

Promoting Young Children's Social and Emotional Competencies and School Success: Exploring Acceptability, Feasibility and Preliminary Outcomes of "The CALM Curriculum"

Jacqueline Maloney, PhD, Co-Investigator

Jenna Whitehead, PhD, Project Manager

Kimberly Schonert-Reichl, PhD, Primary Investigator



HUMAN
EARLY LEARNING
PARTNERSHIP



THE UNIVERSITY
OF BRITISH COLUMBIA

Research Team

Suggested citation: Maloney, J. E., Whitehead, J. K., & Schonert-Reichl, K. A. (2023). *Promoting young children's social and emotional competence and school success: Exploring feasibility and preliminary outcomes of the CALM Curriculum*. A report prepared for the Fraser Valley Child Development Centre. Human Early Learning Partnership, University of British Columbia, Vancouver, BC, Canada.

Dr. Jacqueline Maloney is a former post-doctoral fellow at the Human Early Learning Partnership at UBC and currently the research coordinator for the Capturing Health and Resilience Trajectories lab at Simon Fraser University. Dr. Maloney holds a PhD in Human Development, Learning, and Culture at UBC. Dr. Maloney's research focuses on identifying promotive and protective factors for life-long mental health and well-being.

Dr. Jenna Whitehead is a research associate at the Human Early Learning Partnership at UBC. Dr. Whitehead holds a PhD in Human Development, Learning and Culture from UBC. Her research interests include the social and emotional learning and development of children and adolescents, specifically the neuroscientific underpinnings of these phenomena and the role of mindfulness and student-teacher relationships on children and adolescent well-being, prosociality, and academic success.

Dr. Kimberly A. Schonert-Reichl is the NoVo Foundation Endowed Chair in Social and Emotional Learning (SEL) and Professor in the Department of Psychology at the University of Illinois at Chicago. From 1991 to 2020, she was a Professor in the Department of Educational and Counseling Psychology, and Special Education in the Faculty of Education at the University of British Columbia (UBC), and from 2015 to 2020, she was the Director of the Human Early Learning Partnership at UBC. Known as a world renowned expert in the field of SEL, Dr. Schonert-Reichl's research focuses on identification of the processes that foster positive human qualities such as empathy, compassion, altruism, and resiliency in children and adolescents. Her projects in this area include studies examining the effectiveness of classroom-based universal SEL programs in schools that focus on fostering student and teacher well-being as well as assessments of children's SEL, well-being, physical health, and resiliency.

Contact

Professor Kimberly Schonert-Reichl, PhD
University of Illinois at Chicago
1007 West Harrison Street, Room 1008A
Chicago, IL 60607-7137
Office: 312.355.0640
reichl@uic.edu

Table of Contents

2 Executive Summary

3 Key Takeaways

4 Background

6 Study Design

15 Results

29 Next Steps for Research

30 References

Acknowledgements

This research was an arms-length study conducted by the Human Early Learning Partnership at the University of British Columbia. The study was commissioned by the Fraser Valley Child Development Centre with the goal of understanding acceptability of The CALM Curriculum program content among kindergarten teachers, feasibility of its implementation, and as a pilot study to investigate program outcomes in comparison to other SEL initiatives underway in schools in British Columbia. The Fraser Valley Child Development Centre had no input in study design or research analysis, and the present report was developed independently of the centre.

Thank you to the Vancouver School District, school administrators, teachers, and children who participated in the study. Thank you to program developer, Kiran Sidhu, and teacher trainers, Nicole Misura and Jodie Elliot, for providing The CALM Curriculum materials and training to participating teachers. Teachers randomized to the Business as Usual group were invited to take part in The CALM Curriculum training and receive The CALM Curriculum materials in the school year following the study.

THANK
YOU

Executive Summary

1

STUDY CONTEXT

- 4 schools, 7 kindergarten classrooms in Vancouver
- CALM Group = 49 students
- Business as Usual (BAU) = 54 students
- Study conducted during COVID-19 Wave 5.

ACCEPTABILITY

- 3 out of 4 teachers had positive views of the program and plan to implement again.
- Student engagement was rated High to Very High across modules.

2

3

FEASIBILITY

- Teachers implemented at least 80% of modules and 60% of components.
- All teachers implemented extra activities.
- 75% made adaptations for diverse learners.

IMPLEMENTATION QUALITY

- Quality varied across classrooms.
- Higher implementation quality was significantly linked to higher general social and emotional competence.

4

5

CALM STUDENTS HAD **SIGNIFICANTLY GREATER IMPROVEMENTS IN SOCIAL AND EMOTIONAL COMPETENCIES, EMOTION CONTROL, EXECUTIVE FUNCTIONS, AND PEER ACCEPTANCE** THAN BAU GROUP FROM PRETEST TO POST-TEST.

CALM STUDENTS HAD **SIGNIFICANTLY GREATER DECREASES IN AGGRESSION, DYSREGULATED BEHAVIOUR, & CONFLICT WITH TEACHERS** THAN BAU GROUP FROM PRETEST TO POST-TEST.

6

7

MOST USEFUL COMPONENTS

- Solutions Centre
- Puppets
- Movement & Music Activities
- Students were most engaged in Sad, Tucker, and Super Friends Modules.

Key Takeaways

1

Our findings provide preliminary evidence for the feasibility, acceptability, and efficacy of the CALM Curriculum in schools with an SEL focus.



Acceptability

-
- Students were engaged in all lessons and enjoyed the play-based elements most: puppets, music, games, and movement activities.
 - Teachers appreciated the solution centre and breathing activities.



Feasibility

-
- All teachers implemented at least 80% of modules and 60% of program components.



Efficacy

From pre- to post-test students demonstrated:

- increased social and emotional competencies, well-being, and peer acceptance, and decreased aggressive and dysregulated behaviour, emotion problems, and conflict with teachers.
 - Better implementation quality = significantly greater improvements from pre- to post-test in SEC, happiness, and emotion problems among children in CALM Curriculum classrooms.
-

Background

Social and emotional development in the early years provides a critical foundation for children's well-being, learning, and day-to-day interactions, not only for early childhood, but also for years to come. Many children experience a rapid development in social and emotional competencies during early childhood, often described as ages three to six (Bierman et al., 2018). This developmental growth in social and emotional competencies is highly influenced by children's environmental input (Greenberg et al., 2017), and especially their relationships with caregivers (e.g., parents, guardians, teachers; Ferreira et al., 2016; Mahoney et al., 2020). In the short-term, social and emotional competencies in early childhood are linked to school readiness, enjoyment of school, quality of relationships with peers and teachers, and learning (Blewitt et al., 2018; Harrington et al., 2020; Valiente et al., 2020). In the long term, social and emotional competencies predict myriad important life outcomes affecting physical, social, and mental health, and well-being (Jones et al., 2015; Sege & Harper Browne, 2017).

Social and emotional competencies (SEC) play an especially important role as children transition to formal schooling. Children's experience in kindergarten is of particular importance because it sets the stage for later school experiences. Children who fare well in kindergarten tend to have better school experiences and better academic performance in later school years than children who do not (West, 2017). Transitional periods, such as starting kindergarten, can be especially challenging for children because they are required to draw on previously learned skills and apply them to novel situations and tasks (Denham & Weissberg, 2004).

Children with more proficient SEC tend to have a smoother transition to kindergarten, more rewarding social relationships at school, better academic performance, and more enjoyment at school (Jones et al., 2015). Research suggests that proficient SEC may also serve as protective factors against serious issues throughout the trajectory of one's life, such as mental illness (Weare & Nind, 2011), bullying and victimization (Divecha & Brackett, 2019), high school graduation (Jones et al., 2015), and criminality (Sorensen et al., 2016). For example, children with proficient SEC as rated by teachers in kindergarten reported having significantly higher levels of well-being and lower levels of sadness and worries in Grade 4 compared to peers with less proficient SEC (Thomson et al., 2021). Foundational to the development of SEC is children's ability to self-regulate emotional arousal in social interactions (Denham et al., 2014). Self-regulation skills are put to test in preschool and kindergarten contexts in which children are learning how to navigate new relationships with teachers and peers successfully (Blair & Diamond, 2008). Executive functions (EFs) are thought to play an important role in self-regulating behaviour (Raver & Blair, 2016). EFs are higher cognitive skills that enable individuals to volitionally inhibit automatic reactions to stimuli, hold relevant information in the working memory, and flexibly shift or transition from one point of focus to another (Diamond & Ling, 2016). EFs are fundamental for focusing attention, exercising discipline and self-control, problem solving, planning, reasoning, and managing emotions (Blair & Raver, 2015).

