

Educating for Well-being: A Cluster-Randomized Trial in Mexican Preschools

Leandro I. Chernicoff^{1,2}

Matthew J. Hirshberg²

Luciana Velarde Arrisueño¹

José M. Olvera Puentes¹

Maria Rodrigues⁵

Marietha Pérez-Arellano¹

Daniela N. Labra¹

Maria E. Ortega Hesles⁶

Simon B. Goldberg^{2,3}

Mark T. Greenberg⁴

Richard J. Davidson²

1 AtentaMente Consultores A.C., Mexico

2 Center for Healthy Minds, University of Wisconsin–Madison, USA

3 Department of Counseling Psychology, University of Wisconsin–Madison, USA

4 Edna Bennett Pierce Prevention Research Center, Pennsylvania State University, USA

5 Education Endowment Foundation, UK

6 Qué Funciona Para el Desarrollo, Mexico

ABSTRACT

Educator well-being and socioemotional competence (SEC) are critical for student social and emotional learning (SEL) and development. Yet randomized trials of educator SEL professional development (PD) and its effects on students are rare. Educating for Well-being (EW) is a schoolwide SEL intervention comprising blended PD for educators and a preschool SEL curriculum. We conducted a cluster-randomized waitlist-controlled trial involving 421 preschools, 2,162 educators, and 1,934 students over 18 months during the COVID-19 pandemic in Sinaloa, Mexico. Educators completed questionnaires at four timepoints: at baseline (T1) and at 6 (T2), 9 (T3), and 18 (T4) months after baseline. At T4, teachers completed a post-student SEL curriculum rating of change in students' emotion regulation and prosocial behavior for a randomly selected sample of students. EW's educator training was feasible, with high completion and satisfaction rates. EW yielded improvements on educator-reported measures of SEC and well-being, with the largest and most consistent effects on emotion regulation ($gs = 0.07\text{--}0.43$) and prosociality ($gs = 0.10\text{--}0.17$); modest increases in self-efficacy ($g = 0.16$ at T3); and no reliable intervention effects on educator self-awareness or distress outcomes. Exploratory moderation analyses indicated larger reductions in anxiety and depression among educators with elevated levels of baseline symptoms. At T4, teachers in EW schools reported greater school-year change in students' emotion regulation and prosocial behavior than controls ($gs = 0.49, 0.36$). Results suggest that EW is feasible and scalable, producing modest benefits across multiple markers of educator and student well-being and socioemotional outcomes.

Keywords: *social and emotional learning, professional development, educator well-being, early childhood, randomized controlled trial*

Educational Impact and Implications Statement

During the COVID-19 pandemic, this large RCT in Mexican preschools—an understudied low- and middle-income country (LMIC) context—found that a blended educator professional development plus child SEL curriculum produced reliable improvements in educator-reported emotion regulation, prosociality, and efficacy/positive functioning, with greater teacher-reported school-year improvement in student emotion regulation and prosocial behavior; effects on educator self-awareness and distress were not detected. Effects were modest and not universal across outcomes or timepoints, with several educator effects attenuating at longer follow-up. Even so, the pattern suggests that a credit-bearing, scalable professional development linked to a classroom curriculum may offer a feasible approach to support educator and student socioemotional competence and well-being in LMIC settings amid challenging conditions.

Improving children’s long-term development requires supporting the adults who care for and educate them, especially in the earliest years of life (National Academies of Sciences, Engineering & Medicine, 2025). While social and emotional learning (SEL) is increasingly prioritized in early childhood policy (McClelland et al., 2017), professional development that strengthens educators’ own socioemotional competencies remains rare (Cipriano et al., 2023). Few large-scale studies have evaluated interventions that simultaneously support educator well-being and child development, and evidence from low- and middle-income countries (LMICs) is especially limited. We address this gap by evaluating Educating for Well-being (EW), a blended SEL professional development program for Mexican preschool educators coupled with a classroom SEL curriculum.

We situate this trial of EW within a social-ecological developmental perspective. Across bioecological, structural, and sociocultural-ecological frameworks, children’s development is shaped by proximal processes—reciprocal interactions in everyday settings—and by more distal processes such as social determinants of access to “promoting” versus “inhibiting” environments over time (Bronfenbrenner & Morris, 2006; García Coll et al., 1996; Vélez-Agosto et al., 2017). These perspectives motivate EW’s focus on strengthening early SEL/self-regulation by improving educator–child interactions and classroom routines, while designing supports that fit local policy and implementation contexts.

After defining focal child SEL constructs and educator socioemotional competence (SEC) and well-being, we describe EW’s policy context, theory of change, and confirmatory and exploratory research questions.

Social and Emotional Learning and Early Childhood

SEL is the process through which children and adults acquire the skills to understand and manage emotions, form supportive relationships, and make responsible decisions (CASEL, 2019). SEL has been widely recognized as a key component of high-quality education, with meta-analytic evidence linking it to improved academic achievement, behavioral adjustment, and long-term well-being (Durlak et al., 2011; Greenberg, 2023; OECD, 2021). Early childhood, particularly the preschool years, represents a sensitive window for promoting SEL (Bierman & Hunter, 2025). During preschool, children's self-regulatory skills—multifaceted capacities essential to later social, emotional, and academic learning—develop rapidly (Bailey et al., 2019; Blair & Raver, 2015; Denham & Brown, 2010). Skills such as focused attention, impulse control, emotion regulation, and the ability to engage in cooperative play and rule-based behavior are consistently ranked by teachers as essential for school adjustment and are foundational to academic engagement and success (Welsh et al., 2010). Moreover, early self-regulation is a robust predictor of short and long-term outcomes such as school readiness, academic achievement (Blair & Raver, 2015; Durlak et al., 2011), health, employment, wealth, adult criminal behavior, and adult life satisfaction (Greenberg, 2025; Moffitt et al., 2011; Robson et al., 2020). Conversely, delays in self-regulation have been linked to school adjustment problems, difficulties with peer relationships, and elevated risks of mental health disorders (Miu et al., 2022). In the present study, we focus on preschoolers' emotion regulation and prosocial behavior as two developmentally important, classroom-salient SEL outcomes.

Self-regulatory skill development is sensitive to adversity. Poverty, neglect, and exposure to violence can interfere with the maturation of neural systems supporting self-regulation, increasing the risk of long-term psychosocial challenges (Blair, 2002; Shonkoff et al., 2012). In Latin America and the Caribbean, nearly 17% of preschoolers exhibit cognitive or emotional

delays tied to chronic stressors such as caregiver strain, food insecurity, or violent discipline (UNICEF, 2017). In Mexico, nearly half of all children live in poverty, and many are not “ready to learn” at preschool age (UNICEF, 2020; Yoshikawa et al., 2020). Early gaps in academic readiness tend to widen over time, entrenching inequalities in academic and social development (Heckman, 2008; Heckman et al., 2006). Encouragingly, high-quality SEL interventions in preschool can help mitigate these risks and promote healthy development (Cipriano et al., 2023).

