and hitting when you feel angry. It was also to see if it can help you focus better on your schoolwork and activities. The reason I asked you questions in the interview was to see what you think about *Smiling Mind*, if you think it helped you, and what kind of things you learned from *Smiling Mind*.

Sometimes when people are worried or distracted it is hard to sit still and concentrate on learning. By doing this project, you have helped me understand if practicing mindfulness, like you learned through *Smiling Mind*, can help children learn how to control their thinking, feelings, and actions when they are worried or distracted so that they can learn better.

If you have any questions about the project we did together, please ask the person who looks after you, like your Mom or Dad, to call Dr. Tammy or Dr. Tim. Their numbers are at the bottom of this paper. They can also call the Office of Research Services at the University of Saskatchewan (306-966-4053).

Thank you for helping me with my project!

Mikayla
(Student Researcher)

## Appendix G: Parent Debriefing Form

UNIVERSITY OF SASKATCHEWAN
College of Education
DEPARTMENT OF EDUCATIONAL PSYCHOLOGY AND SPECIAL EDUCATION
EDUCATION.USASK.CA

# *Parent Debriefing Form*

Thank you to you and your child for their participation in the project titled: **Smiling Mind's *Mindfulness in Schools* Program as a Classroom-Based Self-Regulation Intervention: A Case Study.**

The primary purpose of the study was to see if a mindfulness program, called *Smiling Mind,* could help students *self-regulate* (i.e., control their thoughts, emotions, and behaviour). The secondary purpose of the study was to gather *student and teacher feedback* on the Smiling Mind program (e.g., Did they enjoy it? Was it subjectively helpful?)**.** Research has found that mindfulness can be an effective intervention for improving self-regulation, so it is predicted that we will see improvements in student self-regulation in the current study (e.g., better emotional control, impulse control). Little is known, however, if students in a behavioural-support classroom (such as the BALANCE program) find *Smiling Mind* helpful and enjoyable, so your child's participation will contribute valuable information in this area.

Your child's participation in this study will help us better understand how mindfulness can support children's development of self-regulation abilities, as well as how the *Smiling Mind* Mindfulness in Schools program may be used in behavioural-support classrooms. The findings from this research study will inform not only researchers, but other professionals in the education sector who work with children, including teachers, support staff, administrators, and policymakers. For example, teachers who support students who struggle with self-regulation will have more information as to whether mindfulness is an effective classroom intervention. It may also provide preliminary evidence that the *Smiling Mind* program is beneficial for student success in the classroom via promoting self-regulatory abilities; if so, it may encourage policymakers to include mindfulness as a required component of social-emotional learning in the Saskatchewan curriculum. Future research may look at objective measures of self-regulation and learning during completion of the Smiling Mind program, as well as the potential long-term benefits of teaching mindfulness in schools.

If you are interested in learning more about the Smiling Mind Mindfulness in Schools program, you can access their website for lots of great information (https://www.smilingmind.com.au/education).

If you would like to receive a summary of the study results, please contact me (m.adam@usask.ca) or one of my supervisors (tmarche@stmcollege.ca or tim.claypool@usask.ca).

This research project has been approved on ethical grounds by the University of Saskatchewan Research Ethics Board (REB#2438). Should you have any concerns or questions about this project, please contact one of my supervisors at the emails listed above, or contact the Research Ethics Board committee through the Research Ethics Office ethics.office@usask.ca (306) 966-2975. Out of town participants may call toll free (888) 966-2975.

Thank you for helping me with my project!

Sincerely,

**Student Researcher**
**Mikayla Adam**, B.A. (Hons), M.Ed. (Candidate)
Department of Educational Psychology and Special Education
University of Saskatchewan

## Appendix H: Teacher Debriefing Form

UNIVERSITY OF SASKATCHEWAN
College of Education
DEPARTMENT OF EDUCATIONAL PSYCHOLOGY AND SPECIAL EDUCATION
EDUCATION.USASK.CA

# *Teacher Debriefing Form*

Thank you for your participation in the project titled: **Smiling Mind's *Mindfulness in Schools* Program as a Classroom-Based Self-Regulation Intervention: A Case Study.**

The primary purpose of the study was to see if a mindfulness program, called *Smiling Mind,* could help students *self-regulate* (i.e., control their thoughts, emotions, and behaviour). The secondary purpose of the study was to gather *student and teacher feedback* on the Smiling Mind program (e.g., Did the students and teacher enjoy it? Was it subjectively helpful?)**.** Research has found that mindfulness can be an effective intervention for improving self-regulation, so it is predicted that we will see improvements in student self-regulation in the current study (e.g., better emotional control, impulse control). Little is known, however, if students in a behavioural-support classroom (such as the BALANCE program) find *Smiling Mind* helpful and enjoyable, so your participation will contribute valuable information in this area.

Your participation in this study will help us better understand how mindfulness can support children's development of self-regulation abilities, as well as how the *Smiling Mind* Mindfulness in Schools program may be used in behavioural-support classrooms. The findings from this research study will inform not only researchers, but other professionals in the education sector who work with children, including teachers, support staff, administrators, and policymakers. For example, teachers who support students who struggle with self-regulation will have more information as to whether mindfulness is an effective classroom intervention. It may also provide preliminary evidence that the *Smiling Mind* program is beneficial for student success in the classroom via promoting self-regulatory abilities; if so, it may encourage policymakers to include mindfulness as a required component of social-emotional learning in the Saskatchewan curriculum. Future research may look at objective measures of self-regulation and learning during completion of the Smiling Mind program, as well as the potential long-term benefits of teaching mindfulness in schools.

