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Exploring a mindfulness-informed social emotional learning program in kindergarten classrooms: The moderating role of participant characteristics on behavioural outcomes

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Abstract

The importance of early intervention using social-emotional learning (SEL) programs is well documented, although less is known about mindfulness informed SEL programs such as MindUP™. Previously, research on MindUP™ has been limited to samples with older children and examining the universal effects, not considering individual characteristics. The present study explored changes in young children's behaviours, as well as possible subgroup effects based on participant characteristics following MindUP's™ implementation. MindUP™ was delivered to 285 children in 15-junior/senior kindergarten classrooms across eight high needs schools in a Southwestern Ontario school board. The present study used a subset of those data ($N= 159$). Educators completed a pre- and post-test of the Behavior Assessment Scale for Children (third edition) measuring children's internalizing behaviours, externalizing behaviours, and resiliency. Findings indicated positive changes in children's behaviours including a significant increase in resiliency and decrease in internalizing behaviours. Resiliency outcomes were moderated by degree of behavioural symptoms such that children who displayed at-risk/clinical levels of internalizing behaviours showed significantly greater increases in resiliency than those with lower levels of internalizing behaviours. Unexpectedly, there was no change in children's externalizing behaviours, as well as no moderation of outcomes by grade or gender. The current study provided unique contributions to the literature on MindUP™ through using a younger sample and examining clinical subgroups. Moreover, this study offers a starting point for more rigorous evaluation of MindUP™ and its impact on the wellbeing of children.

Keywords: Early Childhood, Mental Health, Social Emotional Development, School Interventions

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Self-regulation refers to the processes and skills related to the planning, direction, and control of cognition, emotion, attention, and behavior/action that are essential for optimal adaptive functioning (Calkins, 2007). When an individual effectively engages in self-regulation, findings indicate more positive outcomes, including higher cognitive functioning, competent social interactions, resiliency, and academic achievement (Diamond, Barnett, Thomas, & Munro, 2007; Eisenberg et al., 2004; Kochanska, Murray, & Harlan, 2000; McKown, Gumbiner, Russo, & Lipton, 2009). In contrast, impaired self-regulation is associated with negative developmental and educational outcomes, including low self-efficacy, negative thinking patterns, poor interpersonal relationships, lower levels of school adjustment and externalizing and internalizing problems such as aggression and anxiety (Graziano & Hart, 2016; Hill, Degnan, Calkins, & Keane, 2006; Letcher, Smart, Sanson, & Toumbourou, 2009; Olson, Choe, & Sameroff, 2017). Furthermore, behavioural and emotional difficulties experienced by children and youth can negatively influence their current academics, as well as lead to unfavorable long-term outcomes such as school dropout, depression, and unemployment (Seifer, Gouley, Miller, & Zakriski, 2004). Children experiencing such emotional and behavioural difficulties tend to also have lower social-emotional competency in addition to deficits in self-regulation (Denham et al., 2012; Graziano & Hart, 2016).

It is important to promote the development of effective and adaptive self-regulation in children from a young age. Fortunately, instruction in social-emotional learning (SEL) has been shown to aid in the development of self-regulation (Diamond & Lee, 2011; Durlak, Weissberg, Dymnicki, & Taylor, 2011) in young children. SEL is a process that occurs when an adult or child learns to acquire and apply their knowledge, attitude, and skills required to understand and

manage emotions, feel and show empathy for others, set and achieve positive goals, establish and maintain positive relationships, and make responsible decisions (Collaborative for Academic, Social and Emotional Learning, 2013). Targeting both self-regulation and social-emotional skills not only help prevent or mitigate adverse outcomes for children (Letcher et al., 2009; Payton et al., 2008), but also have incremental benefits across several facets of school readiness (Graziano & Hart, 2016). Numerous programs have been developed to promote SEL, but many still have minimal evaluation, particularly with specific age groups. The purpose of the present study is to conduct a preliminary exploration of an evidence-based, mindfulness-informed, SEL program (MindUP™; The Hawn Foundation, 2011) and the behavioural outcomes for young children in regards to the development of self-regulation and social-emotional skills.

Social Emotional Learning Framework

The Collaborative for Academic, Social and Emotional Learning (CASEL; 2013) developed an integrated SEL framework that identifies five core competencies of SEL and the contexts in which they can be supported. The five core competencies identified by CASEL include: (1) self-management, to regulate emotions and behaviours to set goals, (2) self-awareness, to recognize one's emotions, strengths and limitations, (3) social-awareness, to empathize with and take the perspective of others, (4) relationship skills, to establish and maintain positive relationships, and (5) responsible decision making, to make ethical, constructive choices about behavior. CASEL's framework promotes cognitive, intrapersonal, and interpersonal competence. The framework suggests that SEL improves one's ability to ethically and effectively handle everyday challenges and tasks through integrating attitudes, skills, and behaviours. This framework has been supported by empirical literature, which indicates that children with these social-emotional competencies demonstrate resiliency (i.e., the ability to

overcome/recover from difficulties) when confronted with stressful situations (Durlak et al., 2011).

Similar to Bronfenbrenner's ecological systems theory (1979), CASEL's *Framework for Systemic Social and Emotional Learning* is presented as a system in which the SEL core competencies are in the center, surrounded and supported by external environmental systems, or contexts. The SEL framework outlining the five core SEL competencies and the contexts for teaching them is displayed in Figure 1. The framework proposes that the five core SEL competencies are most strongly supported by SEL curriculum and instruction within the classroom, followed by support through school wide practices and policies, and family and community partnerships. Furthermore, CASEL's framework supports the use of teachers to implement SEL programs in classrooms to best develop students' social-emotional competencies.

Social Learning Theory

Bandura's social learning theory (1977) also supports the view that children learn well in a classroom environment with opportunities to learn from teachers and peers. Social learning theory (1977) characterizes that learning occurs in a social context and can happen purely through direct instruction or observation (modeling). Implications of this theory may include that students engage in SEL by listening to a teacher's instructions as well as observing the teacher and their peers practicing such behaviours (e.g., perspective-taking). The role of peer modeling is very important as students learn from watching their fellow peers and can also see what works for their peers in different social contexts. Thus, to promote SEL it is ideal to have lessons taught and engaged in by teachers (i.e., verbal instructional/live model) while also providing the opportunity for peers to learn SEL practices from each other (i.e., peer-modeling) within the
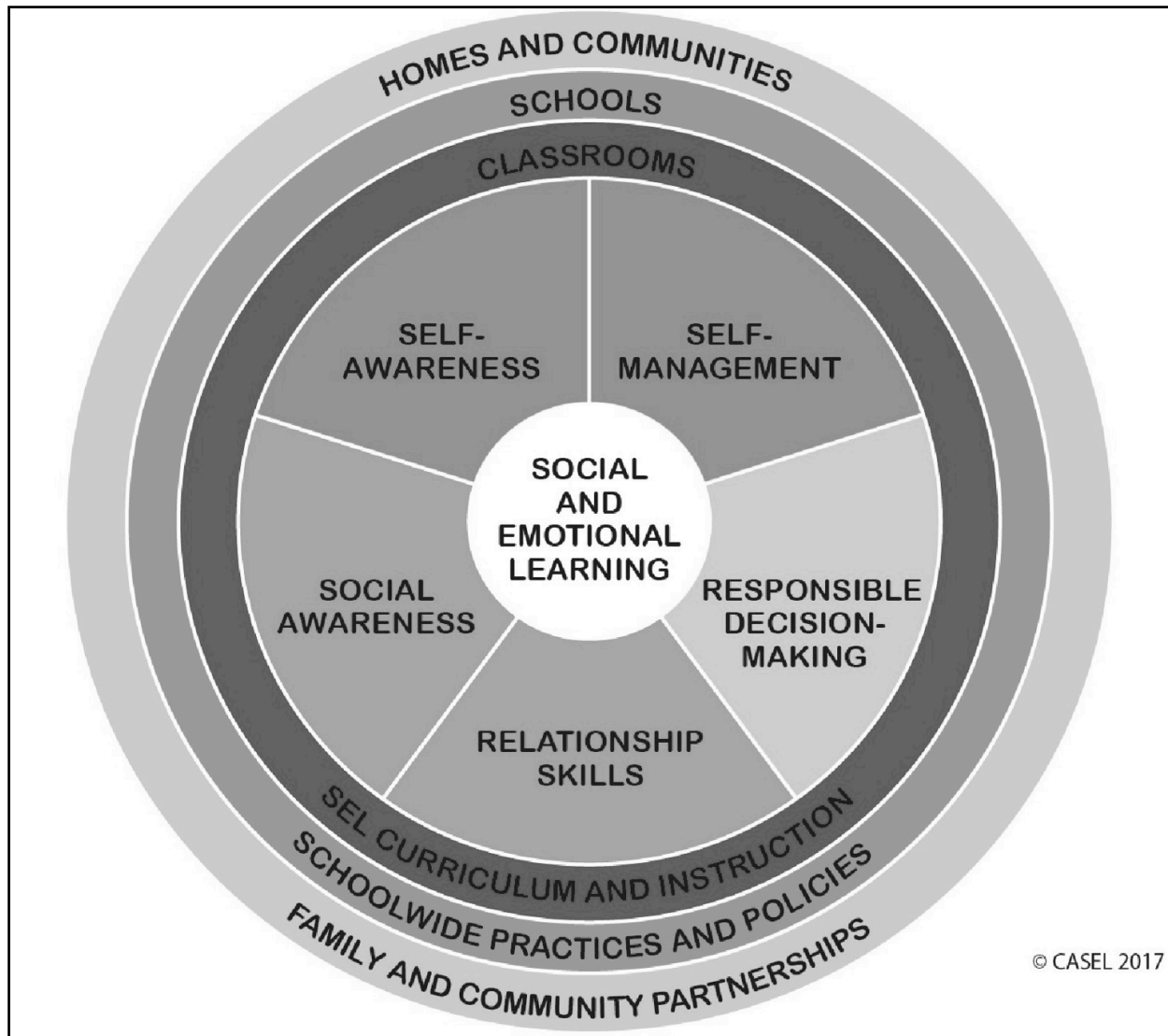
Figure 1. CASEL's *Framework for Systemic Social and Emotional Learning.* The five core competencies for SEL are situated in the middle, surrounded by the different contexts for learning them. Copyright 2017 by CASEL.

classroom. Bandura also states that intrinsic reinforcement (i.e., a sense of accomplishment or satisfaction following the behaviour) is important to learning. Based on Bandura's social learning theory it is predicted that children will learn the MindUP™ curriculum through teachers' modeling and giving instructions during lessons, as well as observing and modeling other children's behaviours as they practice improving their SEL competencies individually.

School-Based SEL Programs

Growth in positive psychology and a shift towards prevention has been demonstrated by a change in focus from repairing weaknesses to improving positive qualities and preventing problems before they happen (e.g., Chafouleas & Bray, 2004; Lyubomirsky, King, & Diener, 2005; Seligman & Csikszentmihalyi, 2000). Within this shift is an implied assumption that educational interventions can be developed to foster positive qualities such as resiliency and strengths in children (Huebner & Furlong, 2009). Alongside this shift, the promotion of children's social and emotional competence in schools has also gained increased attention in research over the past decade, with a growing trend in the development of different SEL programs. These SEL programs typically target specific social and emotional skills (e.g., perspective taking, conflict resolution) through explicit instruction, however, the activities and discussion topics involved in instruction may differ (e.g., role playing conflict resolution, practicing decision making through class meetings). This growing trend in the development of SEL programs is not surprising as they are suggested to be amongst, "the most successful youth-development programs offered to school-aged youth" (Payton et al., 2008, p. 3).

The success of school-based SEL programs has been well documented in the literature with much evidence supporting a strong link between the development of SEL competencies in children and a multitude of positive outcomes (e.g., decreased emotional distress, improved relationships with peers), supporting school adjustment (Durlak et al., 2011; Graziano & Hart, 2016; Sklad, Diekstra, Ritter, Ben, & Gravesteijn, 2012). Durlak et al. (2011) conducted a meta-analysis of 213 school-based, universal SEL programs involving students in kindergarten through high school. Findings from the meta-analysis showed that SEL participants in well designed and implemented programs, compared to controls, demonstrated significant

improvement in behaviours, attitudes, social and emotional skills, and academic performance. More specifically, there were reports of decreased internalizing behaviours such as depression, anxiety and stress as well as reduced externalizing behaviours including aggression and noncompliance. Additionally, findings included reports of a greater motivation to learn and better academic performance shown by achievement scores an average of 11 percentile points higher than students who did not receive SEL instruction (Durlak et al., 2011).

A more recent meta-analysis was conducted examining 82 school-based, universal SEL interventions involving 97,406 kindergarten to high school students (Taylor, Oberle, Durlak, & Weissberg, 2017). Similar to the meta-analysis by Durlak et al. (2011), findings included improvement in positive indicators (e.g., social-emotional skills, positive attitudes, pro-social behaviour) of wellbeing. Moreover, follow-up data collected 6 months to 18 years post-intervention found participants doing significantly better than controls across all positive indicators of well being, as well as appearing to be preventing the development of later problems that negatively impact well-being (e.g., conduct problems, emotional distress). Results also indicated that the strongest predictor of wellbeing at follow-up was the development of social-emotional skills. Therefore, SEL interventions that target various social and emotional competencies are associated with significant improvement at post-intervention as well as significant improvement of students' long-term adjustment and well-being (Durlak et al., 2011; Taylor et al., 2017).