Social and Emotional Learning (SEL)

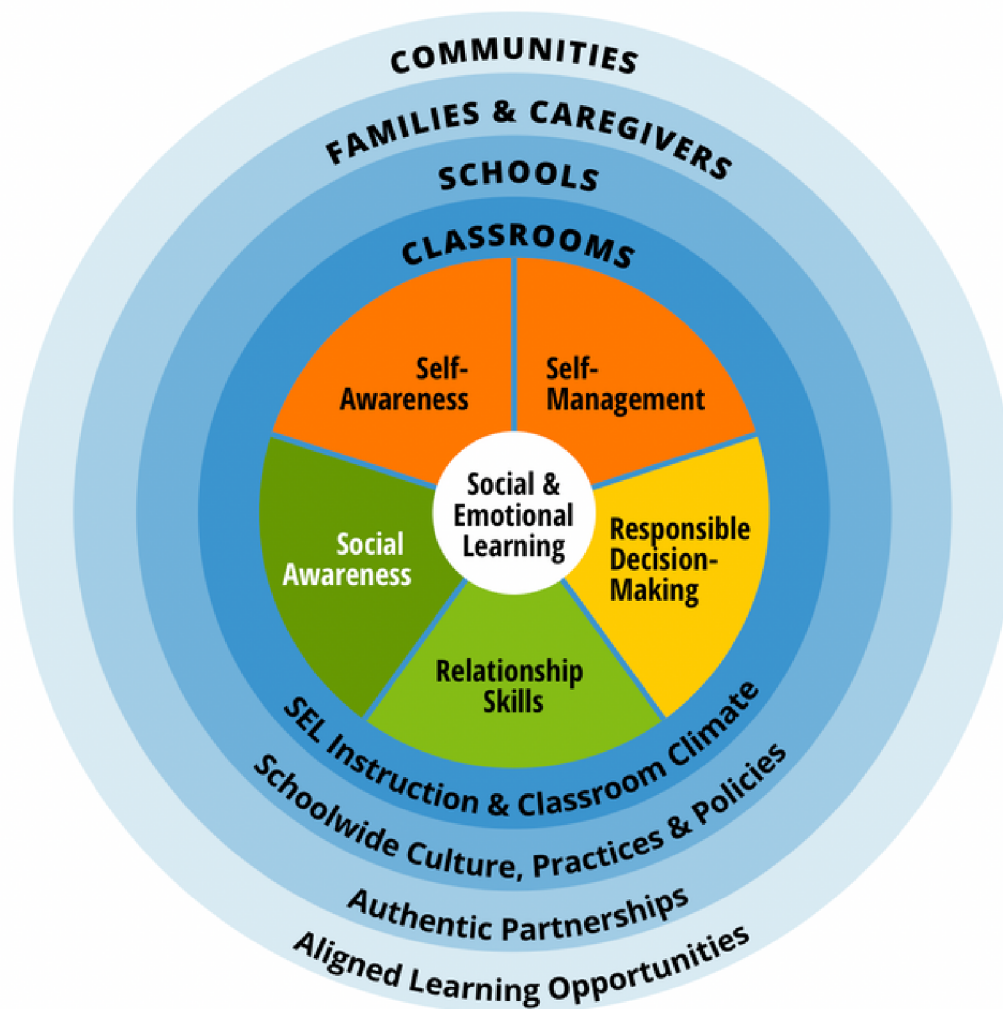


Figure 1. CASEL Framework for Social and Emotional Learning (SEL; casel.org)

What is social and emotional learning (SEL)? SEL is the process through which people build social and emotional competencies. The Collaborative for Social, Emotional, and Academic Learning (CASEL) Framework for SEL consists of five dimensions: self-awareness, self-management, social awareness, relationship skills, and responsible decision-making (Mahoney et al., 2020). Each of these areas are influenced by children's contexts, including home and school environments. The CALM Curriculum incorporates each of the five CASEL dimensions and aims to build caregivers' capacity to support children's SEL in the classroom and at home. Reviews of SEL programs indicate that in addition to promoting students' SEC, SEL programs strengthen teaching quality, increase nurturing teacher-child interactions, and have a positive influence on academic performance in reading, mathematics, and science (Blewitt et al., 2018; Cocoran et al., 2018).

Study Design

Context

This study took place two years into the COVID-19 pandemic in the midst of Wave 5 in British Columbia (April to June, 2022). Children entering kindergarten had experienced two years of mandated restrictions, including lockdowns and isolation from peers. In British Columbia, children experienced months-long closures of playgrounds, preschools and childcare facilities, limits on social interactions, and masked childcare givers. Parents of young children were faced with balancing work and childcare, leading to increased stress at home (Linnavalli & Kalland, 2021). Although these steps were necessary to protect the physical health of children and the adults who care for them, it came at a cost to their social and emotional development and well-being (Ceylan et al., 2021). Limited opportunities for play and supportive school environments were identified by parents as sources of disruption to social and emotional development during this critical developmental period (Egan et al., 2021).

Positive relations with child caregivers and opportunities for play are fundamental to healthy child development (McNally & Slutsky, 2017; Yogman et al., 2018). Chronic stress and adverse experiences, such as those faced by children throughout the first years of the COVID-19 pandemic, have been shown to impact life-long mental and physical health (Kira, 2022). These impacts can be mitigated, however, by positive childhood experiences, such as positive peer interactions and supportive relationships with parents and teachers (Sege & Harper Browne, 2017). Moreover, children with better social and emotional competencies in early childhood also have been shown to promote lifelong mental health and social well-being (Jones et al., 2015). Thus, effective programs that can promote positive caregiver and peer relationships while supporting the development of social and emotional competencies may be more important than ever to mitigate long-term negative outcomes for adversities encountered by young children worldwide during the first two years of the pandemic. The purpose of the present study was to evaluate the acceptability, feasibility of implementation, and program outcomes of a play-based SEL program designed to improve young children's relationships with adults and peers, foster the development of their social and emotional competencies, and boost their mental well-being: The CALM Curriculum.

Research Questions

- 1) What are teacher's perspectives on program content and student engagement of The CALM Curriculum?
- 2) How feasible do kindergarten teachers find The CALM Curriculum to implement, particularly during challenging times, such as increased COVID-19 infections?
- 3) How does The CALM Curriculum impact kindergarten children's social and emotional competencies, quality of relationships, and mental well-being compared to children who receive their typical SEL curriculum?

Study Design

To answer the research questions, we employed a mixed-method randomized controlled trial (Figure 1). To answer our first two research questions regarding the acceptability and feasibility of The CALM Curriculum, we collected qualitative and quantitative data using implementation calendars, consumer satisfaction surveys, and one-on-one structured interviews with participating teachers. To understand program outcomes, we used a randomized control trial design in which half of the participating classes were randomly chosen to receive The CALM Curriculum through a random number generator. The other half continued with their regular curriculum, which include SEL programs such as Second Step, Mind UP, and Zones of Regulation. A randomized controlled study is the most effective way to learn if a program causes any changes beyond regular classroom activities.

The study took place in 8 classrooms located in four schools in the Vancouver School District, which consists of 89 elementary schools serving 28,000 students from Kindergarten to Grade 7. The school district is among the most ethnically diverse in Canada. There are 140 languages spoken among students in the district and 44% of students in the district speak a language other than English at home.

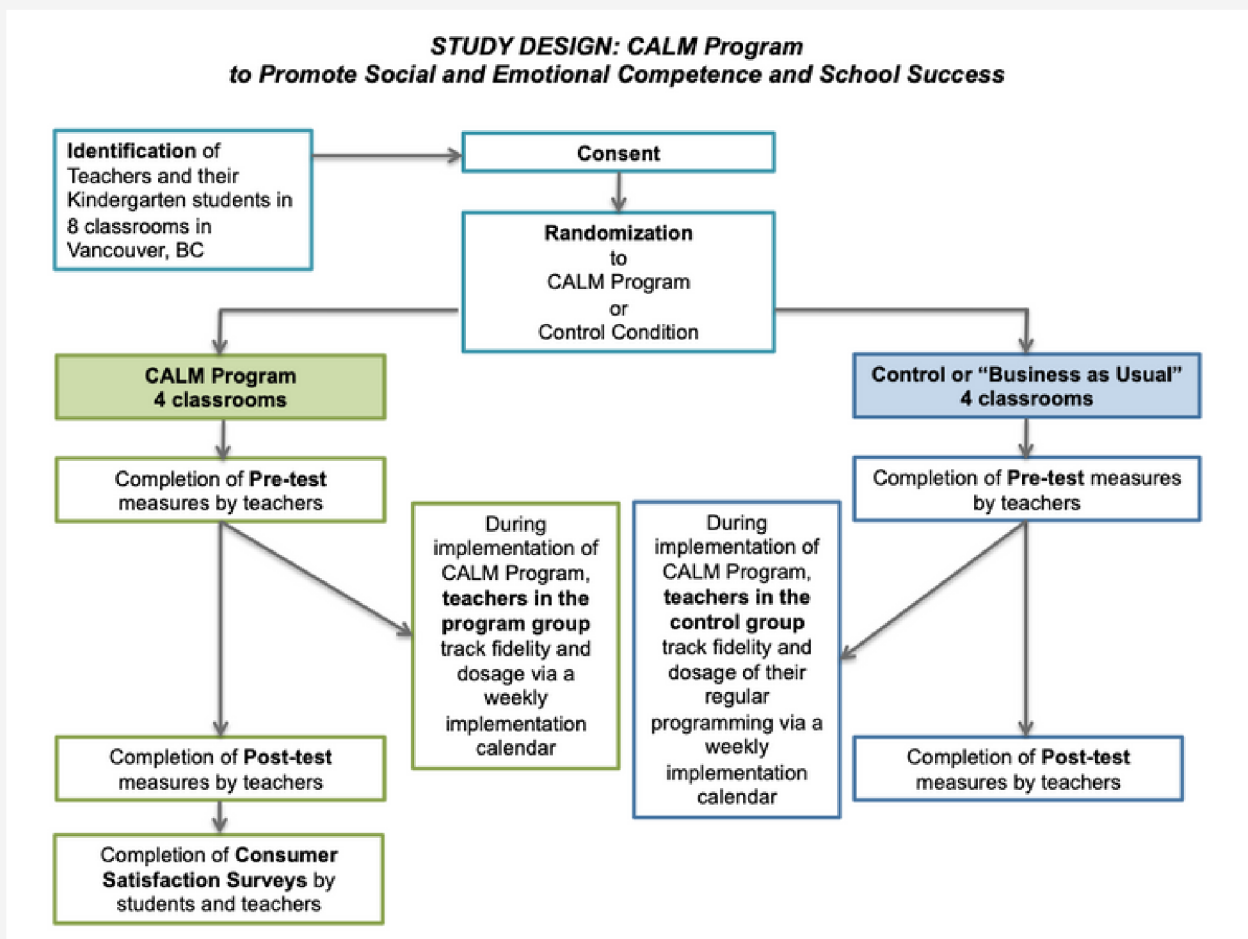


Figure 1. The original study design included a task a performance-based task of student self-regulation and one-on-one interviews with students to gain children's perspectives on the program. The study was halted due to COVID-related school closures in March, 2020. Due to COVID-19 restrictions, outside visitors were not permitted when the study resumed in 2022; thus data collection with children was not possible. All data in the present study was reported by teachers.