If you are interested in learning more about the Smiling Mind Mindfulness in Schools program, you can access their website for lots of great information (https://www.smilingmind.com.au/education).

If you would like to receive a summary of the study results, please contact me (m.adam@usask.ca) or one of my supervisors (tmarche@stmcollege.ca or tim.claypool@usask.ca).

This research project has been approved on ethical grounds by the University of Saskatchewan Research Ethics Board (REB#2438). Should you have any concerns or questions about this project, please contact one of my supervisors at the emails listed above, or contact the Research Ethics Board committee through the Research Ethics Office ethics.office@usask.ca (306) 966-2975. Out of town participants may call toll free (888) 966-2975.

Thank you for helping me with my project!

Sincerely,
**Student Researcher**
**Mikayla Adam**, B.A. (Hons), M.Ed. (Candidate)
Department of Educational Psychology and Special Education

University of Saskatchewan

**Research Supervisors**
**Dr. Tammy Marche**
Department of Psychology
University of Saskatchewan

**Dr. Tim Claypool, Registered Psychologist**
Department of Educational Psychology and Special Education
University of Saskatchewan

# Appendix I: Self-Assessment of Self-Regulation

P1 DATE: _____

**BEFORE MINDFULNESS**

How does my **brain/mind** feel? Can I focus on what I need to do?

Focused 1 2 3 Distracted

How does my **body** feel? Is it calm, or energetic and wanting to move?

Calm 1 2 3 Hyper

How do my **emotions** feel? What is the weather like inside me?

1 2 3

Happy, Calm
"Sunny" weather inside

Mad, Sad, Frustrated
"Stormy" weather inside

Tell me about how you are feeling this morning:

_____

_____

_____

_____

**Appendix J**

# Daily Fidelity Checklist

**(to be completed by classroom teacher)**

**Date: _____** **Week of Intervention (1-10): _____**

Was a Smiling Mind mindfulness lesson or practice completed today? (circle one):

- NO
- YES – LESSON
- YES – PRACTICE

- Name of lesson or practice: _____

Who participated (circle one): whole class or small group?

To what extent was the session completed (circle one): fully or partially?

- If partially, what was the reason?

Were students engaged in session/activities? Yes/No

Were students distressed in session/activities? Yes/No

- If yes, can you elaborate, to the best of your ability, any particular component of the session that seemed to cause distress:

Did any students use Smiling Mind *individually*?

- No
- Yes, at teacher's direction
- Yes, it was the student's idea

Any additional notes:

## Appendix K: Teacher Interview Guides

### Initial Interview Guide (Teacher)

1. Tell me about your class.
2. What are the goals of the BALANCE program?
3. What are some common difficulties your students present with?
4. In terms of self-regulation, what do you notice your students struggle with?
    a. Specific to emotional self-regulation (e.g., inappropriate emotional responses for the situation)
    b. Behavioural (e.g., difficulty with impulse control & controlling actions)
    c. Attentional (e.g., frequently off task, difficulty completing work)
5. How did the students handle the readjustment back to school after a prolonged absence due to COVID-19? How have they been coping with the changes to their school routine?

### Prolonged (Weekly) Interview(s) Guide (Teacher)

1. Tell me about ***your*** experience with the lessons and practices this week.
2. Tell me, from your perspective, about the ***students'*** experience with the lessons and practices this week?
    a. What was their level of engagement?
    b. Did you have any meaningful discussions about the content or experience? If yes, please explain. (What parts were the students interested in? Do they ask engaging questions?)
    c. If they were **not** engaged, what do you believe to be the reason(s)?
3. Tell me about the student's self-regulatory behaviour this week.
4. How did the student's behaviour compare before versus after the mindfulness?
    a. What did you notice on the student's self-assessments? What discussions did you and the students have?
5. Have you noticed any students using the mindfulness strategies (as taught in Smiling Mind)?
    a. Tell me about it
    b. Prompted or unprompted?

### Final Interview Guide (Teacher)

1. In your opinion, what were the best parts of the Smiling Mind program?
2. What were the parts that didn't work as well or could be changed, and why/how?
3. What concepts from the program appeared to "stick"?
4. Tell me about how mindfulness affected student self-regulation?
5. Would you recommend the Smiling Mind program to be used in other classrooms? Why/why not?