Mindfulness-Based Interventions

In addition to a growing interest in SEL, there has also been a large increase in the awareness of secular mindfulness activities (e.g., attention training, yoga) as methods to support wellness. Mindfulness can be simply defined as paying attention in the present moment, on

purpose and without judgment (Kabat-Zinn, 2003). The MindUP™ curriculum refers to mindful

awareness as, "attending to the here and now […] in a considerate, nonjudgmental way" (The

Hawn Foundation, 2011). Research with adults has shown benefits of mindfulness for promoting

health, and reducing anxiety, and depression (Arias, Steinberg, Banga, & Trestman, 2006;

Finucane & Mercer, 2006). Development of educational programs for youth incorporating

mindfulness training have grown as well in an effort to prevent mental illness and foster

prosocial behaviour and resilience (Greenberg & Harris, 2012). However, compared to SEL

programs in general, there is a relative lack of empirical evidence documenting the benefits of

mindfulness-based interventions in school settings and for youth and children.

Although there is little research in this area of mindfulness, several small meta-analyses

have been conducted. The first examined mindfulness interventions for children and youth under

18 years of age and included only 20 peer-reviewed articles that met the inclusion criteria for the

study (Zoogman, Goldberg, Hoyt, & Miller, 2015). Findings suggested that mindfulness

interventions provide benefits over active control comparison groups with youth overall, being

most effective in addressing symptoms of psychopathology in respect to specific outcomes. The

second meta-analysis by Zenner, Herrnleben-Kurz, and Walach (2014), focused specifically on

school-based mindfulness interventions and included 24 studies, of which only 13 were

published. Zenner et al. (2014) also found mindfulness interventions to be beneficial for children

and youth ranging from grades 1-12 (ages 6 to 19**),** specifically in relation to improving cognitive

performance (e.g., attention, creativity, grades) and developing resilience to stress. Although

promising, methodological limitations (e.g., heterogeneous methods) of the research on

mindfulness-based interventions make conclusions and generalizations to the larger population

difficult (Greenberg & Harris, 2012). Furthermore, much of the research has focused on reducing

symptoms such as depression, stress, and anxiety (Biegel, Brown, Shapiro, & Schubert, 2009).

Whereas, research focusing on how mindfulness-based interventions may increase mental

wellbeing in children and youth is lacking.

SEL and Mindfulness: A Conceptual Framework

Greenberg (2014) suggested a conceptual framework that emphasizes how mindfulness

can complement and enhance the five core social-emotional competencies. In developing this

framework, Greenberg (2014) highlights how contemplative education provides a natural bridge

between SEL and mindfulness. Contemplative education is defined as a "set of pedagogical

practices designed to cultivate the potentials of mindful awareness and volition in an ethical-

relational context in which the values of personal growth, learning, moral living, and caring for

others are also nurtured" (Roeser & Peck, 2009, p. 127). Contemplative practices (or

mindfulness) and SEL share a goal of helping individuals gain knowledge and manage stress by

building emotion regulation skills through improving attention or concentration (Greenberg &

Harris, 2012).

The conceptual framework proposed by Greenberg (2014) further includes how each SEL

core competency can be deepened in terms of mindfulness and the related mindful practices. For

example, Greenberg described self-awareness (the ability to recognize one's emotions, strengths,

and weaknesses), as involving an understanding of the nature of mind, specifically, how the

mind is fleeting. Fostering a sense of calm and stillness through a mindfulness practice such as

focused mindful breathing can generate conditions essential to the development of self-

awareness. The strong relationship between mindfulness and SEL highlighted by contemplative

education and Greenberg's (2014) conceptual framework suggests positive outcomes in infusing

mindful awareness training with SEL instruction. Providing such instruction within the school

setting has also been supported (Gueldner & Feuerborn, 2016; Meiklejohn et al., 2012). Aside from theoretical literature, the value in combining these two areas has also been supported by empirical evidence (Durlak et al., 2011; Greenberg & Harris, 2012; Lawlor, 2016).

The MindUP™ Program

MindUP™ is one of the first programs to provide explicit instruction on a combination of both SEL and mindful awareness practices (The Hawn Foundation, 2011). CASEL is a non-profit organization of mostly educators and researchers that have defined the field of SEL through providing research, practice, and policy and identifying evidenced-based SEL programs to support high quality SEL in educational settings. CASEL has identified MindUP™ as effective, although the outcome research is still in the early phases (CASEL, 2013). The school-based, teacher-led program consists of 15 lessons informed by research in cognitive developmental neuroscience (Diamond, 2012), mindfulness and contemplative science (Roeser & Zelazo, 2012), SEL (Greenberg et al., 2003), and positive psychology (Lyubomirsky et al., 2005). In each lesson students learn about a new key concept and have opportunities to practice skills related to the concepts. The MindUP™ curriculum has three different age-appropriate versions corresponding with different grade levels: grade K-2, 3-5, and 6-8. Although this program has been implemented successfully in many schools and classrooms of different age groups, two studies that have evaluated only the grade 3-5 version have been conducted thus far to empirically support the program.

Schonert-Reichl et al. (2015) were the first to evaluate the MindUP™ program in classrooms of combined grade four and five students (N=99) within a public school district near a middle-class community in Western Canada. Students were randomly assigned to either the MindUP™ program or a regular social responsibility program. Findings from the study indicated

that students in the MindUP™ condition showed significant changes at post-test. These changes included improved cognitive and emotional control, reports of greater empathy and perspective taking, reduced symptoms of depression, and peer-rated aggression and being rated as more prosocial by their peers. Although the study used a rigorous design with multiple sources of data (e.g., teacher and self reports; cortisol levels) and a comparison group, the sample is limited to a specific age range and relatively small sample. Thus, generalizability of this program to other age groups is limited.

More recently, MindUP™ was evaluated in 20 classrooms of grade three and four students in Portugal (Sampaio de Carvalho, Pinto, & Marôco, 2016). The quasi-experimental study compared outcomes of 223 students who received MindUP™ and 231 students in the control group, using pre- and post-test data. Students' in the MindUP™ intervention group reported an increase in positive affect and common humanity (a dimension of self-compassion), and decreases in negative affect and suppression in comparison to the control group. However, it should be noted that for this study the teachers implementing the program received a longer training (by approximately 12 hours) than is typical. Additionally, the curriculum had to be translated to Portuguese and adapted to align with the Portuguese educational system. Despite the need for translation, MindUP™ was still sufficiently robust with grade three and four students and suggests the cross-cultural application of the program. Nonetheless, the effectiveness of the MindUP™ curriculum is not clear in it's use with younger school age children.

An additional study was recently conducted examining the effects of a mindfulness program in grade three classrooms using combined content from the MindUP™ program, another school-based mindfulness program and newly developed material from the researchers

(Kielty, Gilligan, Staton, & Curtis, 2017). Three trained researchers (and licensed mental health providers) delivered three, 30-minute lessons to 45 third graders over three weeks, and a booster session for the students when in grade four and five. Data collected included pre-post scores of students' mindfulness and positive experiences, in addition to qualitative data from teachers and students throughout the three-year study. Contrary to expectations, students' scores indicated a decrease across mindfulness constructs. However, teachers and students reported having positive experiences with both the program and using mindfulness strategies (e.g., deep breathing, body scans) moving forward. These mixed findings cannot be fully attributed to MindUP™ due to confounding nature of the combined curriculum used, however highlights the need to further examine the effects of mindfulness programming.

Participant Characteristics

Evidence-based SEL programs as determined by CASEL collectively have shown to be beneficial for all children, supporting the universal platform in schools. However, it is also important to understand the role of participant characteristics (e.g., gender) and clinically important subgroups in regards to differential program benefits within the universal sample.

Gender. Gender differences occur in the development of social skills starting from an early age (Roberts, Strayer, & Denham, 2003). A study in Massachusetts found gender differences for older children in regard to effects of previous exposure (two years post) to a social competency program for 277 grade six students (Taylor, Liang, Tracy, Williams, & Seigle, 2002). Specifically, exposure to the social competency program was related to differing positive outcomes between boys and girls. Girls were reported to show higher adjustment scores and levels of assertiveness, in contrast to boys reporting themselves to have higher levels of self-control, overall social skills, and fewer problems with physical fighting. These different

outcomes may suggest that girls and boys experience different pressures and social problems at this age, making certain skills more applicable than others. Although, predicting how gender may influence intervention outcomes in younger children is difficult as teachers and parents can underreport behavioural impairment in girls more than boys (Graziano & Hart, 2016). Therefore, exploratory analysis of gender effects in regards to effects on program outcomes in young children is an important area to investigate.

Age. Developmentally, children make great strides in social-emotional competencies and self regulation between ages two and six (Diamond, 2002; Saarni, Campos, Camras, & Witherington, 2006). However, a large developmental gap may exist when looking at the cognitive capabilities of young children. For example, when testing the attention and inhibition skills of children using tasks requiring impulse control, three and four-year olds made significantly more errors in comparison to six and seven-year olds who found the tasks easy (Diamond, 2002). Vocabulary also develops rapidly within these early years, resulting in a six-year old acquiring around 10,000 words in their vocabulary in comparison to 200 words of a two-year old (Bloom, 1998). Thus, an older child with a larger vocabulary may be more capable of discussing their emotions with others and better able to regulate such emotions in contrast to a younger child. These developmental differences in language and cognitive functioning during the early years may influence the effectiveness of programs. Therefore, it is important for programs to be examined across these rapidly changing developmental stages in determining age appropriate and effective programming.

Clinical and At-risk Subgroups. In reviewing the literature there seems to be a basic theme, that in regards to program outcomes those who need the program the most are the ones who benefit the most (Diamond, 2012; Flook et al., 2010; Zoogman et al., 2015). Findings from

a randomized control study evaluating a school-based program of mindful awareness practices (MAPs) in grade two and three classrooms demonstrated this pattern of increased benefits for higher risk youth (Flook et al., 2010). Results indicated that children in the MAPs group who had lower baseline executive functioning scores showed greater improvement compared with children in the control condition. In addition, Wilson, Lipsey, and Derzon (2003) conducted a meta-analysis of 221 studies evaluating programs aimed at reducing aggression. Results indicated that high-risk children and youth (i.e. exhibit aggressive behavior or were considered at-risk for later aggressive behavior) showed greater reductions in aggressive behavior following their program participation in comparison to those who were lower-risk. This study highlights the possibility that programs delivered universally can provide the most benefit to those who most need the program.

Regarding socio-economic status (SES), many studies have shown that children from a low socio-economic background are considered at-risk for having emotion and behaviour regulation difficulties (Morrison, Ponitz, & McClelland, 2010), as well as displaying fewer prosocial behaviours (Phillips & Lonigan, 2010). Research shows that for early school success of children at socioeconomic risk, social-emotional skills that develop areas such as emotion regulation may play an especially important role (Fantuzzo, Perry, & McDermott, 2004; Goodman, Gravitt, & Kaslow, 1995). In conclusion, knowing that children may respond differently to a school-based program, it is important to understand the potential sources of this variability to best meet the needs of the universal sample and the clinical subgroups within it.

Present Study

The importance of early intervention through using SEL programs for children is well documented, although less is known about mindfulness informed SEL programs such as

MindUP™. The objective of the present study was to explore the behavioural outcomes of children in high needs (e.g., low SES) kindergarten classrooms following the implementation of MindUP™. However, this study did not include a control group, and therefore findings were interpreted within an exploratory context with the intention of providing a foundation for further research on MindUP™.

This study explored two research questions related to outcomes following the implementation of MindUP™ in kindergarten classrooms. The first research question was, what changes do children show in their internalizing behaviours, externalizing behaviours, adaptive skills, and resiliency following the implementation of MindUP™ and are these changes moderated by gender or grade (JK vs. SK)? It was hypothesized that children overall demonstrate positive outcomes after participating in MindUP™, indicated by decreased internalizing and externalizing behaviours, and increased resiliency and adaptive skills. The second research question was: do children's significant externalizing and internalizing behavioural problems moderate changes in children's adaptive skills and resiliency following MindUP™? Children who exhibited clinical or at-risk levels of internalizing and externalizing behaviours were hypothesized to benefit more from MindUP™ with greater behavioural improvements in resiliency and adaptive skills compared to the overall sample. The present study complemented and enhanced the current literature on MindUP™ in schools by being the first study to investigate the MindUP™ program with younger children in kindergarten classrooms. Additionally, this study also contributed to our efforts to support the mental wellbeing and developmental needs of all young children.

Method

Participants

The present study involved the implementation of the MindUP™ program in 15 junior/senior kindergarten (JK/SK) classrooms across eight schools in a Southwestern Ontario school board. Higher needs elementary schools and classrooms were purposely selected by the board based on several factors, including: social risk index (SES, parental education, etc.), the presence or absence of other programming for the target age group, and the willingness of the administrator and staff to be involved. Eight classrooms had both a teacher and early childhood educator (ECE), with a total of 15 teachers and 9 ECEs involved in the study. Consistent with provincial guidelines, classrooms with approximately 17 or more students had the additional support of an ECE. Sizes of the participating classrooms ranged from 13 to 27 students ($M = 19$; $SD = 4.63$). All 285 children in the 15 selected classrooms received the MindUP™ programming. Active parental consent was obtained, with an overall consent rate of 82.5% for involvement in the research. A subset of those data ($N = 159$) was used in the present study due to the systematic removal of children who were six years old when the pre-tests were completed. Participants included 159 kindergarten students who ranged in age from 4 to 5 years old ($M = 4.35$, $SD = .48$), with 109 children (68.6%) in junior kindergarten and the remaining 50 in senior kindergarten. The sample consisted of 86 females and 73 males. The majority of children (66.7%) in the sample were identified as White. Other ethnicities within the sample included: Latin American (5.7%), South Asian (4.4%), Black (1.3%), Filipino (1.3%), Arab (1.3%), Southeast Asian (1.3%), Aboriginal/First Nations/Metis/Inuit (0.6%), Chinese (0.6%), and Other (16.8%).