Effective SEL interventions operate through two primary mechanisms: 1) equipping adults to create safe, caring, and responsive school environments that buffer the effects of adverse childhood experiences and toxic stress, and 2) strengthening child SEL development through modeling and developmentally appropriate instruction (Blair & Raver, 2015; Shonkoff et al., 2012; UNICEF, 2020). Well-designed preschool SEL programs consistently improve child emotional competence, prosocial behavior, and conduct, as well as school readiness and academic achievement (Blewitt et al., 2018; Murano et al., 2020; Yang et al., 2019). Effects are strongest when programs are implemented with fidelity, delivered by well-supported educators, and tailored to children’s developmental stage (Jones et al., 2021). Economic analyses estimate an \$11 return per dollar invested (Belfield et al., 2015) in high-quality SEL, highlighting the case for systemic SEL interventions in preschool settings.

Educators’ SEC and Well-Being, and Their Impact on Student Outcomes

Teachers and principals can be protective factors in young children’s lives, but their ability to model, scaffold, and reinforce SEL is critical to positive outcomes (Durlak & DuPre, 2008; Jennings & Greenberg, 2009; Mahfouz et al., 2019). Many educators work under stressful conditions that undermine their well-being, with particularly high rates of distress and burnout during the COVID-19 epidemic (Hirshberg et al., 2023; Ozamiz-Etxebarria et al., 2023).

Educator distress is especially acute in Mexico. Before the pandemic, 90% of teachers reported stress or burnout (INEE, 2019). During the pandemic, 90% of Latin American teachers, including Mexican teachers, reported increased work demands, and 70% reported no psychological support from their educational systems (Andrade Oliveira et al., 2021).

Evidence suggests that educators cannot model SEL effectively when they are experiencing high levels of distress (Jennings & Greenberg, 2009). Moreover, educator distress has been consistently linked to early attrition, diminished instructional quality, and reduced student achievement (Boyce & Bowers, 2016; Braun et al., 2019). Educator levels of SEC have been proposed as a preventive factor against high levels of distress (Hirshberg et al., 2022) and as a resilience factor against distress that negatively impacts occupational outcomes (Hirshberg et al., 2024; Jennings & Greenberg, 2009; Roeser et al., 2012). Research indicates that teachers with stronger SEC report lower stress, greater job satisfaction, and more effective coping strategies (Crain et al., 2017; Greenberg et al., 2016). Furthermore, meta-analyses show that educator SEL training reduces anxiety, emotional exhaustion, and depression, while improving well-being and engagement (Oliveira et al., 2021b).

Educating for Well-Being: Addressing the Lack of Effective Educator SEL Professional Development Programs

Despite a growing consensus about the importance of educator SEC, most teachers and school leaders receive little training or support to develop their own SEC or to deliver SEL effectively. Professional development (PD) is a key lever for enhancing educators' readiness to teach. High-quality PD should have: (1) a clear focus on subject-specific content (Desimone, 2011), (2) opportunities for active engagement rather than passive reception of information (Hochberg & Desimone, 2010), (3) coherence with educators' existing knowledge, beliefs, and

the broader school and policy context (Anderson & Herr, 2011; Guskey & Yoon, 2009), (4) sufficient duration, typically 30 to 100 hours across a school year (Yoon et al., 2007), and (5) collective participation through professional learning communities that provide peer feedback and collaborative reflection (Desimone, 2011; Fullan, 2018). SEL PD also requires attention to: (1) educators' beliefs and mindsets about SEL, (2) knowledge of child development, (3) skills for building supportive classroom relationships, (4) strategies for integrating SEL and classroom management, and (5) tools to develop educators' own SEC (Greenberg, 2023; Jennings & Greenberg, 2009; Jones et al., 2021; Schonert-Reichl, 2017). The fifth element has often been treated as optional, but growing evidence suggests it is foundational. Preschool teachers' instructional quality depends not only on what they know but on how they are—their presence, regulation, and relational responsiveness. Strengthening educators' capacities through active skill-building is thus essential, not only for improving the quality of instruction, but also for realizing the full developmental potential of children (Center on the Developing Child, 2021; Shonkoff et al., 2012). Consistent with this logic, a small number of randomized trials of SEL-focused educator PD—including contemplative-informed programs—have shown improvements in educator well-being and related classroom processes, but these approaches have rarely been tested at scale in public systems or in LMIC contexts (e.g., de Carvalho et al., 2021; Jennings et al., 2019; Roeser et al., 2013).

EW was designed around these principles while also attending to characteristics required for PD at scale—alignment with career incentives, structured instructional materials, and ongoing mentoring. Programs with these elements yielded average student learning gains of 0.24 standard deviations, yet most government-funded, at-scale PD programs fail to integrate them (Popova et al., 2022).

Prior educator-focused SEL trials provide the closest benchmarks. The CARE for Teachers program improved teachers' emotion regulation, psychological distress, and observed classroom emotional support in 224 teachers across 36 schools (Jennings et al., 2017, 2019); the SMART program reduced occupational stress and burnout among 113 teachers in the United States and Canada (Roeser et al., 2013); a Portuguese mindfulness program reported comparable effects on emotion regulation and well-being in 228 teachers (de Carvalho et al., 2021); and during the COVID-19 pandemic, a smartphone-based intervention reduced psychological distress among 662 school-system employees (Hirshberg et al., 2022). A meta-analysis of 43 such trials places typical effects on educators' socioemotional competence, well-being, and distress in the small-to-moderate range (SEC $g = 0.59$, well-being $g = 0.35$, distress $g = -0.34$; Oliveira et al., 2021a), but those trials were concentrated in North America (62%) and Europe (31%), with none conducted in Latin America. The present trial extends this evidence to 2,162 educators across 421 preschools within a Latin American public education system.

Contemplative Practices as Support for SEL

Given the central role of educator SEC and well-being in effective SEL implementation—and the limitations of traditional PD approaches in cultivating these internal capacities (Hadar et al., 2020)—contemplative practices offer a promising complementary pathway (Davidson et al., 2012). Contemplative practices are defined as intentional mental exercises aimed at cultivating well-being through training the mind (Dahl & Davidson, 2019). A well-studied form of contemplative practice is meditation, which involves volitional control of attention and the repeated rehearsal of specific mental states or traits (Lutz et al., 2008). Such practices encompass attentional and emotional strategies that strengthen foundational skills like attentional focus, self-awareness, empathy, and compassion. While most research has focused on

mindfulness- and compassion-based approaches, recent work proposes a broader taxonomy of contemplative strategies organized around four interrelated pillars of well-being: Awareness, Connection, Insight, and Purpose (ACIP) (Chernicoff et al., 2015; Dahl et al., 2020). These capacities closely align with SEL skill domains and have been linked to improvements in mental health and neurobiological markers of well-being (Dahl et al., 2020; Davidson & McEwen, 2012; Hirshberg et al., 2022; Lindsay et al., 2019).