CALM Curriculum

The CALM Curriculum is a play-based SEL program. In The CALM Kindergarten Curriculum, children learn about their primary emotions, self-management, breathing, stretching, energy states, impulse control, moral development, kindness, brain games, and more.



1. SEL Modules

Each of the 10 modules focuses on a specific theme. Each week children are provided with a take-home worksheet to discuss the theme with the adults in their lives. Module topics include emotions, friendships skills, and self-regulation strategies.



2. Self-Regulation Activities

- *Energy Gauge* to help children build awareness about their energy levels.
- Music
- Movement (e.g., dancing and yoga)
- Mindful Breathing
- Self-Regulation Games (Brain Games)



3. Problem-Solving

Children learn new problem-solving strategies throughout the program. The solutions centre offers a place in the classroom where children can see solutions and choose which one might work for the challenge they are encountering in the classroom.

CALM Curriculum Training

Teachers received a 6-hour virtual CALM Curriculum training (two 3-hour Zoom sessions) in which they were introduced to The CALM Curriculum theory of change, program components, and strategies for promoting supportive student-teacher relationships.



I **C**onnect

Text

Authentically &

Respond

Empathetically

Participants: Students

Eight classrooms across 4 public schools in Vancouver were randomly assigned to CALM Curriculum or Business as Usual (BAU) groups. Participation rate was 87% ($N = 122$). In the CALM Curriculum classrooms, there were a total 49 participants and 73 participants in the BAU classrooms. One BAU group was removed from analysis because the teacher had taken The CALM Curriculum training previously. Removing this class also allowed for more equal group sizes (CALM $n = 50$; BAU $n = 54$) with **a total of 104 students included in the final analysis**. Regarding English comprehension, teachers reported that 88.4% found it either "easy" or "very easy" for the child to understand English. Table 1 outlines participant demographics. The study took place during COVID-19 Wave 5 (April to June, 2022). The study was approved by university and school district Research Ethics Boards.

Table 1. Demographics

Demographics		
Gender	Girl	Boy
	50 (49%)	54 (51.9%)
English Language Learner	Yes	No
	24 (23.1%)	80 (23%)
Languages Spoken at Home	<i>n</i>	%
English	93	89.4%
Mandarin or Cantonese	30	28.8
Korean	5	4.8%
Arabic	3	2.9%
Portuguese	3	2.9%
Spanish	3	2.9%
Farsi	2	1.9%
Other	11	17.2%

Participants: Teachers

As per school district policy, we contacted principals to invite schools to participate. Principals were provided with study information, and were informed that teacher and student participation was completely voluntary even if principals consented to school participation. Recruitment was halted once 8 teachers had volunteered to take part in the study.

All participating teachers identified as women. Three teachers described their ethnic background as East Asian, two as European, one as South Asian, one as Southeast Asian, and one as West Asian. Years of teaching experience ranged from 5 to 27 ($M = 14.13$, $SD, 9.45$).

Prior to the study, all classes were implementing SEL programs and activities, which included Roots of Empathy ($n = 5$), Second Step ($n = 2$), Mind UP ($n = 4$), Zones of Regulation ($n = 3$), Positive Behavioral Interventions and Supports (PBIS, $n = 1$), and Emotional ABCs ($n = 1$). Teachers randomly assigned to the Business as Usual group continued with their regular SEL curriculum throughout the study.

Three of the eight teachers had training in SEL implementation. One of these teachers had previously been trained in The CALM Curriculum. Because she was randomized to the control group and implemented program components throughout the study that overlapped with CALM Curriculum components (e.g., mindful breathing, energy gauge in Zones of Regulation), the teacher's classroom was removed from analysis as a confound.



Measures

We collected data before The CALM Curriculum was implemented in April 2022 and after the program was implemented in June 2022. Teachers rated children's competencies in the following areas: social and emotional behaviours, relationships with teachers and peers, and mental well-being. All measures demonstrated good to excellent internal reliability (Chronbach's alpha range $a = .87$ to $a = .97$). We also collected implementation quality data on weekly implementation calendars and employed participant satisfaction surveys and structured post-program interviews to understand program acceptability and the social validity of the program. All data was reported by teachers given COVID-related restrictions that prevented data collection with children.

Implementation Quality

- Dosage
- Fidelity
- Adherence
- Engagement
- Adaptation for Diverse Learners
- Extensions into Curriculum

Participant Satisfaction (Social Validity)

- Mixed-method survey
- Structured interviews

Social and Emotional Behaviours

- General Social and Emotional Competencies - a composite variable that includes interpersonal skills, such as empathy, kindness, and cooperation, and intrapersonal skills, such as recognizing emotions.
- Executive Function (EFs) Deficits: Emotion Control, Inhibitory Control, Working Memory, Shifting, and Planning. Low scores = high EFs.
- Attention and Concentration
- Oppositional/Dysregulated behaviour
- Aggressive Behaviour

Well-being

- Happiness
- Emotion Problems

Relationships in the Classroom

- Peer Acceptance
- Student-Teacher Relationship Quality (Closeness and Conflict)



Social and Emotional Behaviour Measures

Table 2. Social and Emotional Behaviours Measures

Variable	Measure	Example Items
Executive Functions	Behavior Rating Inventory of Executive Function- Preschool Version (BRIEF-P; 2003) Inhibitory Control, Working Memory, Shifting, Planning, and Emotion Control Sub-scales	<p>"Is impulsive"</p> <p>"Has troubling changing activities"</p> <p>"Is easily overwhelmed or overstimulated by typical daily activities."</p>
Social and Emotional Competencies	Teachers' Rating Scale of Social Competence (Kam & Greenberg, 1998): Social and Emotional Competencies Sub-scale	<p>"Show empathy and compassion for other's feelings"</p> <p>"Provide help, shares materials, and acts cooperatively with others."</p>
Attention and Concentration	Teachers' Rating Scale of Social Competence (Kam & Greenberg, 1998): Attention & Concentration Sub-scale	<p>"Stays on Task"</p> <p>"Concentrates"</p> <p>"Pays Attention"</p>
Aggressive Behaviour	Teachers' Rating Scale of Social Competence (Kam & Greenberg, 1998): Aggressive Behavior Sub-scale	<p>"Take others property"</p> <p>"Yells at others"</p> <p>"Fights"</p>
Oppositional/ Dysregulated Behavior	Teachers' Rating Scale of Social Competence (Kam & Greenberg, 1998): Oppositional/Dysregulated Behavior Sub-scale	<p>"Stubborn"</p> <p>"Easily irritated when they have trouble with some task (reading, math, etc.)"</p> <p>"Gets angry when provoked by other children"</p>

Relationship and Well-being Measures

Table 3. Relationship and Well-being Measures

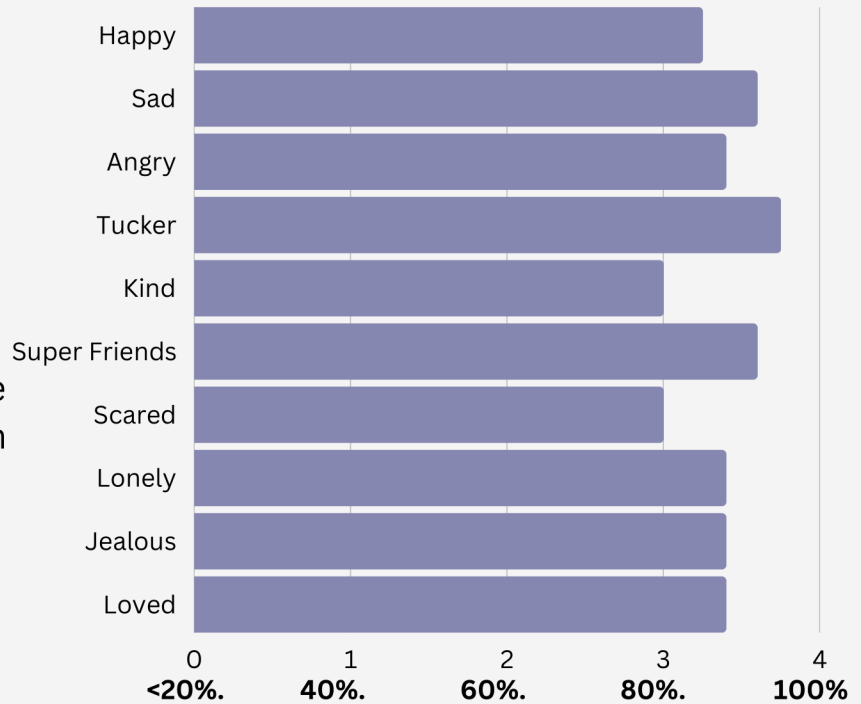
Variable	Measure	Example Items
Student/Teacher Relationship Quality	Student-Teacher Relationship Scale – Short Form (Pianta, 2001): Closeness and Conflict Sub-scales	<p>"I share an affectionate, warm relationship with this child."</p> <p>"This child openly shares their feelings and experiences with me."</p> <p>"When this child is in a bad mood, I know we're in for a long and difficult day."</p>
Peer Acceptance	Teachers' Ratings of Children's Social Behaviours (Eisenberg et al., 2003)	<p>"This child is popular with others their age."</p> <p>"This child has a lot of friends."</p>
Happiness	(Holder, M. & Coleman, B., 2008).	<p>"How happy is this student when they are doing normal work in your classroom?"</p> <p>"How happy is this student when they are doing fun activities?"</p>
Emotion Problems	Strengths & Difficulties Questionnaire (Goodman, 2001).	<p>"Many worries or often seems worried."</p> <p>"Often unhappy, depressed, or tearful."</p>