Intervention

Teachers and early childhood educators implementing MindUP™ in the participating classrooms attended a full day training. Official MindUP™ trainers from the Hawn Foundation delivered the training to equip teachers with the tools needed to implement the MindUP™ curriculum. The full day training included a review of the background (e.g., neuroscience research), objectives, and curriculum of the MindUP™ program. Although teachers perceived the training positively, the effectiveness of the training and program implementation may have been impacted due to disruption in teacher's receiving important resources that support training and implementation (see limitations). The MindUP™ manual provided teachers with multiple alternatives for communicating/teaching MindUP™ program content (e.g., activities, images, books), to best incorporate MindUP™ into their classrooms.

MindUP™ Curriculum Manual. All teachers were given a manual that includes the 15 lessons that make up the MindUP™ curriculum (The Hawn Foundation, 2011) for the grade K-2 level. The lessons are based on neuroscience, mindfulness, SEL, and positive psychology. The curriculum is broken up into four units, covering 15 lessons (see Figure 2). The first unit, 'Getting Focused," covers basic information about mindful awareness and how the brain works, for example teachers will discuss the functions of the hippocampus, amygdala, and prefrontal cortex in relation to our emotions and behaviours. The second unit, "Sharpening Your Senses," focuses on mindful awareness practices such as mindful listening, eating, and movement. The third unit, "It's All About Attitude," concentrates on developing perspective taking, optimism, and the appreciation of happy experiences. The fourth and last unit, "Taking Action Mindfully," covers topics including gratitude, kindness, and taking mindful action in the world.

Units	Lessons
Unit I: Getting Focused (Lessons 1-3) • Introduce brain physiology and the concept of mindful attention; establish daily core practice	1. How Our Brains Work 2. Mindful Awareness 3. Focused Awareness: The Core Practice
Unit II: Sharpening Your Senses (Lessons 4-9) • Experience the relationship between our senses, our moving bodies, and the way we think	4. Mindful Listening 5. Mindful Seeing 6. Mindful Smelling 7. Mindful Tasting 8. Mindful Movement I 9. Mindful Movement II
Unit III: It's All About Attitude (Lessons 10-12) • Understand the role of our mindset in how we learn and progress	10. Perspective Taking 11. Choosing Optimism 12. Appreciating Happy Experiences
Unit IV: Taking Action Mindfully (Lessons 13-15) • Apply mindful behaviours to our interactions with our community and the world	13. Expressing Gratitude 14. Performing Acts of Kindness 15. Taking Mindful Action in the World

Figure 2. The MindUP™ curriculum includes 15 lessons arranged into four units based on neuroscience, mindfulness, SEL and positive psychology. Copyright 2011 by The Hawn Foundation.

Measures

Behaviour Assessment System for Children, Third Edition (BASC-3). The 105-item preschool, teacher-rating scale (TRS-P) of the BASC-3 (Reynolds & Kamphaus, 2015), was used to measure internalizing problems, externalizing problems, adaptive skills, and resilient behaviours of each child before and after the implementation of MindUP™. This measure contains items that describe how children may behave (e.g., is easily stressed). Teachers are asked to select the response that describes how often this child has recently behaved this way in

the last several months on a rating scale from 0 (*never)* to 3 (*almost always*). The BASC-3 has excellent psychometric properties and is widely used in research and clinical settings.

Externalizing Problems. This composite scale is comprised of the hyperactivity and aggression clinical scales that were used to assess the externalizing behaviours of each child. Hyperactivity is described as the tendency to rush through work or activities, be overly active and act without thinking. A sample item from the hyperactivity scale asks how often the child, "is overly active." Aggression is described as the tendency to act in a hostile manner (physical or verbal) that is threatening to others. A sample item from the aggression scale is, "threatens to hurt others." A Cronbach alpha score of 0.95 was found for the Externalizing Problems scale (Reynolds & Kamphaus, 2015), indicating good internal reliability across the two clinical subscales. Raw scores are converted to scaled scores that are based on age.

Internalizing Problems. This composite scale is comprised of the anxiety, depression, and somatization clinical scales, which was used to assess the internalizing behaviours of each child. Anxiety is described as the tendency to be fearful, worried or nervous about real or imagined problems. A sample phrase from this scale is, "worries about parents." Depression is described as feelings of unhappiness, sadness, and stress that may result in an inability to carry out everyday activities or may bring on thoughts of suicide. A sample item from the depression scale asks how often the child, "is easily upset." Somatization is described as the tendency to complain about and be overly sensitive to relatively minor physical problems and discomforts. A sample item from the somatization scale is, "complains of stomach pain." A Cronbach alpha score of 0.92 was found for the Internalizing Problems scale, indicating good internal reliability across the three clinical subscales. Raw scores are converted to scaled scores that are based on age.

Adaptive Skills. This composite scale is comprised of the adaptability, social skills, and functional communication clinical scales, which was used to assess the adaptive skills of each child. Adaptability is described as the ability to adapt readily to changes in the environment. A sample item from the adaptability scale is, "adjusts well to changes in routine." Social skills are described as the skills necessary for interacting successfully with peers and adults in school, home and community settings. A sample item from the social skills scale is, "politely asks for help." Functional communication is described, as the ability to express ideas and communicate in a way others can easily understand. A sample item from the functional communication scale is, "communicates clearly." A Cronbach alpha score of 0.95 was found for the Adaptive Skills scale, indicating good internal reliability across the three clinical subscales. Raw scores are converted to scaled scores that are based on age.

Resiliency. This content scale is theoretically based in comparison to the other composite scales listed above. Resiliency is described as the ability to access both external and internal support systems to alleviate stress and overcome adversity. This scale was used to assess each child's resilient behaviours. A sample item from the resiliency scale is, "recovers quickly after a setback." A Cronbach alpha score of 0.87 was found for the Resiliency scale, indicating good internal reliability.

Procedure

Following the full day training, teachers invited their students to participate in the research component by sending home letters of information and consent forms to guardians (see Appendix B). In addition, a demographic form was included with the consent for parents to complete if they were willing to have their children participate. Teachers were provided with student ID codes to use when completing the BASC-3 items for each participating child in their

classroom. Teachers completed the 105-item BASC-3 measure online using the Qualtrics survey

system for each participating child in their classroom prior to program implementation. Teachers

were then instructed to implement the 15 MindUP™ lessons in their classrooms throughout the

remainder of the school year. After children participated in all of the MindUP™ lessons, teachers

once again completed the same 105-item BASC-3 measure for all participating students in their

classroom. Teachers' completed pre and post-test scores approximately five months apart ($M =$

5.04; $SD = .82$) with a range of three to seven months. Following the completion of all measures

the data were organized and analyzed.

Data Analysis

The present study was a quasi-experimental, within group, pre/post test design. All three

preliminary assumptions for a mixed ANOVA were assessed (Welkowitz, Cohen & Lea, 2012)

prior to completing analyses. The assumption of sphericity did not apply as only two time points

of data were gathered.

Assumption #1: Dependent variable should be measured on an interval or ratio scale.

The dependent variables in this study include externalizing behaviours, internalizing behaviours,

adaptive skills and resiliency. These variables are all interval-based, such that the clinical scores

generated to represent these variables fall on a continuum.

Assumption #2: The dependent variable follows a normal distribution in each population.

Assumptions of normality were tested for each dependent variable with descriptive statistics

regarding skewness and normality, visual representations of the distribution (i.e. histograms, Q-

Q plots) and homogeneity of variance (using Levene's Test of Equality of Error Variances and

Box's Test of Equality of Covariance Matrices). An examination of standardized residuals,

studentized residuals and Cook's distance values were used to determine potential influential outliers for each dependent variable sample.

The distribution for *externalizing behaviours* was positively skewed both statistically and as observed in the visual representations; tests of normality were found to be significant as well ($p < .001$). Tests of homogeneity of variance were found to be significant for distributions specific to participants' gender (pre-test Levene's $F (1, 151) = 25.19$, $p < .001$; post-test $F (1, 151) = 21.39$, $p < .001$; Box's $M = 30.39 (3, 15943919.19) = 9.98$, $p < .001$). Three largely influential outliers were identified in the data because they were more than 2 standard deviations away from the mean and had higher than threshold Cook's distance values. Based on the significant results, the sample distribution for externalizing behaviours did not satisfy assumptions of normality, making a mixed ANOVA inappropriate to use for further analysis.

The assumption of normality for *internalizing behaviours* was violated because of positive skewedness and significant tests of normality ($p < .001$). In addition, two influential outliers were identified. The identified influential outliers were not omitted from the analyses, given the nature of this study examining clinical behaviours within a universal population receiving the MindUP™ program. Distributions for both *adaptive skills and resiliency* met assumptions of normality and homogeneity, with no influential outliers.

Assumption #3: The observations are mutually independent within each sample. The observations within each sample were not mutually independent due to the nature of the MindUP™ program being implemented and assessed within a classroom setting. Therefore, this assumption was not satisfied (see limitations section).

Investigating the identified research questions required a model that satisfied the above listed assumptions and took into account the longitudinal (correlated) nature of the data.

Generalized Estimating Equations (GEE) with a gamma error distribution was used to address

the problem of skewness, heterogeneity, and apparent outliers in the externalizing and

internalizing behaviour analyses. GEE allows accommodation for outliers with robust estimation

that smoothens the distribution and takes into account distribution of residuals (Ballinger, 2004;

Hanley, Negassa, Edwardes, & Forrester, 2003). Therefore, the GEE model was used to

investigate externalizing and internalizing behaviours, adaptive skills, and resiliency of

kindergarten children prior to, and after the implementation of MindUP™.

Using the GEE model an analysis was conducted of pre/post main effects of the BASC-3

scores regarding internalizing, externalizing, adaptive skills, and resiliency behaviour. Moderator

analyses were also conducted within the GEE models examining dependent variables, to explore

whether gender, school year (JK/SK) or degree of behavior difficulties (i.e. above/below clinical

cutoff) moderate main effects found. A categorical variable was developed to represent children

who experience clinical-level behaviours and those who do not, as indicated by pre-test scores

above or below a clinical cut-off for internalizing and externalizing behaviours. The BASC-3

consider scores of 60 or over to indicate at-risk to clinical level behaviours, therefore this number

was also used to determine the clinical cut-off for this categorical variable (Reynolds &

Kamphaus, 2015). Descriptive statistics were used to depict the characteristics (gender and

grade) of the kindergarten children above and below the clinical cutoff. The findings from these

analyses have been organized based on the research questions of this study.

Ethical Considerations

The research protocols for this study were reviewed and approved by the Western

Research Ethics Board (see Appendix C), as well as by the school board research office.

Results

Correlations Between Dependent Variables

Spearman's correlations were computed to assess relationships among the four dependent variables: externalizing behaviours, internalizing behaviours, adaptive skills, and resiliency prior to completing GEE analyses (see Table 1). Moderately strong correlations were found between each variables pre (Time 1) and post-test (Time 2) scores, as expected. However, the correlations between adaptive skills and resiliency were especially strong with both variables' Time 1 scores having a significant correlation of .84 and Time 2 scores significantly correlating at .89, meaning that they measure almost the same construct. To reduce redundancy, adaptive skills were excluded from further analyses. Significant small to moderate strength correlations were also found between externalizing and internalizing behaviours (Time 1, .35 and Time 2, .31), externalizing behaviours and resiliency (Time 1 and 2, -.44) and internalizing behaviours and resiliency (Time 1, -.54 and Time 2, -.42). Therefore, additional GEE analyses were conducted, controlling for Time 1 variables within the models to assess whether correlations between the variables impacted findings.

Research Question 1: Changes in Dependent Variables Following MindUP™ and Potential Moderators of Change

A GEE model was used to investigate changes in children's externalizing behaviours, internalizing behaviours and resiliency following the MindUP™ program. Two-way time x gender and time x grade interactions were examined in addition to the main effects for each dependent variable. The interaction terms were computed to assess potential moderators of change in the dependent variables. Main effects of time were examined for each dependent variable to examine whether there had been change over time and if so, in what direction.

Table 1

Spearman's Correlations (rho) Between the Pre-Test (T1) and Post-Test (T2) of Externalizing Behaviours, Internalizing Behaviours, Adaptive Skills and Resiliency

	1	2	3	4	5	6	7	8
1. Externalizing Behaviours (T1)	-							
2. Externalizing Behaviours (T2)	.74**	-						
3. Internalizing Behaviours (T1)	.35**	.14	-					
4. Internalizing Behaviours (T2)	.23*	.31**	.63**	-				
5. Adaptive Skills (T1)	-.47**	-.31**	-.46**	-.31**	-			
6. Adaptive Skills (T2)	-.46**	-.52**	-.31**	-.42**	.74**	-		
7. Resiliency (T1)	-.44**	-.30**	-.54**	-.35**	.84**	.67**	-	
8. Resiliency (T2)	-.38**	-.44**	-.30**	-.42**	.68**	.89**	.69**	-

Note. $*p < .01$, $**p < .001$. Adaptive Skills strongly correlated with Resiliency (Time 1, .84** and Time 2, .89**) and therefore was excluded from further analyses.