The potential of contemplative practices to support SEL is increasingly recognized across both student- and educator-focused interventions. Among children, contemplative practices have been found to promote executive function and academic performance (Diamond & Lee, 2011; Flook et al., 2010, 2025), as well as strengthen key social-emotional competencies such as emotion regulation, prosocial behavior, and ethical reasoning (Davidson et al., 2012; Flook et al., 2015; Riskin, 2008; Ruedy & Schweitzer, 2010). Prior theoretical work has proposed that contemplative practices can enhance SEL programming by offering a complementary framework of structured, intentional mental training—both for students and for adult PD (Davidson et al., 2012; Greenberg, 2014; Jennings & Greenberg, 2009; Roeser et al., 2023).

There is growing empirical evidence in support of these claims. Contemplative practices in adults have been linked to gains in self-awareness (Park et al., 2020), attention and executive functioning (Yakobi et al., 2021), emotion regulation (Basso et al., 2019), empathy and compassion (Luberto et al., 2018; Schindler & Frieze, 2022), and ethical decision-making (Singer & Engert, 2019). When integrated into educator PD, these practices have been associated with improvements in classroom climate, student behavior, and educator well-being, including reductions in stress, burnout, and psychological distress (Greenberg, 2023; Hirshberg et al., 2022; Roeser et al., 2013). However, the number of rigorously designed studies remains limited.

Existing research often involves small sample sizes, short follow-up periods, and a narrow focus on mindfulness-based techniques (e.g., Goldberg & Davidson, 2024; Oliveira et al., 2021b). Moreover, only a few studies have examined the role of contemplative practice in supporting educators during the unique stressors of the COVID-19 pandemic (Hadar et al., 2020; Hirshberg et al., 2022).

Theory of Change

EW was designed as a schoolwide, scalable, universal prevention SEL intervention with two components: a PD course for educators, the Educator Training, and a developmentally appropriate student SEL curriculum. The student curriculum includes two complementary programs: *10 Acuerdos para estar bien (Ten Agreements for Well-being)*, for children ages 3–4, and *Siconautas (Psychonauts)*, for children ages 5. This two-component structure aligns with two commonly proposed pathways of SEL change: strengthening adults’ capacities and practices that shape learning environments and strengthening children’s SEL through modeling and developmentally appropriate instruction (Schonert-Reichl, 2017; Shonkoff et al., 2012).

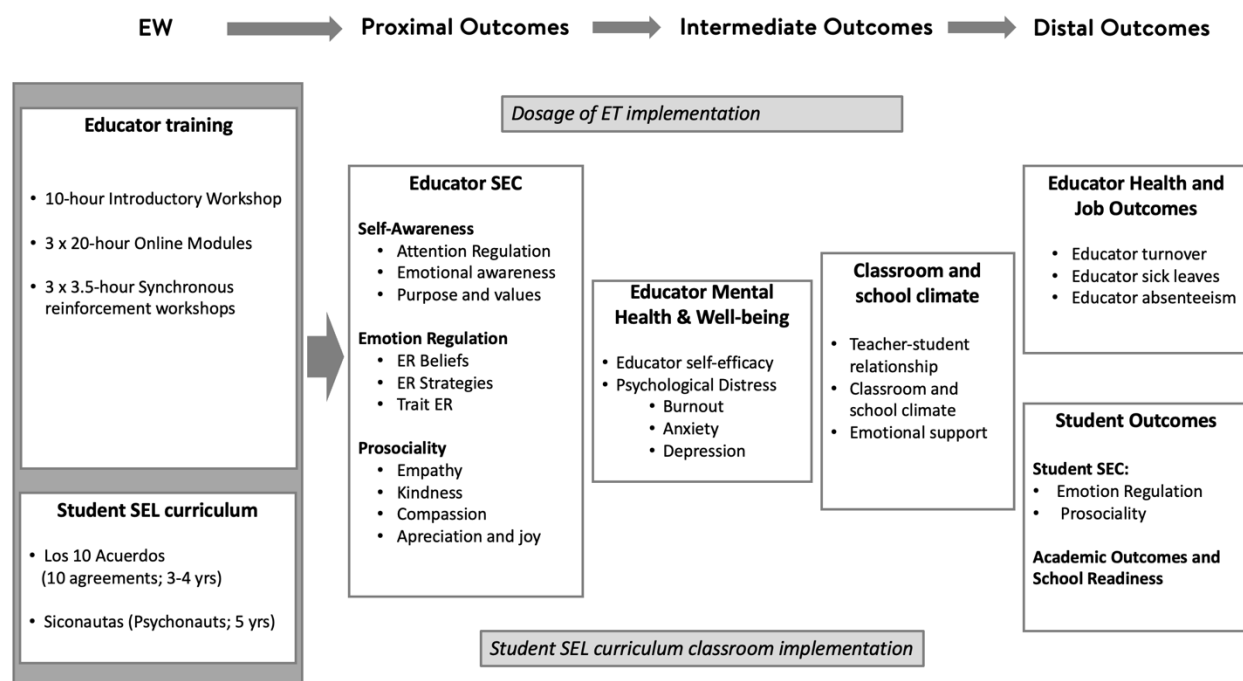
EW’s theory of change posits that schoolwide systemic approaches to SEL will optimize results, with teachers and, secondarily, principals playing central roles in shaping the climate and functioning of schools (Greenberg, 2023; Grissom et al., 2021; Oberle et al., 2016). Accordingly, EW targets teachers and principals as the primary school-based levers for improving proximal processes in children’s learning ecologies. In Figure 1, we articulate a sequential set of hypotheses linking the program’s components to improved outcomes at the educator, classroom, and student levels (see Hirshberg et al., 2022; Jennings & Greenberg, 2009; Roeser et al., 2012, for similar models). First, the Educator Training at the teacher and principal level is designed to enhance educators’ beliefs, attitudes, and competencies in SEL, with a focus on self-awareness,

emotion regulation, and prosociality. It also aims to strengthen educators' understanding of child development and prepare them to implement student-level SEL. By scaffolding educators' application of these skills to everyday life situations, both in and out of school, the Educator Training is hypothesized to improve educator well-being – operationalized as reductions in psychological distress (e.g., anxiety, depression, and burnout symptoms), and improvements in educational self-efficacy. Together, these outcomes enable educators to manage classroom demands more effectively, remain engaged in their profession—especially in high-adversity contexts—and be prepared to effectively teach student SEL curricula.

Having provided sufficient training for educators to implement the student SEL curriculum effectively and having improved teacher well-being and the classroom learning environment, the second phase of our theory of change involves implementing the student SEL curriculum. Additionally, by including both teachers and principals in the Educator Training, EW supports schoolwide SEL coherence and implementation. Research suggests that SEL programs are most effective when implemented across the entire school ecosystem—aligning educator development, classroom practices, and leadership (Greenberg et al., 2003; Oberle et al., 2016). This integrated structure enhances coordination, fosters shared ownership, and increases the likelihood of sustained and effective SEL implementation.

Figure 1

Educating for Well-being Theory of Change



Note. EW = Educating for Well-being; SEC = Social and emotional competence; ER = Emotion regulation.

SEL Policy in Mexico and the COVID-19 pandemic

In 2017, SEL became a mandatory component of the Mexican national curriculum from preschool through high school (SEP, 2016). Yet national training efforts have been fragmented and limited (Mexicanos Primero, 2023). SEL is mentioned in curricular guidelines but rarely embedded into daily practice, and few educators receive the support needed to model and teach these competencies in classrooms (Hadar et al., 2020; Mexicanos Primero, 2023).