Results: Student Acceptability

Key Finding: Students were most engaged in modules that covered topics of sadness, Tucker Turtle's self-regulation strategy, and friendship skills ("Super Friends").

Each week, teachers were asked to rate student engagement for each model on a scale of 0 (not at all) to 4 (100% of the time). Student engagement for each module averaged 75% or higher for all modules across classroom. In post-program interviews, teachers reported the components that children enjoyed most in the program.

Figure 3. Student Engagement Across Modules



Key Finding: Teachers reported that children enjoyed the play-based program components and the solutions centre the most.



Puppets



Movement Activities



Music

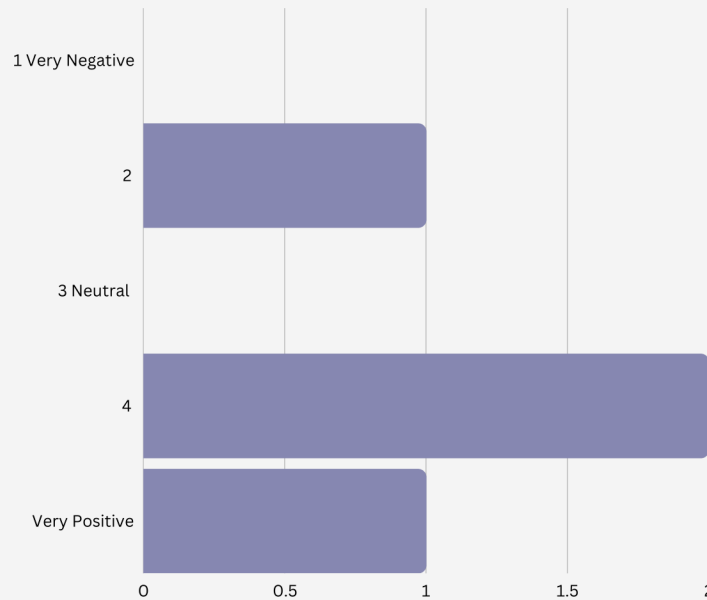


Solutions Centre

Results: Teacher Acceptability

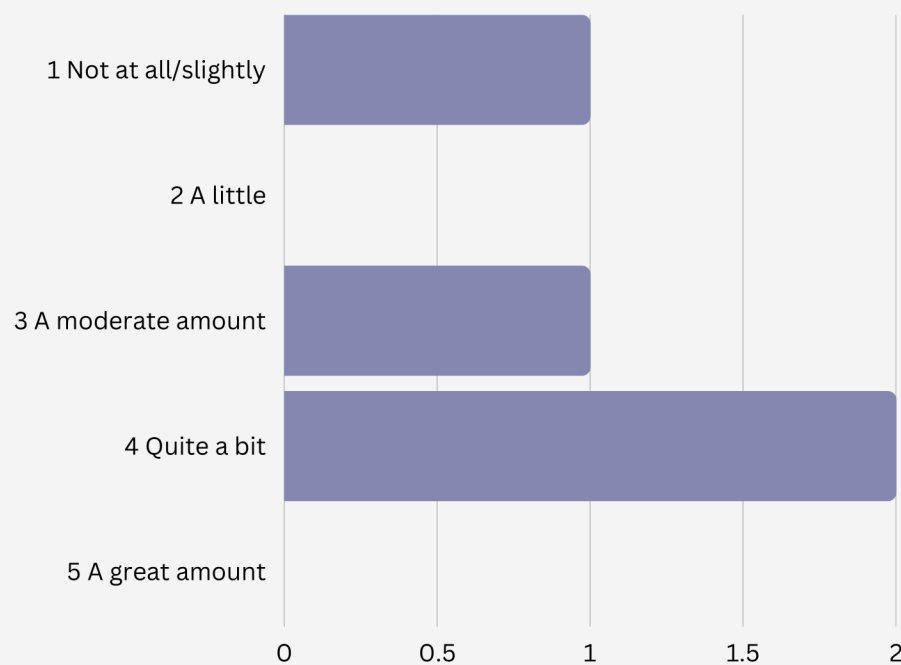
Key Finding: 3 out of 4 teachers had positive views of the program and felt they benefitted professionally from the program.

Figure 4 . Program Acceptability (n = 4)



"After implementing the CALM Curriculum, what are your overall feelings about the program?"

Figure 5 . Program Benefits (n = 4)

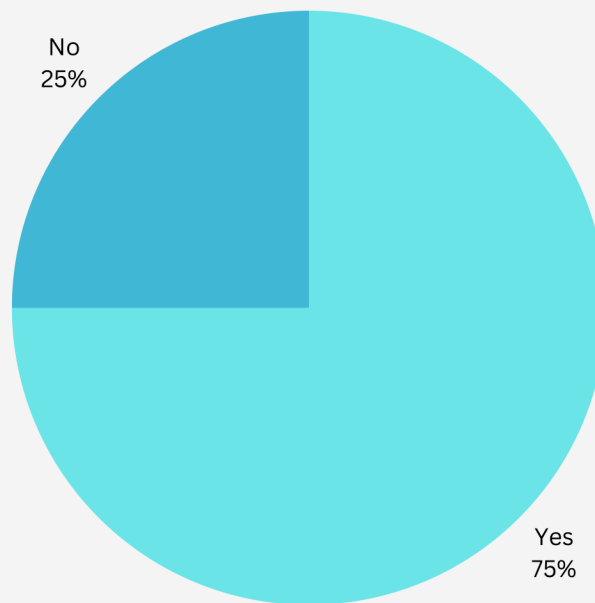


"Overall, how much would you say you've benefitted professionally from The CALM Curriculum?"

Results: Acceptability

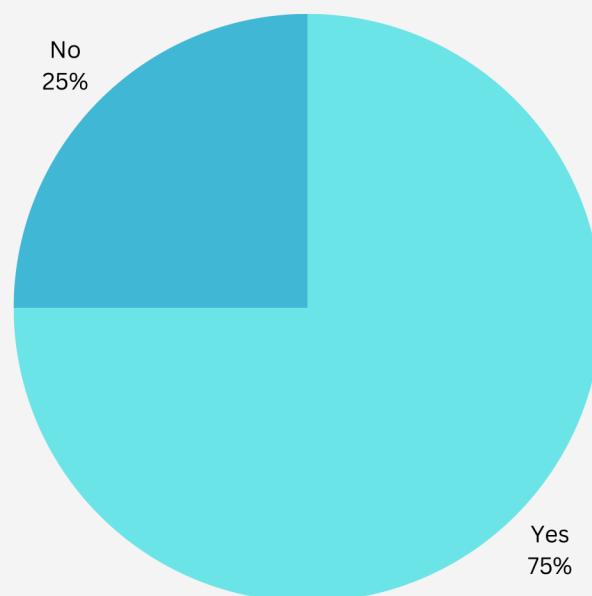
Key Finding: 3 out of 4 teachers plan to implement the program again and would recommend the program to a colleague.

Figure 6. Percentage of teachers who plan to implement the program again ($n = 4$)



"Will you use the CALM Curriculum again in the future?"

Figure 7. Percentage of teachers who would recommend the program to others ($n = 4$.)



"Would you recommend the CALM Curriculum to others?"

Results: Feasibility

KEY FINDINGS:

- All teachers implemented a minimum of 8 out of 10 modules.
- All teachers implemented at least 60% of module components.
- Only one teacher sent home parent/guardian worksheets. The other three teachers citing COVID-19 as a barrier to this activity (not wanting to overwhelm parents).
- Teachers didn't use the feathers for breathing activities because of the COVID-19 mask mandate in schools, but did complete the daily breathing activities.
- Teachers found the "Jealous" module challenging to implement.