Externalizing Behaviours. In this model, a two-way time x gender interaction, and main effects of time and gender were the predictor variables, and externalizing behaviours was the dependent variable. Results indicated that the two-way interaction between time and gender was not significant, Wald χ^2 (1) = .14, p = .712. However a main effect of gender was found, wherein boys (M = 52.51, SE = 1.34) scored higher than girls (M = 46.09, SE = .75, Wald χ^2 (1) = 17.38,

$p < .001$) in externalizing behaviour, meaning boys displayed significantly more externalizing behaviours than girls across both time points. The main effect of time was not significant, meaning that there was no change in externalizing behaviours over time (see Table 2).

This model was analyzed twice more, once controlling for Time 1 internalizing behaviours, and again controlling for Time 1 resiliency. Internalizing behaviours at Time 1 significantly predicted externalizing behaviours within this model, Wald χ^2 (1) = 12.71, $p < .001$. In the second model, resiliency at Time 1 was also found to be a significant covariate, Wald χ^2 (1) = 37.80, $p < .001$. In both models, the significant findings remained the same with results indicating a significant main effect of gender, but no effect of time on externalizing behaviours (see Table 3).

Internalizing Behaviours. In this model, a two-way time x gender interaction, and main effects of time and gender were the predictor variables, and internalizing behaviours was the dependent variable. The two-way time x gender interaction was not significant, Wald χ^2 (1) = .19, $p = .662$. There was a main effect of time, indicating that internalizing behaviours declined from Time 1 ($M = 55.60$, $SE = .91$) to Time 2 ($M = 53.19$, $SE = .90$, Wald χ^2 (1) = 11.48, $p = .001$). The main effect of gender was found not significant (see Table 2).

This model was analyzed an additional two times, once controlling for Time 1 externalizing behaviours, and again controlling for Time 1 resiliency. Externalizing behaviours at Time 1 significantly predicted internalizing behaviours within this model, Wald χ^2 (1) = 18.67, $p < .001$. Resiliency at Time 1 was also found to be a significant covariate in the following model, Wald χ^2 (1) = 59.80, $p < .001$. In both models, the same results were found which included a significant main effect of time, but no effect of gender on internalizing behaviours (see Table 3).

Table 2

Means, Standard Errors, and Generalized Estimating Equations Analysis for Time and Gender predicting Externalizing and Internalizing Behaviours Composite Scores and Resiliency

Variable	*Mean (SE)*	*B*	*95% CI*	Wald χ^2	*df*	*p*
Externalizing behaviours						
Time 1	49.64 (.80)	.68	-.30 1.67	1.85	1	.174
Time 2	48.96 (.82)	-	-	-	-	-
Boy	52.51 (1.34)	6.41	3.40 9.44	17.38	1	< .001*
Girl	46.09 (.75)	-	-	-	-	-
Internalizing behaviours						
Time 1	55.60 (.91)	2.41	1.02 3.81	11.48	1	.001*
Time 2	53.19 (.90)	-	-	-	-	-
Boy	54.57 (1.36)	.35	-2.92 3.62	.04	1	.833
Girl	54.22 (.96)	-	-	-	-	-
Resiliency						
Time 1	9.08 (.22)	-.91	-1.27 -.56	25.55	1	< .001*
Time 2	9.99 (.23)	-	-	-	-	-
Boy	9.17 (.33)	-.73	-1.54 .09	3.04	1	.081
Girl	9.90 (.26)	-	-	-	-	-

Note. $*p \leq .001$

Table 3

Means, Standard Errors, and Generalized Estimating Equations Analysis for Time and Gender predicting Externalizing and Internalizing Behaviours Composite Scores and Resiliency, Controlling for Time 1 Externalizing and Internalizing Behaviours and Resiliency

Variable	Mean (SE)	B	95% CI	Wald χ^2	df	p
Externalizing behaviours						
Time 1	49.38 (.75)	.71	-.26 1.69	2.07	1	.150
Time 2	48.67 (.77)	-	-	-	-	-
Boy	51.81 (1.22)	5.56	2.79 8.32	15.48	1	< .001**
Girl	46.25 (.75)	-	-	-	-	-
Internalizing behaviour Time 1	-	.26	.12 .40	12.71	1	< .001**
Externalizing behaviours						
Time 1	49.47 (.70)	.52	-.43 1.46	1.15	1	.283
Time 2	48.95 (.75)	-	-	-	-	-
Boy	51.77 (1.12)	5.12	2.62 7.62	16.13	1	< .001**
Girl	46.65 (.72)	-	-	-	-	-
Resiliency Time 1	-	-1.35	-1.78 -.92	37.80	1	< .001**
Internalizing behaviours						
Time 1	55.37 (.82)	2.31	.95 3.66	11.09	1	.001*
Time 2	53.06 (.83)	-	-	-	-	-
Boy	52.96 (1.03)	-2.51	-5.17 .14	3.44	1	.064
Girl	55.47 (.99)	-	-	-	-	-
Externalizing behaviour Time 1	-	.40	.22 .59	18.67	1	< .001**
Internalizing behaviours						
Time 1	55.28 (.74)	2.06	.73 3.38	9.29	1	.002*
Time 2	53.22 (.82)	--	-	-	-	-
Boy	53.74 (1.05)	-1.01	-3.53 1.51	.62	1	.432
Girl	54.75 (.84)	-	-	-	-	-
Resiliency Time 1	-	-1.86	-2.34 -1.39	59.80	1	< .001**

Resiliency							
Time 1	9.12 (.20)	-.91	-1.26	-.55	25.16	1	.001*
Time 2	10.03 (.22)	-	-		-	-	-
Boy	9.60 (.30)	.05	-.71	.82	.02	1	.889
Girl	9.55 (.24)	-	-		-	-	-
Externalizing behaviour Time 1	-	-.12	-.16	-.08	43.98	1	< .001**
Resiliency							
Time 1	9.17 (.199)	-.87	-1.24	-.51	22.05	1	< .001**
Time 2	10.04 (.22)	-	-		-	-	-
Boy	9.29 (.29)	-.62	-1.35	.11	2.77	1	.096
Girl	9.91 (.24)	-	-		-	-	-
Internalizing behaviour Time 1	-	-.11	-.14	-.08	53.03	1	< .001**

*Note. *$p < .005$, **$p < .001$

Resiliency. This model was comprised of a two-way time x gender interaction, and main effects of time and gender as the predictor variables, and resiliency as the dependent variable. The two-way time x gender interaction was not significant, Wald χ^2 (1) = .38, p = .536. There was a significant difference between Time 1 (M = 9.08, SE = .22) and Time 2 scores (M = 9.99, SE = .23, Wald χ^2 (1) = 25.55, $p < .001$), meaning there was a significant increase in children's resiliency following the implementation of MindUP™. A main effect of gender was not significant (see Table 2).

This model was further analyzed two more times, once controlling for Time 1 externalizing behaviours, and a second time controlling for Time 1 internalizing behaviours. Externalizing behaviours at Time 1 significantly predicted resiliency within this model, Wald χ^2 (1) = 43.98, $p < .001$. Resiliency at Time 1 in the following model was also found to be a

significant covariate, Wald χ^2 (1) = 53.03, $p < .001$.In both models, the same significant findings were shown with results indicating a significant main effect of time and no effect of gender on resiliency (see Table 3).

Grade Effects. None of the grade x time interactions were significant: externalizing behaviours (Wald χ^2 (1) = .63, $p = .427$), internalizing behaviours (Wald χ^2 (1) = 2.70, $p = .100$) and resiliency (Wald χ^2 (1) = 1.37, $p = .242$). Additionally, all main effects of grade were not significant: externalizing behaviours (Wald χ^2 (1) = .26, $p = .613$) internalizing behaviours (Wald χ^2 (1) = .10, $p = .748$), resiliency (Wald χ^2 (1) = 1.94, $p = .164$).

In summary, these findings indicate that there was change in some of children's behaviours following the MindUP™ program. Specifically, there was a significant decrease in internalizing behaviours and increase in resiliency following MindUP™. However, results suggested that there was no change in externalizing behaviours. Findings also indicated that changes in children's behaviours were not moderated by gender or grade.

Research Question 2: Degree of Behavioural Problems as a Potential Moderator for Predicting Change in Resiliency Following MindUP™

A clinical cutoff variable was calculated for both externalizing and internalizing behaviours, consistent with the test developers' recommendations (Reynolds & Kamphaus, 2015). The cutoff variable categorized the sample into those above the cutoff, children displaying at-risk to clinical levels of behaviour (scores of 60 and above), and those below the cutoff that display non-clinical behaviours (scores below 60).

Descriptive statistics were generated using cross-tabulation analysis in regards to children who had scores above the externalizing or internalizing behavioural cutoffs. When examining the entire sample ($N = 159$), 39% of children at pre-test had scores suggesting they display at-

risk/clinical level behaviours ($n = 62$; i.e., above clinical cutoff). Specifically, 8.8% of those

children had scores above the externalizing cutoff, 22% above the internalizing cutoff and 8.2%

of children were found to be above both the externalizing and internalizing behavioural cutoffs.

Chi square tests of independence were performed to examine the relation between the

behavioural cutoffs and the categorical variables, gender and grade (see Table 4). Children above

both behavioural cutoffs were not analyzed separately due to the small size of the subgroup ($n =$

13; 9 males, 4 females). Therefore those above both cutoffs were included in the externalizing

and internalizing cutoff categorical variables analyzed.

There was a significant relationship between Time 1 externalizing cutoff scores and

gender with there being 22 males above the externalizing cutoff in comparison to five females

(χ^2 (1) = 16.57, $p < .000$). Worth noting, four of the five females above the externalizing cutoff

also had scores above the internalizing cutoff. In contrast to the externalizing cutoff, there were

more girls ($n = 29$) above the internalizing cutoff at Time 1 than boys ($n = 19$). However, the

relation between Time 1 internalizing cutoff and gender was not significant (χ^2 (1) = .970, $p =$

.325).

Most of the children with scores above one or both of the behavioural cutoffs were in

junior kindergarten, however there were no significant associations found between grade and the

externalizing (χ^2 (1) = .05, $p = .823$) or internalizing cutoffs (χ^2 (1) = .01, $p = .919$). These

statistics were anticipated due to the nature of the sample including a larger number of junior

kindergarten students overall. The following analyses used the externalizing behaviours cutoff

variable and internalizing behaviours cutoff to assess whether children's level of behavioural

difficulties moderated changes in their resiliency.

Table 4

Summary of Chi-Square Tests of Independence for Children Above the Externalizing and Internalizing Cutoff (Time 1), Gender and Grade

Above Cutoff	Gender/Grade N (%)		Pearson χ^2	p	ϕ
	Male	*Female*			
Externalizing Behaviours[a]	22 (13.8%)	5 (3.1%)	16.57	< .001*	-.323
Internalizing Behaviours[b]	19 (12.3%)	29 (18.8%)	.970	.325	.079
	JK	*SK*			
Externalizing Behaviours[a]	19 (11.9%)	8 (5%)	.05	.823	-.018
Internalizing Behaviours[b]	33 (21.4%)	15 (9.7%)	.01	.919	-.008

Note. [a]$N = 159$. [b]$N = 154$. Statistical significance; *$p < .001$

Externalizing Behaviours Cutoff and Resiliency. This model included time x externalizing cutoff, time and externalizing cutoff as the predictor variables, and resiliency as the dependent variable (see Table 5). The two-way time x externalizing cutoff interaction was not significant, Wald χ^2 (1) = .02, $p = .895$. Two main effects emerged: the main effect of time was statistically significant, Wald χ^2 (1) = 4.59, $p = .032$, as well as the main effect of externalizing cutoff, Wald χ^2 (1) = 29.44, $p < .001$. Therefore, there was a significant increase in children's resiliency following the implementation of MindUP™ regardless of the externalizing cutoff.

This model was analyzed again to control for Time 1 internalizing behaviours. Internalizing behaviours significantly predicted resiliency within this model (Wald χ^2 (1) = 45.22, $p < .001$. In this adjusted model, the findings remained the same with results indicating a significant main effect of time and externalizing cutoff effect on resiliency (see Table 6).