One structural opportunity in Mexico lies in its existing PD framework. Through USICAMM—the federal system governing educator evaluation and career advancement—teachers and principals may complete up to 200 hours of accredited PD per year, with each

course requiring a minimum of 20 hours to be eligible for credit. Those who complete between 151 and 200 hours receive the maximum score available in the national promotion system (Comisión Nacional para la Mejora Continua de la Educación (MEJOREDU), 2022). This creates a powerful policy lever: a built-in incentive structure that can be used to deliver sustained, credit-bearing training aimed at improving both instructional practice and educators' social and emotional competencies.

The COVID-19 pandemic significantly disrupted Mexico's education system, exacerbating pre-existing structural inequities and creating urgent new demands for social and emotional support. With more than 250 days of school closures—longer than any other OECD country—educators were required to rapidly pivot to remote instruction, often without sufficient training, infrastructure, or internet access (Díaz-Barriga, 2020; INEGI, 2019; OECD, 2021). The shift to online learning was especially challenging in early childhood. At the same time, preschool children—already facing high levels of poverty and inequality—were acutely vulnerable to the effects of prolonged disruption. Against this backdrop, EW was launched in February 2021 in collaboration with the Ministry of Education of Sinaloa. Sinaloa is a mid-sized state in northwestern Mexico with over 3 million inhabitants, of whom approximately 75% live in urban areas and 25% in rural communities, closely mirroring national patterns (INEGI, 2020). In 2020, 28.1% of residents lived in poverty and 2.4% in extreme poverty, below national rates of 43.9% and 8.5%, respectively (CONEVAL, 2022).

The Present Study

The present trial evaluated EW in partnership with the Sinaloa Ministry of Education. Our goal was to rigorously assess the impact of EW on educator SEC development and well-being during the challenges of the COVID-19 pandemic, and to examine whether preschool students of teachers who received EW benefited from the implementation of student-level SEL

during the subsequent school year. We aimed to address the relative lack of large-scale RCTs of SEL programs globally. Because feasibility and impact are shaped by educators' daily work routines and by system-level opportunity structures (e.g., incentives, supports, and constraints), we first examined implementation outcomes and then tested EW impacts on educator and student outcomes. Our three primary research questions were:

RQ-1. Is EW acceptable to educators and feasible to implement?

RQ-2. Does EW improve educator self-awareness, emotion regulation, prosociality, and self-efficacy, and reduce psychological distress, compared to a waitlist control?

RQ-3. Do students taught by educators in the EW group show greater teacher-reported school-year improvement in emotion regulation and prosocial behavior than students taught by educators in the waitlist control?

We hypothesized that EW would be acceptable and feasible to implement at scale (H1). We further hypothesized that assignment to EW would significantly improve educators' SEC (self-awareness, emotion regulation, and prosociality), self-efficacy and reduce psychological distress, relative to the waitlist control (H2). Finally, we hypothesized that students taught by educators in the EW condition would show greater teacher-reported school-year improvement in emotion regulation and prosocial behavior than students in the waitlist control (H3). Because EW is a universal educator SEL/PD program, average effects on distress may mask heterogeneity among educators entering with greater baseline symptom severity. Such heterogeneity is plausible because EW trains attentional, emotion-regulation, and prosocial-connection capacities that are implicated in anxiety and depression and may be especially salient for educators experiencing greater day-to-day distress (Dahl et al., 2020; Greenberg & Abenavoli, 2017). Consistent with this logic, prior teacher mindfulness work found larger emotion-regulation gains

among teachers with higher baseline distress (Jennings et al., 2019). Because the present trial was not designed or powered to test diagnostic subgroups, we treated moderation of EW effects on educators' anxiety and depression by baseline symptom severity and by occupational role (teacher versus principal) as theory-informed and exploratory (exploratory RQ-4). We also examined whether student-level effects were moderated by school marginalization level (exploratory RQ-5).

METHODS

Study design and participants

This study was a cluster-randomized, waitlist-controlled trial, with schools as the unit of randomization. Because schools were randomized to EW versus waitlist rather than to separate component arms, the trial estimates the effect of assignment to the bundled, sequential EW program and does not identify independent causal effects of the Educator Training or the student curriculum. Eligible participants were preschool teachers and principals employed in participating schools who registered for the Ministry-endorsed professional development and completed the baseline survey. Schools assigned to the waitlist control condition did not receive EW training or materials until after the final study assessment, supporting equitable access to Ministry-endorsed professional development while preserving a clear counterfactual during the study period. The EW program was approved by the Sinaloa Ministry of Education; educators who met the program's minimum completion requirements received 80 hours of official USICAMM professional development credit.

School and participant recruitment began in December 2020 in the state of Sinaloa. The initial sampling frame included 687 preschools that met eligibility criteria: enrollment of more than 40 students, daytime operation, and exclusion of alternative models (e.g., multi-grade,

community, cooperative, migrant, or autonomous schools, which often serve transient populations or lack connectivity). From this frame, 503 preschools were randomly selected in partnership with the Sinaloa Ministry of Education. Educators from selected schools were invited to participate in EW through their supervisors, who had attended a virtual information session about the study. Interested educators completed an online survey between January 12–17, 2021. A total of 2,281 educators from 449 schools registered (see Figure 3). This recruitment strategy balanced methodological rigor and real-world feasibility: schools were randomly sampled from the eligible state preschool registry, while Ministry-supervisor outreach mirrored the administrative channels through which large-scale professional development is typically offered and facilitated participation under pandemic conditions.

For enrollment, schools required either: (1) principal participation, (2) ≥ 2 teachers without principal participation or (3) principal and ≥ 1 teacher participant. Twenty-eight of the 449 schools did not meet any of these criteria. The final randomized sample consisted of 421 schools and 2,162 educators. No schools withdrew after randomization. Forty-three educators (1.99%) did not complete participation due to retirement, health problems, or other personal reasons.

Student recruitment and assessment took place at the end of the 2021–2022 school year. Administrative data identified eligible students who were enrolled in classrooms led by participating teachers. Five students from each classroom were randomly selected by the research team, and teachers were asked to complete a single teacher-reported change measure for the first three students on the list. If any of those students could not be rated, teachers were asked to rate the other randomly selected students. In total, teachers rated 1,934 students across 288 schools. Descriptive characteristics of educators, students, and schools are presented in Table 1.

