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Multilevel Examination of the Protective Role Positive Classroom Climate Plays on Students' Worry and Negative Peer Relations

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A thesis submitted in partial fulfillment of the requirements for the Master of Arts degree in Education

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CLASSROOM CLIMATE AS A PROTECTIVE FACTOR

Abstract

Since children spend many hours of the day in the classroom, understanding the impact the classroom environment has on children's well-being is important. However, existing research on learning environments has predominantly focused on overall school climate, and additional research investigating classroom climate is warranted. The main objective of this study was to determine whether a positive classroom climate serves as a protective factor for children at heightened risk for worry and peer problems, and those with low social-emotional functioning and high exposure to childhood adversity. A total of 429 grade 3 students within 41 classrooms in 19 schools self-reported their perceptions of classroom climate, levels of worry, and peer relations. In addition, teachers rated participating students' social-emotional functioning, and parents reported their child's cumulative adversity. Multilevel analyses revealed that students in classrooms with more positive classroom climate were more likely to exhibit lower levels of worry and report fewer problems with peer relationships. Further analyses showed that a positive classroom climate is especially beneficial for students with low social-emotional functioning. The findings indicate that a positive classroom climate can serve as a protective factor for students, and highlight the importance of optimizing classroom climate to promote healthy child development.

Keywords: classroom climate, social-emotional functioning, childhood adversity, worry, peer relationships

CLASSROOM CLIMATE AS A PROTECTIVE FACTOR

Summary for Lay Audience

Children spend many hours of the day in the classroom, so it is important to understand the influence the classroom environment has on their well-being. This study examined the protective role positive classroom climate plays on grade 3 students' levels of worry and negative peer relationships. Whether a positive classroom climate is especially beneficial for students with weaker social-emotional skills and higher exposure to adverse events was also explored. The findings showed that students in classrooms with more positive classroom climate tended to have lower levels of worry and fewer peer problems. In addition, a positive classroom climate was especially beneficial for students with poorer social-emotional skills. An improved understanding of the influence classroom climate has on student well-being is a critical step in building supportive learning environments in which students can flourish.

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Introduction

Over the past several decades, there has been a growing interest in promoting children's healthy development through the establishment of safe and supportive learning environments. The school setting is one environment that has been recognized as being critical to the development of students' academic, social, emotional, and behavioural competencies (Wang & Degol, 2016). Despite ample support for the importance of creating and maintaining positive learning spaces, there is a lack of scholarly consensus on how school climate is conceptualized. The conceptual confusion has led to the inclusion of a multitude of dimensions within various definitions of school climate (Rudasill et al., 2018; Wang et al., 2016). One definition of school climate is "the affective and cognitive perceptions regarding social interactions, relationships, safety, values, and beliefs held by students, teachers, administrators, and staff within a school" (Rudasill et al., 2018, p. 46). The dimensions of school climate included in Rudasill et al.'s (2018) definition, such as social interactions, relationships, safety, and shared values and beliefs, are interdependent. For example, shared values and beliefs among students and school staff, such as mutual trust and respect, play a significant role in shaping social interactions and relationships within a school (Koth et al., 2008; Rudasill et al., 2018; Thapa et al., 2013). Further, school safety highly depends on the interpersonal relationships that students have with teachers and peers (Loukas, 2007). Although Rudasill et al. (2018) identified several other pertinent dimensions of school climate, including teacher instruction and institutional leadership, the aforementioned definition emphasizes the social aspect of school climate, which was the focus of this study.

In addition to building positive environments at the schoolwide level, making changes at the classroom level may be equally important, as children spend most of their school hours

within the classroom. However, classroom climate has been studied to a much lesser extent than school climate, and the construct also suffers from the same issues of poorly defined conceptualization as school climate (Koth et al., 2008; Wang et al., 2020). Classroom climate has been defined as the “dynamics of classrooms or smaller learning environments, including how children feel and experience the characteristics” (Sink & Spencer, 2005, p. 38), with characteristics referring to the physical, psychological, social, and educational aspects of the classroom environment. In a recent systematic review, Wang et al. (2020) proposed that the *social* dimension of classroom climate, which constitutes interpersonal relationships such as teacher-student interactions and peer relationships, may be a particularly strong predictor of children’s social-emotional functioning. However, the social dimension of classroom climate has been understudied, and there is a lack of research on the association between classroom climate and students’ social-emotional functioning (Evans et al., 2009; Wang et al., 2020). There is some evidence showing that classroom climate is positively associated with social competence and negatively associated with socioemotional distress, but the associations have been small and the findings have been inconsistent. (Wang et al., 2020). The discrepancies across studies and small effect sizes may have been partly due to the variations in how classroom climate was operationalized across studies. The limited evidence and mixed findings warrant further exploration of the association between classroom climate and students’ social-emotional functioning. To address this gap in the literature, this study investigated the buffering effects of classroom social climate on students’ social-emotional distress, namely worrying and negative peer relationships.

Conceptualization of Classroom Climate

The conceptualization of classroom climate in this study was based on the four dimensions of the My Class Inventory – Short Form Revised (MCI-SFR). The MCI-SFR is derived from the My Class Inventory (MCI), which was generated by Fraser and Fisher (1982) based on the Learning Environment Inventory (LEI; Fraser et al., 1982), a measure of high school classroom environments. Fraser and Fisher (1982) modified the LEI by selecting five out of 15 dimensions that are appropriate for elementary school classrooms. The resulting five-dimensional MCI includes: (a) *Cohesion*: the level of collaboration among classmates; (b) *Competitiveness*: the level of competition within the classroom; (c) *Friction*: the level of conflict among classmates; (d) *Difficulty*: the amount of challenging academic content; (e) *Satisfaction*: the degree to which students feel satisfied with their class. The developers further refined the MCI by replacing the 4-point Likert scale with a “yes” or “no” response system and reducing the number of items from 38 to 25 to create a condensed version, My Class Inventory – Short Form (MCI-SF; Fraser & Fisher, 1986). Sink and Spencer (2005) then identified five problematic items within the difficulty subscale and two items of concern within the friction subscale. Consequently, Sink and Spencer (2005) proposed a revised version (MCI-SFR) consisting of 18 items distributed across four subscales (Cohesion, Competitiveness, Friction, and Satisfaction), with the difficulty subscale removed and two items omitted from the friction subscale. The four subscales of the MCI-SFR primarily focus on social aspects of classroom climate. As such, this study’s conceptualization of classroom climate emphasized students’ relationships with their classmates. A positive classroom climate was defined as having high levels of cohesion and satisfaction, whereas a negative classroom climate was characterized by high levels of competition and friction among classmates.

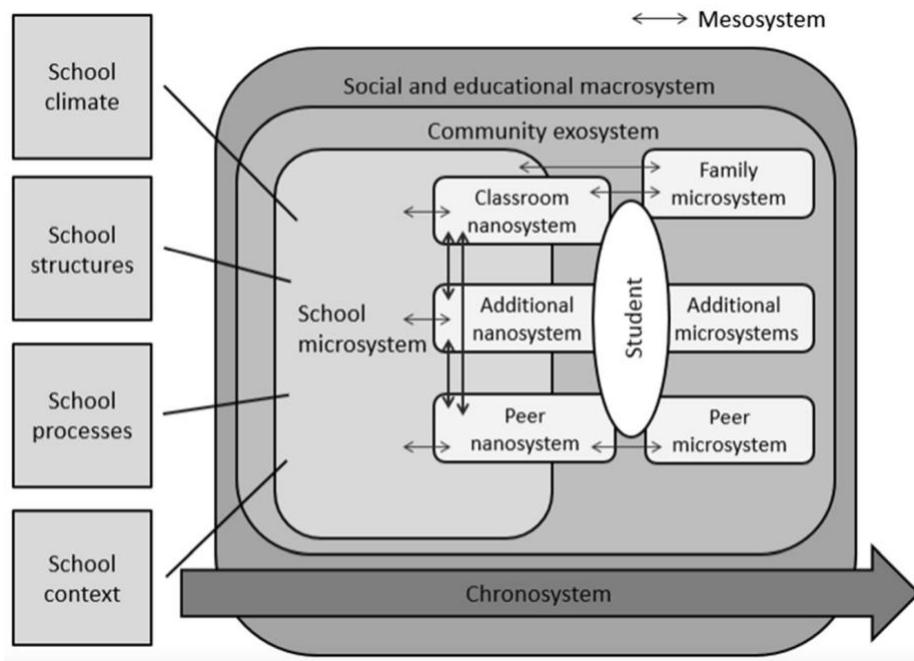
Systems View of School Climate (SVSC)

This study was guided by the Systems View of School Climate (SVSC) framework (see Figure 1). Although empirical investigations on learning environments are often grounded by Bronfenbrenner's Ecological Systems Theory (EST; Bronfenbrenner, 1992), Rudasill and colleagues' SVSC (2018) offers a more concise contextual theory focusing on school climate. Built upon Bronfenbrenner's EST, the SVSC surrounds the child with contexts that interact with each other to fortify or hinder a child's development (Rudasill et al., 2018). The nested system encompasses various contexts: (a) microsystems, which are immediate contexts experienced by the child, such as school and family; (b) nanosystems, which are characteristics unique to individual schools, such as peer groups and classroom environment; (c) mesosystems, which are interactions between and within microsystems and nanosystems. In addition, broader and more distal influences include: (d) exosystem, which includes contexts experienced indirectly by the child, such as parents' workplaces; (e) social and educational macrosystem, which includes societal norms and policies. Out of the numerous contexts that surround a child, proximal processes within nanosystems have the greatest impact on children's developmental outcomes as children interact with these contextual factors daily and for prolonged periods (Bronfenbrenner, 1994). As such, exploring the relationships between students' individual characteristics and the climate of the classroom nanosystem was the primary focus of this study. Moreover, as depicted by the SVSC, data involving students are inherently multilevel. However, the use of multilevel methodological approaches and cross-level interaction analyses, in which both individual and contextual variables are examined simultaneously, is still not a common practice in school psychology research (Graves & Frohwerk, 2009; Rucinski et al., 2018; Wang & Degol, 2016). The SVSC's nested and interactive structure provided an important theoretical basis for this

study as multilevel and cross-level interaction analyses were employed to explore relationships between individual and contextual factors.

Figure 1

Systems View of School Climate (SVSC)



Note. A graphical representation of the Systems View of School Climate (SVSC). From “Systems View of School Climate: A Theoretical Framework for Research,” by K. M. Rudasill, K. E. Snyder, H. Levinson, and J. L. Adelson, 2017, *Educational Psychology Review*, 30, p. 38 (<https://doi.org/10.1007/s10648-017-9401-y>). Copyright 2017 by Springer Nature®. Reprinted with permission.

Children’s Worry and Peer Relations

In this study, worry was conceptualized as children’s nervousness and social evaluative concerns in various contexts, such as home and classroom settings, and negative peer relations encompassed physical, verbal, and relational peer victimization. Worrying and having negative peer relations in early and middle childhood are highly prevalent, with 78% of children between the ages of 7 to 9 reporting worries and 30 to 60% of school-aged children reporting incidents of being victimized by peers (Card & Hodges, 2008; Muris et al., 2000). The high prevalence of these two experiences is alarming, as worrying and being victimized by peers can have

detrimental effects on students' well-being. Internalizing symptoms, such as worrying, can lead to mental health conditions, including anxiety and depression, as well as difficulties with peer relations (Gana et al., 2001; Reijntjes et al., 2010). Negative peer relationships are also associated with a plethora of deleterious outcomes, with victims of peer victimization being at increased risk for developing anxiety and depression, and engaging in self-harm and violent behaviours (Arseneault et al., 2010).

Emerging evidence suggests that emotional problems (e.g., worrying) and negative peer relationships (e.g., peer victimization) are correlated among school-aged children. For example, researchers have suggested that problems with peer relations can be a precursor to emotional problems, and victims of peer aggression often report high levels of emotional problems (Ban & Oh, 2016; Christina et al., 2021; Kutsyuruba et al., 2015). Moreover, higher emotional regulation is associated with higher social competence and more positive peer relationships (McDowell et al., 2000). The bidirectional relationship between emotional problems and negative peer relations reinforces the need for building safer and supportive learning environments that mitigate students' difficulties with worrying and peer problems.

Prior research has identified clear gender differences for worry, but inconsistent gender effects for negative peer relationships. It has been widely documented in previous literature, such as in Chaplin and Aldao's (2013) meta-analytic review, that girls in early elementary school years are more likely than boys to exhibit emotional problems, such as worrying. The gender disparities for worry are partly due to the differences in how boys and girls are socialized to adhere to gender-related display rules concerning emotional expression (Chaplin & Aldao, 2013). From infancy into childhood, boys are often expected to suppress internalizing emotions while being allowed to express externalizing behaviours, whereas girls are encouraged to express

internalizing emotions (Chaplin, 2015). Conversely, there are mixed findings on gender differences for peer victimization. While some studies suggest that boys are more likely to be victimized than girls, others have found the opposite (Ladd et al., 2017). The inconsistencies across studies are partly due to varying prevalence rates based on age and the type of victimization. Some researchers have suggested that boys are more likely to experience physical victimization, whereas girls are more likely to experience verbal or relational victimization (Menesini & Salmivalli, 2017). This is plausible as direct aggression, such as physical aggression, is more normative for young elementary-aged boys than girls (Card et al., 2008; Monks et al., 2021). On the contrary, physical aggression decreases and indirect aggression, such as verbal and relational aggression, increases for girls between the ages of 2 to 8 (Côté et al., 2007). Further, in relation to internalizing and externalizing behaviours, direct aggression is linked to externalizing behaviours which are more commonly exhibited by boys, whereas indirect aggression is related to internalizing behaviours which are more frequently displayed by girls (Card et al., 2008). Since direct aggression is also related to poor peer relations and elementary-aged boys tend to engage in more bullying behaviour in general (Card et al., 2008; Kennedy, 2020), it is possible that boys have more difficulties with establishing healthy peer relationships than girls in early elementary school years.

Classroom Climate as a Potential Protective Factor for Worry, Negative Peer Relations, and Social-Emotional Vulnerabilities

The school microsystem has been shown to have powerful influences on children's social-emotional outcomes. A past study has indicated that elementary-aged students (11 to 14 year olds), who perceived their school climate more favourably (e.g., feeling safe, connected, and supported by peers), reported higher mental and emotional well-being (Lester & Cross,

2015). Likewise, other researchers found that elementary-aged students (11 to 15 year olds) in schools with better social climate, consisting of higher teacher and peer support, reported more positive emotional health and fewer incidences of bullying compared to students in schools with poor social climate (Freeman et al., 2009).

Other studies have indicated that the climate of the classroom nanosystem, specifically, is linked to students' emotional health and interpersonal relationships. Whereas classrooms with poor classroom climate have been associated with more internalizing and interpersonal problems among grade 1 students, an emotionally supportive classroom climate has been shown to improve social competence and reduce internalizing behaviour among elementary-aged students (Griggs et al., 2016; Milkie & Warner, 2011; Wilson et al., 2007). In relation to the dimensions of the MCI-SFR, higher cohesion among grade 11 students within schools has been associated with less severe bullying victimization, and competitiveness and friction within classrooms have been linked with lower social satisfaction among students in grades 6-8 (Lagacé-Séguin & d'Entremont, 2010; Zaykowski & Gunter, 2012).

Despite these promising findings, studies to date have primarily focused on school climate and older elementary-aged students, which warrants further exploration of the interplay between classroom climate and young elementary-aged students' levels of worry and negative peer relationships. Moreover, given that the prevalence rates of anxiety and peer problems rise sharply throughout middle childhood (Behrhorst et al., 2020; Merikangas et al., 2009), it is important to foster social-emotional development in early elementary school years to mitigate future difficulties with internalizing behaviours and peer relations (Thomson et al., 2021).