Table 5

Means, Standard Errors, and Generalized Estimating Equations Analysis for Time x Externalizing Cutoff and Time Below and Above the Externalizing Cutoff predicting Resiliency Scores

Variable	*Mean (SE)*	*B*	*95% CI*	Wald χ^2	*df*	*p*
Time 1	8.09 (.20)	-.97	-1.86 -.08	4.59	1	.032
Time 2	9.03 (.28)	-	-	-	-	-
Below Cutoff	10.08 (.21)	3.01	1.92 4.10	29.44	1	< .001
Above Cutoff	7.04 (.36)	-	-	-	-	-

Table 6

Means, Standard Errors, and Generalized Estimating Equations Analysis for Time x Externalizing Cutoff and Time Below and Above the Externalizing Cutoff predicting Resiliency Scores, Controlling for Internalizing Behaviours

Variable	*Mean (SE)*	*B*	*95% CI*	Wald χ^2	*df*	*p*
Time 1	8.38 (.21)	-.98	-1.94 -.03	4.05	1	.044
Time 2	9.30 (.30)	-	-	-	-	-
Below Cutoff	52.51 (1.34)	2.29	1.13 3.45	14.87	1	< .001
Above Cutoff	46.09 (.75)	-	-	-	-	-
Internalizing behaviour Time 1	-	-.10	-.12 -.07	45.22	1	< .001

Internalizing Behaviours Cutoff and Resiliency. This model included a two-way time x internalizing cutoff interaction and main effects of time and internalizing cutoff as the predictor variables, and resiliency as the dependent variable. The two-way time x internalizing cutoff interaction was statistically significant, Wald χ^2 (1) = .13.27, $p < .001$. To further assess the significant interaction of time x internalizing cutoff another model was tested which split cases by internalizing cutoff, to examine change in resiliency over time for those below and above the internalizing cutoff (see Table 7). In this model there was a significant difference between Time 1 ($M = 9.89$, $SE = .28$) and Time 2 scores ($M = 10.32$, $SE = .29$) of children below the internalizing cutoff (Wald χ^2 (1) = 4.62, $p = .032$), as well as the Time 1 ($M = 7.58$, $SE = .25$) and Time 2 scores ($M = 9.52$, $SE = .40$) of children above the internalizing cutoff (Wald χ^2 (1) = 30.26, $p < .001$; see Figure 3). These results suggest there was a significant increase in resiliency for all children following the implementation of MindUP™, with children who display at-risk to clinical levels of internalizing behaviours showing greater increases in resiliency than others. To

Table 7

Means, Standard Errors, and Generalized Estimating Equations Analysis for Time x Internalizing Cutoff and Time Below and Above the Internalizing Cutoff predicting Resiliency Scores

Variable	*Mean (SE)*	*B*	*95% CI*	Wald χ^2	*df*	*p*
Below Cutoff						
Time 1	9.89 (.28)	-.44	-.83 -.04	4.62	1	.032
Time 2	10.32 (.29)	-	-	-	-	-
Above Cutoff						
Time 1	7.58 (.25)	-1.93	-2.62 -1.24	30.26	1	< .001
Time 2	9.52 (.40)	-	-	-	-	-
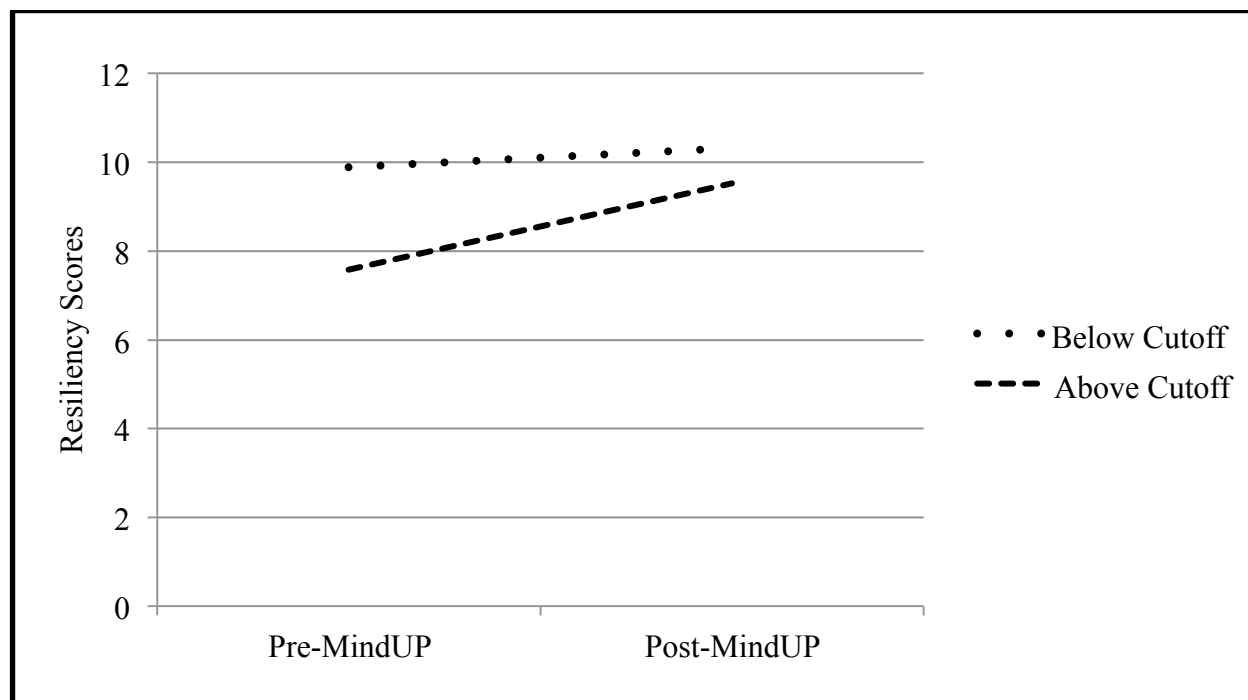
Figure 3. Children overall displayed significant increases in resiliency, with children who were above the clinical cutoff for internalizing behaviour showing greater increases in resiliency than other children.

assess the difference between Time 2 resiliency scores of children above the internalizing cutoff

and below the cutoff, another model was tested splitting cases by time. In this model there was

no significant difference between the Time 2 scores of children above the internalizing cutoff

($M = 9.52$, *SE* = .40) and below the internalizing cutoff ($M = 10.32$, *SE* = .29; Wald χ^2 (1) =

2.39, *p* = .122). This result suggests that children above and below the internalizing cutoff have

the same resiliency scores at post-test.

This model was analyzed again to control for Time 1 externalizing behaviours.

Externalizing behaviours significantly predicted change in resiliency over time for children

below the internalizing cutoff (Wald χ^2 (1) = 23.77, *p* < .001), and above the internalizing cutoff

(Wald χ^2 (1) = 8.39, *p* = 004). In this adjusted model, the significant findings remained the same

with results indicating a significant interaction of time x internalizing cutoff, and a main effect of time for children below and above the internalizing cutoff (see Table 8).

Chi-square tests of independence were conducted again to examine the relation between behavioural cutoff scores at Time 1 and Time 2 (see Table 9). Analysis showed that there was a significant relationship between externalizing cutoff scores at Time 1 (pre-test) and Time 2 (post-test; χ^2 (1) = 105.97, $p < .001$). Five children who had scores above the at-risk/clinical cutoff for externalizing behaviours at pre-test, had post-test scores transitioning them to below the cutoff at post-test. However, out of 127 children who were below the externalizing cutoff at pre-test, two students were found to have scores shifting them above the cutoff at post-test.

There was also a significant relationship found between internalizing cutoff scores at pre-test and post-test (χ^2 (1) = 29.18, $p < .001$). Out of 45 children found to be above the internalizing cutoff at pre-test, almost half ($n = 21$) had post-test scores moving them below this cutoff. Conversely, 12 children had scores that changed from being below the internalizing cutoff at pre-test, to above the cutoff at post-test.

In summary, these findings answer this study's second research question in regards to whether children's degree of internalizing and externalizing symptoms moderate changes in resiliency. Findings showed that the degree of internalizing behaviours moderated change in resiliency, while the degree of externalizing behaviours did not.

Discussion

A child's early years of life are a time of exponential growth in many domains including social and emotional development. Therefore, it is critical to support the social and emotional development of young children through developing and implementing effective strategies. As previously discussed, many SEL programs have already been shown to associate with a variety

Table 8

Means, Standard Errors, and Generalized Estimating Equations Analysis for Time x Internalizing Cutoff and Time Below and Above the Internalizing Cutoff predicting Resiliency Scores, Controlling for Externalizing Behaviours

Variable	Mean (SE)	B	95% CI	Wald χ^2	df	p
Below Cutoff						
Time 1	9.90 (.25)	-.43	-.83 -.03	4.52	1	.034
Time 2	10.33 (.26)	-	-	-	-	-
Externalizing behavour Time 1	-	-.14	-.20 -.08	23.77	1	< .001
Above Cutoff						
Time 1	7.60 (.24)	-1.92	-2.61 -1.23	29.80	1	< .001
Time 2	9.52 (.38)	-	-	-	-	-
Externalizing behavour Time 1	-	-.06	-.10 -.02	8.39	1	.004

Table 9

Summary of Chi-Square Tests of Independence for Children Above the Externalizing and Internalizing Cutoffs at Pre (Time 1) and Post-test (Time 2)

Cutoff Time 1	Cutoff Time 2 N (%)		Pearson χ^2	*p*	ϕ
	Below	Above			
Externalizing[a]			105.97	< .001	.832
Below	125 (81.7%)	2 (1.3%)			
Above	5 (3.3%)	21 (13.7%)			
Internalizing[b]			29.18	< .001	.446
Below	90 (61.2%)	12 (8.2%)			
Above	21 (14.3%)	24 (16.3%)			

Note. [a]$N = 153$. [b]$N = 147$.

of positive outcomes regarding areas such as relationships, personal well being and academic achievement (Durlak et al., 2011). Moreover, recent research has reported these positive outcomes to be maintained over time (Taylor et al., 2017). The present study's objective was to contribute to the SEL program literature by exploring whether there are positive behavioural outcomes for young children following the implementation of MindUP™, as well as whether such outcomes may be moderated by certain characteristics of children. Following the implementation of MindUP™ across several kindergarten classrooms children's behaviours were found to significantly change. Teachers' reports indicated significant increases in resiliency and decreases in children's internalizing behaviours, with no change in externalizing behaviours. In addition, resiliency outcomes were moderated by degree of behavioural symptoms such that children who displayed at-risk/clinical levels of internalizing behaviours showed significantly greater increases in resiliency than those with lower levels of internalizing behaviours. The study at hand provided unique contributions to the literature on the MindUP™ program through

selecting a sample of younger participants, in addition to examining the clinical subgroups within the broader school sample.

Relevance to Previous Literature

  Resiliency Outcomes. First, it should be noted that the current analyses did not involve a control group; therefore no causal conclusions can be drawn from the reported findings in relation to program effects. Expectedly, children's resiliency was found to improve at post-test. This finding is in accordance with past research on SEL, which has shown programs to have a multitude of positive outcomes from, academic achievement to improved problem solving (Durlak et al., 2011). Resiliency is considered a long-term protective factor that helps in preventing the development of subsequent problems as well as reduces emotional distress through adaptation (Taylor et al., 2017). Therefore, improvement in children's resiliency following MindUP™ is an encouraging finding given the associated benefit of an increased ability to handle present adversity as well as prevent negative outcomes later on. Moreover, a longitudinal study found that childhood resiliency was a strong predictor of adaptive functioning as well as internalizing and externalizing behaviours at later ages of 16 up to 32 years (Causadias, Salvatore, & Sroufe, 2012). This finding further suggests the impact of resiliency on children's trajectory of global development and behaviour problems into adolescence and adulthood.

  It should also be noted that the development of resiliency in this study could also have been associated with other factors such as the cognitive, social, and emotional development that naturally occurs in kindergarten years and/or a strong bond with a caring adult (Masten & Reed, 2002). Although the increase in children's resiliency cannot be attributed to the effects of

MindUP™, it is a promising finding suggesting the importance of resiliency to be measured in future MindUP™ research.

      Internalizing and Externalizing Behaviour Outcomes. As partially hypothesized, children displayed a significant decrease in internalizing behaviours following MindUP™, however they showed no change in externalizing behaviours. No change in children's externalizing behaviours was surprising given literature suggests evidence-based SEL programs are associated with decreases in both externalizing and internalizing problems (e.g., anxiety, aggression; Durlak et al., 2011). Studies evaluating MindUP™ with older children have also found outcomes to include declines in both types of behaviours, including depression, negative affect, and peer-rated aggression (Sampaio de Carvalho et al., 2016; Schonert-Reichl et al., 2015). However, Franklin et al., (2017) conducted a recent systematic review and meta-analysis investigating the effectiveness of psychosocial interventions led by teachers, which had differing outcomes from Durlak's meta-analysis and past MindUP™ studies. Their review was based on 24 randomized control studies found in published and grey literature (unpublished or published in non-commercial form) that measured internalizing and externalizing outcomes. Findings were consistent with those from this study, including statistically significant reductions in internalizing behaviours, but not externalizing behaviours. While this this review included studies that were not all SEL based, it suggests a possible relationship with these types of findings and teacher-delivered programming.

      A possible explanation for not seeing positive outcomes with externalizing behaviours might be related to the quality of implementation. One of the most important factors influencing program outcomes is the degree of implementation achieved; typically better implementation results in stronger outcomes and poor implementation can consequently result in not achieving

desired outcomes (Durlak & DuPre, 2008). In relation to the SEL literature, the meta-analysis by

Durlak et al. (2011) found implementation problems to be a moderator of SEL outcomes, such

that programs reported to have experienced problems had outcomes with significantly smaller

changes, and/or fewer areas of significant change compared to programs that did not experience

problems. Furthermore, programs free of implementation problems had effect sizes

approximately two times higher than the programs that reported problems. Our study did not

include tracking implementation quality, so it is not possible to disentangle program effects from

implementation consideration. Although there was no formal measure used, there were a number

of specific challenges related to implementation that were noted while the study was being

conducted. For example, MindUP™ manuals were not received by teachers prior to their formal

training, the online portal was removed unexpectedly after approximately one month of

implementation and one school had a delayed program start, thus giving them less time to deliver

the program. Moreover, teachers were expected to deliver all 15 MindUP™ lessons to their

classroom, however for those that started the program much later, they would have been

challenged in completing all lessons to the same extent as other classrooms.