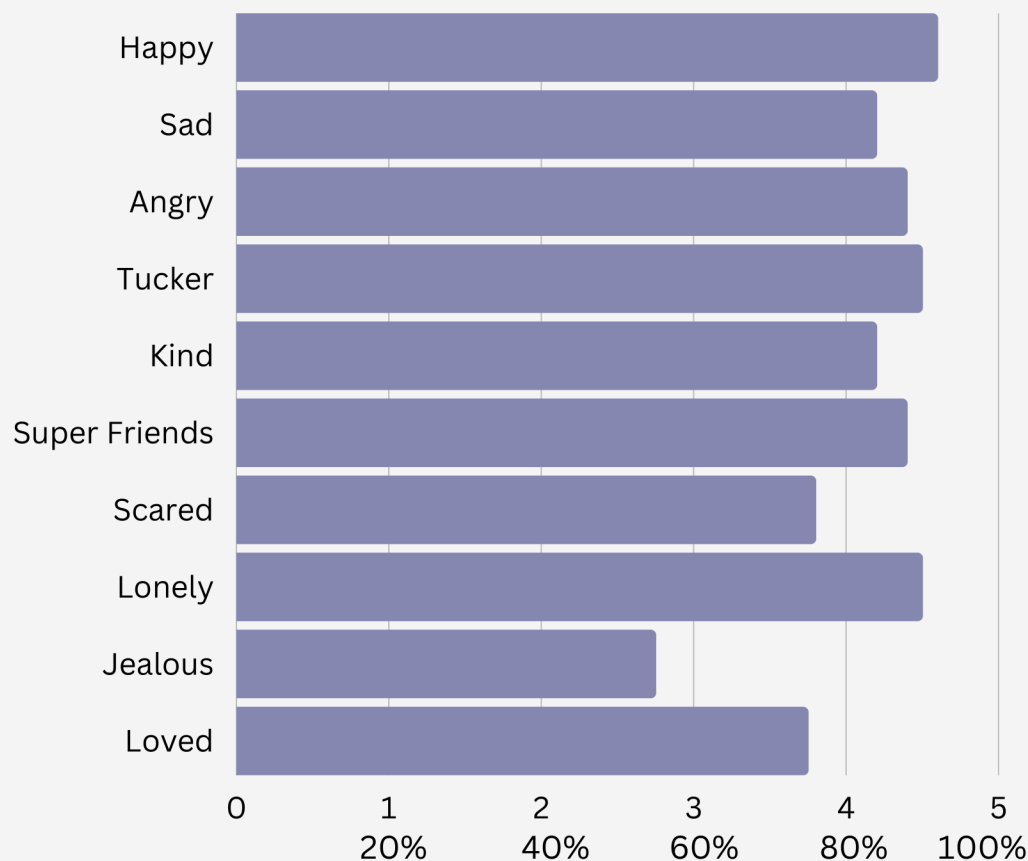


Figure 8. Average Percentage of Module Components Completed ($n = 4$)

Feasibility was measured by examining percentages of module and program components that were implemented on average across the four classrooms, and by feedback provided on the participant satisfaction surveys and post-program interviews. Research on SEL program implementation has found that SEL interventions with 60% program implementation have demonstrated positive results, and perfect or near-perfect implementation is unrealistic (Durlak & DuPre, 2008).

Teacher Recommendations

- Break modules into smaller lessons (10 to 15 minutes each)
- Would prefer laminated posters that they can leave up in classroom to small cards
- Would prefer black and white photocopies because schools don't have colour copiers and the colour master copies do not translate well into black and white copies
- Would prefer stretching videos to cards
- In general, teachers felt the multiple materials were cumbersome and a barrier to implementation.
- Teachers suggested having an online implementation platform (similar to Second Step) with lesson plans, scripts, stories, music, and movement videos all online.
- Plastic storage bags were hard for children to open and close and hard for teachers to store.



Core Components

In post-program interviews, we asked teachers which program components they perceived as most effective for skill-building in different areas.

Table 4. Teacher-Identified Core Program Components

What activities were most helpful for students'...	CALM Component
Self-Regulation	<ul style="list-style-type: none">• Solutions Centre• Breathing• Timer
Emotion Knowledge	<ul style="list-style-type: none">• Books• Worksheets• Discussing worksheets with adults at home
Prosocial Skills	<ul style="list-style-type: none">• Solutions Centre
Problem-Solving Skills	<ul style="list-style-type: none">• Solutions Centre• Scenarios

Program Outcomes

Preliminary analysis: Classrooms were randomized to group after pre-test data was collected. We conducted independent t tests comparing pre-test scores from CALM and BAU classrooms. There were significant differences between the CALM groups and BAU group at pre-test on student aggression ($t(102) = 2.12, p = .04$), happiness ($t(102) = -2.03, p = .05$), and emotion problems ($t(102) = 3.34, p < .001$). Students randomized to The CALM Curriculum were rated beforehand by teachers as having significantly greater aggressive behaviour and emotion problems and lower happiness than BAU students at pre-test. No other significant differences at baseline were observed.

Analysis: To examine whether there were any significant differences in outcomes between CALM Curriculum and BAU classrooms, we conducted repeated measures analysis of variance (RMANOVA), controlling for age (in months), gender, and English Language Learner (ELL) status to examine group-by-time interactions for each outcome variable. We conducted post hoc paired t tests from pre- to post-test within CALM and BAU groups separately in cases where significant group-by-time interactions were observed. All analyses were conducted in SPSS (Version 28). There were no missing data. All assumptions for RMANOVA were met for all analyses except the independence assumption, a limitation which precluded modelling intervention effects using multilevel models (Snijders & Bosker, 2012). There were no outliers cases that influenced results, so all cases were included in analyses.

Significant **group by time interactions** in RMANOVA favouring CALM groups were observed for **EF emotion control problems** ($F(1,101) = 7.66, p = .01, \eta p2 = .07$), **conflict with teachers** ($F(1,101) = 9.34, p < .01, \eta p2 = .09$), **EF difficulties with shifting activities** ($F = 8.75(1,101), p < .01, \eta p2 = .08$), **peer acceptance** ($F(1,101) = 7.69, p = .01, \eta p2 = .07$), **dysregulated/oppositional behaviour** ($F(1,101) = 10.55, p < .01, \eta p2 = .12$), **aggressive behaviour** ($F(1,101) = 5.62, p = .02, \eta p2 = .05$), **emotion problems** ($F(1,101) = 4.20, p = .04, \eta p2 = .04$), and **social and emotional competencies** ($F(1,101) = 12.57, p < .001, \eta p2 = .12$). (See Figures 9 to 12 depicting example group-by-time interactions).

Whereas problems with emotion control, conflict with teachers, and aggressive behaviour increased on average in BAU classrooms from pre- to post-test, CALM classrooms decreased in these areas. EF shifting problems and emotion problems did not change significantly for BAU groups from pretest to post-test, but significantly decreased for CALM groups. Peer acceptance and social and emotional competencies increased from pre- to post-test in the CALM group but decreased for the BAU groups. Both CALM and BAU groups demonstrated significant decreases in dysregulation from pre- to post-test; however, the CALM group demonstrated significantly greater decreases. See Table 5 for post hoc paired t -tests for within-group changes from pre to post test. No significant differences were observed for EF inhibitory control, EF plan/organize, EF working memory, attention and concentration or closeness with teachers for either BAU or CALM groups from pre- to post-test.

Effect sizes convey the practical significance of the results, with larger effect sizes indicating greater practical significance. Guidelines for interpreting partial eta square ($\eta p2$) as effect sizes for group-by-time interactions suggest that .01 represents a small effect size, .06 represents a medium effect size, and .14 represents a large effect size (Olejnik & Algina, 2000). Thus, effect sizes were moderate.

KEY FINDINGS: From pre- to post-test, children in CALM Curriculum classes had significant increases in social and emotional competencies and peer acceptance, and significant decreases in problems with EF shifting, aggressive, dysregulated, and oppositional behaviours, emotion problems, and conflict with teachers. The CALM program had the largest positive effects on dysregulated/oppositional behaviour, children's abilities to shift (transition) activities, and peer acceptance.