**Appendix L**

# STUDENT INTERVIEW GUIDE

1. Tell me what you really liked about Smiling Mind?

2. Tell me what you didn't like about Smiling Mind?

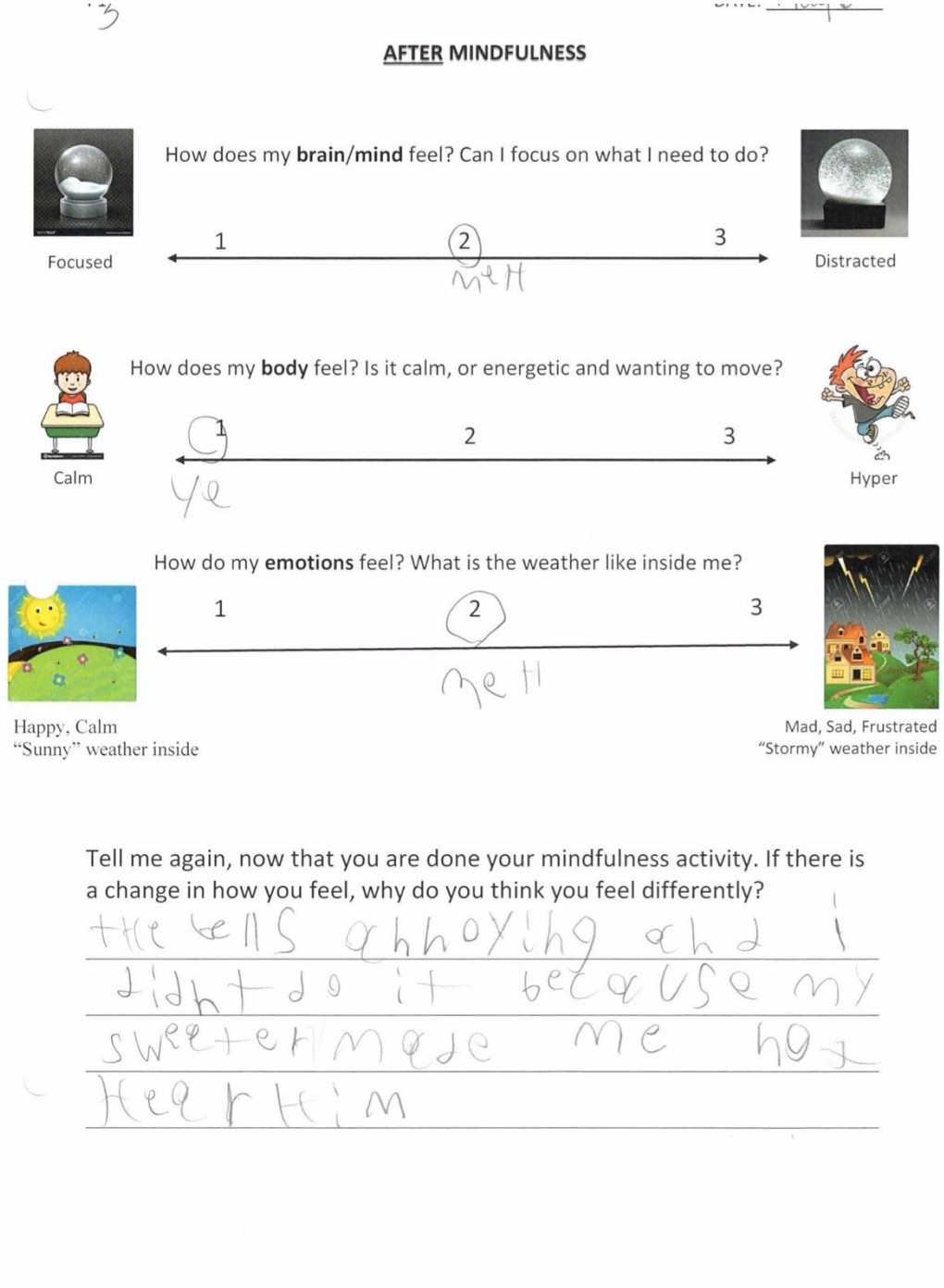
3. Tell me how you felt (e.g., physically: body, brain, tummy, hands; emotionally: happy, sad, worried) before mindfulness/after mindfulness? (Link to Smiling Mind concept of "internal weather" – "describe any changes in your "internal weather" after doing mindfulness")

4. Do you ever use mindfulness on your own?
    a. If yes: when?
5. Tell me how you might use the strategies you learned from Smiling Mind when you feel BIG feelings, (i.e., really sad or mad?)
    a. How does it help you control your feelings?

6. Describe how you felt when you first started school this fall.
    a. How has mindfulness (Smiling Mind) helped you adjust to all the changes in your school and classroom that are there to protect you or a family member from getting sick with COVID-19?

7. Is there anything else you can share with me that I didn't ask you about?

## Appendix M: SASR Example 1



**AFTER MINDFULNESS**

How does my **brain/mind** feel? Can I focus on what I need to do?



Focused

1 — (2) — 3



Distracted

How does my **body** feel? Is it calm, or energetic and wanting to move?



Calm

(1) — 2 — 3



Hyper

How do my **emotions** feel? What is the weather like inside me?



Happy, Calm
"Sunny" weather inside

1 — (2) — 3



Mad, Sad, Frustrated
"Stormy" weather inside

Tell me again, now that you are done your mindfulness activity. If there is a change in how you feel, why do you think you feel differently?

the bells annoying and I didn't do it because my sweater made me not hear him

The printing reads: "the bells annoying and I didn't do it because my sweater made me not hear him"