There is also the possibility that mindfulness-based programs do not effectively target

externalizing behaviours. To review, mindful awareness is simply choosing to be present, non-

judgmentally in the moment. Increasing one's mindful awareness by trying to be in the moment

would likely reduce one's focus on past and future worries that are typically related to

internalizing behaviours. However, there does not seem to be a direct connection between

mindful awareness reducing externalizing behaviours such as aggression. Maynard, Solis, Miller,

and Brendel (2017) conducted a systematic review including 61 studies of which 35 were

included in a meta-analysis. The included studies evaluated school interventions that involved a

mindfulness component or strategy, with a total of 6207 student participants. Results of the meta-analysis indicated small significant effects for cognitive and socio-emotional (e.g., internalizing behaviours) outcomes, and non-significant small effects for behavioural (e.g., externalizing behaviours) and academic outcomes. Despite the evidence and hypotheses that behavioural and academic outcomes are impacted by mindfulness interventions through improved cognitive and social-emotional outcomes (Grabovac, Lau, & Willett, 2011; Shapiro, Carlson, Astin, & Freedman, 2006; Zelazo & Lyons, 2012) results from the Maynard et al. meta-analysis did not support such a relationship. The results of this meta-analysis may suggest that mindfulness-based interventions are not able to sufficiently effect cognitive and social-emotional outcomes to mediate behavioural or academic outcomes. Or simply, some mindfulness-based interventions may not effectively target externalizing behaviours in comparison to internalizing behaviours, possibly explaining the finding of decreased internalizing behaviours and no change in externalizing behaviours in the current study.

It is important to note that there are already programs available that target externalizing behaviours and are known to be effective. Positive Behavioural Interventions and Supports (PBIS) is a widely implemented program that is commonly used in schools (called School Wide Positive Behavioual Supports) to support more positive behaviour in students by focusing on extrinsic rules and positive reinforcement (Sugai & Horner, 2002). A study by Bradshaw, Mitchell and Leaf (2010) used data from a 5-year longitudinal randomized controlled effectiveness trial of school wide PBIS used across 37 elementary schools with over 12 thousand children (K-6). Findings indicated that the school wide PBIS program was effective in reducing student suspensions and office discipline referrals (e.g., fighting, disruption) that are typically related to externalizing behaviours. Another study was conducted using the same data set on

school wide PBIS and found that PBIS was especially effective with children considered at-risk

or high-risk based on behaviours reported by the school (Bradshaw, Waasdorp, & Leaf, 2014).

Interestingly, a study compared the effectiveness of PBIS alone, SEL alone, and the two

programs combined in addressing 191 grade four and fifth graders' mental health (Cook, Frye,

Slemrod, Lyon, & Renshaw, 2015). Both PBIS and SEL programs were found to significantly

reduce externalizing behaviours when delivered as stand alone programs, however children in

the combined intervention group displayed significantly greater improvements in overall mental

health and reductions in externalizing behaviors. The success of the behaviourally driven

intervention, PBIS, may suggest that more direct labeling, feedback and reinforcement is

required to reduce externalizing behaviours, rather than redirecting children to use mindful

breathing strategies.

Although mindfulness-based programs have become popular in recent years, the

popularity and increase in implementation appears to be outpacing the research (Burke, 2010;

Greenberg & Harris, 2012; Maynard et al., 2017). Enthusiasm for using mindfulness

interventions may also be displacing effective evidence-based interventions (e.g., PBIS) with

programs that have not yet been shown to have strong empirical evidence. For example, the

certification of MindUP™ by CASEL was quite premature, and appeared inconsistent with

CASEL's own criteria, given the limited empirical evidence to date. This high level of popularity

in the face of limited research, further highlights the importance of this study and the need for

further research to evaluate MindUP™.

Gender and Grade. There was a main effect of gender for externalizing behaviours.

Boys were shown to have significantly higher externalizing behaviours than girls both before and

after MindUP™. Finding boys to have reportedly higher externalizing behaviours is a common

finding in the literature, especially based on teacher reports (Berg-Nielsen, Solheim, Belsky, & Wichstrom, 2012; Chen, 2010; Miner & Clarke-Stewart, 2008). One study compared reports of teachers, parents, and children (age 9-12), and found that teachers had the most pronounced gendered ratings regarding externalizing behaviours, followed by moderate reports of gender differences by parents and small differences by the youth themselves (Collishaw, Goodman, Ford, Rabe-Hesketh, & Pickles, 2009). This pattern of reporting may suggest that a main effect is not necessarily associated with the program, but due to reporter bias. Hence, the main effect of gender in this study should be interpreted with caution. Additionally, the combination of a main effect of gender and lack of change in externalizing behaviours could also suggest that males are not receiving the same benefits from MindUP™, as girls (who displayed higher internalizing behaviours). This idea is also discussed in relation to findings from other studies in Franklin et al.'s (2017) review.

The exploration of gender and grade as potential moderators resulted in no significant findings aside from the main effect of gender with externalizing behaviours. Findings amongst the literature remain unclear regarding moderation of SEL programs by gender or grade, however this may partially be due to lack of studies investigating these factors. In contrast, the review by Franklin et al. (2017) discussed earlier did find gender to moderate program outcomes where females showed more positive outcomes related to internalizing behaviours than males. Though, due to the inclusion of a variety of psychosocial programs in their review, it is difficult to determine if this finding specifically relates to SEL programs or the review's common factor of teacher delivery. Therefore, exploratory analysis of gender effects specifically in regards to effects on SEL program outcomes in young children remains an important area to investigate. In regards to children's grade as a potential moderator, no significant findings were anticipated after

having to systematically remove the SK data from those who were 6 years old at pre-test because of assessment limitations. Although grade was not successfully assessed in this study, it should still be explored in future research on MindUP™ as well as in other SEL program research to determine age appropriate and effective programming across rapidly changing developmental stages. Specifically, findings would clarify if program outcomes are significantly influenced based on ages of children receiving one version of MindUP™ (e.g., K-2) or on a larger scale between children from kindergarten to grade eight receiving different versions (K-2, 3-5, 6-8).

Clinical Subgroup. Unexpectedly, descriptive statistics indicated that 39% of children at pre-test were displaying at-risk/clinical levels of behaviour (i.e., above a cutoff). Thirty-nine percent is a large portion of clinical behaviours within a universal school population, though there are a few possible explanations for this statistic. Schools selected to participate in this study were chosen based on being categorized as having higher needs (e.g., SES, parent education). Past research has shown factors such as SES to be associated with self-regulation difficulties and negative mental health outcomes (Alavi, Roberts, & DeGrace, 2017; Bøe, Serlachius, Sivertsen, Petrie, & Hysing, 2017; Morrison et al., 2010). Therefore, a larger than expected percentage of children with behavioural issues may be explained by the risk-associated demographics specific to these schools. Furthermore, this finding may suggest that kindergarten classrooms from high needs schools are in need of more extensive support and should be a target for SEL programming such as MindUP™.

Degree of Behavioural Problems as a Moderator. The hypothesis for the second research question was also partially supported with children's degree of internalizing behaviours, but not externalizing behaviours, found to significantly moderate increases in resiliency. Specifically, those displaying at risk/clinical internalizing behaviour at pre-test were found to

display significantly greater increases in resiliency following MindUP™ than those showing

very low to average levels of internalizing behaviours. Excitingly, the resiliency scores of

children above the cutoff improved to the extent that they caught up to the scores of children

below the cutoff following MindUP™.

When reviewing the literature, few studies have specifically investigated clinical

subgroups within samples when evaluating SEL program outcomes. However, among the

research examining mindfulness-based interventions, there has been a common theme that those

who have the most to gain, will typically gain the most (Flook et al., 2010; Zoogman et al.,

2015). For example, a randomized controlled study evaluated the effects of a 12-week

mindfulness-based Kindness Curriculum in a school setting on 68 children with a mean age of

4.7 years (Flook, Goldberg, Pinger, & Davidson, 2015). They found that young children, who

were lower in executive functioning and social competence at the beginning, demonstrated

greater gains in social competence after the program. While the Kindness Curriculum is not a

CASEL-Select SEL program, its curriculum has many parallels with MindUP™ including a

focus on the development of emotion regulation, attention as well as other kindness practices

including empathy, gratitude, and sharing. However, the Kindness Curriculum differs from

MindUP™ as program delivery was completed by outside professionals who came into the

classrooms instead of teachers. Thus, further examination about the moderating effect of baseline

scores should be included in future program evaluations. For it is not only important to see gains

in all children, but especially for those who are further behind and need larger improvements to

be on the same educational playing field as their peers.

Transitions Between Behavioural Cutoffs. Despite no statistically significant change

occurring in regards to children's externalizing behaviours at post-test, some children still

displayed clinically meaningful change. A small group of children ($n = 5$) who displayed at-risk/clinical externalizing behaviours at pre-test were found to display average to very low externalizing behaviours at post-test. Similarly, a slightly larger number of children ($n = 21$) made this same transition in regards to internalizing behaviours following MindUP™. While children's transition from above to below a behavioural cutoff was not fully reflected in statistically significant change, such as with externalizing behaviours; the transition is enough to clinically suggest children's trajectory may now be less associated with undesirable outcomes. Although this clinically meaningful change in children's behaviours cannot be credited to the MindUP™ curriculum, it is still an exciting preliminary finding that should be explored further in future research evaluating MindUP™.

In contrast to the group of children above, there was also a small group of children ($n = 14$) who showed negative clinical change, transitioning from being below a behavioural cutoff at pre-test, to above at post-test. This outcome could be related to the program, or a number of environmental factors related to home such as deteriorating living conditions, experiences of trauma or simply the natural progression/surfacing of a more severe mental health condition.

Implications

Although, cause and effect conclusions cannot be drawn from this study, findings still suggest implications for future research and practices. As mentioned above, internalizing, but not externalizing behaviours were found to decrease across time. Moreover, degree of internalizing but not externalizing behaviours was found to moderate resiliency outcomes. This disparity between internalizing and externalizing behaviours may suggest a few possible issues. First, children's lack of change in externalizing behaviours may suggest developmental difficulties for this age group in improving these behaviours and/or issues with the curriculum towards reducing

these behaviours for younger age groups. Second, implementation problems experienced in the study may diminish the degree to which externalizing behaviours were affected. The large percentage of children reported to be experiencing clinical levels of behavioural issues in this study may also indicate a need for more development and support surrounding self-regulation and social-emotional learning for children in their early years.

Most importantly, the present study's main findings which included reductions in internalizing behaviours and increases in resiliency, provides a foundation for future research on MindUP™. After identifying preliminary outcomes that were mixed, this study creates room for more rigorous and meaningful research with kindergarten students to further understand or dismiss these mixed findings. As noted earlier, mindfulness-based programs, including MindUP™, have gained considerable momentum and excitement in their use with children and youth. Those excited include teachers, who in general report very positive feedback for the MindUP™ program, including those involved in this study. The mixed findings from this study suggest that rigorous evaluation is needed, or especially needed when there is increasing popularity for any program. Moreover, rigorous evaluations are needed to ensure that programs like MindUP™, despite their popularity, are effective and not causing harm to the children and youth we are trying to support. Therefore, the need to continue examining both positive and possible negative effects remains important for both the literature and wellbeing of those who are exposed to such programs. If the positive findings from this study are replicated in future research involving control groups, then the implications of MindUP™ supporting young children's well being is promising.

Limitations

The findings of the present study should be considered in the context of certain limitations. The largest limitation of this study is the absence of control or comparison groups, not allowing pre-post changes to be attributed to program effects. This decision was made in the context of this being a pilot year where the major focus was on feasibility and identifying the need for potential revisions to the program for the particular school board context. Therefore, all findings should be interpreted with the consideration of potential confounding variables, such as developmental growth, maturation, and reporter bias. In addition, MindUP™ is a teacher-led program, so the use of teacher reports violates the assumption of mutually independent observations, which can introduce bias when completing reports on children's behaviour. Teachers being both the only source of information while also in charge of implementing the program may also have resulted in altered reporting because of teachers' personal investment in delivering the curriculum. Moreover, findings may have been influenced by a small number of teachers who completed pre-tests later then others; exposing some classrooms to the curriculum for less time than other classrooms who started on time at pre-test.

Other limitations of the study included not being able to thoroughly explore certain relationships due to limits of the sample. For example, further investigation of the children who displayed both clinical internalizing and externalizing behaviours would have been interesting to explore as they displayed the worst outcomes (Fanti & Henrich, 2010); however, the number of children with these outcomes was too small to conduct analyses. The investigation of relationships between grade and externalizing, internalizing and resiliency behaviours was also limited due to the systematic removal of many SK children who were six years old when the pre-tests were completed. Finally, implementation quality is of great importance for any study

investigating a particular program. This study did not have a formal measure of implementation

quality, which was a limitation when interpreting outcomes. Additionally, the intervention itself

was impacted, as teachers did not receive their materials (i.e.. manual, chime) until after the

training and only had access to the online portal for approximately one month (at pre-test) due to

The Hawn Foundation experiencing technical difficulties.

Future Directions

Although the findings of the present study are encouraging in the pilot phase, additional

inquiry is still required to further clarify these findings in relation to MindUP™ effects.