Furthermore, past studies revealed that highly anxious students in grades 1 and 3, who tend to have lower social-emotional functioning, were particularly prone to experiencing

difficulties with emotional adjustment and peer relations in classrooms with negative classroom climate, but benefited greatly from a positive classroom climate (Gazelle, 2006; Hughes & Coplan; 2018). The findings imply that students with low social-emotional functioning may be particularly affected by the quality of classroom climate. In sum, the evidence suggests that a positive classroom climate may serve as a buffer against worry and peer problems for all students, with potentially stronger protective effects for students who have heightened social-emotional vulnerabilities.

There is also some evidence demonstrating that peer support within the classroom is an important element that may protect students against worrying and peer victimization. A recent study found that the association between social-emotional difficulties and peer victimization is mediated by peer support (Jenkins et al., 2018). Other studies have found that positive peer relationships enhance students' emotional health and lead to lower frequencies of peer victimization, more so than positive teacher-student relationships (Elsaesser et al., 2013; Kutsyuruba et al., 2015). These findings further substantiate the importance of investigating the peer interaction aspect of classroom climate.

Relationship Between Classroom Climate and Childhood Adversity

As the SVSC illustrates, multiple interconnected systems can significantly impact a child's development. Within some contexts, such as the family and neighbourhood microsystems, adverse childhood experiences (ACEs) can occur. ACEs are potentially stressful or traumatic events that happen before the age of 18 and include experiences such as abuse and household dysfunction (Felitti et al., 1998). This is an important area of study as more than half of Canadians (61.6%) have experienced at least one ACE, with emotional abuse, physical abuse, and intimate partner violence being the most prevalent (Joshi et al., 2021).

The high prevalence of ACEs within the population is concerning, as children who have experienced ACEs are at an increased risk for developing social, emotional, and behavioural problems (Liming & Grube, 2018). In particular, children who have been exposed to ACEs tend to have high levels of worry and increased likelihood of being victimized by peers (Arbel et al., 2018; Lucas et al., 2016). Moreover, increases in the number and severity of adversities experienced by a child, elevate their risk for negative psychological, social, emotional, and behavioural outcomes, which demonstrates the effects of cumulative stress or dose-response effect (Arseneault et al., 2011; Liming & Grube, 2018). More specifically, existing literature has shown that children who experience a greater number of ACEs have lower social-emotional competence and exhibit more internalizing and externalizing behaviours than children who are exposed to fewer or no ACEs (Liming & Grube, 2018; Ray et al., 2020). Furthermore, ACEs have been shown to inhibit elementary-aged children's social-emotional development by impeding their self-regulatory capacity, social competence, and ability to empathize (Ray et al., 2020). Taken together, the evidence in the literature highlights the negative impact ACEs have on children's social-emotional development.

The SVSC also guides this research as it values mesosystems, such as interactions between the classroom nanosystem and family microsystem. Positive classroom characteristics, such as nurturing and supportive relationships and a sense of safety and belonging provided by teachers and classmates, may buffer against the harmful effects of ACEs. Having a stable teacher-student relationship that adversity-affected students may be lacking at home, can help these students use their relationship with their teacher as a secure base to explore peer relationships (Howes, 2001). Further, positive peer relationships have been proposed to be a potential protective factor against the negative consequences of childhood adversity (Moses &

Villodas, 2017), as peers can provide much-needed social support in coping with stressful situations. Additionally, a previous study demonstrated that peer relationships within the classroom mediate the impact of parental abuse and neglect on children's emotional and behavioural problems (Ban & Oh, 2016). Considering all of the evidence, a supportive classroom climate might be especially beneficial in mitigating worry and peer problems among children who have been exposed to adversity.

SVSC and Vulnerable Students

As the SVSC posits, creating an ecological niche, a context that meets the unique needs of particular students (Bronfenbrenner, 1992), in this case, students with social-emotional vulnerabilities and high exposure to adversity, may be beneficial. A related theory is the person-environment fit theory, which postulates that greater congruence between personal needs and the environment, leads to more positive developmental outcomes (Edwards et al., 1998). In the context of this study, students who bring certain individual characteristics into the classroom may benefit more from the positive classroom characteristics. That is, a positive classroom climate may be particularly beneficial for students with social-emotional vulnerabilities and high exposure to childhood adversity.

The Present Study

The purpose of this study was to investigate factors that contribute to students' levels of worry and quality of peer relationships, as well as whether a positive classroom climate serves as a protective factor for vulnerable students. To investigate these objectives, three research questions were explored: 1) To what extent do students' individual characteristics, namely social-emotional functioning, childhood adversity, and gender, predict their levels of worry and difficulties with peer relationships? 2) Does classroom climate predict students' levels of worry

and difficulties with peer relationships, over and beyond their individual characteristics?

3) Do students with lower levels of social-emotional functioning and higher exposure to childhood adversity benefit more from a positive classroom climate?

Based on the literature reviewed, several hypotheses were formulated. For the first research question, all three individual characteristics (i.e., social-emotional functioning, childhood adversity, and gender) were expected to predict students' levels of worry and difficulties with peer relationships. Higher social-emotional functioning and lower exposure to childhood adversity were hypothesized to be associated with lower levels of worry and fewer problems with peer relationships. Additionally, gender differences were anticipated, with girls exhibiting higher levels of worry and more positive peer relationships than boys.

For the second research question, it was expected that classroom climate would predict students' levels of worry and difficulties with peer relationships over and beyond their individual characteristics. Students in classrooms with more positive classroom climate were predicted to have lower levels of worry and fewer problems with peer relationships compared to students in classrooms with poorer classroom climate.

For the third research question, it was hypothesized that the relationships between students' social-emotional functioning and the outcome variables (i.e., worry and negative peer relations) would be moderated by classroom climate. It was also expected that classroom climate would moderate the relationships between childhood adversity and the outcome variables. In other words, it was predicted that a positive classroom climate would buffer against worrying and negative peer relationships, particularly among students with lower social-emotional functioning and higher exposure to childhood adversity.

Method

Participants

The grade 3 students who participated in this study were recruited for the purpose of evaluating the effectiveness of a social-emotional learning (SEL) program, MindUP, within a school board located in Southwestern Ontario. However, the initial objective of this study, which involved employing a longitudinal design with pre- and post-intervention data collection during the 2019-2020 school year, was disrupted by the coronavirus disease 2019 (COVID-19) pandemic. Due to school closures resulting from the COVID-19 pandemic, post-intervention data could not be collected. Consequently, a cross-sectional study was conducted using the pre-intervention data.

School selection was based on school administrators' and teachers' interest in implementing the MindUP program and their willingness to participate in a research study. School selection also depended on schools' social risk index (SRI) scores, as schools with higher SRI scores, meaning greater socioeconomic disadvantages, were prioritized to receive the SEL intervention. An introductory meeting with the school board principals was held to inform them about the MindUP program and research plans. The principals then relayed the information to the teachers at their schools, and teachers who were interested in participating in the study were contacted via email. The recruitment procedure resulted in 41 classrooms within 19 schools, and all grade 3 students within the classrooms were eligible to participate. Out of 599 eligible grade 3 students, 498 students returned the parental consent form (83.1% return rate), and 429 students ($M_{\text{age}} = 7.93$, $SD = 0.26$) were given parental consent to participate in the study (71.6% consent rate). The number of participating students in each classroom ranged from three to 19, with an average cluster size of approximately 11 students. There were nearly equal numbers of boys and

girls (50.1% girls). The most common ethnicities were White/Caucasian (65%), Latin American (6.3%), and African/Caribbean (4.2%), and three participants' ethnicities were not reported.

More detailed demographic information is presented in Table 1.

Table 1

Participant Demographics

	Frequency
<i>N</i>	429
Gender^a	
Boy	214 (49.9)
Girl	215 (50.1)
Age^b	7.93 [0.26]
Ethnicity^a	
White/Caucasian	279 (65.0)
Latin American	27 (6.3)
African/Caribbean	18 (4.2)
Southeast Asian	13 (3.0)
South Asian	7 (1.6)
Middle Eastern/West Asian	7 (1.6)
East Asian	4 (0.9)
First Nations	2 (0.5)
Métis	1 (0.2)
Mixed-Race/Other	68 (15.9)

Note. ^a Data are expressed as *N* (%); ^b Data are expressed as *M* [*SD*].

Procedure

At the beginning of the school year, in-person meetings were scheduled with 43 teachers who expressed interest in participating in the study. During the meetings, the teachers were informed about the research objectives and their roles as research assistants. The teachers also signed research assistant contracts (see Appendix A), which outlined their responsibilities, including distributing and collecting physical copies of parental consent forms, as well as rating social-emotional competencies of participating students in their classrooms. The teachers were compensated \$275 if they had 10 or more participating students in their classroom or \$150 if they had fewer than 10 participating students in their classroom.

Parents' permission for their child's classroom teacher to rate their child's social-emotional functioning was requested on the parental consent form (see Appendix B). Parents were also asked to provide permission for their child to complete two self-report measures on their perceptions of classroom climate, emotions, and behaviours. While 428 out of 429 (99.8%) parents of participating students consented to the teacher surveys, 426 out of 429 (99.3%) parents of participating students consented to the child self-report surveys. A letter of information (LOI) describing the objectives and procedures of the project was also given to the parents (see Appendix B). In addition to the LOI and parental consent form, the teachers distributed physical copies of a demographic questionnaire (see Appendix C). Parents granting their child permission to participate in the research study completed the demographic questionnaire in paper-pencil format, in which they provided information about their child's gender, ethnicity, and exposure to childhood adversity. The consent form and demographic questionnaire were distributed as a package to increase the return rate.

Between October and December of 2019, the teachers assessed participating students' social-emotional skills by completing a questionnaire through Qualtrics, a secure online survey platform. To ensure anonymity, the teachers used a pre-assigned 8-digit research ID code for each student when completing the SEL survey. The teachers took approximately 5-10 minutes to complete the survey for each student. Follow-up emails were sent in December of 2019 to remind teachers to complete the survey. In total, 427 out of 428 (99.8%) surveys were completed, and missing values were handled according to the instructions provided in the survey manual (Gresham & Elliott, 2017). In addition, any errors in participant ID codes were resolved promptly in collaboration with the teachers.

Child self-report survey administration time was scheduled for each participating classroom during regular class hours in October or November of 2019. Child assent was obtained on the day of survey administration, and the assent form was read aloud to increase comprehension (see Appendix D). A child's dissent was always respected and overrode parental consent. With the exception of one student, all students who had parental consent assented to completing the self-report measures. To ensure no identifying information was attached to the survey data, the students' research ID codes were pre-written on the self-report surveys. The self-report measures were administered in paper-pencil format and took approximately 30-45 minutes (i.e., one class period) to complete. One research assistant read the survey questions out loud, and another research assistant supported students who required additional assistance. To ensure consistency across settings, a survey administration script was utilized (see Appendix E). The students were also debriefed following the survey administration (see Appendix F). In total, 417 out of 425 (98.1%) surveys were completed. Out of 20 students who were absent during survey administration, 14 students completed the self-report surveys later, and six students did not complete the surveys. In addition, two students stopped midway, and their incomplete data were removed from the analysis. "Both" responses, where both "yes" and "no" responses were circled, were scored according to the instructions provided by the survey developers (Beitchman, 1996; Sink & Spencer, 2005). Furthermore, missing values for the MCI-SFR were handled according to the instructions provided by Sink and Spencer (2005), whereas missing values for the Feelings, Attitudes, and Behaviours Scale for Children (FAB-C; Beitchman, 1996), were resolved using person-mean imputation. Proration was suitable as the non-significant Little's MCAR test results (Little, 1988) confirmed that the data were missing completely at random ($\chi^2(16098) = 16376.84, p = .061$). Moreover, most individuals with missing data had fewer than

20% of missing item responses for the subscales of concern, and the subscales of interest had acceptable internal consistency and similar item-total correlations when computed with or without missing items (George & Mallery, 2003; Graham, 2009). Proration could not be applied to six participants who had more than 20% missing data for the FAB-C subscales of interest.

Ethical Considerations

All data are stored in a secure server, the master list matching the participants' ID codes to identifying information is password-protected, and physical forms are stored in locked cabinets. The electronic data will be permanently deleted and paper copies will be shredded after being retained for seven years. The research protocol was approved by the ethics board at the school board and Western University's Non-Medical Research Ethics Board (see Appendix G).

Measures

In this study, one teacher-report, one parent-report, and two child self-report measures were utilized. All survey data were collected between October and December of 2019. Please see Table 2 for more detailed measure properties.

Table 2

SSIS SEL, CLCS, MCI-SFR, and FAB-C Properties

Subscale/Composite	Cronbach's α^a	<i>M</i>	<i>SD</i>	Skewness	SE Skewness	Kurtosis	SE Kurtosis
SSIS SEL							
SEL Composite	.97	109.24	23.40	-0.32	0.13	-0.29	0.25
CLCS							
CLCS Score		1.83	2.22	1.75	0.13	2.53	0.25
MCI-SFR							
Cohesion	.77	10.33	3.41	-0.04	0.13	-1.31	0.25
Competitiveness	.71	11.18	3.13	-0.37	0.13	-0.96	0.25
Friction	.79	4.44	2.12	1.19	0.13	-0.06	0.25
Satisfaction	.52	11.85	2.46	-0.54	0.13	-0.25	0.25
Classroom Climate ^b	.81	24.00	2.78	-0.20	0.13	-0.64	0.25
FAB-C							
Worry	.73	3.70	2.16	-0.18	0.13	-1.08	0.25
Negative Peer Relations	.78	1.85	1.76	0.56	0.13	-1.03	0.25

Note. *N* = 369 unless indicated otherwise.

^a *N* = 429; ^b Classroom climate = aggregated classroom climate.

Student-Level (Level 1) Predictors

Social-Emotional Functioning. Teachers rated participating students' social-emotional functioning using the Social Skills Improvement System – Social Emotional Learning Edition teacher rating form (SSIS SEL; Gresham & Elliott, 2017). The standardized measure consists of 58 items and has been normed for children between the ages of 3 to 18. The measure was created by reconfiguring the widely used and technically sound Social Skills Improvement System (SSIS; Gresham & Elliott, 2008). The SSIS SEL has also been aligned with the five core SEL competencies proposed by the Collaborative for Academic, Social, and Emotional Learning (CASEL): *Self-Awareness* (e.g., “Acts anxious with others”), *Self-Management* (e.g., “Stays calm when disagreeing with others”), *Social Awareness* (e.g., “Shows concern for others”), *Relationship Skills* (e.g., “Makes a compromise during a conflict”), and *Responsible Decision Making* (e.g., “Stands up for herself/himself when treated unfairly”) (CASEL, 2013; Gresham et al., 2020). The *SEL Composite* score, an overall score of social-emotional functioning calculated by summing the five SEL subscale scores, was used for this analysis. Teachers reported the frequency of students' social-emotional behaviour using a 4-point Likert scale (1 = *never*, 2 = *seldom*, 3 = *often*, 4 = *almost always*). Higher scores on the subscales and composite represented higher levels of social-emotional functioning. The Cronbach's alpha coefficient of the composite was .97 in this sample.

Childhood Adversity. The amount and severity of adversity the students have encountered in their lifetime were assessed using a single-item continuous scale, the Child Life Challenges Scale (CLCS; Sullivan et al., 2019; see Appendix C). Parents of participating students marked their child's cumulative adversity along a 10 cm line that ranges from “0 = *few mildly challenging experiences (e.g., new school, moved to a new place, mild accident)*” to “10 =

many extremely challenging experiences (e.g., death of a parent/caregiver, family home destroyed, lived in a dangerous place)". The scores were determined by measuring the distance between the left endpoint and the mark indicated by each parent in centimetres, rounded to one decimal place. The scores ranged from 0 to 10, with higher scores indicating exposure to a greater number of severe adverse events. The measure has been shown to be moderately correlated with widely used assessments of childhood lifetime adversity, including the Adverse Childhood Experience Scale ($r = .39$) and the Lifetime Events Questionnaire ($r = .50$) (Sullivan et al., 2019). In addition to the promising validity, the measure is shorter and less intrusive compared to traditional measures of adversity.