## Appendix N: SASR Example 2

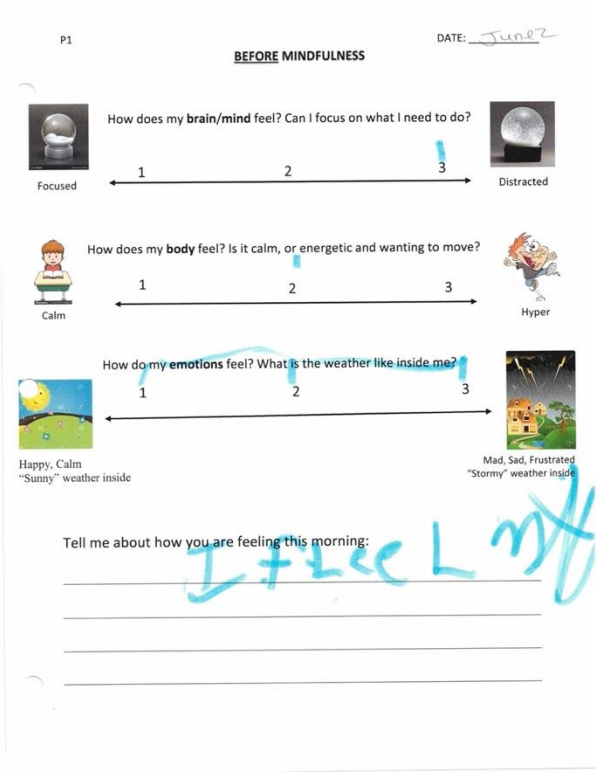



Image 1: *Before Mindfulness* the student reported "I feel MAD"

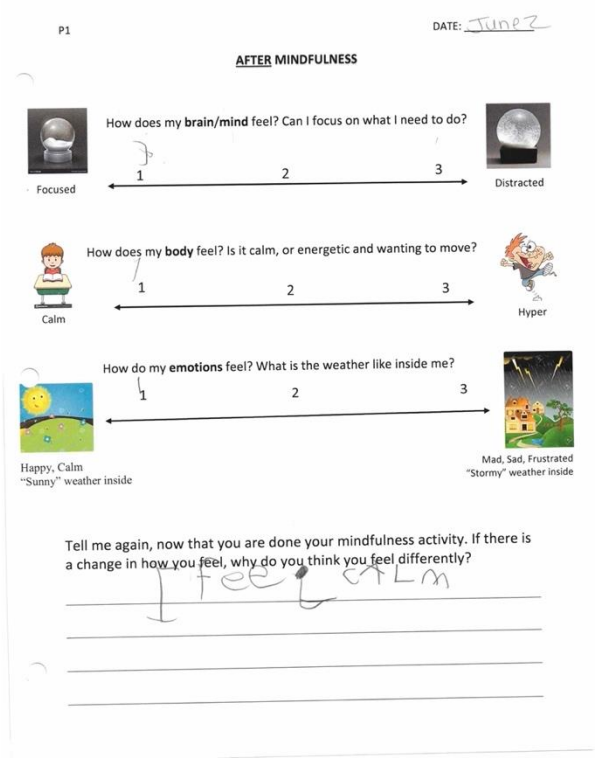



Image 2: *After Mindfulness* the student reported "I feel calm"

## References


American Psychiatric Association. (2013). Neurodevelopmental disorders. In *Diagnostic and statistical manual of mental disorders* (5th ed.). American Psychiatric Association.

Arthurson, K. (2015). Teaching mindfulness to year sevens as part of health and personal development. *Australian Journal of Teacher Education*, *40*(5), 27-40. http://dx.doi.org/10.14221/ajte.2015v40n5.2

Bannirchelvam, B., Bell, K. L., & Costello, S. (2017). A qualitative exploration of primary school students' experience and utilisation of mindfulness. *Contemporary School Psychology, 21*(4), 304-316. https://doi.org/10.1007/s40688-017-0141-2

Barkley, R. A. (2006). *Attention deficit hyperactivity disorder*. (3rd ed.). The Guilford Press.

Barkley, R. A. (2011). The important role of executive functioning and self-regulation in ADHD. *Journal of Child Neuropsychology, 113*(21), 41-56.

Barkley, R. A. (2016). Attention-deficit/hyperactivity disorder and self-regulation: Taking an evolutionary perspective on executive functioning. In K. D. Vohs & R. F. Baumeister (Eds.), *Handbook of Self-Regulation: Research, Theory, and Applications* (pp. 497-513). The Guildford Press.

Baxter, P., & Jack, S. (2008). Qualitative case study methodology: Study design and implementation for novice researchers. *The Qualitative Report, 13*(4), 544-559.

Beauchaine, T. P. (2012). Physiological markers of emotion and behavior dysregulation in externalizing psychopathology. *Monographs of the Society for Research in Child Development, 77*(2), 79-86. 10.1111/j.1540-5834.2011.0066.

Beauchemin, J., Hutchins, T., & Patterson, F. (2008). Mindfulness meditation may lessen anxiety, promote social skills, and improve academic performance among adolescents with learning disabilities. *Complementary Health Practice Review*, *13*, 34 – 45. doi:10.1177/1533210107311624

Beauregard, M., Paquette, V., & Le, J. (2006). Dysfunction in the neural circuitry of emotional self-regulation in major depressive disorder. *Neuroreport, 17*(8), 843-846.

Beck, J. S. (2020). Cognitive behavior therapy (3rd ed.). Guilford Press.