Table 5. Pre- to Post-test Change Within Groups

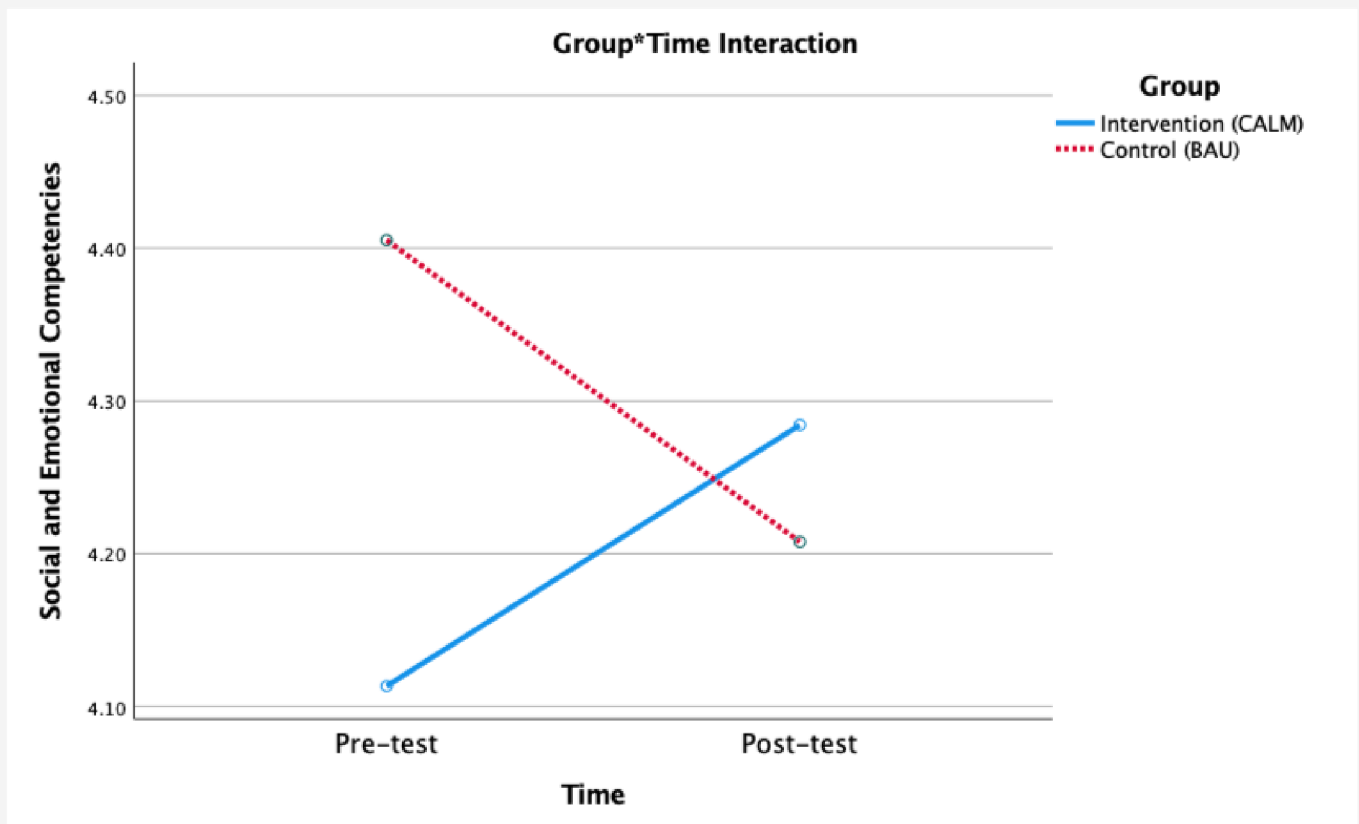
Variable	Group	<i>M</i>	<i>SD</i>	<i>SEM</i>	<i>t</i>	<i>df</i>	<i>p</i>	Cohen's <i>d</i>
SEC	CALM				-2.10	48	.04*	-.30
	Pre-test	4.11	.90	.13				
	Post-test	4.28	.91	.13				
	BAU				2.30	54	.03*	.31
EF Emot. Cntl	Pre-test	4.43	1.26	.13				
	Post-test	4.23	1.16	.13				
	CALM				1.55	48	.06*	.22
	Pre-test	1.38	.52	.07				
EF Shift	Post-test	1.33	.51	.07				
	BAU				-2.92	54	.003*	-.39
	Pre-test	1.22	.41	.06				
	Post-test	1.32	.48	.06				
Aggressive	CALM				4.02	48	<.001*	.56
	Pre-test	1.35	.47	.07				
	Post-test	1.25	.49	.07				
	BAU				.21	54	.84	.03
Dysreg/Opp	Pre-test	1.20	.36	.05				
	Post-test	1.20	.38	.05				
	CALM				2.29	48	.03*	.33
	Pre-test	1.83	.88	.13				
Emotion Prob	Post-test	1.72	.86	.12				
	BAU				-1.45	54	.15	.07
	Pre-test	1.47	.89	.12				
	Post-test	1.54	1.03	.14				
Peer Acceptance	CALM				8.17	48	<.001*	1.23
	Pre-test	2.90	.88	.12				
	Post-test	2.33	.86	.10				
	BAU				3.06	54	.004*	.48
Conflict	Pre-test	2.75	1.15	.18				
	Post-test	2.52	.93	.15				
	CALM				1.74	48	.05*	.25
	Pre-test	1.52	.54	.08				
Conflict	Post-test	1.40	.45	.06				
	BAU				-0.96	54	.34	-.13
	Pre-test	1.22	.37	.05				
	Post-test	1.25	.41	.06				
Conflict	CALM				-2.77	48	.01*	-.40
	Pre-test	3.35	.87	.12				
	Post-test	3.55	.88	.13				
	BAU				1.16	54	.25	.16
Conflict	Pre-test	3.64	1.11	.15				
	Post-test	3.52	1.05	.14				
	CALM				2.57	48	.01*	.37
	Pre-test	1.63	.87	.13				
Conflict	Post-test		.73	.10				
	BAU				-1.53	54	.13	-.21
	Pre-test	1.78	.86	.12				
	Post-test	1.88	.94	.13				

Notes. *M* = mean, *SD*, = standard deviation, *SEM* = standard error of the mean, *df* = degrees of freedom. Guidelines for interpreting Cohen's *d* suggest that 0.15, 0.36, and 0.65 represent small, medium, and large effect sizes, respectively (Lovakov et al., 2021). For EF Emotion Control and EF Shift, lower scores equal higher EFs.

Social and Emotional Behaviours in the Classroom

KEY FINDING: In CALM classrooms, students' social and emotional behaviours increased while social and emotional behaviours decreased in BAU classrooms. At post-test CALM students had significantly higher social and emotional behaviours than those in the BAU classroom.

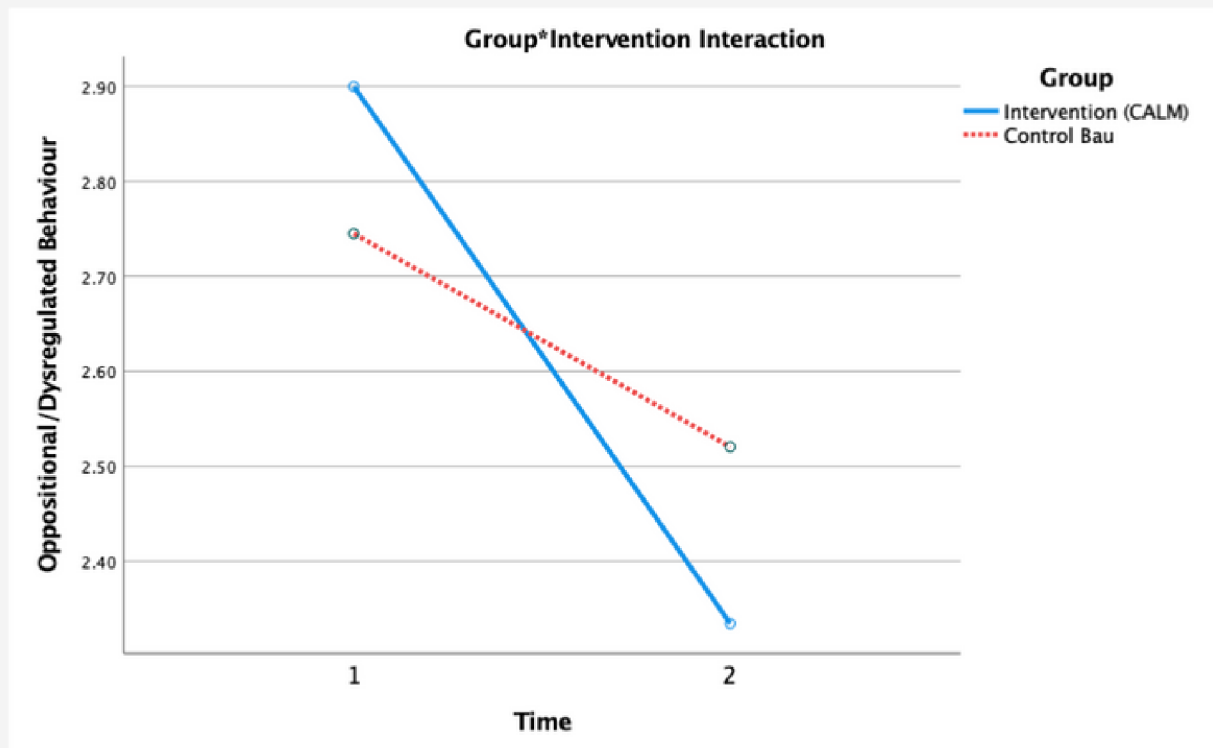
Figure 9. Social and Emotional Competencies (SEC)



Dysregulated and Oppositional Behaviours in the Classroom

KEY FINDING: Oppositional and dysregulated behaviour decreased significantly in both CALM and BAU classrooms from pre- to post-test. CALM classrooms demonstrated significantly greater decreases than BAU classes, however.