Gender. Gender was operationalized as a binary variable (0 = boy, 1 = girl).

Classroom-Level (Level 2) Predictor

Classroom Climate. Students' perceptions of classroom climate were assessed using the self-report My Class-Inventory – Short Form Revised (MCI-SFR; Sink & Spencer, 2005; see Appendix H). The 18-item measure is written at a low reading level appropriate for children in grades 3 and up, and response choices are either "yes" or "no", representing agreement or disagreement with the item stems. The MCI-SFR asks students about their perceptions of four dimensions of classroom climate: *Cohesion* (e.g., "All students like one another"), *Competitiveness* (e.g., "Some students always try to do better than others"), *Friction* (e.g., "Students in my class fight a lot"), and *Satisfaction* (e.g., "Students like my class"). Higher scores on the cohesion and satisfaction subscales, and lower scores on the competitiveness and friction subscales represent a more positive classroom climate. Since a collective perception of the environment should be used when investigating the influence an environment has on student outcomes (Lüdtke et al., 2009), the students' individual perceptions of classroom climate were

aggregated. To obtain aggregated classroom climate scores, the competitiveness and friction subscales were first reverse coded such that all four subscales were in the same direction. Next, all four subscale scores were summed to create an overall classroom climate score for each student, with higher scores indicating a more positive view of classroom climate. Then, an aggregated classroom climate score was generated by averaging students' overall classroom climate scores within each classroom. Higher aggregated classroom climate scores indicated more positive classroom climate. The internal consistency of the aggregated classroom climate variable was .81 in the current sample.

Outcome Variables

Worry and Negative Peer Relations. The students reported their emotions and behaviours on the Feelings, Attitudes, and Behaviours Scale for Children (FAB-C; Beitchman, 1996). The standardized measure is designed for children between the ages of 6 and 13, and the normative sample consisted of a sample representative of the Ontario population. Like the MCI-SFR, the students responded either “yes” or “no” to the items. The 48-item questionnaire is comprised of five subscales: *Conduct Problems*, *Self-Image*, *Worry*, *Negative Peer Relations*, and *Antisocial*. The worry subscale composed of seven items (e.g., “I worry about what other people will think of me”) and the negative peer relations subscale composed of five items (e.g., “Kids pick on me”) were used for this study. Elevated scores on both subscales indicated more severe emotional and behavioural difficulties. The Cronbach's alpha coefficients were .73 (worry) and .78 (negative peer relations) in the present study.

Data Analysis

Descriptive statistics for the participants and internal consistency reliabilities were first computed (see Tables 1 and 2, respectively). In subsequent analyses, only the participants with

data for all measures were included ($N = 369$; 86%). The properties of the SSIS SEL, CLCS, MCI-SFR, and FAB-C are presented in Table 2, and the normality, skewness, kurtosis, and outliers of all variables of interest were examined. Confirmatory factor analysis (CFA) was then conducted for the two child self-report measures (i.e., MCI-SFR and FAB-C) to ensure the adequacy of the data, as reliability issues have been reported for self-reports involving elementary-aged students (Wang & Degol, 2016). CFA allowed the goodness of fit between the observed data and the original structure of the measures to be examined. To evaluate factorial validity, comparative fit index (CFI) and root mean square error of approximation (RMSEA) were used (Bandalos, 2018). The chi-square statistic was also reported, but was not used to assess the fit as it can yield erroneous results when sample sizes are large (Bandalos, 2018). Following factor analysis, multilevel modelling (MLM), also known as hierarchical linear modelling or linear mixed modelling, was performed to explore the proposed research questions. All quantitative analyses were performed in SPSS v.28, with the exception of CFA and cross-level interaction analyses, which were performed in Jamovi 1.6.23.

Multilevel Modelling (MLM)

MLM was an appropriate statistical method for the study as the data were hierarchical in nature. More specifically, students were nested within classrooms, which means students within the same classroom influenced each other's feelings, attitudes, and behaviours, and likely became more like their classmates over time (Tabachnick & Fidell, 2007). Therefore, the observations and errors of students within the same classroom were correlated and not independent from each other, which violates the assumption of independence of single-level multiple regression analyses (Hox, 2010). Conversely, MLM, an extension of multiple regression, can account for the dependency within clusters by taking both student- and

classroom-level variables into consideration and partitioning errors between individual and group components (Heck et al., 2014; O'Connell & McCoach, 2008). If single-level multiple regression analyses were to be utilized in the presence of significant clustering in the data, the non-independent data can yield biased parameter estimates, underestimated variances, and underestimated standard errors (Peugh, 2010; Thomas & Heck, 2001). These errors can then lead to inflated Type 1 errors and false inferences (Heck et al., 2014; Peugh, 2010; Thomas & Heck, 2001).

Model assumptions, including normality of residuals, homoscedasticity of residuals, and linearity, were met. First, the normal distribution of residuals was confirmed through the observation of minor deviations from the normality line on the normal predicted probability (P-P) plot (Snijders & Bosker, 2012). Second, through visual inspection of plots of residuals against predicted values, homoscedasticity of residuals and linear relationships between predictors and outcome variables were confirmed (Osbourne & Waters, 2002). Lastly, all independent variables had a variance inflation factor (VIF) below 10, indicating an absence of multicollinearity (Hair et al., 2010).

Another important consideration when performing MLM is centering, since many psychological measures have arbitrary metrics that lead to ambiguous interpretations (Enders & Tofghi, 2007). To facilitate the interpretation of regression coefficients, all student-level (level 1) and classroom-level (level 2) predictors were centered, meaning the scores for the variables were rescaled to be centered at 0 (Enders & Tofghi, 2007). As a result, 0 became a meaningful score and the variables were measured on the same scale, allowing easy comparison of magnitudes of effects. Two common centering methods in MLM are grand-mean centering and group-mean centering. In grand-mean centering, the entire sample's mean (i.e., grand mean) for

a particular level 1 or level 2 predictor is subtracted from each student's score for that predictor (Heck et al., 2014; Peugh, 2010). In group-mean centering, the classroom mean of a particular level 1 predictor is subtracted from each student's score for that predictor, within each classroom (Heck et al., 2014; Peugh, 2010). To reduce biased estimates, the selection of centering method was driven by the type of research question and theoretical justifications that underly the questions (Enders & Tofighi, 2007). Enders and Tofighi (2007) advocated for the use of grand-mean centering when a level 2 predictor is adjusted for level 1 predictors, which was the case for the second research question. Since the second research question was of substantive interest for this study, both level 1 and level 2 predictors were grand-mean centered when exploring the first and second research questions. Group-mean centering would be inappropriate for addressing the first and second research questions as this centering method cannot control for level 1 predictors (Enders & Tofighi, 2007), and the students' relative standing on a variable within their classroom was not of concern (Kahn, 2011). Conversely, the level 1 predictors were group-mean centered when addressing the third research question, since grand-mean centering level 1 predictors can yield spurious estimates when performing cross-level interaction analyses (Enders & Tofighi, 2007). However, the level 2 predictor remained grand-mean centered for the third research question as the highest-level predictors cannot be group-mean centered (Enders & Tofighi, 2007).

The likelihood ratio test (LRT) was used to compare the fit of competing nested models. The full information maximum likelihood (FIML) estimation method was used in conjunction with LRT since the utilization of FIML estimation is needed when comparing the fixed regression parameters of nested models using $-2 * \log$ likelihood values (Heck et al., 2014). A lower $-2 * \log$ likelihood value generally indicates a better model fit, whereas the LRT reveals

whether the model improves the fit significantly or not (Heck et al., 2014). Since the LRT is based on a chi-square distribution, the chi-square statistic, degrees of freedom (*df*), and the p-value were reported. A p-value of less than .05 for the LRT indicated that a subsequent model fits the data better than the previous model (Heck et al., 2014).

For this study, two-level multilevel analyses were conducted with 369 students (level 1) nested within 41 classrooms (level 2). As advocated by O'Connell and McCoach (2008), a build-up strategy, in which complexity increases with successive models, was utilized. For each outcome variable, the multilevel analyses consisted of a null model, subsequent models at the student- and classroom-levels, and cross-level interaction analyses. Following Bryk and Raudenbush's (1992) recommendation, equations are presented for each model. In line with the research questions, the student-level (level 1) predictors were students' social-emotional functioning (i.e., SEL composite score), childhood adversity (i.e., CLCS score), and gender. Aggregated classroom climate was designated to the classroom-level (level 2), and the worry and negative peer relations subscales of the FAB-C were the two outcome variables. The regression coefficients and corresponding standard errors (*SE*) were reported for the fixed parameters of models, and within- and between-group variance estimates were reported for the random parameters of models. The slope variance was also reported when addressing the third research question. Unstructured covariance matrix was used for the third research question to obtain the slope variances, whereas variance components covariance matrix was utilized for all other multilevel analyses. The statistical significance level was set at .05.

Null Model. A baseline model with no predictor variables fitted was first computed. In MLM, the main purpose of the null model is to reveal the extent of the variation in each outcome variable that is attributable to the clustering of students within classrooms (Heck et al., 2014).

Calculating the intraclass correlation coefficient (ICC) using the null model can provide this information since the ICC represents the amount of variation in the outcome variables that can be attributed to clustering, which in turn informs decisions on whether MLM is necessary (Heck et al., 2014).

Model 1. To explore the first research question, “To what extent do students’ individual characteristics, namely social-emotional functioning, childhood adversity, and gender, predict their levels of worry and difficulties with peer relationships?” the level 1 predictors were individually introduced to the null model. Social-emotional functioning was added in Model 1a, childhood adversity was added in Model 1b, and gender was added in Model 1c. The association between a level 1 predictor and an outcome variable was examined in each model.

Model 2. To address the second research question, “Does classroom climate predict students’ levels of worry and difficulties with peer relationships over and beyond their individual characteristics?” the association between the level 2 predictor, classroom climate (i.e., classroom means of students’ perceptions of classroom climate), and each outcome variable was first computed in Model 2a. In Model 2b, the association between classroom climate and each outcome variable while adjusting for all three student-level variables was examined.

Model 3. To investigate the third research question, “Do students with lower levels of social-emotional functioning and higher exposure to childhood adversity benefit more from a positive classroom climate?” random slopes were added to Model 2b to create Model 3a for social-emotional functioning and Model 3c for childhood adversity, and cross-level interaction analyses were performed in Model 3b for social-emotional functioning and model 3d for childhood adversity.

Results

Confirmatory Factor Analysis (CFA)

CFA was performed to check the adequacy of the subscales of concern within the MCI-SFR and FAB-C (i.e., all four subscales of the MCI-SFR, and worry and negative peer relations subscales of the FAB-C). CFA using the original factor structures of the MCI-SFR ($\chi^2(129) = 288, p < .001$; CFI = .89; RMSEA = .06, 90% CI [.049, .067]), and the FAB-C ($\chi^2(584) = 921, p < .001$; CFI = .87; RMSEA = .04, 90% CI [.035, .044]) both revealed adequate fit. The standardized factor loadings for worry and negative peer relations subscales for the FAB-C using the observed data ranged from .36 to .66 and .60 to .71, respectively. The developers of the FAB-C also obtained similar loadings of .27 to .57 for the worry subscale and .50 to .70 for the negative peer relations subscale (Beitchman, 1996). Likewise, the standardized factor loadings for the MCI-SFR using the observed data ranged from .35 to .82, which is similar to the range of .40 to .82 obtained by Sink and Spencer (2005). Given the adequate fit and acceptable factor loadings, further analyses were performed.

Correlations Among Variables

Pearson correlations of all student- and classroom-level predictors and outcome variables are shown in Table 3. All statistically significant correlations were in the expected direction. Both childhood adversity and gender were correlated with social-emotional functioning ($r = -.24$ and $r = .29$, respectively). Social-emotional functioning and childhood adversity were negatively correlated, indicating that higher social-emotional functioning was associated with lower exposure to childhood adversity. Additionally, social-emotional functioning and classroom climate were positively correlated ($r = .17$), meaning higher social-emotional functioning among students was associated with more positive classroom climate. Moreover, social-emotional

functioning was negatively associated with negative peer relations ($r = -.23$), meaning higher social-emotional functioning was associated with more positive peer relationships. Further, gender was significantly correlated with worry ($r = .13$). There was also a positive correlation between worry and negative peer relations ($r = .37$), meaning higher levels of worry were associated with more negative peer relationships. Lastly, statistically significant correlations were found between classroom climate and the two outcome variables ($r = -.14$). The remaining correlations were not statistically significant.

Table 3***Intercorrelations Among Variables***

Variable	1	2	3	4	5	6
1. Social-Emotional Functioning	1.00					
2. Childhood Adversity	-.24**	1.00				
3. Gender	.29**	.01	1.00			
4. Classroom Climate ^a	.17**	-.05	.08	1.00		
5. Worry	-.10	-.03	.13*	-.14**	1.00	
6. Negative Peer Relations	-.23**	.10	-.04	-.14**	.37**	1.00

Note.^a Classroom climate = aggregated classroom climate.

* $p < .05$, ** $p < .01$.

Multilevel Modelling (MLM)***Null Model***

Following the notation suggested by Heck et al. (2014), the null model was represented by the following equation: $Y_{ij} = \gamma_{00} + u_{0j} + \varepsilon_{ij}$ (1). The equation implies that Y_{ij} , the score on an outcome variable (i.e., worry or negative peer relations) for a student i in class j , is equal to the sum of the average of all classrooms' mean scores on an outcome variable (i.e., grand mean or average intercept; γ_{00}), the deviation of a classroom j 's mean score from the grand mean on an outcome variable (i.e., u_{0j}), and the deviation of a student i 's score from their classroom j 's mean score on an outcome variable (i.e., residual at level 1; ε_{ij}). The null model was constructed

as a random intercept model, in which the classrooms' mean scores (i.e., intercepts) on worry and negative peer relations were allowed to vary between classrooms. The model yielded average intercepts of 3.68 for worry and 1.84 for negative peer relations, meaning the predicted values for worry and peer relations were 3.68 and 1.84, respectively, for the average student in the sample.

By computing the null model, the total variance in the outcome variables was partitioned into variance that can be attributed to students (i.e., within-class variance) or variance that can be attributed to classrooms (i.e., between-class variance) (Heck et al., 2014; O'Connell & McCoach, 2008). The Wald Z tests revealed that while the within-class variance was statistically significant for both worry (Wald $Z = 12.90$, $p < .001$) and negative peer relations (Wald $Z = 12.92$, $p < .001$), the between-class variance was not statistically significant for either outcome variable. However, when testing the variance of the intercepts using LRT, the between-class variance for worry was statistically significant ($\chi^2(1) = 3.79$, $p = .026$). When there is a discrepancy between the Wald Z test and LRT results when testing variance components, LRT is the preferred method as it is more reliable (Hox, 2010). The statistically significant between-class variance for worry meant that the classrooms' mean scores on worry varied across classrooms, which provided evidence of clustering in the data. In sum, there were statistically significant variations between students at level 1 for both worry and negative peer relations, as well as statistically significant variations between classrooms at level 2 for worry. This suggested that there may be predictor variables that could potentially explain some of the variance in the outcome variables.

Furthermore, the results from the ICC calculation necessitated performing MLM. The ICC was calculated by using the following equation outlined in Peugh (2010): $ICC = \frac{\tau_{00}}{\tau_{00} + \sigma^2}$ (2), where τ_{00} represents between-class variance and σ^2 represents within-class variance. The ICC

can be described as the fraction of the total variance in students' levels of worry or negative peer relations that exists between classrooms (Snijders & Bosker, 2012). Using the variance estimates of the null model, the equation yielded ICCs of .052 for worry and .024 for negative peer relations, meaning the differences between classrooms accounted for approximately 5.2% of the variability in worry and 2.4% of the variability in negative peer relations. Although there is no strict cut-off for ICCs, Heck et al. (2014) suggest that an ICC of greater than .05 indicates substantial clustering in the data. The ICC for worry met this criterion, but the ICC for negative peer relations fell short of this threshold. However, even if the ICC is less than .05, it has been advised that MLM be used when nested data structures are present, as performing single-level multiple regression analyses with data that are hierarchical in nature can increase the probabilities of Type 1 error (Nezlek, 2012; Pituch & Stevens, 2016). Since there was evidence of clustered observations in the sample and violation of the assumption of independence, MLM was warranted. The MLM results are presented in Table 4 for worry and Table 5 for negative peer relations.