Ben-Sasson, A., Carter, A. S., & Briggs-Gowan, M. J. (2009). Sensory over-responsivity in elementary school: Prevalence and social-emotional correlates. *Journal of Abnormal Child Psychology, 37*(5), 705-716. 10.1007/s10802-008-9295-8

Bethell, C., Gombojav, N., Solloway, M., & Wissow, L. (2016). Adverse childhood experiences, resilience and mindfulness-based approaches: common denominator issues for children with emotional, mental, or behavioral problems. *Child and Adolescent Psychiatric Clinics, 25*(2), 139-156. https://dx.doi.org/10.1016%2Fj.chc.2015.12.001

Bird, M. Y. (2013). Neurodecolonization: Applying mindfulness research to decolonizing social work. *Decolonizing social work*, 59-70. https://www.researchgate.net/profile/Michael-Yellow-Bird/publication/288998125_Neurodecolonization_Applying_mindfulness_research_to_decolonizing_social_work/links/62ba09ca193435036bc8a2fb/Neurodecolonization-Applying-mindfulness-research-to-decolonizing-social-work.pdf

Blair, C. (2016). The development of executive functions and self-regulation. In K. D. Vohs & R. F. Baumeister (Eds.), *Handbook of Self-Regulation: Research, Theory, and Applications* (pp. 417 - 439). The Guildford Press.

Bögels, S., Hoogstad, B., van Dun, L., de Schutter, S., & Restifo, K. (2008). Mindfulness training for adolescents with externalizing disorders and their parents. *Behavioural and Cognitive Psychotherapy*, *36*, 193–209. doi:10.1017/S1352465808004190

Braun, V., & Clarke, V. (2006). Using thematic analysis in psychology. *Qualitative Research in Psychology, 3*(2), 77-101.

Brown, T. E. (2013). *A new understanding of ADHD in children and adults: Executive function impairments.* Routledge.

Brown, K. W., Ryan, R. M., & Creswell, J. D. (2007). Mindfulness: Theoretical foundations and evidence for its salutary effects. *Psychological Inquiry*, *18*(4), 211-237. doi.org/10.1080/10478400701598298

Cameron, K., Wong, M., Pollack, W., & Rivard, P.G. (2020). *Guidelines for re-entry into the school setting during the pandemic* [pdf]. North American Center for Threat Assessment and Trauma Response. https://nactatr.com/news/files/01GuideRe-Entry.pdf

Carsley, D., Khoury, B., & Heath, N. L. (2018). Effectiveness of mindfulness interventions for mental health in schools: A comprehensive meta-analysis. *Mindfulness*, *9*(3), 693-707. doi: 10.1007/s1267-017-0839-2

Cavanaugh, B. (2016). Trauma-informed classrooms and schools. *Beyond Behavior*, *25*(2), 41-46. https://www.jstor.org/stable/26381827

CDC-Kaiser, A. C. E. (2019). *Adverse Childhood Experiences (ACEs)*.

Charlton, M., & Dykstra, E. J. (2011). Dialectical behaviour therapy for special populations: Treatment with adolescents and their caregivers. *Advances in Mental Health and Intellectual Disabilities, 5*(5), 6-14.

Cole, P. M., & Hall, S. E. (2008). Emotion dysregulation as a risk factor for psychopathology. *Child and Adolescent Psychopathology*, *2*, 341-373.

Creswell, J. W. (2007). *Qualitative Inquiry & Research Design: Choosing Among Five Approaches* (Second Ed.). SAGE Publications.

Smiling Mind. (2016). *Smiling Mind: Establishing an evidence base for Smiling Mind Education Program- Preliminary results from a large study conducted by Deakin University and Insight SRC*. https://www.smilingmind.com.au

Domitrovich, C. E., Durlak, J. A., Staley, K. C., & Weissberg, R. P. (2017). Social-emotional competence: An essential factor for promoting positive adjustment and reducing risk in school children. *Child Development*, *88*(2), 408-416. doi: 10.1111/cdev.12739

Duckworth, A. L., & Carlson, S. M. (2013). Self-regulation and school success. In B.W. Sokol, F.M.E. Grouzet, & U. Müller (Eds.), S*elf-regulation and autonomy: Social and developmental dimensions of human conduct* (pp. 208-230). Cambridge University Press.

Eadie, G. (2021). *Children's Perceptions of Mindfulness Apps for Enhanced Learning* [Unpublished master's thesis]. University of Ontario Institute of Technology.

Eisenberg, N., Spinrad, T. L., & Eggum, N. D. (2010). Emotion-related self-regulation and its relation to children's maladjustment. *Annual Review of Clinical Psychology*, *6*, 495-525. https://doi.org/10.1146/annurev.clinpsy.121208.131208

Farb, N. A., Anderson, A. K., & Segal, Z. V. (2012). The mindful brain and emotion regulation in mood disorders. *The Canadian Journal of Psychiatry*, *57*(2), 70-77. https://doi.org/10.1177/070674371205700203

Felver, J. C., Celis-de Hoyos, C. E., Tezanos, K., & Singh, N. N. (2016). A systematic review of mindfulness-based interventions for youth in school settings. *Mindfulness*, *7*, 34–45. https://doi.org/10.1007/s12671-015-0389-4

Felitti, V. J., Anda, R. F., Nordenberg, D., Williamson, D. F., Spitz, A. M., Edwards, V., & Marks, J. S. (1998). Relationship of childhood abuse and household dysfunction to many of the leading causes of death in adults: The Adverse Childhood Experiences (ACE) Study.