Table 1

Educators, students, and schools' characteristics by treatment and control status

	Total		Intervention		Control		Group Balance
	n	%	n	%	n	%	Standardized ES
SCHOOL CHARACTERISTICS AT T1							
Management type							
Federal	307	72.9%	155	73.5%	152	72.4%	0.024
State	45	10.7%	20	9.5%	25	11.9%	-0.079
Private	69	16.4%	36	17.1%	33	15.7%	0.036
Geographic area							
Urban	344	81.7%	178	84.4%	166	79.0%	0.138
Rural	77	18.3%	33	15.6%	44	21.0%	-0.138
Level of marginalization							
Very low	161	38.2%	70	33.2%	91	43.3%	-0.210
Low	164	39.0%	87	41.2%	77	36.7%	0.094
Medium	67	15.9%	37	17.5%	30	14.3%	0.089
High	24	5.7%	13	6.2%	11	5.2%	0.040
Very high	5	1.2%	4	1.9%	1	0.5%	0.131
Student enrollment per school M (SD)	114 (66.9)		113 (68.2)		116 (65.7)		
Tier of implementation							
School-wide	296	70.3%	148	70.1%	148	70.5%	-0.007
Principals only	58	13.8%	29	13.7%	29	13.8%	-0.002
Teachers only	67	15.9%	34	16.1%	33	15.7%	0.011
EDUCATOR CHARACTERISTICS AT T1							
Occupation							
Teacher	1767	81.7%	889	81.6%	878	81.9%	-0.009
Principal	395	18.3%	201	18.4%	194	18.1%	0.009
Gender							
Female	2,148	99.4%	1,085	99.5%	1,063	99.2%	0.047
Male	14	0.6%	5	0.5%	9	0.8%	-0.047
Age M (SD)	38 (9.7)		38 (9.9)		38 (9.5)		
Marital status							
Married	1388	64.2%	711	65.2%	677	63.2%	0.043
Single	598	27.7%	293	26.9%	305	28.5%	-0.035
Divorced	128	5.9%	63	5.8%	65	6.1%	-0.012
Widowed	48	2.2%	23	2.1%	25	2.3%	-0.015

Prior SEL training	685	31.7%	356	32.7%	329	30.7%	
Socioeconomic level at T4							
A/B	700	32.4%	344	31.6%	356	33.2%	-0.035
C+	567	26.2%	279	25.6%	288	26.9%	-0.029
C	211	9.8%	96	8.8%	115	10.7%	-0.065
C-	57	2.6%	26	2.4%	31	2.9%	-0.032
D+, D or E	34	1.6%	16	1.5%	18	1.7%	-0.017
N/A	593	27.4%	329	30.2%	264	24.6%	0.125
SCHOOL CHARACTERISTICS AT T4							
Management type							
Federal	242	84.0%	124	85.5%	118	82.5%	0.082
State	23	8.0%	11	7.6%	12	8.4%	-0.029
Private	23	8.0%	10	6.9%	13	9.1%	-0.081
Geographic area							
Urban	232	80.6%	120	82.80%	112	78.30%	0.114
Rural	56	19.4%	25	17.20%	31	21.70%	-0.114
Level of marginalization							
Very low	108	37.5%	46	31.7%	62	43.3%	-0.241
Low	105	36.5%	54	37.2%	51	35.7%	0.031
Medium	51	17.7%	32	22.1%	19	13.3%	0.232
High	20	6.9%	9	6.2%	11	7.7%	-0.059
Very high	4	1.4%	4	2.8%	0	0.0%	0.240
Student enrollment M (SD)	123 (64.9)		122 (65.7)		123 (64.3)		
Tier of implementation							
School-wide	226	78.5%	112	77.2%	114	79.7%	-0.061
Principals only	21	7.3%	12	8.3%	9	6.3%	0.077
Teachers only	41	14.2%	21	14.5%	20	14.0%	0.014
STUDENT CHARACTERISTICS AT T4							
Gender							
Female	963	49.8%	492	50.10%	471	49.50%	0.012
Male	971	50.2%	491	49.90%	480	50.50%	-0.012
Grade							
1 (3-year-olds)	206	10.6%	89	9.0%	117	12.3%	-0.107
2 (4-year-olds)	837	43.3%	456	46.4%	381	40.1%	0.127
3 (5-year-olds)	891	46.1%	438	44.6%	453	47.6%	-0.060

Note: ES = Effect Size; M (SD) = Mean (Standard Deviation). Level of marginalization is based on the Marginalization Index, a summary measure that combines indicators of adult illiteracy, lack of

basic education, lack of access to sanitation, water and electricity, unfinished flooring, overcrowding, rurality, and low income to determine the degree of marginalization in a state or municipality. The index is constructed by Mexico's Population Council (Consejo Nacional de Población, or CONAPO) using census data collected by the National Institute of Statistics and Geography (Instituto Nacional de Estadística y Geografía, or INEGI). The index is also used to group geographic areas into five ordinal categories (using Dalenius and Hodges's optimum stratification): very low, low, medium, high and very high. The present study uses marginalization levels calculated with 2020 census data, which in some cases is representative at the neighborhood level. Each preschool was matched with the most disaggregated marginalization level available for their location. Socioeconomic level data were collected 12 months after the scheduled completion of the professional development program in June 2022 (T4) for 2,138 participants (99% of the sample of 2,162 participants), using an index elaborated by the Market and Public Opinion Research Association (AMAI, 2020). This index considers factors such as the head of household's education, number of employed household members, access to internet and number of bedrooms, bathrooms and automobiles to determine a household's socioeconomic level.

Procedure and study timeline

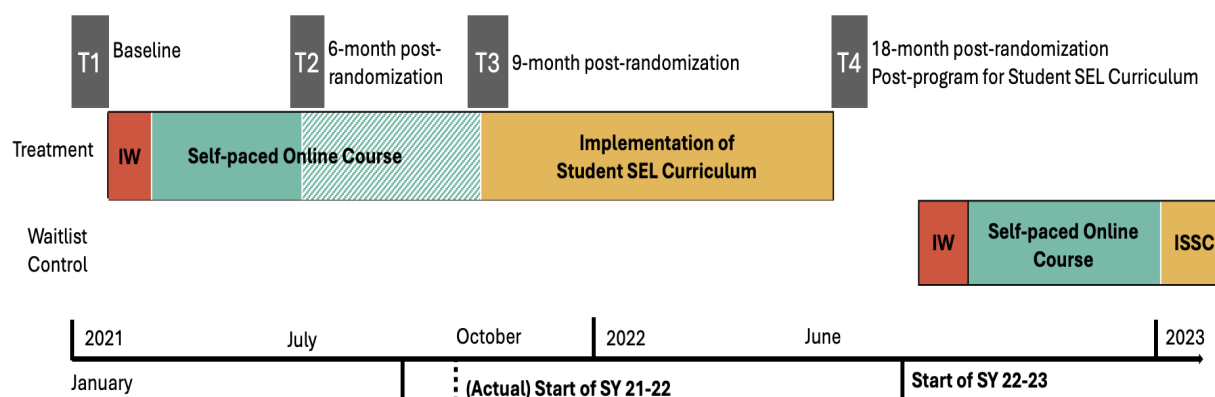
After reading and consenting to participate in this research, participants completed the online baseline survey between January 12 and 17, 2021. Six months post-randomization, a second survey battery (T2), intended as the post-intervention assessment, was administered. Nine months post-assignment, a third assessment battery (T3), intended to be a three-month follow-up, was administered. A final follow-up assessment was administered 18 months post-assignment (T4), coinciding with the end of the 2021–2022 school year. All surveys were collected remotely through SurveyMonkey. Figure 2 shows the study timeline summarizing recruitment, randomization, intervention delivery, and assessment timing.