Table 4

Multilevel Models for Predicting Worry

	Null Model	Model 1a	Model 1b	Model 1c	Model 2a	Model 2b	Model 3a	Model 3b	Model 3c	Model 3d
Fixed Parameters^a										
Level 1										
Intercept (γ_{00})	3.68 (0.14)***	3.69 (0.13)***	3.68 (0.14)***	3.66 (0.14)***	3.69 (0.13)***	3.69 (0.12)***	3.69 (0.13)***	3.68 (0.13)***	3.70 (0.13)***	3.69 (0.13)***
Social-emotional functioning (γ_{10})		-0.0084 (0.0050)				-0.013 (0.0052)*	-0.014 (0.0059)*	-0.014 (0.0059)*	-0.014 (0.0059)*	-0.014 (0.0059)*
Childhood adversity (γ_{20})			-0.029 (0.050)			-0.065 (0.051)	-0.043 (0.053)	-0.043 (0.052)	-0.037 (0.062)	-0.037 (0.059)
Gender (γ_{30})				0.58 (0.22)**		0.78 (0.23)***	0.73 (0.24)**	0.76 (0.23)**	0.74 (0.23)**	0.73 (0.23)**
Level 2										
Classroom climate (γ_{01})					-0.10 (0.045)*	-0.10 (0.044)*	-0.10 (0.045)*	-0.10 (0.045)*	-0.11 (0.045)*	-0.10 (0.046)*
Cross-Level Interaction										
Classroom climate * social-emotional functioning (γ_{11})								0.0043 (0.0022)*		
Below-average classroom climate ^b								-0.026 (0.0091)**		
Average classroom climate ^c								-0.014 (0.0063)*		
Above-average classroom climate ^d								-0.0019 (0.0088)		
Classroom climate * childhood adversity (γ_{21})										-0.025 (0.020)
Random Parameters^e										
Student-level (level 1) variance (σ^2)	4.42***	4.40***	4.42***	4.34***	4.45***	4.29***	4.29***	4.23***	4.13***	4.16***
Classroom-level (level 2) variance (τ_{00})	0.24*	0.23*	0.24*	0.25*	0.13	0.11	0.15	0.16	0.17	0.18
Slope variance (τ_{11})							4.88x10 ⁻⁵	2.38x10 ⁻⁵	0.032	0.022
Additional Model Details										
ICC ^f	.052	.049	.052	.054	.029	.025	.033	.036	.040	.040
-2 * log likelihood ^g	1611.99	1609.17	1611.65	1605.23**	1607.24*	1592.66**	1595.48	1591.64	1592.91	1591.58
Number of estimated parameters	3	4	4	4	4	7	9	10	9	10

Note. N (level 1) = 369; N (level 2) = 41.
^aData are expressed as regression coefficient (SE); ^bBelow-average = $M - 1SD$; ^cAverage = M ; ^dAbove-average = $M + 1SD$; ^eData are expressed as variance estimate; ^fICC = intraclass correlation coefficient; ^gSignificance based on the likelihood ratio test (LRT).
 * $p < .05$, ** $p < .01$, *** $p < .001$.

Table 5

Multilevel Models for Predicting Negative Peer Relations

	Null Model	Model 1a	Model 1b	Model 1c	Model 2a	Model 2b	Model 3a	Model 3b	Model 3c	Model 3d
Fixed Parameters^a										
Level 1										
Intercept (γ_{00})	1.84 (0.10)***	1.87 (0.097)***	1.85 (0.098)***	1.85 (0.10)***	1.86 (0.090)***	1.88 (0.089)***	1.87 (0.092)***	1.87 (0.091)***	1.88 (0.089)***	1.88 (0.090)***
Social-emotional functioning (γ_{10})		-0.018 (0.0039)***				-0.016 (0.0041)***	-0.020 (0.0049)***	-0.020 (0.0049)***	-0.020 (0.0048)***	-0.020 (0.0048)***
Childhood adversity (γ_{20})			0.077 (0.041)			0.037 (0.041)	0.018 (0.043)	0.018 (0.043)	0.019 (0.043)	0.019 (0.043)
Gender (γ_{30})				-0.13 (0.18)		0.10 (0.19)	0.13 (0.19)	0.14 (0.19)	0.13 (0.19)	0.13 (0.19)
Level 2										
Classroom climate (γ_{01})					-0.089 (0.033)**	-0.067 (0.032)*	-0.080 (0.033)*	-0.084 (0.033)*	-0.083 (0.032)*	-0.084 (0.032)*
Cross-Level Interaction										
Classroom climate * social-emotional functioning (γ_{11})								0.0016 (0.0018)		
Classroom climate * childhood adversity (γ_{21})										-0.011 (0.014)
Random Parameters^b										
Student-level (level 1) variance (σ^2)	3.00***	2.85***	2.99***	3.00***	3.02***	2.87***	2.82***	2.82***	2.85***	2.85***
Classroom-level (level 2) variance (τ_{00})	0.074	0.059	0.055	0.069	3.50x10 ⁻¹⁷	0.0030	0.028	0.024	0.0064	0.0098
Slope variance (τ_{11})							3.60x10 ⁻⁵	3.11x10 ⁻⁵	1.33x10 ⁻⁶	4.93x10 ⁻⁵
Additional Model Details										
ICC ^c	.024	.020	.018	.022	1.16x10 ⁻¹⁷	.0010	.0099	.0085	.0022	.0034
-2 * log likelihood ^d	1460.96	1441.07***	1457.51	1460.48	1454.43*	1436.22***	1434.83	1434.03	1435.06	1434.45
Number of estimated parameters	3	4	4	4	4	7	9	10	9	10

Note. N (level 1) = 369; N (level 2) = 41.
^aData are expressed as regression coefficient (SE); ^bData are expressed as variance estimate; ^cICC = intraclass correlation coefficient; ^dSignificance based on the likelihood ratio test (LRT).
 * $p < .05$, ** $p < .01$, *** $p < .001$.

Model 1: Student-Level Predictors of Worry and Negative Peer Relations

In Model 1, student-level (level 1) predictors were introduced to the null model to be inspected individually for their effects on the outcome variables. A random intercept model was used to allow the intercepts to vary across classrooms. In addition, the slopes of the predictors were fixed, meaning the relationships between the student-level predictors and the outcome variables were not allowed to vary between classrooms, and therefore were assumed to be the same across classrooms. As such, all results were interpreted as the average effect a predictor has on the outcome variable.

The random intercept with a fixed slope model was expressed as: $Y_{ij} = \gamma_{00} + \gamma_{10}X_{ij} + u_{0j} + \varepsilon_{ij}$ (3), where γ_{10} indicates the fixed slope of a level 1 variable, X_{ij} . The X in the equation was substituted with social-emotional functioning in Model 1a, childhood adversity in Model 1b, and gender in Model 1c. Additionally, γ_{10} represented the fixed slope of social-emotional functioning in Model 1a, which was then replaced with γ_{20} in Model 1b to represent the fixed slope of childhood adversity and γ_{30} in Model 1c to represent the fixed slope of gender. The t-ratio tests revealed several statistically significant associations. In Model 1a, the relationship between social-emotional functioning and negative peer relations was statistically significant ($\gamma_{10} = -0.018$, $SE = 0.0039$, $p < .001$). The negative coefficient indicated that, on average, students with higher social-emotional functioning were predicted to have fewer problems with peer relationships. More specifically, an increase of 1 unit in social-emotional functioning was associated with an average decrease of 0.018 units in negative peer relations. In Model 1c, gender was a significant predictor of worry ($\gamma_{30} = 0.58$, $SE = 0.22$, $p = .009$), meaning girls tended to have higher levels of worry than boys, on average. Based on the LRT results, these two models with statistically significant associations both had greater fit when compared with the

null model ($\chi^2(1) = 19.89, p < .001$ for Model 1a and $\chi^2(1) = 6.76, p = .009$ for Model 1c).

Social-emotional functioning was unrelated to worry, gender was not a significant predictor of negative peer relations, and childhood adversity did not predict worry or negative peer relations. Although, it is worth noting that the association between childhood adversity and negative peer relations almost reached the significance threshold ($p = .061$).

After introducing the student-level predictors in Models 1a, 1b, and 1c, most of the models had lower within-class variance compared to the within-class variances of the null model, meaning that the student-level predictors accounted for some of the residual variability. However, Wald Z tests revealed that there was still significant variation within classrooms left to be explained, and LRT results for variance components revealed that there was also significant unexplained variance between classrooms for worry (e.g., $\chi^2(1) = 4.25, p = .020$ for Model 1c for worry after adding gender). To potentially explain some of the remaining variability, more predictors were incorporated in Model 2.

Model 2: Classroom Climate as a Predictor of Worry and Negative Peer Relations

The classroom-level (level 2) predictor was introduced to the random intercept model to explore the effect of classroom climate on the outcome variables. Model 2a was represented by the following equation: $Y_{ij} = \gamma_{00} + \gamma_{01}W_j + u_{0j} + \varepsilon_{ij}$ (4), where γ_{01} represents a fixed slope of a level 2 variable, W_j . When the classroom climate variable was substituted into W in the equation, classroom climate emerged as a significant level 2 predictor of worry ($\gamma_{01} = -0.10, SE = 0.045, p = .027$) and negative peer relations ($\gamma_{01} = -0.089, SE = 0.033, p = .006$). The negative coefficients indicated that students in classrooms with more positive classroom climate tended to have lower levels of worry and fewer problems with peer relationships. More

specifically, an increase of 1 unit in classroom climate was associated with an average decrease of 0.10 units in worry and 0.089 units in negative peer relations.

With regards to the variance components, the decrease in the between-class variances was especially noticeable from the null model to Model 2a once the classroom climate predictor was introduced, which confirmed that classroom climate is a meaningful predictor (Kahn, 2011; Snijders & Bosker, 2012). Additionally, the between-class variance for worry was no longer statistically significant in Model 2a, which indicated that much of the variability between classrooms with respect to worry had been explained by adding the classroom-level predictor. As a consequence of the reduction in between-class variance, the ICC also decreased from .052 in the null model to .029 in Model 2a for worry. Moreover, LRT results showed that Model 2a fits the observed data better than the null model ($\chi^2(1) = 4.75, p = .029$ for worry and $\chi^2(1) = 6.54, p = .011$ for negative peer relations). However, the Wald Z test confirmed that there is still significant within-class variance left to be explained for worry (Wald Z = 12.86, $p < .001$) and negative peer relations (Wald Z = 13.58, $p < .001$). To determine whether the remaining variability could be explained, the student-level predictors were re-added to Model 2a to construct Model 2b.

For Model 2b, another random intercept model with fixed slopes, consisting of randomly varying intercepts and fixed slopes of level 1 and level 2 predictors, was built. After substituting the student- and classroom-level predictors into the equation, the model was expressed as: $Y_{ij} = \gamma_{00} + \gamma_{01}ClassroomClimate_j + \gamma_{10}SocialEmotionalFunctioning_{ij} + \gamma_{20}ChildhoodAdversity_{ij} + \gamma_{30}Gender_{ij} + u_{0j} + \varepsilon_{ij}$ (5). After adjusting for the student-level predictors, classroom climate remained a significant predictor of worry ($\gamma_{01} = -0.10, SE = 0.044, p = .029$) and negative peer relations ($\gamma_{01} = -0.067, SE = 0.032, p = .048$). When controlling for

student-level predictors, every 1 unit rise in classroom climate led to decreases of 0.10 units in worry and 0.067 units in negative peer relations, on average. Again, the results from Model 2b implied that students in classrooms with more positive classroom climate were more likely to have lower levels of worry and fewer problems with peer relationships. It is important to note that the regression coefficients for classroom climate were similar for both the unadjusted Model 2a and adjusted Model 2b, suggesting that classroom climate exerts an over and beyond effect. In other words, classroom climate predicted students' levels of worry and difficulties with peer relationships over and beyond their individual characteristics, and thereby served as a protective factor for students.

Similar to the statistically significant associations obtained in Models 1a and 1c, Model 2b yielded a negative and statistically significant association between social-emotional functioning and negative peer relations ($\gamma_{10} = -0.016$, $SE = 0.0041$, $p < .001$), as well as statistically significant gender differences for worry ($\gamma_{30} = 0.78$, $SE = 0.23$, $p < .001$). Unlike Model 1a for worry, social-emotional functioning was also a significant predictor of worry in Model 2b ($\gamma_{10} = -0.013$, $SE = 0.0052$, $p = .011$). The other student-level predictors did not contribute to the prediction of worry or negative peer relations in Model 2b. Taken together, these findings suggested that, on average, students with higher social-emotional functioning tended to have lower levels of worry and fewer problems with peer relationships, and girls tended to have higher levels of worry than boys.

Similar to the previous model (Model 2a), only the within-class variance was statistically significant for both worry and negative peer relations in Model 2b. Compared to the variance estimates of the null model, substantial decreases in within-class variances were observed for both outcome variables. More specifically, the predictors explained some of the within-class

variability, which decreased from 4.42 (null model) to 4.29 (Model 2b) for worry and from 3.00 (null model) to 2.87 (Model 2b) for negative peer relations. These reductions make sense since variance at level 1 should diminish when level 1 predictors are added to a model (Snijders & Bosker, 2012). However, there were still significant within-class variances for worry (Wald $Z = 12.87, p < .001$) and negative peer relations (Wald $Z = 12.75, p < .001$) left to be explained even after including all predictors in Model 2b, which indicated that there might be additional student-level predictors, not accounted for in this study, that may partially explain the variability. Further, statistically significant LRT results were obtained when comparing Model 2b with Model 2a ($\chi^2(3) = 14.57, p = .002$ for worry and $\chi^2(3) = 18.21, p < .001$ for negative peer relations). The LRT results suggested that Model 2b, which included all level 1 predictors in addition to the level 2 predictor, had superior fit.

Model 3: Cross-Level Interactions

In Model 3, random slopes were first added to Model 2b to create Models 3a and 3c, then cross-level interaction analyses were performed in Models 3b and 3d. While a fixed slope provides the average association between a predictor and an outcome variable across classrooms, a random slope allows the association between a predictor and an outcome variable to vary in magnitude between classrooms (Peugh, 2010). To determine whether the slopes of the relationships between the predictors (i.e., social-emotional functioning and childhood adversity) and outcome variables vary across classrooms, randomly varying slopes were added to Model 2b. Accordingly, the following equation was used to construct Model 3a: $Y_{ij} = \gamma_{00} + \gamma_{01}ClassroomClimate_j + \gamma_{10}SocialEmotionalFunctioning_{ij} + \gamma_{20}ChildhoodAdversity_{ij} + \gamma_{30}Gender_{ij} + u_{1j}SocialEmotionalFunctioning_{ij} + u_{0j} + \varepsilon_{ij}$ (6), where u_{1j} represents the error component for the randomly varying slope of the relationship

between social-emotional functioning and an outcome variable. Similarly, a randomly varying slope involving childhood adversity was added to Model 2b to build Model 3c, and the model was represented by the following equation: $Y_{ij} = \gamma_{00} + \gamma_{01}ClassroomClimate_j + \gamma_{10}SocialEmotionalFunctioning_{ij} + \gamma_{20}ChildhoodAdversity_{ij} + \gamma_{30}Gender_{ij} + u_{2j}ChildhoodAdversity_{ij} + u_{0j} + \varepsilon_{ij}$ (7), where u_{2j} represents the error component for the randomly varying slope of the relationship between childhood adversity and an outcome variable. The LRT results showed that adding random slopes in Models 3a and 3c did not enhance the fit when compared with Model 2b. Moreover, the slope variances were not statistically significant in Models 3a and 3c for both worry and negative peer relations, indicating that the associations between the predictors (i.e., social-emotional functioning and childhood adversity) and the outcome variables did not vary significantly between classrooms.