Specifically, future studies should use more rigorous research designs including control and

comparison groups, so as to best control for confounding variables and draw more conclusive

findings. The incorporation of additional sources of information such as parent reports would

also be an asset in future studies due to the limitations of reporting by teachers who are also

delivering the program. Continued examination of MindUP™ and other SEL programs in

kindergarten classrooms is also recommended; especially considering the positive impact

improved self-regulation has on a child's developmental trajectory.

Although moderation of gender and grade was not found in this study, further

investigation regarding these variables should also continue. Clarification is still needed within

the literature regarding the relationship between gender and outcomes such as internalizing and

externalizing behaviours. As noted earlier, resiliency's association with a multitude of positive

outcomes suggests that it should be considered an essential outcome to measure if SEL programs

ultimate objectives are to improve children's abilities while preventing negative outcomes.

Therefore, resiliency should not only be an outcome measure used in future research on

MindUP™, but should also be included in the evaluations of SEL programs.

Follow-up reports of children who have received MindUP™ once, or may receive the program subsequent times would also be beneficial. Thorough follow-up procedures would provide a better idea of a child's progress in developing social-emotional skills, as well as other positive outcomes that are maintained and/or are newly acquired. Additional evaluation of clinical subgroups in samples with younger children is also needed to provide further insight on this population, as well as better understand how to support the universal population in addition to those most at-risk for negative outcomes. While MindUP™ has been supported as a beneficial program in older children, more comprehensive studies are needed to properly evaluate MindUP™'s use in alternative age groups and with children from diverse backgrounds.

Summary

The current study presented findings that contribute to the growing body of research examining mindfulness-based SEL programs, and specifically the MindUP™ program through the inclusion of a younger sample and investigation of moderating demographic factors. The present study offered further insight into clinical characteristics of high-needs kindergarten classrooms, as well as reported changes in children's resiliency and internalizing and externalizing behaviours following the implementation of MindUP™ in kindergarten classrooms. Ultimately, this study is a starting point towards identifying if MindUP™ is a program that can benefit all young children in giving them the tools to overcome life's challenges, develop and maintain healthy relationships, and support their overall wellbeing.

References

Alavi, N., Roberts, N., & DeGrace, E. (2017). Comparison of parental socio-demographic factors

in children and adolescents presenting with internalizing and externalizing disorders.

International Journal of Adolescent Medicine and Health, *29*(2).

Arias, A. J., Steinberg, K., Banga, A., & Trestman, R. L. (2006). Systematic review of the

efficacy of meditation techniques as treatments for medical illness. *Journal of Alternative*

and Complementary Medicine), *12*(8), 817–832.

Ballinger, G. A. (2004). Using generalized estimating equations for longitudinal data analysis.

Organizational Research Methods, *7*(2), 127–150.

Bandura, A. (1977). *Social learning theory*. Englewood Cliffs, NJ: Prentice Hall.

Berg-Nielsen, T. S., Solheim, E., Belsky, J., & Wichstrom, L. (2012). Preschoolers' psychosocial

problems: In the eyes of the beholder? Adding teacher characteristics as determinants of

discrepant parent-teacher reports. *Child Psychiatry and Human Development*, *43*(3), 393–

413.

Biegel, G. M., Brown, K. W., Shapiro, S. L., & Schubert, C. M. (2009). Mindfulness-based

stress reduction for the treatment of adolescent psychiatric outpatients: A randomized

clinical trial. *Journal of Consulting and Clinical Psychology*, *77*(5), 855–866.

Bloom, L. (1998). Language acquisition in its developmental context. In W. Damon (Ed.),

Handbook of child psychology: Volume 2: Cognition, perception, and language (pp. 309-

370) John Wiley & Sons Inc, Hoboken, NJ.

Bøe, T., Serlachius, A. S., Sivertsen, B., Petrie, K. J., & Hysing, M. (2017). Cumulative effects

of negative life events and family stress on children's mental health: The Bergen Child

Study. *Social Psychiatry and Psychiatric Epidemiology*, *53*(1), 1–9.

Bradshaw, C. P., Mitchell, M. M., & Leaf, P. J. (2010). Examining the effects of schoolwide

positive behavioral interventions and supports on student outcomes. *Journal of Positive

Behavior Interventions*, *12*(3), 133–148.

Bradshaw, C. P., Waasdorp, T. E., & Leaf, P. J. (2014). Examining variation in the impact of

school-wide positive behavioral interventions and supports: Findings from a randomized

controlled effectiveness trial. *Journal of Educational Psychology*, *107*(2), 546–557.

Bronfenbrenner, U. (1979). *The ecology of human development: Experiments by nature and

design*. Cambridge, MA: Harvard University.

Burke, C. A. (2010). Mindfulness-based approaches with children and adolescents: A

preliminary review of current research in an emergent field. *Journal of Child and Family

Studies*, *19*, 133–144.

Calkins, S. (2007). The emergence of self-regulation: Biological and behavioral control

mechanisms supporting toddler competencies. In C. Brownell, & C. Kopp (Eds.),

Socioemotional development in the toddler years: Transitions & transformations (pp. 261–

284). New York, NY: Guilford Press.

Causadias, J. M., Salvatore, J. E., & Sroufe, L. A. (2012). Early patterns of self-regulation as risk

and promotive factors in development: A longitudinal study from childhood to adulthood in

a high-risk sample. *International Journal of Behavioral Development*, *36*(4), 293–302.

Chafouleas, S. M., & Bray, M. A. (2004). Introducing positive psychology: Finding a place

within school psychology. *Psychology in the Schools*, *41*(1), 1–5.

Chandra, S., & Leong, F. T. L. (2016). A diversified portfolio model of adaptability. *American

Psychologist*, *71*(9), 847–862.

Chen, J. J. (2010). Gender differences in externalising problems among preschool children:

Implications for early childhood educators. *Early Child Development and Care*, *180*(4), 463–474.

Collaborative for Academic, Social and Emotional Learning (2013). *The 2013 CASEL guide: Effective social and emotional learning programs-preschool and elementary school edition*. Chicago, IL: Author.

Collishaw, S., Goodman, R., Ford, T., Rabe-Hesketh, S., & Pickles, A. (2009). How far are associations between child, family and community factors and child psychopathology informant-specific and informant-general? *Journal of Child Psychology and Psychiatry*, *50*(5), 571–580.

Cook, C. R., Frye, M., Slemrod, T., Lyon, A. R., & Renshaw, T. L. (2015). An integrated approach to universal prevention: Independent and combined effects of PBIS and SEL on youths' mental health. *School Psychology Quarterly*, *30*(2), 166–183.

Denham, S. A., Bassett, H. H., Thayer, S. K., Mincic, M. S., Sirotkin, Y. S., & Zinsser, K. (2012). Observing preschoolers' social-emotional behavior: Structure, foundations, and prediction of early school success. *The Journal of Genetic Psychology*, *173*(3), 246–278.

Diamond, A. (2002). Normal development of prefrontal cortex from birth to young adulthood: Cognitive functions, anatomy, and biochemistry. In D. T. Struss & R. T. Knight (Eds.), *Principles of Frontal Lobe Function* (pp. 466–503), New York: Oxford University Press.

Diamond, A. (2012). Activities and programs that improve children's executive functions. *Current Directions in Psychological Science*, *21*(5), 335–341.

Diamond, A., Barnett, W. S., Thomas, J., & Munro, S. (2007). Preschool program improves cognitive control. *Science*, *318*(5855), 1387–8.

Diamond, A., & Lee, K. (2011). Interventions shown to aid executive function development in

children 4 to 12 years old. *Science*, *333*(6045), 959–964.

Durlak, J. A., & Dupre, E. P. (2008). Implementation matters : A review of research on the

influence of implementation on program outcomes and the factors affecting

implementation. *American Journal of Community Psychology*, *41*, 327–350.

Durlak, J. A., Weissberg, R. P., Dymnicki, A. B., & Taylor, R. D. (2011). The impact of

enhancing students ' social and emotional learning: A meta-analysis of school-based

universal interventions. *Child Development*, *82*(1), 405–432.

Eisenberg, N., Spinrad, T. L., Fabes, R. A., Reiser, M., Cumberland, A., Shepard, S. A., …

Thompson, M. (2004). The relations of effortful control and impulsivity to children' s

resiliency and adjustment. *Child Development*, *75*(1), 25–46.

Fanti, K. A., & Henrich, C. C. (2010). Trajectories of pure and co-occurring internalizing and

externalizing problems from age 2 to age 12: Findings from the national institute of child

health and human development study of early child care. *Developmental Psychology*, *46*(5),

1159–1175.

Fantuzzo, J., Perry, M. A., & McDermott, P. (2004). Preschool approaches to learning and their

relationship to other relevant classroom competencies for low-income children. *School*

Psychology Quarterly, *19*(3), 212–230.

Finucane, A., & Mercer, S. W. (2006). An exploratory mixed methods study of the acceptability

and effectiveness of mindfulness-based cognitive therapy for patients with active depression

and anxiety in primary care. *BMC Psychiatry*, *6*(1), 1–14.

Flook, L., Goldberg, S. B., Pinger, L., & Davidson, R. J. (2015). Promoting prosocial behavior

and self-regulatory skills in preschool children through a mindfulness-based kindness

curriculum. *Developmental Psychology, 51*(1), 44–51.

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

Folke, C., Carpenter, S. R., Walker, B., Scheffer, M., Chappin, T., & Rockström 1, J. (2010). Resilience thinking: Integrating resilience adaptability and transformability. *Ecology and Society*, *15*(4), 20–28.

Franklin, C., Kim, J. S., Beretvas, T. S., Zhang, A., Guz, S., Park, S., … Maynard, B. R. (2017). The effectiveness of psychosocial interventions delivered by teachers in schools: A systematic review and meta-analysis. *Clinical Child and Family Psychology Review*, *20*(3), 333–350.

Goodman, S. H., Gravitt, G. W., & Kaslow, N. J. (1995). Social problem solving: A moderator of the relation between negative life stress and depression symptoms in children. *Journal of Abnormal Child Psychology*, *23*(4), 473–485.

Grabovac, A. D., Lau, M. A., & Willett, B. R. (2011). Mechanisms of mindfulness: A Buddhist psychological model. *Mindfulness*, *2*(3), 154–166.

Graziano, P. A., & Hart, K. (2016). Beyond behavior modification: Benefits of social-emotional/self-regulation training for preschoolers with behavior problems. *Journal of School Psychology*, *58*, 91–111.

Greenberg, M. T. (2014, May). Cultivating compassion. Paper presented at the Dalai Lama Center for Peace and Education's Heart-Mind Conference, Vancouver, British Columbia, Canada.

Greenberg, M. T., & Harris, A. R. (2012). Nurturing mindfulness in children and youth: Current state of research. *Child Development Perspectives*, *6*(2), 161–166.

Greenberg, M. T., Weissberg, R. P., O'Brien, M. U., Zins, J. E., Fredericks, L., Resnik, H., …

   Elias, M. J. (2003). Enhancing school-based prevention and youth development through

   coordinated social, emotional, and academic learning. *American Psychologist*, *58*(6–7),

   466–474.

Gueldner, B. A., & Feuerborn, L. L. (2016). Integrating mindfulness-based practices into social

   and emotional learning: A case application. *Mindfulness*, *7*(1), 164–175.

Hanley, J. A., Negassa, A., Edwardes, M. D., & Forrester, J. E. (2003). Statistical analysis of

   correlated data using generalized estimating equations: An orientation. *American Journal of*

   Epidemiology, *157*(4), 364–375.

Hill, A. L., Degnan, K. a, Calkins, S. D., & Keane, S. P. (2006). Profiles of externalizing

   behavior problems for boys and girls across preschool: The roles of emotion regulation and

   inattention. *Developmental Psychology*, *42*(5), 913–28.

Huebner, E. S., Gilman, R., & Furlong, M. J. (2009). A conceptual model for research in positive

   psychology in children and youth. In E. S. Huebner, R. Gilman, & M. J. Furlong (Eds.),

   Handbook of positive psychology in schools (pp. 3–8). New York: Routledge/Taylor &

   Francis.

Kabat-Zinn, J. (2003). Mindfulness-based interventions in context: Past, present, and future.

   Clinical Psychology: Science and Practice, 10, 144–156.

Kielty, M., Gilligan, T., Staton, R., & Curtis, N. (2017). Cultivating mindfulness with third grade

   students via classroom-based interventions. *Contemporary School Psychology*, *21*, 317–

   322.

Kochanska, G., Murray, K., & Harlan, H. (2000). Effortful control in early childhood continuity

   and change, antecedents, and implications for social development. *Developmental*

Psychology, *36*(2), 1–12.

Lawlor, M. S. (2016). Mindfulness and social emotional learning (SEL): A conceptual

framework. In K. A. Schonert-Reichl & R. W. Roeser (Eds.), *Handbook of mindfulness in*

education: Integrating theory and research into practice (pp. 65–80). New York, NY:

Springer-Verlag.

Letcher, P., Smart, D., Sanson, A., & Toumbourou, J. W. (2009). Psychosocial precursors and

correlates of differing internalizing trajectories from 3 to 15 years. *Social Development*,

18(3), 618–646.

Lyubomirsky, S., King, L., & Diener, E. (2005). The benefits of frequent positive affect: Does

happiness lead to success? *Psychological Bulletin*, *131*(6), 803–855.