Due to challenges educators faced associated with the COVID-19 pandemic, many intervention participants were unable to complete the intervention on the planned timeline by T2. In response to these extraordinary circumstances, participants were informed that, for PD credit purposes, the completion date of the Educator Training would be extended through the summer to October 2021. Because about 75% of teachers had not completed the intervention at the T2 assessment, for data analyses and interpretation purposes, the T2 assessment is treated as an interim assessment, and the T3 assessment, originally intended as a three-month follow-up, is treated as post-intervention. The T4 assessment is treated as a 9-month follow-up. Implications of variable intervention-completion timing for estimation and inference are addressed below in the analyses section. As planned, schools assigned to the waitlist control condition received EW during the 2022–2023 school year.

We did not anticipate adverse events related to the educator or child SEL curricula. There were no formal study stopping rules. The study was approved by the Ministry of Education of Sinaloa in November 2020 and by the MASKED FOR REVIEW Institutional Review Board (IRB ID: 2019-0854) in July 2019.

Figure 2

Study Timeline



Note: IW = Introductory Workshop; ISSC = Implementation of Student SEL Curriculum; SY = School year.

Power and Sample Size

We conducted *a priori* power analyses using Optimal Design (Raudenbush et al., 2011) to determine the required sample size to detect small magnitude effects of potential educational significance (i.e., a between-group standardized effect size [d] around 0.20) benchmarked on prior educator SEL professional development outcomes (e.g., Jennings et al., 2017). We followed standard cluster-trial methods (Spybrook et al., 2011). With $\alpha = .05$, power = .80, an intraclass correlation coefficient (ICC) of .07–.10, baseline covariates explaining 30% of outcome variance at the educator level, and approximately four educators providing follow-up data per school, 230–280 schools would provide power to detect an effect $d > 0.17$ for educator outcomes. We planned to oversample by ~15% to mitigate potential school-level attrition, setting the initial recruitment target at 300 schools. Higher-than-expected school interest led us to enroll and randomize 421 schools.

Randomization

Schools were the unit of randomization. We randomized at the school level for two reasons. First, the intervention's theory of change and implementation approach is school-wide, targeting both principals and teachers in schools in which both enrolled. Second, individual-level randomization would risk spillover/contamination through, for example, an intervention participant in the same school as a control participant sharing intervention practices, threatening internal validity. Using baseline registration data to define implementation tiers (principal-only, teacher-only, or principal-and-teacher), schools were allocated 1:1 to the EW or waitlist control conditions with a random-number sequence generated in STATA on January 18, 2021. This process resulted in 211 schools (1,090 educators) assigned to the treatment condition and 210 schools (1,072 educators) assigned to the control group.

Blinding

Given the nature of the intervention and waitlist control, participants were not blinded to condition. Teacher-reported student outcomes were collected by teachers who were aware of the treatment condition.

Intervention

In this trial, EW was implemented and evaluated as a bundled, sequential program comprising the Educator Training followed by the student SEL curriculum; the Leadership Training component of the broader EW model was not delivered (see Supplemental Material S1). During the second semester of the 2020–2021 school year, intervention participants received 80 hours of Educator Training, delivered entirely in digital format over approximately 20 weeks.

It began with a 10-hour synchronous introductory workshop, followed by three 20-hour asynchronous online modules, each paired with a synchronous reinforcement workshop (two

sessions totaling 3.5 hours). All synchronous sessions were delivered via Zoom, recorded, and available asynchronously. The introductory workshop, held across five 2-hour sessions between January 22 and February 3, 2021, introduced EW principles of SEL and well-being, oriented educators to the *Ten Agreements for Well-being* and *Psychonauts* curricula, and engaged participants in initial contemplative practices, guided self-reflection, and collaborative dialogue to develop a shared socioemotional vision (Chernicoff et al., 2025).

The subsequent modules each lasted approximately six weeks. Module 1 (SEL and Its Importance) explored SEL's role in well-being, school climate, and academic development, and introduced self-awareness through purpose and goals, attention training, and emotional awareness. Module 2 (Self-Awareness and Emotion Regulation) deepened educators' understanding of emotions and how they can be effectively managed. It introduced the process model of emotion regulation (Gross, 2015; Gross & John, 2003), teaching strategies such as situation selection and modification, attentional deployment, cognitive reappraisal, and response modulation. Module 3 (Constructive Relationships and Extending to Others) emphasized prosocial skills that support well-being and foster healthy, collaborative environments, including empathy, kindness, compassion, gratitude, and altruistic intention to help others.

Midway through each module, a synchronous reinforcement workshop provided expert modeling and rehearsal of classroom SEL lessons and practices, structured peer exchange, and practical planning to bridge adult skill development with curriculum delivery; these were held in March, May, and June 2021. All sessions were delivered by AtentaMente-certified instructors using a standardized, script-based facilitation model (details are provided in Supplemental Material S1).

In the academic year following the Educator Training (i.e., 2021–2022), intervention teachers implemented the student SEL curricula: *Ten Agreements for Well-being* and *Psychonauts*. The *Ten Agreements* is designed as a flexible, classroom-embedded SEL program for 3- and 4-year-olds. It is intended to foster SEL through everyday routines and the practice of brief, high-frequency strategies or “kernels” (Bailey et al., 2019; Embry & Biglan, 2008) practiced through songs, stories, movement, and simple, structured activities. For instance, students gradually learn and rehearse Agreements such as “learning to calm myself,” “listening and connecting,” “knowing my emotions,” “being patient,” “being attentive,” and “being a good friend,” supported by concrete self-regulatory tools (e.g., I listen, Stopping, Talking Wand, Emotion Jar). In this way, the curriculum combines formal lessons with informal practice opportunities, embedding SEL into both structured and unstructured classroom moments.

Psychonauts, designed for 5-year-olds, builds on the *Ten Agreements* and provides a more structured five-unit curriculum with sequenced lesson plans and guided activities. It focuses on systematic development of self-regulation and prosociality through direct instruction, role-play, drawing, games, and contemplative practices. For details on child curricula, see Supplemental Material S1. Prior to implementation, teachers received detailed lesson plans, activity guides, and classroom materials, as well as home–school connection resources and access to ongoing implementation support aligned with the school calendar. In addition, three 2-hour implementation workshops were scheduled during the academic year (December 1, 2021; February 1, 2022; and April 8, 2022) to support high-fidelity implementation.

Intervention Fidelity

The intervention was delivered by a single team of AtentaMente-certified instructors, who used scripts for content delivery. Fidelity was assessed through observer ratings of

adherence to session scripts. In the student programming phase, intervention teachers and schools received identical student curricula, lesson plans, and supporting materials. Educators self-reported implementation dosage at the end of the 2021–2022 school year.

Measures

Acceptability and Feasibility

Acceptability was measured using questions about participants' satisfaction with the intervention (rated on a scale of 1 to 10) and net promoter ratings (friends, family, coworkers) on a scale of 1 (would definitely not recommend) to 10 (would definitely recommend).