Despite the non-significant slope variances, cross-level interaction analyses were performed next. Aguinis et al. (2013) support the exploration of interactions even when the slope variance is negligible, as a significant slope variance can be obscured by a small sample size at level 2. The randomly varying slopes were kept in for the cross-level interaction analyses, as omitting the random slope terms may increase the risk of Type 1 error (Heisig & Schaeffer, 2019). Accordingly, an interaction term involving social-emotional functioning was added to Model 3a to create Model 3b: $Y_{ij} = \gamma_{00} + \gamma_{01}ClassroomClimate_j + \gamma_{10}SocialEmotionalFunctioning_{ij} + \gamma_{20}ChildhoodAdversity_{ij} + \gamma_{30}Gender_{ij} + \gamma_{11}ClassroomClimate_j * SocialEmotionalFunctioning_{ij} + u_{1j}SocialEmotionalFunctioning_{ij} + u_{0j} + \varepsilon_{ij}$ (8), where γ_{11} reflects the slope of the interaction term. The equation presents social-emotional functioning as the level 1 predictor, worry or negative peer relations as the level 1 outcome variable, and classroom climate as the

level 2 moderator. This conceptualization of having a higher-level variable be a contextual factor influencing a lower-level relationship is commonly used when conducting cross-level interaction analyses (Aguinis et al., 2013). A similar equation was constructed for Model 3d involving childhood adversity by adding an interaction term to Model 3c: $Y_{ij} = \gamma_{00} + \gamma_{01}ClassroomClimate_j + \gamma_{10}SocialEmotionalFunctioning_{ij} + \gamma_{20}ChildhoodAdversity_{ij} + \gamma_{30}Gender_{ij} + \gamma_{21}ClassroomClimate_j * ChildhoodAdversity_{ij} + u_{2j}ChildhoodAdversity_{ij} + u_{0j} + \varepsilon_{ij}$ (9), where γ_{21} represents the slope of the interaction term.

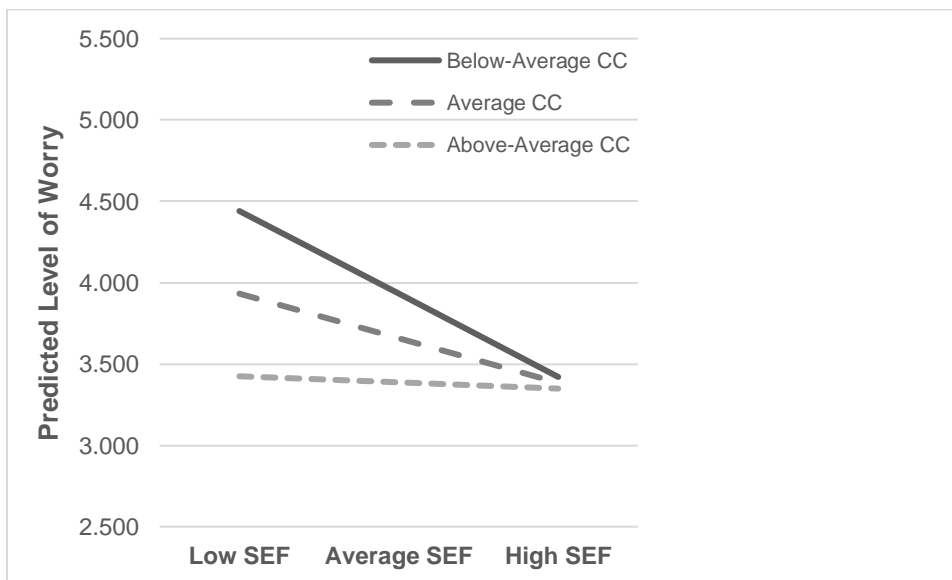
The only model that yielded a statistically significant cross-level interaction effect was Model 3b for worry ($\gamma_{11} = 0.0043$, $SE = 0.0022$, $p = .048$). The result implied that classroom climate was a significant moderator of the relationship between social-emotional functioning and worry. To explore the nature of the cross-level interaction, the interaction was probed further. The moderating effect of classroom climate on the relationship between social-emotional functioning and worry was statistically significant for classrooms with below-average classroom climate and average classroom climate ($\beta = -0.026$, $SE = 0.0091$, $p = .007$ and $\beta = -0.014$, $SE = 0.0063$, $p = .036$, respectively). However, the cross-level interaction was not statistically significant for classrooms with above-average classroom climate. Figure 2 shows the negative slopes of the relationship between social-emotional functioning and worry for classrooms with below-average (1SD below the mean), average (mean), or above-average (1SD above the mean) classroom climate. As pictured in Figure 2, the slopes are steeper as classroom climate quality decreases. This suggested that there were considerable differences in the influence students' social-emotional functioning had on their levels of worry depending on the climate of the classroom. In classrooms with below-average classroom climate, students with low social-

emotional functioning tended to have high levels of worry. Whereas in classrooms with average classroom climate, students with low social-emotional functioning tended to have lower levels of worry. In classrooms with above-average classroom climate, there were no differences in students' levels of worry between students with low or high levels of social-emotional functioning. This implied that the disadvantages of having low social-emotional functioning were less pronounced in classrooms with above-average classroom climate. Therefore, it can be concluded that positive classroom climate served as a protective factor for children with low social-emotional functioning.

Similar to Model 3a and 3c, incorporating the interaction terms in Model 3b and 3d did not improve the model fit when compared with Model 2b. Therefore, Model 2b seems to fit the data best and is the most parsimonious model for the data, but Model 3b for worry provided valuable insight into the cross-level interaction effect.

Figure 2

Cross-Level Interaction Effect for Worry



Note. N (level 1) = 369; N (level 2) = 41; SEF = social-emotional functioning; CC = classroom climate; Below-Average CC = $M - 1SD$; Average CC = M ; Above-Average CC = $M + 1SD$.

Discussion

This study examined the protective role positive classroom climate plays on grade 3 students' levels of worry and negative peer relationships. The results indicated that a positive classroom climate serves as a protective factor for students with elevated risk for worry and peer problems, especially for students with low social-emotional functioning. Interestingly, childhood adversity did not emerge as a significant predictor of students' levels of worry or negative peer relations, and no significant interaction effect was observed for relationships involving childhood adversity. Nonetheless, the results demonstrated that a combination of individual and contextual characteristics shapes children's development, which is in accordance with the SVSC that guides this work. The use of an ecological framework coupled with the utilization of MLM allowed for a more holistic understanding of the factors that contribute to students' well-being, and highlighted the importance of investigating protective factors in ecological contexts that surround a child.

Student-Level Predictors of Worry and Negative Peer Relations

The hypotheses corresponding to the first research question were partially supported. As expected, some of the individual characteristics were associated with students' levels of worry and negative peer relationships. For example, students with higher social-emotional functioning were more likely to have lower levels of worry and fewer problems with peer relationships. This result is plausible as students with higher social-emotional competencies are better able to regulate their emotions and use their social skills, which may translate into fewer problems with internalizing behaviours and peer relations.

In addition, as hypothesized, gender differences were revealed for worry, with girls having higher levels of worry than boys. This gender effect is in line with substantive evidence

showing that girls tend to exhibit more emotional problems than boys (Kutsyuruba et al., 2015; Marsh et al., 2008). Conversely, no gender differences were observed in the quality of peer relationships. Prior research has presented mixed findings on gender effects for negative peer relationships. The inconsistencies in the existing literature may in part be due to the varying prevalence rates based on the type of victimization. For example, while girls are more likely to experience verbal or relational victimization, boys are more likely to experience physical violence from their peers (Menesini & Salmivalli, 2017). Gender differences in this study may have been obscured as the study's conceptualization of negative peer relations encompassed physical, verbal, and relational victimization.

Contrary to expectations, childhood adversity was not a significant predictor of worry or negative peer relations. This result deviates from previous research demonstrating that experiencing ACEs such as abuse or neglect impair one's ability to regulate emotions and form healthy relationships (Brunzell et al., 2016). A possible explanation for the non-significant findings pertaining to childhood adversity is the single-item nature of the CLCS. The strength of the CLCS is that it is a less burdensome measure than traditional measures of childhood adversity as it does not ask about specific adverse events, and thereby has the potential to reduce the chances of evoking distress in participants (Merrick et al., 2020). However, it may have been challenging for parents to accurately indicate their child's cumulative adversity on the 10 cm line that has no markers other than anchors at scores of 0 and 10. In this study, most participants scored on the lower end of the scale, which is surprising given that most schools selected for the study had high SRI scores, meaning high socioeconomic disadvantages, which is closely related to childhood adversity (Walsh et al., 2019). Therefore, it is possible that the CLCS did not accurately capture the amount and severity of adversity experienced by the participants.

Classroom Climate as a Protective Factor for Worry and Negative Peer Relations

The hypothesis corresponding to the second research question was fully supported by strong evidence. Results showed that a positive classroom climate can serve as a protective factor for students at heightened risk for worry and peer problems. Being in a classroom with positive climate was associated with lower levels of worry and fewer problems with negative peer relationships among students. The findings closely echo previous works demonstrating that an emotionally supportive classroom climate is associated with lower internalizing and higher social competence among students (Griggs et al., 2016; Wilson et al., 2007).

Further, after controlling for all three individual characteristics, the association between classroom climate and the outcome variables remained nearly unchanged, providing compelling evidence that classroom climate predicts worry and negative peer relations over and beyond students' individual characteristics. This result is reasonable as safe and supportive classroom climates (characterized by high cohesion, low competitiveness, and low friction among classmates in this study) provide an optimal environment for fostering social-emotional development (Thapa et al., 2013). Nurturing social-emotional skills such as emotional regulation and social competence may in turn buffer students from the risk of developing worry and peer problems.

Cross-Level Interaction Effect

Through conducting interaction analyses, it was revealed that classroom climate moderates the relationship between students' social-emotional functioning and their levels of worry. That is, the strength of the relationship between students' social-emotional functioning and their levels of worry changed as a function of the climate of the classroom in which the students were in. A closer inspection of the cross-level interaction revealed that students with

low social-emotional functioning tended to have lower levels of worry in classrooms with positive climate, compared to their counterparts in classrooms with poorer climate. Additionally, in classrooms with above-average classroom climate, students with low social-emotional functioning seemed to have similar levels of worry as students with high social-emotional functioning. Furthermore, students with high social-emotional functioning tended to have low levels of worry in classrooms with either positive or negative classroom climate. While students with high social-emotional functioning seem to be able to use their social-emotional skills to regulate themselves in classrooms with either positive or negative climate, students with low social-emotional functioning seem to be more sensitive to the climate of the classroom. More specifically, students with low social-emotional functioning may be particularly prone to developing difficulties with worrying in classrooms with negative climate *and* benefit more from the buffering effects of positive classroom climate. Therefore, the results suggest that a supportive classroom climate may foster social-emotional growth, particularly in students with low social-emotional functioning.

Another explanation for the significant cross-level interaction effect aligns with the person-environment fit theory (Edwards et al., 1998). Applying the person-environment fit theory to the findings, the fit between students with low social-emotional functioning and a favourable classroom social climate likely led to lower levels of worry among these students. It is possible that the high levels of cohesion and satisfaction in classrooms with positive climate allowed students with low social-emotional functioning to have more positive peer relationships and emotional support from classmates, which in turn, served as a protective factor for their levels of worry. The person-environment fit theory also posits that a mismatch between the environment and students' individual characteristics can worsen students' functioning. As such,

it is possible that internalizing behaviours and peer problems of students with low social-emotional functioning were amplified in classrooms characterized by high levels of competition and friction.

The hypotheses for the third research question were partially supported as the other proposed cross-level interactions were not statistically significant. The non-significant cross-level interactions, along with the non-significant slope variances, non-significant between-class variance estimates for negative peer relations, and low ICCs were likely due to the relatively small sample size at level 2 (41 classrooms) and the small number of students per class (3 to 19 students per class), which may have limited the variations across groups. As Heck et al. (2014) noted, an adequate sample size provides sufficient statistical power for multilevel analyses to yield significant effects. Although a widely accepted minimum sample size for obtaining unbiased results using MLM is 30 groups with 30 observations for each group (i.e., 30/30 rule; Tonidandel et al., 2014), others have recommended having a minimum of 40 to 60 groups (Eliason, 1993; Hox, 2002). Therefore, future studies should include larger sample sizes to elucidate the cross-level interactions that remain unclear.

Limitations

There are several limitations worth noting. First, the dichotomous nature of the self-report measures may have resulted in inaccurate responses. For example, some participants may have landed between the “yes” or “no” responses for some item stems. Second, coupled with the ambiguity inherent in dichotomous measures was the participants’ young age, which may have further impeded their ability to choose responses in an accurate manner. It is also possible that while some students had the ability to reflect on their experiences, other students may have responded based on how they were feeling during survey administration. Third, the reliance on

parents for reporting their child's adverse experiences may not have resulted in accurate portrayals of participants' adversity. Parents may have varying frames of reference or understanding of trauma and adversity due to their own experiences, which might have led to under-estimation or over-estimation of the adverse events experienced by their child (Stover et al., 2010). Parents may have also under-reported their child's trauma or adversity due to discomfort with disclosure or social desirability. As Merrick et al. (2020) recommended, it may be helpful to have a comment section for parents to clarify the mark they chose on the scale to depict their child's life challenges. Fourth, the study has limited generalizability as the conceptualization of classroom climate was restricted to the dimensions of the MCI-SFR, and the sample consisted of grade 3 students, with the majority being White/Caucasian. Lastly, no causal claims can be made due to the cross-sectional nature of this study. Future studies should employ longitudinal designs to determine causal relationships among the constructs included in this study, and examine how the individual and classroom characteristics change over time.

Future Directions

Despite the limitations, this study was a critical step toward a promising line of research on the importance of cultivating positive classroom environments to promote student well-being. Although it is evident that a positive classroom climate can be a protective factor for students, further investigation on the influence classroom climate have on various aspects of student well-being is needed as evidence in the existing literature remains equivocal (Wang et al., 2020). Moreover, given the significant within-group variances that remained unexplained in this study, future researchers may consider including additional student-level predictors, such as socioeconomic status, that could potentially predict differences in students' levels of worry and negative peer relationships. Further, more research on the psychometric properties of the CLCS

is warranted. Only one study, to date, has confirmed the psychometric soundness of the CLCS, in which the researchers demonstrated its correlation with the Lifetime Events Questionnaire ($r = .44$) and appropriateness for a high-risk population (Merrick et al., 2020). Lastly, a multi-informant approach should be used in future studies to gather ratings on similar constructs from various sources (e.g., teachers, parents, and students) for deeper insights and cross-validation of responses.

Implications

Multiple implications can be inferred from the findings. This study provided critical insights into which individual and classroom characteristics should be promoted to reduce students' levels of worry and negative peer relationships. The individual and contextual factors identified in this study may guide the creation of professional development workshops on teaching practices, such as cooperative learning to enhance cohesion and reduce competitiveness among students, as well as classroom management techniques to minimize friction and maximize satisfaction within the classroom. The findings can also be harnessed to inform the development of classroom-based interventions such as SEL programs to bolster students' social-emotional skills (Durlak et al., 2011; Greenberg et al., 2017). Enhancing social-emotional competencies, including emotional regulation and interpersonal skills may in turn strengthen students' emotional health and peer relationships. Early prevention efforts through implementing SEL programs in the classroom are crucial for supporting students with low social-emotional functioning, as social-emotional vulnerabilities from early childhood can manifest as internalizing problems and lower well-being in middle childhood (Thomson et al., 2021).