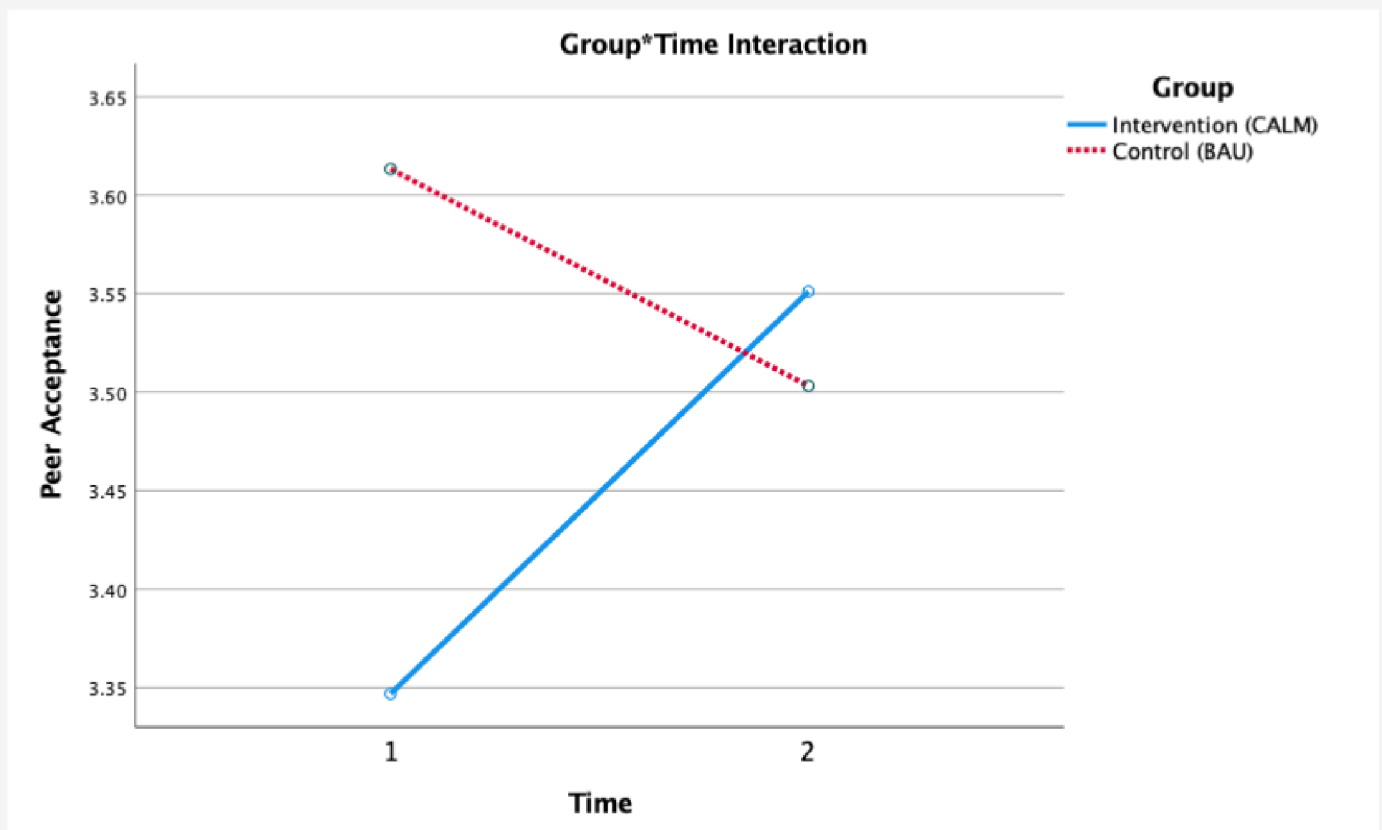
Figure 10. Oppositional/Dysregulated Behaviour



Relationships with Peers

Key Finding: CALM classrooms had lower peer acceptance at pre-test than BAU groups. CALM classrooms had significant increases in peer acceptance from pre- to post-test. At post-test CALM students had significantly higher peer acceptance than BAU classrooms.

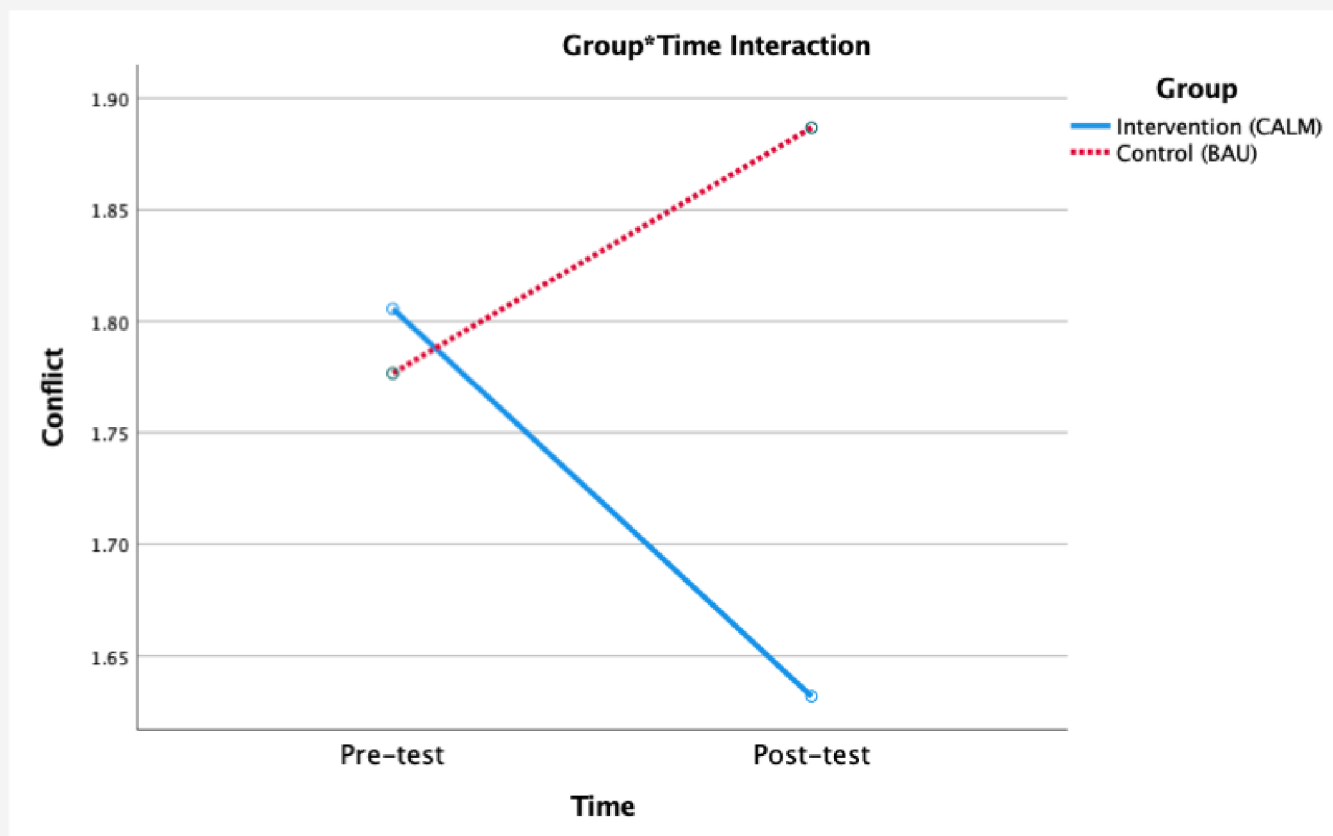
Figure 11. Peer Acceptance



Relationships with Teachers

KEY FINDING: Conflict with teachers decreased significantly from pre-test to post-test in CALM classrooms. Conflict increased in BAU classrooms. At post-test CALM students had significantly lower conflict with teachers than those in BAU classrooms.

Figure 12. Conflict with Teachers



Influence of Implementation on Program Outcomes

We created an implementation quality composite based on teacher reports of dosage, fidelity, engagement, adaptations for diverse learners, extensions into other areas of curriculum, and quality of implementation (Durlak, 2015; see Table 6 for descriptions). Each component was equally weighted. Scores that were less than -1 standard deviation (*SD*) below the mean were labelled *low-level implementation quality* ($n = 18$). Scores that were greater than +1 *SD* were labelled *high-level implementation quality* ($n = 14$), and scores that fell between -1 *SD* and +1 *SD* were considered *mid-level implementation quality* ($n = 17$). We calculated one-way analysis of co-variance (ANCOVA) between implementation quality groups for each variable using change scores from pre-test to post-test as the dependent variable, while controlling for pre-test scores and gender (see Moruke et al., 2005). All assumptions except the independence assumption were met for ANCOVA. We used post-hoc *t*-tests for significant results with Bonferroni correction to identify which implementation-level groups had significant differences in outcome change scores.

Table 6. Implementation Quality Composite

Implementation Component	Description
Dosage	The amount of time/number of activities implemented.
Fidelity	How closely teachers followed module plans.
Engagement	Level of student engagement throughout the program.
Quality	Teacher self-reports on quality of implementation.
Adaptations	Whether teachers made adaptations for diverse learners.
Extensions	Whether teachers extended concepts/activities from the CALM Curriculum into other subject areas.

Influence of Implementation on Program Outcomes: Results



KEY FINDING: Higher quality implementation of The CALM Curriculum was related to significantly greater improvements in social and emotional competencies and mental well-being.

There were significantly greater improvements in CALM students' **social and emotional competencies** in classrooms with better implementation quality ($F(2,44) = 12.99, p < .001, \eta p2 = .37$). Students in mid-level implementation classrooms had significantly greater increases in SEC than those in low-level implementation classrooms ($t(33) = -5.29, p < .001, d = -1.79$), and those in the high-level implementation classroom had significantly greater increases than mid-level classes ($t(29) = -3.01, p = .003, d = -1.09$).

There were significantly greater improvements in CALM students' **happiness** in classrooms with better implementation quality ($F(2,44) = 17.41, p < .001, \eta p2 = .44$). There were significantly greater increases in **happiness** in classes that had mid-level quality implementation compared to low-level implementation quality ($t(33) = -4.87, p < .001, d = -1.65$). Those in the high-level implementation classroom had significantly greater increases than mid-level classes ($t(29) = -3.41, p < .001, d = -1.23$).

There were significantly greater improvements in CALM students' **emotion problems** in classrooms with higher implementation quality ($F(2,44) = 3.29, p = .05, \eta p2 = .13$). Students demonstrated greater decreases in emotion problems in classes with high-level implementation compared to mid-level ($t(29) = 2.28, p = .02, d = 0.83$). Effect sizes were large in all cases.