Additionally, participants were asked to rate agreement with items about personal and professional benefits derived from the intervention through items such as “I feel I have the knowledge and tools to face the upcoming school year” using a 6-point Likert-type scale (1 = *strongly disagree* to 6 = *strongly agree*).

Educator Training feasibility indicators included (a) attendance in synchronous sessions, (b) completion of asynchronous modules and certification requirements, and (c) self-reported contemplative practice and app usage. Certification requirements were pre-specified in coordination with the Sinaloa education authorities and included $\geq 80\%$ attendance in synchronous sessions, $\geq 75\%$ completion of asynchronous module activities, and satisfactory submission of two module capstone assignments, evaluated on a pass/fail basis. Feasibility of student SEL curriculum implementation was assessed using teachers' self-reports of the number of SEL activities implemented with students.

Because no universally accepted cutoffs exist for these indicators in large-scale educator PD, we interpreted acceptability and feasibility descriptively, with higher

satisfaction/recommendation ratings and majority attendance/completion taken as evidence of favorable implementation under pragmatic conditions.

Educator and Student Outcomes

Measures were selected following EW's theory of change, which posits proximal effects on educators' SECs (self-awareness, emotion regulation, and prosociality), intermediate effects on educator well-being and mental health (self-efficacy and psychological distress), and distal effects on students' SECs (emotion regulation and prosocial behavior) through classroom implementation. A complete list of instruments, target constructs, number of items, response anchors, assessment timing (T1–T4), example items, and internal consistency (McDonald's ω , reported as the T1–T4 range) appears in Table 2; ω coefficients at each timepoint are reported in Supplemental Table S1. Because several instruments assessed closely related facets within each theory-of-change domain, we conducted *a priori* psychometric analyses, including exploratory factor analysis (EFA), confirmatory factor analysis (CFA), and inter-scale correlations, to examine dimensionality and reduce the measurement space into composite scores and latent factors used in the primary analyses; these procedures are described below.

Measure translations.

All instruments were administered in Spanish. For measures with existing validated Spanish versions—or instruments originally developed in Spanish (e.g., ICSE)—we used those versions. Supplemental Table S2 summarizes each instrument, the availability of validated Spanish versions, and key psychometric evidence from prior research. For measures without validated Spanish versions, we used a forward–back translation procedure consistent with international guidelines: two independent bilingual translators (one native Spanish speaker fluent in English; one native English speaker fluent in Spanish) produced forward and back

translations, discrepancies were reconciled by the translators with study investigators, and the final wording prioritized conceptual equivalence. This battery has been used in prior and subsequent EW pilots in Mexico with good psychometric performance and reliability across diverse groups of educators (Chernicoff et al., 2025). All instruments were administered in their published forms with original response anchors.

Educator Outcomes.

Educator self-awareness was assessed with mindfulness in teaching (MTS–Interpersonal Mindfulness; Frank et al., 2016), attention regulation (HMI–Awareness; Kral et al., 2024), purpose (HMI–Purpose; Kral et al., 2024), and emotional awareness (ICSE–Emotional Awareness; Mikulic et al., 2015).

Emotion regulation was assessed by measuring adaptive emotion regulation (ERQ–Reappraisal and Suppression; Gross & John, 2003), emotion-regulation beliefs (ITES–Implicit Theories of Emotion; Tamir et al., 2007), attentional deployment and cognitive reappraisal as emotion regulation strategies (MAIA–Self-Regulation; Mehling et al., 2012; HMI–Insight; Kral et al., 2024), and trait emotion regulation (ICSE–Emotion Regulation; Mikulic et al., 2015).

For prosocial skills and behaviors, we assessed empathy using the average of the Perspective Taking and Empathic Concern subscales of the Interpersonal Reactivity Index (Davis, 1980), prosocial behavioral intentions (PBIS; Baumsteiger & Siegel, 2019), compassion (Compassion Scale; Pommier et al., 2020), and social connection, kindness and appreciation (HMI–Connection; Kral et al., 2024).

We assessed educator well-being by measuring self-efficacy in teachers (TSES–Teachers’ Sense of Efficacy Scale; Tschannen-Moran & Hoy, 2001) and in principals (PSES–Principals’ Sense of Efficacy Scale; Tschannen-Moran & Gareis, 2004), depressive symptoms (Patient Health Questionnaire-8; Kroenke et al., 2009), anxiety (Generalized Anxiety Disorder-7;

Spitzer et al., 2006), and occupational burnout (Maslach Burnout Inventory Educator Survey for teachers and General Survey for principals; Maslach et al., 1996, 1997).

Because some constructs were assessed with role-specific but conceptually parallel instruments (teachers vs. principals), we harmonized these measures prior to analysis. Specifically, educator self-efficacy was measured with the TSES for teachers and the PSES for principals; to place these on a common metric, we computed wave-specific z-scores within each version and combined them into a single Educator Self-Efficacy Score (ESES). We applied the same harmonization approach to burnout, using the teacher (MBI-ES) and principal (MBI-GS) versions to create common subscale scores (MBI-Personal Accomplishment/Professional Efficacy [MBI-PA], MBI-Emotional Exhaustion, and MBI-Depersonalization/Cynicism). For interpretability, all outcomes were oriented so that higher scores reflect more adaptive functioning; thus, measures where higher raw scores indicate greater symptoms or maladaptive strategies (e.g., ERQ-Suppression, GAD-7, PHQ-8, and MBI distress subscales) were reverse-scored before standardization/composite construction, so that positive effects consistently indicate improvement across outcomes.

Student Outcomes.

Student socioemotional competencies were assessed with the Teacher Social Competence Scale (TSC) emotion regulation and prosocial behavior subscales (Conduct Problems Prevention Research Group (CPPRG), 1995), using a single posttest, teacher-reported ratings of improvement over the school year at T4.

Exploratory and Confirmatory Factor Analyses and Composite Construction.

Multiple outcomes within each domain were assessed because they reflect distinct but related competencies. To reduce the number of statistical tests across multiple conceptually

related measures (Table 2), we followed a theory-aligned, dimension reduction approach used in similar prior SEL studies with educators (e.g., Jennings et al., 2017). We grouped measures into self-awareness, emotion regulation, prosociality, and educator well-being/distress families. *A priori* primary outcomes assessed at all timepoints were further grouped separately from secondary outcomes in the same family assessed at T1, T2 and T4 (see Table 2).

We first conducted EFAs on measures within each outcome family to examine dimensionality and empirical coherence among conceptually related measures; full EFA results are reported in Supplemental Table S3. EFAs supported a Self-Awareness factor indicated by HMI–Awareness, HMI–Purpose, and ICSE–Emotional Awareness, while MTS–Interpersonal Mindfulness was retained as a separate observed outcome. EFAs also supported an Emotion Regulation factor indicated by MAIA–Self-Regulation, HMI–Insight, and ICSE–Emotion Regulation, whereas Implicit Theories of Emotion, ERQ–Reappraisal, and ERQ–Suppression were retained as observed outcomes. Within Prosociality, a two-indicator structure involving CS–Compassion and HMI–Connection was operationalized as a standardized composite (z-scoring each indicator within wave; Clark & Watson, 2016), while IRI–Empathy and PBIS were retained as observed outcomes.