Conclusion

This study contributes to the emerging body of literature on the impact classroom climate has on student well-being. Through rigorous multilevel analyses, it was revealed that a positive classroom climate can serve as a protective factor for students with elevated risk for worry and peer problems and those with low social-emotional functioning. These findings underscore the importance of optimizing classroom climate to promote student well-being, and may guide the development of teacher workshops and school initiatives for cultivating healthy learning environments.

References

- Aguinis, H., Gottfredson, R. K., & Culpepper, S. A. (2013). Best-practice recommendations for estimating cross-level interaction effects using multilevel modeling. *Journal of Management, 39*(6), 1490–1528. <https://doi.org/10.1177/0149206313478188>
- Arbel, R., Schacter, H. L., Kazmierski, K., Daspe, M. È., & Margolin, G. (2018). Adverse childhood experiences, daily worries, and positive thoughts: A daily diary multi-wave study. *The British Journal of Clinical Psychology, 57*(4), 514–519. <https://doi.org/10.1111/bjc.12200>
- Arseneault, L., Bowes, L., & Shakoor, S. (2010). Bullying victimization in youths and mental health problems: ‘Much ado about nothing’? *Psychological Medicine, 40*(5), 717–729. <https://doi.org/10.1017/S0033291709991383>
- Arseneault, L., Cannon, M., Fisher, H. L., Polanczyk, G., Moffitt, T. E., & Caspi, A. (2011). Childhood trauma and children’s emerging psychotic symptoms: A genetically sensitive longitudinal cohort study. *The American Journal of Psychiatry, 168*(1), 65–72. <https://doi.org/10.1176/appi.ajp.2010.10040567>
- Ban, J., & Oh, I. (2016). Mediating effects of teacher and peer relationships between parental abuse/neglect and emotional/behavioral problems. *Child Abuse & Neglect, 61*, 35–42. <https://doi.org/10.1016/j.chiabu.2016.09.010>
- Bandalos, D. L. (2018). *Measurement theory and applications for the social sciences*. Guilford Press.
- Behrhorst, K. L., Sullivan, T. N., & Sutherland, K. S. (2020). The impact of classroom climate on aggression and victimization in early adolescence. *The Journal of Early Adolescence, 40*(5), 689–711. <https://doi.org/10.1177/0272431619870616>

- Beitchman, J. H. (1996). *Feelings, Attitudes, and Behaviors Scale for Children (FAB-C)*. Multi-Health Systems Inc.
- Bronfenbrenner, U. (1992). Ecological systems theory. In R. Vasta (Ed.), *Six theories of child development: Revised formulations and current issues* (pp. 187–249). Jessica Kingsley.
- Bronfenbrenner, U. (1994). Ecological models of human development. In T. Husen & T. N. Postlethwaite (Eds.), *The international encyclopedia of education* (2nd ed., pp. 1643–1647). Elsevier Sciences.
- Brunzell, T., Stokes, H., & Waters, L. (2016). Trauma-informed positive education: Using positive psychology to strengthen vulnerable students. *Contemporary School Psychology, 20*, 63–83. <https://doi.org/10.1007/s40688-015-0070-x>
- Bryk, A. S., & Raudenbush, S. W. (1992). *Hierarchical linear models*. Sage.
- Card, N. A., & Hodges, E. V. E. (2008). Peer victimization among schoolchildren: Correlations, causes, consequences, and considerations in assessment and intervention. *School Psychology Quarterly, 23*(4), 451–461. <https://doi.org/10.1037/a0012769>
- Card, N. A., Stucky, B. D., Sawalani, G. M., & Little, T. D. (2008). Direct and indirect aggression during childhood and adolescence: A meta-analytic review of gender differences, intercorrelations, and relations to maladjustment. *Child Development, 79*(5), 1185–1229. <https://doi.org/10.1111/j.1467-8624.2008.01184.x>
- Chaplin T. M. (2015). Gender and emotion expression: A developmental contextual perspective. *Emotion Review, 7*(1), 14–21. <https://doi.org/10.1177/1754073914544408>
- Chaplin, T. M., & Aldao, A. (2013). Gender differences in emotion expression in children: A meta-analytic review. *Psychological Bulletin, 139*(4), 735–765. <https://doi.org/10.1037/a0030737>

- Christina, S., Magson, N. R., Kakar, V., & Rapee, R. M. (2021). The bidirectional relationships between peer victimization and internalizing problems in school-aged children: An updated systematic review and meta-analysis. *Clinical Psychology Review*, 85, 101979. <https://doi.org/10.1016/j.cpr.2021.101979>
- Collaborative for Academic, Social, and Emotional Learning. (2013). *Effective social and emotional learning programs: Preschool and elementary school edition*. <https://casel.org/wp-content/uploads/2016/01/2013-casel-guide-1.pdf>
- Côté, S. M., Vaillancourt, T., Barker, E. D., Nagin, D., & Tremblay, R. E. (2007). The joint development of physical and indirect aggression: Predictors of continuity and change during childhood. *Development and Psychopathology*, 19(1), 37–55. <https://doi.org/10.1017/S0954579407070034>
- Durlak, J. A., Weissberg, R. P., Dymnicki, A. B., Taylor, R. D., & Schellinger, K. B. (2011). The impact of enhancing students' social and emotional learning: A meta-analysis of school-based universal interventions. *Child Development*, 82(1), 405–432. <https://doi.org/10.1111/j.1467-8624.2010.01564.x>
- Edwards, J. R., Caplan, R. D., & Van Harrison, R. (1998). Person-environment fit theory: Conceptual foundations, empirical evidence, and directions for future research. In C. L. Cooper (Ed.), *Theories of organizational stress* (pp. 28–67). Oxford University Press.
- Eliason, S. R. (1993). *Maximum likelihood estimation*. Sage.
- Elsaesser, C., Gorman-Smith, D., & Henry, D. (2013). The role of the school environment in relational aggression and victimization. *Journal of Youth and Adolescence*, 42, 235–249. <https://doi.org/10.1007/s10964-012-9839-7>

- Enders, C. K., & Tofighi, D. (2007). Centering predictor variables in cross-sectional multilevel models: A new look at an old issue. *Psychological Methods, 12*(2), 121–138.
<https://doi.org/10.1037/1082-989X.12.2.121>
- Evans, I. M., Harvey, S. T., Buckley, L., & Yan, E. M. (2009). Differentiating classroom climate concepts: Academic, management, and emotional environments. *Kōtuitui: New Zealand Journal of Social Sciences Online, 4*, 131–146.
<https://doi.org/10.1080/1177083X.2009.9522449>
- Felitti, V. J., Anda, R. F., Nordenberg, D., Williamson, D. F., Spitz, A. M., Edwards, V., Koss, M. P., & Marks, J. S. (1998). The adverse childhood experiences (ACE) study. *American Journal of Preventive Medicine, 14*(4), 245–258. [https://doi.org/10.1016/s0749-3797\(98\)00017-8](https://doi.org/10.1016/s0749-3797(98)00017-8)
- Fraser, B. J., Anderson, G. J., & Walberg, H. J. (1982). *Assessment of learning environments: Manual for Learning Environment Inventory (LEI and My Class Inventory)*. Australian Institute of Technology.
- Fraser, B. J., & Fisher, D. L. (1982). Evaluation studies: Predictive validity of My Class Inventory. *Studies in Educational Evaluation, 8*, 129–140.
- Fraser, B. J., & Fisher, D. L. (1986). Using short forms of classroom climate instruments to assess and improve classroom psychosocial environment. *Journal of Research in Science Teaching, 23*, 387–413.
- Freeman, J. G., Samdal, O., Klinger, D. A., Dur, W., Griebler, R., Currie, D., & Rasmussen, M. (2009). The relationship of schools to emotional health and bullying. *International Journal of Public Health, 54*, 251–259. <https://doi.org/10.1007/s00038-009-5421-9>

- Gana, K., Martin, B., & Canouet, M. D. (2001). Worry and anxiety: Is there a causal relationship? *Psychopathology*, *34*(5), 221–229. <https://doi.org/10.1159/000049314>
- Gazelle H. (2006). Class climate moderates peer relations and emotional adjustment in children with an early history of anxious solitude: A child X environment model. *Developmental Psychology*, *42*(6), 1179–1192. <https://doi.org/10.1037/0012-1649.42.6.1179>
- George, D., & Mallery, P. (2003). *SPSS for Windows step by step: A simple guide and reference. 11.0 update* (4th ed.). Allyn & Bacon.
- Graham J. W. (2009). Missing data analysis: Making it work in the real world. *Annual Review of Psychology*, *60*, 549–576. <https://doi.org/10.1146/annurev.psych.58.110405.085530>
- Graves, S. L., Jr., & Frohwerk, A. (2009). Multilevel modeling and school psychology: A review and practical example. *School Psychology Quarterly*, *24*(2), 84–94.
<https://doi.org/10.1037/a0016160>
- Greenberg, M. T., Domitrovich, C. E., Weissberg, R. P., & Durlak, J. A. (2017). Social and emotional learning as a public health approach to education. *Future of Children*, *27*(1), 13–32. <https://doi.org/10.1353/foc.2017.0001>
- Gresham, F. M., & Elliott, S. N. (2008). *Social Skills Improvement System Rating Scales manual*. NCS Pearson.
- Gresham, F. M., & Elliott, S. N. (2017). *Social Skills Improvement System Social–Emotional Learning Edition Rating Forms*. Pearson Assessments.
- Gresham, F., Elliott, S., Metallo, S., Byrd, S., Wilson, E., Erickson, M., Cassidy, K., & Altman, R. (2020). Psychometric fundamentals of the Social Skills Improvement System: Social–Emotional Learning Edition Rating Forms. *Assessment for Effective Intervention*, *45*(3), 194–209. <https://doi.org/10.1177/1534508418808598>

- Griggs, M. S., Mikami, A. Y., & Rimm-Kaufman, S. E. (2016). Classroom quality and student behavior trajectories in elementary school. *Psychology in the Schools*, *53*, 690–704. <http://dx.doi.org/10.1002/pits.21941>
- Hair, J., Black, W. C., Babin, B. J., & Anderson, R. E. (2010). *Multivariate data analysis* (7th ed.). Pearson Prentice Hall.
- Heck, R. H., Thomas, S. L., & Tabata, L. N. (2014). *Multilevel and longitudinal modeling with IBM SPSS* (2nd ed.). Routledge.
- Heisig, J. P., & Schaeffer, M. (2019). Why you should always include a random slope for the lower-level variable involved in a cross-level interaction. *European Sociological Review*, *35*(2), 258–279. <https://doi.org/10.1093/esr/jcy053>
- Howes, C. (2001). Social-emotional classroom climate in child care, child-teacher relationships and children's second grade peer relations. *Social Development*, *9*(2), 191–204. <https://doi.org/10.1111/1467-9507.00119>
- Hox, J. (2002). *Multilevel analysis: Techniques and applications*. Lawrence Erlbaum.
- Hox, J. (2010). *Multilevel analysis: Techniques and applications* (2nd ed.). Routledge Academic.
- Hughes, K., & Coplan, R. J. (2018). Why classroom climate matters for children high in anxious solitude: A study of differential susceptibility. *School Psychology Quarterly*, *33*(1), 94–102. <https://doi.org/10.1037/spq0000201>
- Jenkins, L. N., Fredrick, S. S., & Wenger, J. (2018). Peer victimization and social-emotional outcomes: The role of teacher and peer support. *Aggressive Behavior*, *44*(2), 176–184. <https://doi.org/10.1002/ab.21741>
- Joshi, D., Raina, P., Tonmyr, L., MacMillan, H. L., & Gonzalez, A. (2021). Prevalence of adverse childhood experiences among individuals aged 45 to 85 years: A cross-sectional

- analysis of the Canadian Longitudinal Study on Aging. *CMAJ Open*, 9(1), E158–E166.
<https://doi.org/10.9778/cmajo.20200064>
- Kahn, J. H. (2011). Multilevel modeling: Overview and applications to research in counseling psychology. *Journal of Counseling Psychology*, 58(2), 257–271.
<https://doi.org/10.1037/a0022680>
- Kennedy, R. S. (2020). A meta-analysis of the outcomes of bullying prevention programs on subtypes of traditional bullying victimization: Verbal, relational, and physical. *Aggression and Violent Behavior*, 55, 101485. <https://doi.org/10.1016/j.avb.2020.101485>
- Koth, C. W., Bradshaw, C. P., & Leaf, P. J. (2008). A multilevel study of predictors of student perceptions of school climate: The effect of classroom-level factors. *Journal of Educational Psychology*, 100(1), 96–104. <https://doi.org/10.1037/0022-0663.100.1.96>
- Kutsyruba, B., Klinger, D., & Hussain, A. (2015). Relationships among school climate, school safety, and student achievement and well-being: A review of the literature. *Review of Education*, 3(2), 103–135. <https://doi.org/10.1002/rev3.3043>
- Ladd, G. W., Ettekal, I., & Kochenderfer-Ladd, B. (2017). Peer victimization trajectories from kindergarten through high school: Differential pathways for children's school engagement and achievement? *Journal of Educational Psychology*, 109(6), 826–841.
<https://doi.org/10.1037/edu0000177>
- Lagacé-Séguin, D. G., & d'Entremont, M. L. (2010). A scientific exploration of positive psychology in adolescence: The role of hope as a buffer against the influences of psychosocial negativities. *International Journal of Adolescence and Youth*, 16, 69–95.
<https://doi.org/10.1080/02673843.2010.9748046>

- Lester, L., & Cross, D. (2015). The relationship between school climate and mental and emotional wellbeing over the transition from primary to secondary school. *Psychology of Well-Being*, 5(1), 9. <https://doi.org/10.1186/s13612-015-0037-8>
- Liming, K. W., & Grube, W. A. (2018). Wellbeing outcomes for children exposed to multiple adverse experiences in early childhood: A systematic review. *Child & Adolescent Social Work Journal*, 35(4), 317–335. <https://doi.org/10.1007/s10560-018-0532-x>
- Little, R. J. A. (1988). A test of missing completely at random for multivariate data with missing values. *Journal of the American Statistical Association*, 83(404), 1198–1202. <https://doi.org/10.1080/01621459.1988.10478722>
- Loukas, A. (2007). What is school climate? High-quality school climate is advantageous for all students and may be particularly beneficial for at-risk students. *Leadership Compass*, 5(1), 1–3.
- Lucas, S., Jernbro, C., Tindberg, Y., & Janson, S. (2016). Bully, bullied and abused: Associations between violence at home and bullying in childhood. *Scandinavian Journal of Public Health*, 44(1), 27–35. <https://doi.org/10.1177/1403494815610238>
- Lüdtke, O., Robitzsch, A., Trautwein, U., & Kunter, M. (2009). Assessing the impact of learning environments: How to use student ratings of classroom or school characteristics in multilevel modeling. *Contemporary Educational Psychology*, 34(2), 120–131. <https://doi.org/10.1016/j.cedpsych.2008.12.001>
- Marsh, H. W., Martin, A. J., & Cheng, J. H. S. (2008). A multilevel perspective on gender in classroom motivation and climate: Potential benefits of male teachers for boys? *Journal of Educational Psychology*, 100(1), 78–95. <https://doi.org/10.1037/0022-0663.100.1.78>

- McDowell, D. J., O'Neil, R., & Parke, R. D. (2000). Display rule application in a disappointing situation and children's emotional reactivity: Relations with social competence. *Merrill-Palmer Quarterly*, *46*(2), 306–324.
- Menesini, E., & Salmivalli, C. (2017). Bullying in schools: The state of knowledge and effective interventions. *Psychology, Health & Medicine*, *22*, 240–253.
<https://doi.org/10.1080/13548506.2017.1279740>
- Merikangas, K. R., Nakamura, E. F., & Kessler, R. C. (2009). Epidemiology of mental disorders in children and adolescents. *Dialogues in Clinical Neuroscience*, *11*(1), 7–20.
<https://doi.org/10.31887/DCNS.2009.11.1/krmerikangas>
- Merrick, J. S., Labella, M. H., Narayan, A. J., Desjardins, C. D., Barnes, A. J., & Masten, A. S. (2020). The Child Life Challenges Scale (CLCS): Associations of a single-item rating of global child adversity with children's total life stressors and parents' childhood adversity. *Children*, *7*(4), 33. <https://doi.org/10.3390/children7040033>
- Milkie, M. A., & Warner, C. H. (2011). Classroom learning environments and the mental health of first grade children. *Journal of Health and Social Behavior*, *52*(1), 4–22.
<https://doi.org/10.1177/0022146510394952>
- Monks, C. P., Smith, P. K., & Kucaba, K. (2021). Peer victimisation in early childhood; Observations of participant roles and sex differences. *International Journal of Environmental Research and Public Health*, *18*(2), 415.
<https://doi.org/10.3390/ijerph18020415>
- Moses, J. O., & Villodas, M. T. (2017). The potential protective role of peer relationships on school engagement in at-risk adolescents. *Journal of Youth and Adolescence*, *46*(11), 2255–2272. <https://doi.org/10.1007/s10964-017-0644-1>

Muris, P., Merckelbach, H., Gadet, B., & Moulaert, V. (2000). Fears, worries, and scary dreams in 4- to 12-year-old children: Their content, developmental pattern, and origins. *Journal of Clinical Child Psychology*, 29(1), 43–52.

https://doi.org/10.1207/S15374424jccp2901_5

Nezlek, J. B. (2012). Multilevel modeling for psychologists. In H. Cooper, P. M. Camic, D. L. Long, A. T. Panter, D. Rindskopf, & K. J. Sher (Eds.), *APA handbook of research methods in psychology: Data analysis and research publication* (Vol. 3, pp. 219–241).