Next Steps for Research

Preliminary findings suggest that the CALM Curriculum is generally feasible to implement (with some exceptions) and acceptable to most teachers and students. Moreover, children in the CALM Curriculum classrooms demonstrated improved social and emotional competencies, well-being, peer acceptance, and relationship quality with teachers compared to BAU groups. These findings are promising, yet limited by sample size and the sole reliance on teacher-reported outcomes. Our findings indicate that investing in a larger randomized controlled trial (RCT) study is warranted. We recommend at least 10 classrooms per condition so that multilevel statistical models can be employed to account for students being clustered within classrooms (a limitation of the present analysis, which could not utilize multilevel modelling due to sample size constraints).



RCT with Larger Sample of Classrooms

Include multiple methods of measurement. These might include: classroom observations, child report, parent-report, peer-nominations, and performance-based tasks.



Include Children's Perspectives

Due to COVID-19 restrictions in school, we were unable to ask children about their perspectives on the program. This is an important next step because children may have different insights and perspectives from teachers.



Study Parent/Guardian Component

Only one teacher used the home worksheets, but found them an important activity for building emotion awareness in children. CALM parenting programs are likely important to child outcomes. Include parents/guardians in next study.

References

- Bierman, K. L., Mathis, E. T., & Domitrovich, C. E. (2018). Serving the needs of young children with social, emotional, and behavioral needs: A commentary. *School Mental Health, 10*(3), 254–263. <https://doi.org/10.1007/s12310-018-9265-4>
- Blair, C., & Diamond, A. (2008). Biological processes in prevention and intervention: The promotion of self-regulation as a means of preventing school failure. *Development and Psychopathology, 20*(3), 899–911. <https://doi.org/10.1017/S0954579408000436>
- Blair, C., & Raver, C. C. (2015). School readiness and self-regulation: A developmental psychobiological approach. *Annual Review of Psychology, 66*(1), 711–731. <https://doi.org/10.1146/annurev-psych-010814-015221>
- Blewitt, C., Fuller-Tyszkiewicz, M., Nolan, A., Bergmeier, H., Vicary, D., Huang, T., McCabe, P., McKay, T., & Skouteris, H. (2018). Social and emotional learning associated with universal curriculum-based interventions in early childhood education and care centers: A systematic review and meta-analysis. *JAMA Network Open, 1*(8), e185727. <https://doi.org/10.1001/jamanetworkopen.2018.5727>
- Ceylan, S. S., Erdoğan, Ç., & Turan, T. (2021). Investigation of the effects of restrictions applied on children during COVID-19 pandemic. *Journal of Pediatric Nursing, 61*, 340–345. <https://doi.org/10.1016/j.pedn.2021.09.013>
- Corcoran, R. P., Cheung, A. C. K., Kim, E., & Xie, C. (2018). Effective universal school-based social and emotional learning programs for improving academic achievement: A systematic review and meta-analysis of 50 years of research. *Educational Research Review, 25*, 56–72. <https://doi.org/10.1016/j.edurev.2017.12.001>
- Denham, S. A., Bassett, H. H., Zinsser, K., & Wyatt, T. M. (2014). How preschoolers' social-emotional learning predicts their early school success: Developing theory-promoting, competency-based assessments. *Infant and Child Development, 23*(4), 426–454. <https://doi.org/10.1002/icd.1840>
- Denham, S. A., & Weissberg, R. P. (2004). Social-emotional learning in early childhood: What we know and where to go from here. In P. Chesebrough, P. King, M. Gullotta, & M. Bloom (Eds.), *A blueprint for the promotion of prosocial behavior in early childhood* (pp. 13–50). Kluwer Academic/Plenum Publishers.
- Diamond, A., & Ling, D. S. (2016). Conclusions about interventions, programs, and approaches for improving executive functions that appear justified and those that, despite much hype, do not. *Developmental Cognitive Neuroscience, 18*, 34–48. <https://doi.org/10.1016/j.dcn.2015.11.005>
- Divecha, D., & Brackett, M. (2020). Rethinking school-based bullying prevention through the lens of social and emotional learning: A bioecological perspective. *International Journal of Bullying Prevention, 2*(2), 93–113. <https://doi.org/10.1007/s42380-019-00019-5>

Durlak, J. A. (2015). Studying program implementation is not easy but it is essential. *Prevention Science, 16*(8), 1123–1127. <https://doi.org/10.1007/s11121-015-0606-3>

Gioia, G.A., Espy, K.A., Isquith, P.K. (2003) Behavior Rating Inventory of Executive Function, Preschool Version (BRIEF-P). Odessa, FL: Psychological Assessment Resources

Kam, C. & Greenberg, M.T. (1998). Technical measurement report on the teacher social competence rating scale. Unpublished technical report, Prevention Research Center for the Promotion of Human Development, The Pennsylvania State University.

Kira, I. A. (2022). Taxonomy of stressors and traumas: An update of the development-based trauma framework (DBTF): A life-course perspective on stress and trauma. *Traumatology, 28*(1), 84–97. <https://doi.org/10.1037/trm0000305>

Ferreira, T., Cadima, J., Matias, M., Vieira, J. M., Leal, T., & Matos, P. M. (2016). Preschool children’s prosocial behavior: The role of mother–child, father–child and teacher–child relationships. *Journal of Child and Family Studies, 25*(6), 1829–1839. <https://doi.org/10.1007/s10826-016-0369-x>

Goodman, R. (2001). Psychometric properties of the strengths and difficulties questionnaire. *Journal of the American Academy of Child & Adolescent Psychiatry, 40*(11), 1337–1345. doi:10.1097/00004583-200111000-00015

Greenberg, M. T., Domitrovich, C. E., Weissberg, R. P., & Durlak, J. A. (2017). Social and emotional learning as a public health approach to education. *The Future of Children, 27*(1), 13–32. <https://doi.org/10.1353/foc.2017.0001>

Harrington, E. M., Trevino, S. D., Lopez, S., & Giuliani, N. R. (2020). Emotion regulation in early childhood: Implications for socioemotional and academic components of school readiness. *Emotion, 20*(1), 48–53. <https://doi.org/10.1037/emo0000667>

Holder, M. & Coleman, B. (2008). The contribution of temperament, popularity, and physical appearance to children’s happiness. *Journal of Happiness Studies, 9*, 279–302.

Jones, D. E., Greenberg, M., & Crowley, M. (2015). Early social-emotional functioning and public health: The relationship between kindergarten social competence and future wellness. *American Journal of Public Health, 105*(11), 2283–2290. <https://doi.org/10.2105/AJPH.2015.302630>

Linnavalli, T., & Kalland, M. (2021). Impact of COVID-19 restrictions on the social-emotional wellbeing of preschool children and their families. *Education Sciences, 11*(8), 435. <https://doi.org/10.3390/educsci11080435>

Mahoney, J. L., Weissberg, R. P., Greenberg, M. T., Dusenbury, L., Jagers, R. J., Niemi, K., Schlinger, M., Schlund, J., Shriver, T. P., VanAusdal, K., & Yoder, N. (2020). Systemic social and emotional learning: Promoting educational success for all preschool to high school students. *American Psychologist. https://doi.org/10.1037/amp0000701*

- Olejnik, S., & Algina, J. (2003). Generalized eta and omega squared statistics: Measures of effect size for some common research designs. *Psychological Methods*, 8(4), 434–447. <https://doi.org/10.1037/1082-989X.8.4.434>
- Pianta, R. C. (2001). Student teacher relationship scale – short form. Charlottesville, VA: University of Virginia. <https://doi.org/10.1037/t11872-000>
- Sege, R. D., & Harper Browne, C. (2017). Responding to ACEs with HOPE: Health outcomes from positive experiences. *Academic Pediatrics*, 17(7), 79–85. <https://doi.org/10.1016/j.acap.2017.03.007>
- Sorensen, L. C., Dodge, K. A., & Conduct Problems Prevention Research Group. (2016). How does the Fast Track intervention prevent adverse outcomes in young adulthood? *Child Development*, 87(2), 429–445. <https://doi.org/10.1111/cdev.12467>
- Snijders, T. A., & Bosker, R. J. (2012). Multilevel analysis: An introduction to basic and advanced multilevel modeling. Sage
- 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) 1-19. <https://doi.org/10.1016/j.appdev.2021.101301>
- Valiente, C., Swanson, J., DeLay, D., Fraser, A. M., & Parker, J. H. (2020). Emotion-related socialization in the classroom: Considering the roles of teachers, peers, and the classroom context. *Developmental Psychology*, 56(3), 578–594. <https://doi.org/10.1037/dev0000863>
- Weare, K., & Nind, M. (2011). Mental health promotion and problem prevention in schools: What does the evidence say? *Health Promotion International*, 26(suppl 1), 29–69. <https://doi.org/10.1093/heapro/dar075>
- West, J. (2017). National longitudinal studies of kindergarten children: Historical context and ongoing contributions. *AERA Open*, 3(2), 233285841770168. <https://doi.org/10.1177/2332858417701684>
- Yogman, M., Garner, A., Hutchinson, J., Hirsh-Pasek, K., Golinkoff, R. M., Committee on Psychosocial Aspects of Child and Family Health, & Council on Communications and Media. (2018). The power of play: A pediatric role in enhancing development in young children. *Pediatrics*, 142(3), 1–17.