*American journal of preventive medicine*, *14*(4), 245-258. https://doi.org/10.1016/S0749-3797(98)00017-8

Felver, J. C., Doerner, E., Jones, J., Kaye, N. C., & Merrell, K. W. (2013). Mindfulness in school psychology: Applications for intervention and professional practice. *Psychology in the Schools*, *50*(6), 531-547. doi: 10.1002/pits.21695

Flett, J.A.M., Hayne, H., Riordan, B.C., Thompson, L. M., & Conner, T. S. (2019). Mobile mindfulness meditation: A randomised controlled trial of the effect of two popular apps on mental health. *Mindfulness*, *10*, 863–876. https://doi.org/10.1007/s12671-018-1050-9

Flook, L., Smalley, S. L., Kitil, J. M., Galla, B. M., Kaiser-Greenland, S., Locke, J., Ishijima, E., 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:10.1080/15377900903379125

Fox, L., Carta, J., Strain, P. S., Dunlap, G., & Hemmeter, M. L. (2010). Response to intervention and the pyramid model. *Infants & Young Children*, *23*(1), 3-13. doi: 10.1097/IYC.0b013e3181c816e2

Gioia, G. A., Isquith, P. K., Guy, S. C., & Kenworthy, L. (2015). Behavior Rating Inventory of Executive Function®–Second Edition (BRIEF® 2). *PAR Publishing*.

Goldstein, S., & Naglieri, J. A. (2014). *Handbook of Executive Functioning.* Springer.

Goodman, R., & Calderon, A. (2012). The use of mindfulness in trauma counseling. *Journal of Mental Health Counseling*, *34*(3), 254-268.

Government of Saskatchewan. (2020). Letter from response planning committee. https://www.spsd.sk.ca/Documents/Letter%20to%20families%20March%2020%202020.pdf

Grover, S. (2004). Why won't they listen to us? On giving power and voice to children participating in social research. *Childhood*, *11*(1), 81-93. https://doi-org.cyber.usask.ca/10.1177%2F0907568204040186

Haverkamp, B. E., & Young, R. A. (2007). Paradigms, purpose, and the role of the literature: Formulating a rationale for qualitative investigations. *The Counseling Psychologist*, *35*(2), 265-294. doi: 10.1177/0011000006292597

Hawn Foundation. (2011). *MindUP curriculum: Brain-focused strategies for learning - and living. Grades Pre-K-2*. Scholastic Inc.

Hayes, S. C., & Strosahl, K. D. (Eds.). (2004). *A practical guide to acceptance and commitment therapy*. Springer Science & Business Media.

Hays, D. G. & Singh, A. A. (2012). *Qualitative inquiry in clinical and educational settings.* The Guildford Press.

Hodkinson, P., & Hodkinson, H. (2001, December). The strengths and limitations of case study research. In *learning and skills development agency conference at Cambridge*, *1* (1), 5-7.

Hofmann, S. G., Sawyer, A. T., Fang, A., & Asnaani, A. (2012). Emotion dysregulation model of mood and anxiety disorders. *Depression and Anxiety*, *29*(5), 409-416. doi: 10.1002/da.21888

Houghton, C., Casey, D., Shaw, D., & Murphy, K. (2013). Rigour in qualitative case-study research. *Nurse Researcher*, *20*(4), 12-17.

Humphrey, Lendrum, Wigelsworth, & Greenberg, M. T. (Eds.). (2019). *Social and emotional learning*. Routledge.

Jennings, P., Lantieri, L., & Roeser, R. W. (2012). Supporting educational goals through cultivating mindfulness. *Handbook of prosocial education*, *1*, 371.

Kabat-Zinn, J. (2003). Mindfulness-based interventions in context: Past, present, and future. *Clinical Psychology: Science and Practice*, *10*(2), 144–156. doi: 10.1093

Kaunhoven, R. J., & Dorjee, D. (2017). How does mindfulness modulate self-regulation in pre-adolescent children? An integrative neurocognitive review. *Neuroscience & Biobehavioral Reviews*, *74*, 163-184. https://doi.org/10.1016/j.neubiorev.2017.01.007

King, K. M., Lengua, L. J., & Monahan, K. C. (2013). Individual differences in the development of self-regulation during pre-adolescence: Connections to context and adjustment. *Journal of Abnormal Child Psychology*, *41*(1), 57-69. https://dx.doi.org/10.1007%2Fs10802-012-9665-0

Kuypers, L. (2011). The zones of regulation. *Think Social Publishing*. https://zonesofregulation.com/index.html

Lane, A.E. (2020). Practitioner Review: Effective management of functional difficulties associated with sensory symptoms in children and adolescents. *Journal of Child Psychology and Psychiatry*, *61*(9), 943-958. https://doi-org.cyber.usask.ca/10.1111/jcpp.13230

Langer, Á. I., Medeiros, S., Valdés-Sánchez, N., Brito, R., Steinebach, C., Cid-Parra, C., Magni, A., & Krause, M. (2020). A qualitative study of a mindfulness-based intervention in educational contexts in Chile: An approach based on adolescents' voices. *International Journal of Environmental Research and Public Health*, *17*(18), 6927. http://dx.doi.org/10.3390/ijerph17186927

Linehan, M.M. (1993). *Skills training manual for treating borderline personality disorder.* Guildford Press.