American Psychological Association. <https://doi.org/10.1037/13621-011>

O’Connell, A. A., & McCoach, D. B. (Eds.). (2008). *Multilevel modeling of educational data*. Information Age Publishing.

Osbourne, J. W., & Waters, E. (2002). Four assumptions of multiple regression that researchers should always test. *Practical Assessment, Research and Evaluation*, 8, 2.

<https://doi.org/10.7275/r222-hv23>

Peugh, J. L. (2010). A practical guide to multilevel modeling. *Journal of School Psychology*, 48(1), 85–112. <https://doi.org/10.1016/j.jsp.2009.09.002>

Pituch, K. A., & Stevens, J. P. (2016). *Applied multivariate statistics for the social sciences* (6th ed.). Routledge.

Ray, D. C., Angus, E., Robinson, H., Kram, K., Tucker, S., Haas, S., & McClintock, D. (2020). Relationship between adverse childhood experiences, social-emotional competencies, and problem behaviors among elementary-aged children. *Journal of Child and Adolescent Counseling*, 6(1), 70–82. <https://doi.org/10.1080/23727810.2020.1719354>

- Reijntjes, A., Kamphuis, J. H., Prinzie, P., & Telch, M. J. (2010). Peer victimization and internalizing problems in children: A meta-analysis of longitudinal studies. *Child Abuse & Neglect, 34*(4), 244–252. <https://doi.org/10.1016/j.chiabu.2009.07.009>
- Rucinski, C. L., Brown, J. L., & Downer, J. T. (2018). Teacher-child relationships, classroom climate, and children's social-emotional and academic development. *Journal of Educational Psychology, 110*(7), 992–1004. <https://doi.org/10.1037/edu0000240>
- Rudasill, K. M., Snyder, K. E., Levinson, H., & Adelson, J. L. (2018). Systems View of School Climate: A theoretical framework for research. *Educational Psychology Review, 30*, 35–60. <https://doi.org/10.1007/s10648-017-9401-y>
- Sink, C. A., & Spencer, L. R. (2005). My Class Inventory-Short Form as an accountability tool for elementary school counselors to measure classroom climate. *Professional School Counseling, 9*(1). <https://doi.org/10.1177/2156759X0500900112>
- Snijders, T. A., & Bosker, R. J. (2012). *Multilevel analysis: An introduction to basic and advanced multilevel modeling* (2nd ed.). Sage.
- Stover, C. S., Hahn, H., Im, J. J. Y., & Berkowitz, S. (2010). Agreement of parent and child reports of trauma exposure and symptoms in the early aftermath of a traumatic event. *Psychological Trauma: Theory, Research, Practice, and Policy, 2*(3), 159–168. <https://doi.org/10.1037/a0019156>
- Sullivan, M. M., Fiat, A. E., Merrick, J. S., Labella, M. H., Nelson, K. M., & Masten, A. E. (2019, May). *Validity of the Life Challenges Scale: A single-item scale to assess lifetime adversity* [Conference presentation]. Annual Meeting of the Society for Prevention Research, San Diego, CA, United States.
- Tabachnick, B., & Fidell, L. (2007). *Using multivariate statistics* (5th ed.). Allyn & Bacon.

- Thapa, A., Cohen, J., Guffey, S., & Higgins-D'Alessandro, A. (2013). A review of school climate research. *Review of Educational Research, 83*(3), 357–385. <https://doi.org/10.3102/0034654313483907>
- Thomas, S. L., & Heck, R. H. (2001). Analysis of large-scale secondary data in higher education research: Potential perils associated with complex sampling designs. *Research in Higher Education, 42*(5), 517–540. <https://doi.org/10.1023/A:1011098109834>
- Thomson, K. C., Richardson, C. G., Samji, H., Dove, N., Olsson, C. A., Schonert-Reichl, K. A., Shoveller, J., Gadermann, A. M., & Guhn, M. (2021). Early childhood social-emotional profiles associated with middle childhood internalizing and wellbeing. *Journal of Applied Developmental Psychology, 76*, 101301. <https://doi.org/10.1016/j.appdev.2021.101301>
- Tonidandel, S., Williams, E. B., & LeBreton, J. M. (2014). Size matters...just not in the way that you think: Myths surrounding sample size requirements for statistical analyses. In C. E. Lance & R. J. Vandenberg (Eds.), *More statistical and methodological myths and urban legends* (pp. 162–183). Routledge.
- Walsh, D., McCartney, G., Smith, M., & Armour, G. (2019). Relationship between childhood socioeconomic position and adverse childhood experiences (ACEs): A systematic review. *Journal of Epidemiology and Community Health, 73*(12), 1087–1093. <https://doi.org/10.1136/jech-2019-212738>
- Wang, M. T., & Degol, J. L. (2016). School climate: A review of the construct, measurement, and impact on student outcomes. *Educational Psychology Review, 28*, 315–352. <https://doi.org/10.1007/s10648-015-9319-1>

- Wang, M., Degol, J. L., Amemiya, J., Parr, A., & Guo, J. (2020). Classroom climate and children's academic and psychological wellbeing: A systematic review and meta-analysis. *Developmental Review, 57*. <https://doi.org/10.1016/j.dr.2020.100912>
- Wilson, H. K., Pianta, R. C., & Stuhlman, M. (2007). Typical classroom experiences in first grade: The role of classroom climate and functional risk in the development of social competencies. *The Elementary School Journal, 108*(2), 81–96.
<https://doi.org/10.1086/525548>
- Zaykowski, H., & Gunter, W. (2012). Youth victimization: School climate or deviant lifestyles? *Journal of Interpersonal Violence, 27*(3), 431–452.
<https://doi.org/10.1177/0886260511421678>

Appendix A

Teacher Research Assistant Agreement Form

MindUP Teacher Research Assistant Agreement *MindUP for Young Children*



This **Research Assistant Agreement** is effective from September 3, 2019 until August 31, 2020

This Research Assistant Agreement describes a cooperative relationship and commitment between:

The Centre for School Mental Health at Western University and

(Name of teacher)

This Research Assistant Agreement is to complete data collection measures for children with consent to participate in the research project: MindUP for Young Children.

The Centre for School Mental Health at Western University will provide training for the facilitator in the delivery of the MindUP program, and provide all the resources necessary for you to undertake your role as a Research Assistant. The following section lists additional expectations for teacher research assistants and Western University.

For the year covered by the Research Assistant Agreement, the teacher facilitating the MindUP program will:

- Attend a full-day MindUP Training
- Attend a ½ day Trauma-Informed Training
- Distribute and collect parental consent forms for the students in your class, and send home reminders as needed to accomplish this
- Maintain a tracking list of participating children and their corresponding numerical ID
- Complete an implementation survey with 3-8 items on a weekly basis, in which you will indicate which MindUP lesson was delivered, length of the lesson, frequency of brain breaks, and if any non-MindUP, social-emotional learning (SEL) lessons were delivered
- Complete ratings of social-emotional and academic functioning for each participating student in your class using the Social Skills Improvement System – Social-Emotional Learning Edition (SSIS SEL) prior to the implementation of MindUP (October), and again in the spring (May/June) following program completion
- Complete ratings of executive functioning for each participating student in your class using the Behavior Rating Inventory of Executive Function (BRIEF-2) prior to the implementation of MindUP (October), and again in the spring (May/June) following program completion
- Allow research assistants to administer two in-class, self-report measures: Feelings, Attitudes, and Behaviors Scale for Children (FAB-C) and My Class Inventory – Short Form (MCI-SF), to assess students' perception of self-concept and classroom climate. These measures will take approximately 30-45 minutes to administer in the fall (November), and again in the spring (May/June)

MindUP Teacher Research Assistant Agreement
MindUP for Young Children



The Centre for School Mental Health at Western University will provide:

- Full-day MindUP Training, and release time for attendance
- ½ day Trauma-Informed Training, and release time for attendance
- All materials required for MindUP implementation
- Ongoing implementation support as needed
- A summary of data following the year of implementation

Research Assistant Reimbursement:

This Teacher Research Assistant Agreement forms the basis of payment for teachers who undertake this role. Teachers will complete SSIS SEL and BRIEF-2 ratings for every participating child in their classroom, pre- and post-program implementation. Teachers will also collaborate with research assistants to administer self-report measures in the classroom for participating children, pre- and post-program implementation.

In compensation for their role as a research assistant, teachers who have 10 or more participating children in their classrooms will receive \$550 upon completion of the research materials. Teachers who have less than 10 participating children in their classrooms will receive \$300 upon completion of the research materials.

MindUP Teacher Research Assistant Agreement
MindUP for Young Children



If the terms of this Research Assistant Agreement are acceptable, please provide us with your contact information and sign and date this agreement.

Contact Information	
Name:	Gender:
School/Organization:	Work Phone:
School/Organization Address:	
Email (work):	Email (other):
How do you prefer to be contacted: <input type="checkbox"/> Email (work) <input type="checkbox"/> Email (other) <input type="checkbox"/> Phone	

Signature:

Print Name MindUP Teacher Research Assistant	Signature	Date (mm/dd/yy)

Claire Crooks Director, Centre for School Mental Health Western University	Signature	Date (mm/dd/yy)

Appendix B

Letter of Information and Consent Form for Parents/Guardians



CONSENT LETTER FOR PARENTS/GUARDIANS

Study Title: MindUP for Young Children

Principal Investigator:
 Claire Crooks, Ph.D., C. Psych
 Professor
 Director, Centre for School Mental Health
 Faculty of Education Western University
 1137 Western Road
 London, ON CANADA N6G 1G7

October 2019

Invitation to Participate

I am a professor in the Faculty of Education at Western University who is conducting a research project titled "MindUP for Young Children". I am writing to seek your consent for your child to be part of this evaluation.

I am evaluating a program called MindUP that your school may be implementing. MindUP is an educator-led curriculum designed to enhance children's social skills (e.g., taking the point of view of another person), support their engagement in prosocial and responsible behavior (e.g., sharing, helping), increase their focus and attention, and improve emotional self-regulation skills (e.g., helping them learn how to manage anger, excitement, and frustration). The purpose of this study is to examine whether and how the implementation of the MindUP Program can enhance young children's social and emotional 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 your child's teacher.

I am seeking your permission for your child's teacher to complete two questionnaires about your child, at two separate times, in the Fall and Spring. The first questionnaire called the Social Skills Improvement System – Social-Emotional Learning Edition (SSIS SEL), asks questions about your child's social-emotional and academic functioning. Your child's teacher will also be asked to complete a questionnaire called the Behavior Rating Inventory of Executive Function (BRIEF-2), which asks questions about your child's behaviour in regards to executive functioning and self-regulation.

We are also asking your permission for your child to participate in two self-report questionnaires, at two separate times, in the Fall and Spring. Your child will answer questions from the Feelings, Attitudes, and Behaviors Scale for Children (FAB-C) and My Class Inventory – Short Form (MCI-SF), which are designed to assess your child's perception of self-concept and classroom climate, respectively. These measures will be administered in paper-and-pencil format in your child's classroom during class time, and will take approximately 30-45 minutes to complete. A research assistant will read the statements out loud, to which your child will indicate "Yes" or "No". Along with your consent to participate, we will also be asking your child for his or her assent to participate in these measures.

We are also seeking your permission for the school board to release your child's attendance data, EQAO marks, and report card marks to the researchers. The attendance data will help clarify how much of the MindUP program your child has received. The EQAO and report card marks will help us determine the impact of the MindUP program on academic performance.



If you are providing consent for your child to participate in the study, I would also request that you complete the enclosed Parent Demographic Form and Contact Information Form, and submit it with the signed Consent Form.

This study will take place during the 2019-2020 and 2020-2021 school years. During the Fall and Spring of the 2019-2020 school year, your child's teacher will complete two questionnaires for your child (i.e., SSIS SEL and BRIEF-2). For students who have parental consent, their teachers during the 2020-2021 school year will complete the same questionnaires at 6-month follow-up (i.e., November 2020). The questionnaires will be administered through a secure online survey platform called Qualtrics. Qualtrics uses encryption technology and restricted access authorizations to protect all data collected. In addition, Western's Qualtrics server is in Ireland, where privacy standards are maintained under the European Union safe harbour framework. The data will then be exported from Qualtrics and securely stored on Western University's server.

The electronic questionnaire 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 be distributed over the Internet. An ID code will be assigned to your child, which your child's teacher will use when completing the electronic questionnaire. The cover page for the self-report surveys, which will include your child's name for distribution purposes, will be removed prior to collection. Upon receiving your child's attendance data, EQAO marks, and report card marks, your child's name will be replaced with his/her ID code.

Your identity and that of your child will be kept confidential in any reports or presentations that result from the study. The responses from the teacher questionnaires and other de-identified information regarding your child will be put into a computer file. Information that identifies you/your child will not be kept in the computer file, but in a locked filing cabinet at the Centre for School Mental Health. The collected information will be kept for 5 years, and then the computer file will be permanently deleted and the consent forms in the file will be shredded. Representatives of the University of Western Ontario Non-Medical Research Ethics Board may require access to your study-related records to monitor the conduct of the research. If data collected during the project is required to report by law, I have a duty to report this information.

Your child's participation in this project evaluation is voluntary and you may withdraw your child's participation at any time without any negative consequences. If you decide to withdraw your child's participation from the study, you will have the choice of whether the information that was collected prior to you leaving will still be used in the study. 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.

If you would like more information about this project, or your role in it, please contact me by phone 519-661-2111 X 89245 or by email ccrooks@uwo.ca. Concerns about your participation in this study can be forwarded to Western University's Office of Research Ethics at 519-661-3036, ethics@uwo.ca

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,

PLEASE KEEP A COPY OF THE LETTER (ABOVE) FOR YOUR RECORDS



Study Title: MindUP for Young Children
Principal Investigator:
Claire Crooks, Ph.D., C.Psych.
Professor
Director, Centre for School Mental Health
Faculty of Education, Western University
1137 Western Road
London, ON CANADA N6G 1G7

Yes No I have read the Letter of Information and understand what I have read. All questions have been answered to my satisfaction and I agree to my child’s participation in this evaluation. I have kept a copy of this letter and this permission form.