Masten, A. S., & Reed, M. J. (2002). Resilience in development. In C. R. Snyder & S. J. Lopez

(Eds.), *Handbook of positive psychology* (pp. 74-88). New York Oxford University Press.

Maynard, B. R., Solis, M. R., Miller, V. L., & Brendel, K. E. (2017). Mindfulness-based

interventions for improving cognition, academic achievement, behavior and socio-

emotional functioning of primary and secondary students. *Campbell Systematic Reviews,*

(5).

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 and Adolescent Psychology*, *38*(6), 858–871.

Meiklejohn, J., Phillips, C., Freedman, M. L., Griffin, M. L., Biegel, G., Roach, A., … Saltzman,

A. (2012). Integrating mindfulness training into K-12 education: Fostering the resilience of

teachers and students. *Mindfulness*, *3*(4), 291–307.

Miner, J. L., & Clarke-Stewart, K. A. (2008). Trajectories of externalizing behavior from age 2

to age 9: Relations with gender, temperament, ethnicity, parenting, and rater. *Developmental Psychology*, *44*(3), 771–786.

Morrison, F. J., Ponitz, C. C., & McClelland, M. (2010). Self-regulation and academic achievement in the transition to school. In S. D. Calkins, & M. A. Bell (Eds.), *Child development at the intersection of emotion and cognition* (pp. 203-224), Washington, DC: American Psychological Association.

Olson, S. L., Choe, D. E., & Sameroff, A. J. (2017). Trajectories of child externalizing problems between ages 3 and 10 years: Contributions of children's early effortful control, theory of mind, and parenting experiences. *Development and Psychopathology*, *29*(4), 1333–1351.

Payton, J., Weissberg, R. P., Durlak, J. A., Dymnicki, A. B., Taylor, R. D., Schellinger, K. B., & Pachan, M. (2008). *The positive impact of social and emotional learning for kindergarten to eighth-grade students: Findings from three scientific reviews*. *Collborative for Academic, Social and Emotional Learning (CASEL)*. Chicago.

Phillips, B. M., & Lonigan, C. J. (2010). Child and informant influences on behavioral ratings of preschool children. *Psychology in the Schools*, *47*(4), 274–283.

Reynolds, C. R., & Kamphaus, R. W. (2015). *Behaviour assessment system for children – Third edition manual.* Circle Pines, MN: American Guidance Service.

Roberts, W., Strayer, J., & Denham, S. (2003). Empathy, anger, guilt: Emotions and prosocial behaviour. *Canadian Journal of Behavioral Science*, *46*(250), 465–474.

Roeser, R. W., & Peck, S. C. (2009). An education in awareness: Self, motivation, and self-regulated learning in contemplative perspective. *Educational Psychology*, *44*(2), 119–136.

Roeser, R. W., & Zelazo, P. D. (2012). Contemplative science, education and child development: Introduction to the special section. *Child Development Perspectives*, *6*(2), 143–145.

Saarni, C., Campos, J. J., Camras, L. A., & Witherington, D. (2006). Emotional development:

Action, communication, and understanding. In N. Eisenberg, W. Damon & R.M. Lerner

(Eds.), *Handbook on Child Psychology: Social, emotional, and personality development,*

3(6), (pp. 226–299). Hoboken, NJ: John Wiley & Sons Inc.

Sampaio de Carvalho, J., Pinto, A. M., & Marôco, J. (2016). Results of a mindfulness-based

social-emotional learning program on portuguese elementary students and teachers: A

quasi-experimental study. *Mindfulness*, *8*(2), 337-350.

Schonert-Reichl, K. a, Oberle, E., Lawlor, M. S., Abbott, D., Thomson, K., Oberlander, T. F., &

Diamond, A. (2015). Enhancing cognitive and social-emotional development through a

simple-to-administer mindfulness-based school program for elementary school children: A

randomized controlled trial. *Developmental Psychology*, *51*(1), 52–66.

Seifer, R., Gouley, K., Miller, A. L., & Zakriski, A. (2004). Implementation of the PATHS

curriculum in an urban elementary school. *Early Education & Development*, *15*(4), 471–

486.

Seligman, M. E. P., & Csikszentmihalyi, M. (2000). Positive psychology: An introduction.

American Psychologist, *55*(1), 5–14.

Shapiro, S. L., Carlson, L. E., Astin, J. A., & Freedman, B. (2006). Mechanisms of mindfulness.

Journal of Clinical Psychology, *62*(3), 373–386.

Sklad, M., Diekstra, R., Ritter, M. De, Ben, J., & Gravesteijn, C. (2012). Effectiveness of school-

based universal social, emotional, and behavioral programs: Do they enhance students'

development in the area of skill, behavior, and adjustment? ´. *Psychology in Schools*, *49*(9),

892–909.

Sugai, G., & Horner, R. (2002). The evolution of discipline practices: School-wide positive

behavior supports. *Child & Family Behavior Therapy*, *24*(1–2), 23–50.

Taylor, C. A., Liang, B., Tracy, A. J., Williams, L. M., & Seigle, P. S. (2002). Gender

differences in middle school adjustment, physical fighting and social skills: Evaluation of a

social competency program. *Journal of Primary Prevention*, *23*(2), 259–272.

Taylor, R. D., Oberle, E., Durlak, J. A., & Weissberg, R. P. (2017). Promoting positive youth

development through school-based social and emotional learning interventions: A meta-

analysis of follow-up effects. *Child Development*, *88*(4), 1156–1171.

The Hawn Foundation. (2011). *The MindUP curriculum: Brain-focused strategies for learning

and living*. New York: Scholastic.

Welkowitz, J., Cohen, B. H., & Lea, B. (2012). *Introductory statistics for the behavioural

sciences* (7th ed.). Hoboken, NJ: John Wiley & Sons

Wilson, S. J., Lipsey, M. W., & Derzon, J. H. (2003). The effects of school-based intervention

programs on aggressive behavior: A meta-analysis. *Journal of Consulting and Clinical

Psychology*, *71*(1), 136–149.

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.

Zenner, C., Herrnleben-Kurz, S., & Walach, H. (2014). Mindfulness-based interventions in

schools: A systematic review and meta-analysis. *Frontiers in Psychology*, *5*, 1–20.

Zoogman, S., Goldberg, S. B., Hoyt, W. T., & Miller, L. (2015). Mindfulness interventions with

youth: A meta-analysis. *Mindfulness*, *6*(2), 290–302.

Appendix A

Parent Demographic Form

My child's name is (print):_____

My child is a BOY or GIRL (circle one)

Her/his birth month is (print) : _____

Her/his birth year is (print): _____

My child's ethnic/cultural background is (check all that apply):
___ White
___ Aboriginal/First Nations/Métis/Inuit
___ Chinese
___ South Asian
___ Black
___ Filipino
___ Latin American
___ Southeast Asian
___ Arab
___ West Asian
___ Japanese
___ Korean
___ Pacific Islander
__Other (PLEASE SPECIFY) _____

Appendix B

Consent Form

Dear Parent,

I am a professor in the Faculty of Education at Western University who is conducting a research project titled "Implementing and Evaluating a Mindfulness-Informed, Evidence-Based Social and Emotional Learning Program with Elementary School Students Within A Trauma-Informed Framework". I am writing to invite your child to be part of it.

The purpose of this study is to examine whether and how the implementation of the MindUP™™ Program can enhance young children's social skills while learning in classrooms. There is very little research available that describes how this program may support children to learn how to manage their emotions and behaviour. I would appreciate if you would review this letter of information and consider signing and returning the consent portion of the form on page 4, to me.

My study will take place this school year [insert school year here]. During the Fall/Winter and Spring your child's teacher and early childhood educator will be asked to access the Internet and sign into a program called "Qualtrics Survey Tool", which is housed on a secure server at Western University. Once there, your child's teacher and early childhood educator will complete an electronic questionnaire that asks them about your child's behavior while learning. The electronic questionnaire they complete will not contain any personal information (e.g., name, birthdate) that could be used to identify your child. Also, no information about your child will distributed over the Internet. The information gathered for this study will provide insight into understand whether and how the MindUP™ program is supporting young children to develop social and emotional skills (e.g., managing emotions, helping/sharing with others) in the classroom.

Your child's participation in this project is voluntary and you may withdraw your child's participation at any time without any negative consequences. Your identity and that of your child will be kept confidential in any reports or presentations that result from the study. If you decide to withdraw your child's participation from the study, the information that was collected prior to you leaving the study will still be used. However, no new information will be collected without your permission. You have the right to not answer individual questions about your child. You do not waive any legal rights by signing this consent form.

Your child's name and birthdate will be kept confidential in any reports or presentations that result from this study. If data are collected during the project which may be required to report by law, I have a duty to report this information.

If you would like more information about this project, or your role in it, please contact my project manager, Lynda Hutchinson by phone or by email. Concerns about your participation in this study can be forwarded to Western University's Office of Research Ethics.

Please complete the attached form on Page 4 and have your child return it to his/her teacher even if you do not wish for your child to participate in this study.

Sincerely,
Claire Crooks

I have read and understand the attached letter regarding the study entitled "Implementing and Evaluating a Mindfulness-Informed, Evidence-Based Social and Emotional Learning Program with Elementary School Students Within A Trauma-Informed Framework". I have explained this study to my child and I have kept a copy of the letter describing the study and this permission slip.

_____ **Yes, my child has my consent to participate**

_____ **No, my child does not have my consent to participate.**

Parent's Signature/Date_____

Appendix C

Letter of Approval

Western Research   **Research Ethics**

Western University Non-Medical Research Ethics Board
NMREB Full Board Initial Approval Notice

Principal Investigator: Dr. Claire Crooks
Department & Institution: Education\Faculty of Education,Western University

NMREB File Number: 108218
Study Title: Mind UP for Young Children

NMREB Initial Approval Date: October 15, 2016
NMREB Expiry Date: October 15, 2017

Documents Approved and/or Received for Information:

Document Name	Comments	Version Date
Western University Protocol	Received October 15, 2016	
Instruments	Appendix A - School Personnel Demographic Information Form	2016/10/15
Instruments	Appendix B - ARTIC Items - Received June 29, 2016	
Instruments	Appendix C - Emotional Exhaustion and Personal Achievement Items	2016/06/28
Instruments	Appendix D - BASC - Received June 29, 2016	
Instruments	Appendix E - SRISI Items	2016/06/28
Instruments	Appendix F - MindUP Session Tracking Sheets	2016/06/28
Instruments	Appendix G - MindUP Satisfaction Survey	2016/06/28
Instruments	Appendix H - Focus Group Questions	2016/06/28
Other	Appendix I - Timeline and Participant Procedures - Received for Information Only	2016/06/28
Letter of Information & Consent	Appendix L - Parent	2016/10/13
Letter of Information & Consent	Appendix M - School Personnel	2016/10/15
Instruments	Appendix N - Parent Demographics Questionnaire	2016/10/15
Other	Appendix O - Research Assistant Agreement - ECEs - Received October 14, 2016	2016/09/14
Other	Appendix P - Research Assistant Agreement - Teachers - Received October 14, 2016	2016/09/14
Other	Appendix Q - Letter of Support - LDCSB - Received for Information	2016/01/11
Other	Appendix R - Letter of Support - Merrymount - Received for Information	2015/01/11
Other	Appendix S - LDCSB Meeting Outline	2016/09/14
Other	Appendix T - Research Assistant Agreement - Combined Teacher/ECE Role - Received October 14, 2016	

The Western University Non-Medical Research Ethics Board (NMREB) has reviewed and approved the above named study, as of the NMREB Initial Approval Date noted above.

NMREB approval for this study remains valid until the NMREB Expiry Date noted above, conditional to timely submission and acceptance of NMREB Continuing Ethics Review.

The Western University NMREB operates in compliance with the Tri-Council Policy Statement Ethical Conduct for Research Involving Humans (TCPS2), the Ontario Personal Health Information Protection Act (PHIPA, 2004), and the applicable laws and regulations of Ontario.

Members of the NMREB who are named as Investigators in research studies do not participate in discussions related to, nor vote on such studies when they are presented to the REB.

The NMREB is registered with the U.S. Department of Health & Human Services under the IRB registration number IRB 00000941.

Curriculum Vitae

NAME   Nicole Off

EDUCATION

2016-2018 (June)   Western University - London, Ontario, Canada
                     M.A. Counselling Psychology

2012-2016   King's University College - London, Ontario, Canada
                     Bachelor of Arts (B.A. Honors) Psychology, Minor in Family Studies

AWARDS AND SCHOLARSHIPS

2016-2018   Western Graduate Research Scholarship (WGRS), Western University

2017   Poster Presentation Winner at the Canadian Conference on Promoting
                     Healthy Relationships for Youth, London, ON

2012-2016   Entrance/Continuing Scholarships, King's University College

2013-2016   Dean's Honor List, King's University College

RELATED WORK EXPERIENCE

2017-2018   Intern: Child and Family Therapist – Focused Family Therapy
                     Madam Vanier Children's Services, London, ON

2017-2018   Group Facilitator – Caring Dads, Partner Assault Response Program
                     Changing Ways, London, ON

2017   Intake Assistant – Community Counselling Services
                     Family Service Thames Valley, London, ON

2016-2017   Graduate Research Assistant
                     Centre for School Mental Health, Western University - London, ON

2015-2016   Research Assistant – Autism Spectrum Disorder (ASD) Clinic
                     Child Parent Resource Institute - London, ON