Maloney, J. E., Lawlor, M. S., Schonert-Reichl, K. A., & Whitehead, J. (2016). A mindfulness-based social and emotional learning curriculum for school-aged children: The MindUP program. In K.A. Schonert-Reichl, R.W. Roeser (Eds.), *Handbook of mindfulness in education* (pp. 313-334). Springer. 10.1007/978-1-4939-3506-2_20

Mani, M., Kavanagh, D., Hides, L., & Stoyanov, S. (2015). Review and Evaluation of Mindfulness-Based iPhone Apps. *JMIR MHealth and UHealth*, *3*(3), E82. https://doi.org/10.2196/mhealth.4328

Marzano, R. J., & Marzano, J. S. (2003). The key to classroom management. *Educational leadership*, *61*(1), 6-13. https://www.researchgate.net/profile/Robert-Marzano/publication/283749466_The_Key_to_Classroom_Management/links/56f26c0908aed354e57293d3/The-Key-to-Classroom-Management.pdf

Maxwell, J. A., & Mittapalli, K. (2010). Realism as a stance for mixed methods research. *Handbook of Mixed Methods in Social & Behavioral Research*, 145-168.

Mayall, B. (2008). Conversations with children: Working with generational issues. In *Research with children* (pp. 125-140). Routledge.

Mazza, J. J., Dexter-Mazza, E. T., Miller, A. L., Rathus, J. H., & Murphy, H. E. (2016). *DBT Skills in schools: Skills training for emotional problem solving for adolescents (DBT STEPS-A)*. Guilford Publications.

McClelland, M., Geldhof, J., Morrison, F., Gestsdóttir, S., Cameron, C., Bowers, E., Duckworth, A., Little, T., & Grammer, J. (2018). Self-regulation. In N. Halfon, C.B. Forrest, R.M. Lerner, E.M. Faustman (Eds.), *Handbook of life course health development* (pp. 275-298). Springer. 10.1007/978-3-319-47143-3

McInerney, M., & McKlindon, A. (2014). Unlocking the door to learning: Trauma-informed classrooms & transformational schools. *Education Law Center*, 1-24.

McKown, C., Gumbiner, L. M., Russo, N. M., & Lipton, M. (2009). Social-emotional learning skill, self-regulation, and social competence in typically developing and clinic-referred children. *Journal of Clinical Child & Adolescent Psychology*, *38*(6), 858-871. 10.1080/15374410903258934

McCoy, D. C. (2019). Measuring young children's executive function and self-regulation in classrooms and other real-world settings. *Clinical Child and Family Psychology review*, *22*(1), 63-74. 10.1007/s10567-019-00285-1

McCoy, D. C., Jones, S., Roy, A., & Raver, C. C. (2018). Classifying trajectories of social–emotional difficulties through elementary school: Impacts of the Chicago School Readiness Project. *Developmental psychology*, *54*(4), 772. 10.1037/dev0000457

Mental Health Commission of Canada. (2013). School based mental health in Canada: A final report. www.mentalhealthcommission.ca

MindUp. (2020). A richer learning experience for students and teachers. https://mindup.org

Ministry of Education. (2018). *Inspiring success: First Nations and Metis PreK-12 Education Policy Framework.* https://www.saskatchewan.ca/residents/education-and-learning/first-nations-and-metis-education

Monahan, K. C., Steinberg, L., Cauffman, E., & Mulvey, E. P. (2009). Trajectories of antisocial behavior and psychosocial maturity from adolescence to young adulthood. *Developmental psychology*, *45*(6), 1654. https://doi.org/10.1037/a0015862

Mullin, B. C., & Hinshaw, S. P. (2007). Emotion regulation and externalizing disorders in children and adolescents. In J. J. Gross (Ed.), *Handbook of emotion regulation*, *1*, 523-541.

National Association of School Psychologists. (2020). School re-entry considerations: supports student social and emotional learning and mental and behavioural health amidst COVID-19. https://www.nasponline.org/resources-and-publications/resources-and-podcasts/covid-19-resource-center/webinar-series/school-reentry-considerations-supporting-student-social-emotional-learning-(sel)-and-mental-behavioral-health-(mbh)-amidst-covid-19

National Child Traumatic Stress Network (NCTSN). (2020). Trauma informed school strategies during COVID-19. https://www.nctsn.org/sites/default/files/resources/fact-sheet/trauma_informed_school_strategies_during_covid-19.pdf

National Institute for the Clinical Application of Behavioural Medicine. (2019). How trauma can affect your window of tolerance. https://www.nicabm.com/trauma-how-to-help-your-clients-understand-their-window-of-tolerance/

Ponterotto.J. G. (2005). Qualitative research in counseling psychology: A primer on research paradigms and philosophies of science. *Journal of Counseling Psychology, 52,* 126-136. 10.1037/0022-0167.52.2.126

Public Health Agency of Canada. (2020). About coronavirus disease (COVID-19). https://www.canada.ca/content/dam/phac-aspc/documents/services/publications/diseases-conditions/coronavirus/covid-19-know-the-facts/covid-19-know-the-facts-eng.pdf

Saskatchewan Teachers Federation. (2019, March). Presidents openly concerned about how teachers can continue to cope with cuts. https://www.stf.sk.ca/about-stf/news