Please initial beside all that apply:

- _____ Yes, my child has my consent to participate in the SSIS SEL and BRIEF-2 measures
- _____ Yes, my child has my consent to participate in the FAB-C and MCI-SF measures
- _____ Yes, I give consent for the school board to share my child’s attendance data, EQAO marks, and report card marks
- _____ No, my child does not have my consent to participate.

Parent’s signature _____

Date _____

My child’s name is (print): _____

Please provide an email or permanent address to receive a summary of results. Address or Email:

PLEASE KEEP A COPY OF THE LETTER (ABOVE) FOR YOUR RECORDS



Study Title: MindUP for Young Children
Principle Investigator:
Claire Crooks, Ph.D., C.Psych.
Professor
Director, Centre for School Mental Health
Faculty of Education, Western University
1137 Western Road
London, ON CANADA N6G 1G7

Yes No I have read the Letter of Information and understand what I have read. All questions have been answered to my satisfaction and I agree to my child’s participation in this evaluation. I have kept a copy of this letter and this permission form.

Please initial beside all that apply:

- _____ Yes, my child has my consent to participate in the SSIS SEL and BRIEF-2 measures
- _____ Yes, my child has my consent to participate in the FAB-C and MCI-SF measures
- _____ Yes, I give consent for the school board to share my child’s attendance data, EQAO marks, and report card marks
- _____ No, my child does not have my consent to participate.

Parent’s signature _____

Date _____

My child’s name is (print): _____

Please provide an email or permanent address to receive a summary of results. Address or Email:

PLEASE SIGN AND RETURN THIS COPY

Appendix C

Parent Demographic Form



PARENT DEMOGRAPHIC FORM

Study Title: MindUP for Young Children

Principal Investigator:

Claire Crooks, Ph.D., C. Psych

Professor

Director, Centre for School Mental Health

Faculty of Education Western University

1137 Western Road

London, ON CANADA N6G 1G7

1) My child's name is (print): _____

2) My child is a BOY or GIRL (circle one)

3) Their birth month is (print) : _____

4) Their birth year is (print): _____

5) My child's ethnic/cultural background is (select all that apply):

- African/Caribbean
- East Asian (China, Taiwan, Hong Kong, Japan, South Korea, North Korea, etc.)
- First Nations
- Inuit
- Latin American
- Métis
- Middle Eastern/West Asian (e.g., Afghanistan, Israel, Iran, Palestine, Saudi Arabia, Syria etc.)
- South Asian (e.g., Bangladesh, Bhutan, India, Maldives, Nepal, Pakistan, Sri Lanka etc.)
- Southeast Asian (e.g., Cambodia, Thailand, Vietnam, Indonesia, Laos, Malaysia, Philippines etc.)
- White/Caucasian
- Other, please specify: _____

6) My child lives with (select all that apply):

- Brother(s)
- Sister(s)
- Step-brother(s)
- Step-sister(s)
- Father
- Two fathers
- Step-father



- Mother
- Two mothers
- Step-mother
- Grandfather
- Grandmother
- Uncle
- Aunt
- Cousin(s)
- Foster family
- My child lives in multiple households (i.e., does not have a primary household)
- Other, please specify: _____

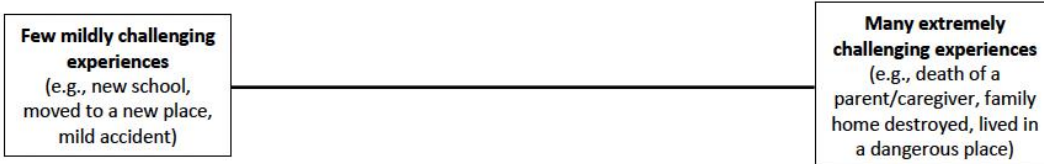
7) Parent/guardian 1: What is the highest level of school you have completed?

- Less than high school diploma
- High school diploma
- Some post-secondary (some college or university courses)
- College diploma
- University degree

8) Parent/guardian 2 (if applicable): What is the highest level of school you have completed?

- Less than high school diploma
- High school diploma
- Some post-secondary (some college or university courses)
- College diploma
- University degree

9) All people face challenging life experiences. Some are mild and some are severe. Looking at your child’s life, how would you rate the overall severity of challenges that your child has experienced in their life so far? Draw a line on the part of the scale to mark your rating. In drawing your line, consider both the number and the severity of challenges.



Appendix D

Letter of Information and Assent Form for Students



INFORMATION LETTER FOR LDCSB CHILDREN

Study Title: MindUP for Young Children

Principal Investigator: Claire Crooks, Ph.D., C. Psych
Professor

Director, Centre for School Mental Health
Faculty of Education Western University
1137 Western Road
London, ON CANADA N6G 1G7

Assent Letter:

1. Why are we doing this study?

We are doing a research study about how different activities in the class affect children's feelings, attitudes, and behaviour. A research study is a good way to find out if some activities are a helpful part of school. We asked your parents if they agree to be part of the study, and we are also asking you if you would like to participate.

2. What will happen?

If you want to be in the study, the following things will happen:

- a) We want to find out about your feelings, attitudes, and behaviour, and how you feel about your class.
- b) The researcher will read out the question and you will check "Yes" or "No" on your paper.
- c) We ask that you do your best to answer the questions. Try to be as honest as you can when answering the questions, because no one from school or home will see your answers.
- d) It will take approximately 30-45 minutes.
- e) The researcher will put your answers into a computer. All of your answers will be kept private.

3. Will it be hard?

It is not a test and there are no right or wrong answers. If you feel upset from any of the questions, please tell your teacher so he or she can help you.

4. How will this study help?

A benefit means that something good happens to you. A benefit of this study might be that we learn how certain activities can help children feel better in school. When we are finished the study, we will write about what we have learned. This report will not include your name, or that you were in the study. Your name and all of your answers will be kept private.

5. What if you have any questions?

You can ask questions at any time. You can ask the researchers during the survey or talk to your teacher or parents at any time.



6. Do you have to be in this study?

You do not have to be part of the study. If you do not want to be part of the study, you won't be letting anyone down. If you agree to be part of the study and want to stop at any time, you may.



Study Title: MindUP for Young Children
Principal Investigator: Claire Crooks, Ph.D., C. Psych
Professor
Director, Centre for School Mental Health
Faculty of Education Western University
1137 Western Road
London, ON CANADA N6G 1G7

ASSENT FORM FOR CHILDREN

I want to be part of this study.

Yes

No

Name of Child (please print): _____

Signature of Child: _____

Date: _____

Name of Person(s) Obtaining Assent (please print): _____

Signature: _____

Date: _____

PLEASE SIGN AND RETURN THIS COPY

Appendix E

Survey Administration Script



Survey Administration Script

Study Title: MindUP for Young Children

Principal Investigator: Claire Crooks, Ph.D., C. Psych

Professor

Director, Centre for School Mental Health

Faculty of Education Western University

1137 Western Road

London, ON CANADA N6G 1G7

Hello, we are researchers from Western University and we are here to run a study today.

You will see a survey booklet in front of you if you and your parents have agreed to be part of the study.

If you and your parents did not agree to participate, we will give you a quiet activity to do while your classmates complete their surveys.

For those of us participating in the study, we are going to take two surveys to learn more about your feelings, attitudes, and behaviour. It will take approximately 30 minutes to complete both surveys.

We will read out the questions and you will check "Yes" or "No" on your paper. This is not a test and you will not be graded. On a survey, you are asked for your personal ideas, so there are no right or wrong answers. While filling out the survey, please do not talk to your classmates or share your answers. We ask that you try to be as honest as you can when answering the questions, because no one from school or home will see your answers. All of your answers will be kept private.

Your participation is voluntary. You are not letting anyone down if you choose to skip a question or if you stop at any time.

If you have any questions during the survey, please raise your hand. Are there any questions before we begin?

Appendix F

Debriefing Script



Debriefing Script

Study Title: MindUP for Young Children

Principal Investigator: Claire Crooks, Ph.D., C. Psych

Professor

Director, Centre for School Mental Health

Faculty of Education Western University

1137 Western Road

London, ON CANADA N6G 1G7

Thank you for participating in this study. The information you gave us will help us better understand how Grade 3 students think about their feelings, attitudes, and behaviour. If anything in the survey made you feel upset, please tell your teacher or parent, so he/she can help you. If you have any questions about the study, you can ask me at this time.

Thank you again for your time and participation. We hope that you enjoyed this experience.

Appendix G

Ethics Approval Letters



Date: 30 July 2019

To: Dr. Claire Crooks

Project ID: 108218

Study Title: MindUP for Young Children

Application Type: NMREB Amendment Form

Review Type: Delegated

Full Board Reporting Date: 06/Sep/2019

Date Approval Issued: 30/Jul/2019 11:36

REB Approval Expiry Date: 15/Oct/2019

Dear Dr. Claire Crooks,

The Western University Non-Medical Research Ethics Board (NMREB) has reviewed and approved the WREM application form for the amendment, as of the date noted above.

Documents Approved:

Document Name	Document Type	Document Date	Document Version
Appendix LLL Grade 3 Debriefing Script_2019_07_24	Other Materials	24/Jul/2019	1
Appendix MMM My Class Inventory - Short Form	Paper Survey	24/Jul/2019	1
Appendix NNN Survey Administration Script_2019_07_24	Other Materials	24/Jul/2019	1
Appendix OO Comparison Teacher Research Assistant Agreement_2019_07_24_clean	Written Consent/Assent	24/Jul/2019	2
Appendix OOO Weekly Implementation Survey	Online Survey	24/Jul/2019	1
Appendix PP Parent Consent Form for Grade 3_2019_07_24_clean	Written Consent/Assent	24/Jul/2019	2
Appendix RR Child Assent Form_2019_07_24_clean	Written Consent/Assent	24/Jul/2019	2
Appendix T MindUP Teacher Research Assistant Agreement_2019_07_24_clean	Written Consent/Assent	24/Jul/2019	2
ROMEO Crooks - submitted protocol in word July 24 2019 clean	Protocol	24/Jul/2019	11

REB members involved in the research project do not participate in the review, discussion or decision.

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.

Please do not hesitate to contact us if you have any questions.

Sincerely,

Katelyn Harris, Research Ethics Officer on behalf of Dr. Randal Graham, NMREB Chair

Note: This correspondence includes an electronic signature (validation and approval via an online system that is compliant with all regulations).



Date: 4 September 2019

To: Dr. Claire Crooks

Project ID: 108218

Study Title: MindUP for Young Children

Application Type: NMREB Amendment Form

Review Type: Delegated

Full Board Reporting Date: 04/Oct/2019

Date Approval Issued: 04/Sep/2019 16:31

REB Approval Expiry Date: 15/Oct/2019

Dear Dr. Claire Crooks,

The Western University Non-Medical Research Ethics Board (NMREB) has reviewed and approved the WREM application form for the amendment, as of the date noted above.

Documents Approved:

Document Name	Document Type	Document Date	Document Version
Appendix N Parent Demographic Form_2019_08_27_clean	Paper Survey	27/Aug/2019	2
Appendix OO Comparison Teacher Research Assistant Agreement_2019_08_27_clean	Written Consent/Assent	27/Aug/2019	3
Appendix OOO Weekly MindUP Implementation Survey for MindUP Teachers_2019_08_27_clean	Online Survey	27/Aug/2019	2
Appendix PP Parent Consent Form for Grade 3_2019_08_27_clean	Written Consent/Assent	27/Aug/2019	3
Appendix PPP SSIS SEL	Online Survey	27/Aug/2019	1
Appendix QQQ Weekly SEL Implementation Survey for Comparison Teachers	Online Survey	27/Aug/2019	1
Appendix T MindUP Teacher Research Assistant Agreement_2019_08_27_clean	Written Consent/Assent	27/Aug/2019	3
ROMEO Crooks - submitted protocol in word August 27, 2019 clean	Protocol	27/Aug/2019	12

REB members involved in the research project do not participate in the review, discussion or decision.

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.

Please do not hesitate to contact us if you have any questions.

Sincerely,

Katelyn Harris, Research Ethics Officer on behalf of Dr. Randal Graham, NMREB Chair

Note: This correspondence includes an electronic signature (validation and approval via an online system that is compliant with all regulations).

Appendix H

My Class Inventory – Short Form Revised (MCI-SFR)

Student ID: _____

My Class Inventory – Short Form

Directions: This is to find out about your class. Respond to the statements as your classroom actually is. Please mark either the **Yes** or **No** box.

Yes if you AGREE with the sentence.

No if you DON'T AGREE with the sentence.

This Is How I Think About My Classroom		
1. Students enjoy their schoolwork in my class.	<input type="checkbox"/> Yes	<input type="checkbox"/> No
2. Students are always fighting with each other.	<input type="checkbox"/> Yes	<input type="checkbox"/> No
3. Students often race to see who can finish first.	<input type="checkbox"/> Yes	<input type="checkbox"/> No
4. In my class everyone is my friend.	<input type="checkbox"/> Yes	<input type="checkbox"/> No
5. Some students are not happy in class.	<input type="checkbox"/> Yes	<input type="checkbox"/> No
6. Most students want their work to be better than their friends' work.	<input type="checkbox"/> Yes	<input type="checkbox"/> No
7. Some people in my class are not my friends.	<input type="checkbox"/> Yes	<input type="checkbox"/> No
8. Students seem to like the class.	<input type="checkbox"/> Yes	<input type="checkbox"/> No
9. Many students in our class like to fight.	<input type="checkbox"/> Yes	<input type="checkbox"/> No
10. Some students feel bad when they don't do as well as the others.	<input type="checkbox"/> Yes	<input type="checkbox"/> No
11. All students in my class are close friends.	<input type="checkbox"/> Yes	<input type="checkbox"/> No
12. Some of the students do not like the class.	<input type="checkbox"/> Yes	<input type="checkbox"/> No
13. Some students always try to do their work better than the others.	<input type="checkbox"/> Yes	<input type="checkbox"/> No
14. All of the students in my class like each other.	<input type="checkbox"/> Yes	<input type="checkbox"/> No
15. This class is fun.	<input type="checkbox"/> Yes	<input type="checkbox"/> No
16. Students in our class fight a lot.	<input type="checkbox"/> Yes	<input type="checkbox"/> No
17. A few students in my class want to be first all the time.	<input type="checkbox"/> Yes	<input type="checkbox"/> No
18. Students in our class like each other as friends.	<input type="checkbox"/> Yes	<input type="checkbox"/> No

Curriculum Vitae

Name: Sue Kim

Post-secondary Education and Degrees: The University of Western Ontario
London, Ontario, Canada
2014-2018 B.Sc. Honours Psychology and Medical Sciences

The University of Western Ontario
London, Ontario, Canada
2020-2022 M.A. Education Studies, School and Applied Child Psychology

Honours and Awards: Bennie and Shirley Bradshaw Award
The University of Western Ontario
2015, 2017

Four Year Continuing Admission Scholarship, Dean's Honour List
The University of Western Ontario
2014-2018

Academic Gold Medal in Psychology
The University of Western Ontario
2018

Province of Ontario Graduate Scholarship
2020-2021, 2021-2022

Related Work Experience: Project Manager
The University of Western Ontario
2019-2020

Research Assistant
The University of Western Ontario
2020-Present

Publications:

Crooks, C., Bax, K., Delaney, A., Kim, H., & Shokoohi, M. (2020). Impact of MindUP among young children: Improvements in behavioral problems, adaptive skills, and executive functioning. *Mindfulness, 11*, 2433-2444. <https://doi.org/10.1007/s12671-020-01460-0>

Kim, S., Crooks, C., Bax, K., & Shokoohi, M. (2021). Impact of trauma-informed training and mindfulness-based social-emotional learning program on teacher attitudes and burnout: A mixed-methods study. *School Mental Health, 13*, 55-68. <https://doi.org/10.1007/s12310-020-09406-6>