Saskatoon Public School Division (SPSD). (2020). Division connection students to learning with computers, internet access. https://www.spsd.sk.ca/pages/newsitem.aspx?ItemID=273&ListID=bd4dadc7-6f25-477b-9a8e-e04294db3fa9&TemplateID=Announcement_Item#/=

Selhub, E. (2007). Mind-body medicine for treating depression: Using the mind to alter the body's response to stress. *Alternative & Complementary Therapies, 13*(1), 4–9. doi:10.1089/act.2007.13107

Semple, R. J. (2006). Mindfulness-Based Cognitive Therapy for Children: A randomized group psychotherapy trial developed to enhance attention and reduce anxiety. *Dissertation Abstracts International: Section B: Sciences and Engineering, 66*(9-B), 5105. Columbia University.

Semple, R., & Burke, C. (2019). State of the research: Physical and mental health benefits of mindfulness-based interventions for children and adolescents. *OBM Integrative and Complementary Medicine*, *4*(1), 31. doi:10.21926/obm.icm.1901001

Semple, R. J., Droutman, V., & Reid, B. A. (2017). Mindfulness goes to school: Things learned (so far) from research and real-world experiences. *Psychology in the Schools*, *54*(1), 29-52. 10.1002/pits.21981

Shapiro, S. L., Carlson, L. E., Astin, J. A., & Freedman, B. (2006). Mechanisms of mindfulness. *Journal of clinical psychology, 62*(3), 373-386. 10.1002/jclp.20237

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*, 52–66. https://doi.org/10.1037/a0038454

Smiling Mind. (2022). smilingmind.com.au.

Smiling Mind. (2018). *Evidence based guidelines for mindfulness in schools.* [PDF]. Retrieved from: https://www.smilingmind.com.au/mindfulness-in-education

Stake, R. E. (1995). *The art of case study research.* Sage Publications.

Taylor, V. A., Grant, J., Daneault, V., Scavone, G., Breton, E., Roffe-Vidal, S., Courtemanche, J., Lavarenne, A.S., & Beauregard, M. (2011). Impact of mindfulness on the neural responses to emotional pictures in experienced and beginner meditators. *NeuroImage,* 57, 1524–1533. http://dx.doi.org/10.1016/j.neuroimage.2011.06.001

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. https://doi.org/10.1080/10409289.2016.1141616

Tracy, S. J. (2010). Qualitative quality: Eight "big-tent" criteria for excellent qualitative research. *Qualitative Inquiry, 16*(10), 837-851. doi: 10.1177/1077800410383121

Tunney, C., Cooney, P., Coyle, D., & O'Reilly, G. (2017). Comparing young people's experience of technology-delivered v. face-to-face mindfulness and relaxation: Two-armed qualitative focus group study. *The British Journal of Psychiatry*, *210* (4), 284-289. https://doi.org/10.1192/bjp.bp.115.172783

UNICEF. (2020). Averting a lost COVID generation: a six-point plan to respond, recover and reimagine a post-pandemic world for every child. *UNICEF*.

van Stralen, J. (2016). Emotional dysregulation in children with attention-deficit/hyperactivity disorder. *ADHD Attention Deficit and Hyperactivity Disorders*, *8*(4), 175-187. https://doi.org/10.1007/s12402-016-0199-0

Vekety, B., Kassai, R., & Takacs, Z. K. (2022). Mindfulness with children: a content analysis of evidence-based interventions from a developmental perspective. *Educational and Developmental Psychologist*, *39*(2), 231-244.

Weare, K. (2013). Developing mindfulness with children and young people: a review of the evidence and policy context. *Journal of Children's Services*, *8*(2), 141-153. doi:10.1108/JCS-12-2012-0014

Weyandt, L. L., Willis, G. W., Swentosky, A., Wilson, K., Janusis, G. M., Chung, H. J., Turcotte, K., & Marshall, S. A. (2014). A review of the use of executive function tasks in externalizing and internalizing disorders. In S. Goldstein & J.A. Naglieri (Eds.), *Handbook of Executive Functioning* (pp. 69-87). Springer.

White, B. A., Jarrett, M. A., & Ollendick, T. H. (2013). Self-regulation deficits explain the link between reactive aggression and internalizing and externalizing behavior problems in children. *Journal of Psychopathology and Behavioral Assessment*, *35*(1), 1-9. 10.1007/s10862-012-9310-9

Yaari, M., Sheehan, J., Oberklaid, F., & Hiscock, H. (2019). Early Minds: a pilot randomised controlled trial of a mindfulness program in early learning centres. *Pilot and Feasibility Studies*, *5*(1), 81. https://doi.org/10.1186/s40814-019-0463-0

Yin, R. K. (2017). *Case study research and applications: Design and methods*. Sage Publications.

Zelazo, P. D., & Lyons, K. E. (2012). The potential benefits of mindfulness training in early childhood: A developmental social cognitive neuroscience perspective. *Child Development Perspectives*, *6*(2), 154-160. doi: 10.1111/j.1750-8606.2012.00241.x

Zoogman, S., Goldberg, S. B., Hoyt, W. T., & Miller, L. (2015). Mindfulness interventions with youth: A meta-analysis. *Mindfulness*, *6*(2), 290-302. doi: 10.1007/s12671-013-0260-4