In the Well-being/Distress family, an EFA including PHQ-8, GAD-7, MBI–Emotional Exhaustion, MBI–Depersonalization, MBI–Personal Accomplishment, and Educator Self-efficacy supported two dimensions: Distress (PHQ-8, GAD-7, MBI–Emotional Exhaustion) and Efficacy/Positive Functioning (MBI–Personal Accomplishment and Educator Self-efficacy). Because the latter involved two indicators, it was operationalized as a standardized composite; MBI–Depersonalization was retained as an observed outcome.

We then conducted CFAs on the EFA-supported latent structures, which showed acceptable fit; CFA loadings and fit indices are reported in Supplemental Table S4. Composite inter-item correlations are reported in Supplemental Table S5, and reliability (ω) for composites and latent factors are reported in Supplemental Table S6.

Table 2

Construct, Measure, Example item, Response Scale, internal reliability, and timing when the measure was administered.

Construct	Measure (Citation)	Example item	# Items. Response Scale	ω range (T1-T4)	Timing (T1-T4)
EDUCATOR OUTCOMES					
Self-awareness					
Mindfulness in teaching	MTS–Interpersonal Mindfulness (Frank et al., 2016)	I listen carefully to my students’ ideas, even when I disagree with them.	5 items. 5-point scale (1 = never true to 5 = always true)	0.76 - 0.84	All
Self-awareness factor	HMI–Awareness (Kral et al., 2024)	I can notice my thoughts as soon as I have them.	4 items. 5-point scale (1 = none of the time to 5 = all of the time)	0.82 - 0.86	T1,T2,T4
	HMI–Purpose (Kral et al., 2024)	I have life goals that make daily activities worth doing.	4 items. 5-point scale (1 = not at all to 5 = to the highest degree)	0.93 - 0.94	T1,T2,T4
	ICSE–Emotional Awareness (Mikulic et al., 2015)	I find it hard to recognize my emotions. (rev)	8 items. 4-point scale (1 = never to 4 = always)	0.89 - 0.92	T1,T2,T4
Emotion regulation					
Reappraisal	ERQ–Reappraisal (Gross & John, 2003)	I make myself think about it to stay calm.	6 items. 7-point scale (1 = strongly disagree to 7 = strongly agree)	0.86 - 0.87	All
Suppression	ERQ–Suppression (Gross & John, 2003)	I keep my emotions to myself.	4 items. 7-point scale (1 = strongly disagree to 7 = strongly agree)	0.72 - 0.8	All
Beliefs in malleability of emotions	ITES–Implicit Theories of Emotion (Tamir et al., 2007)	Everyone can learn to control their emotions.	4 items. 6-point scale (1 = strongly disagree to 6 = strongly agree)	0.51 - 0.72	T1,T2,T4
Emotion regulation factor	MAIA–Self-Regulation (Mehling et al., 2012)	I can use my breath to reduce tension	4 items. 5-point scale (1 = never to 5 = always)	0.89 - 0.92	T1,T2,T4
	HMI–Insight (Kral et al., 2024)	I reflect on how my feelings shape my actions.	3 items. 5-point scale (1 = none of the time to 5 = every time)	0.85 - 0.86	T1,T2,T4
	ICSE–Emotion Regulation (Mikulic et al., 2015)	When I get angry, I lose control. (rev)	7 items. 4-point scale (1 = never to 4 = always)	0.87 - 0.9	T1,T2,T4
Prosociality					

Empathy	IRI–Perspective Taking & Empathic Concern (Davis, 1980)	I try to imagine things from others' perspective. / I often have tender, concerned feelings for people less fortunate than me.	14 items. 5-point scale (1 = does not describe me well to 5 = describes me very well)	0.76 - 0.82	All
Prosocial behavior intentions	PBIS (Baumsteiger & Siegel, 2019)	Comfort someone I know after a hardship.	4 items. 7-point scale (1 = definitely not do this to 7 = definitely would do this)	0.80 - 0.89	All
Prosociality composite	CS–Compassion Scale (Pommier et al., 2020)	If I see someone struggling, I try to be caring toward them.	16 items. 6-point scale (1 = almost never to 6 = almost always)	0.85 - 0.91	T1,T2,T4
	HMI–Connection (Kral et al., 2024)	I care about the problems of people all over the world.	6 items. 5-point scale (1 = never to 5 = always)	0.80 - 0.83	T1,T2,T4
Educator well-being and distress					
Self-efficacy/positive functioning composite	TSES (Tschannen-Moran & Hoy, 2001)	How much can you do to motivate low-interest students?	12 items. 9-point scale (1 = not at all to 9 = a great deal)	0.93 - 0.93	All
	PSES (Tschannen-Moran & Gareis, 2004)	Promote community values in your school?	12 items. 9-point scale (1 = not at all to 9 = a great deal)	0.91 - 0.91	All
Distress factor	MBI-ES –Personal Accomplishment (Maslach et al., 1996, 1997)	I can easily understand how my students feel about things.	8 items. 6-point scale (1 = never to 6 = every day)	0.91 - 0.92	All
	MBI-GS–Professional Efficacy (Maslach et al., 1996, 1997)	I can effectively solve the problems that arise in my work.	6 items. 6-point scale (1 = never to 6 = every day)	0.90 - 0.94	All
	MBI-ES –Emotional Exhaustion (Maslach et al., 1996, 1997)	I feel emotionally drained from my work.	9 items. 6-point scale (1 = never to 6 = every day)	0.93 - 0.94	All
	MBI-GS–Emotional Exhaustion (Maslach et al., 1996, 1997)	I feel used up at the end of the workday.	5 items. 6-point scale (1 = never to 6 = every day)	0.90 - 0.94	All
	GAD-7 (Spitzer et al., 2006)	Feeling nervous, anxious, or on edge	7 items. 4-point scale (1 = not at all to 4 = nearly every day)	0.94 - 0.95	All
	PHQ-8 (Kroenke et al, 2009)	Feeling down, depressed, or hopeless	8 items. 4-point scale (1 = not at all to 4 = nearly every day)	0.94 - 0.95	All
Educator depersonalization	MBI-ES –Depersonalization (Maslach et al., 1996, 1997)	I don't really care what happens to some students.	5 items. 6-point scale (1 = never to 6 = every day)	0.74 - 0.88	All
	MBI-GS–Cynicism (Maslach et al., 1996, 1997)	I have become less interested in my work since I started this job.	5 items. 6-point scale (1 = never to 6 = every day)	0.85 - 0.95	All

STUDENT OUTCOMES

Emotion regulation	TSC–Emotion Regulation subscale (CPPRG, 1995)	Calms down when excited or upset	6 items. 7-point improvement scale (0 = much worse to 6 = much improved)	0.96	T4
Prosociality	TSC–Prosocial behavior subscale (CPPRG, 1995)	Shows empathy and compassion for others' feelings.	7 items. 7-point improvement scale (0 = much worse to 6 = much improved).	0.95	T4

Note: MTS = Mindfulness in Teaching Scale; HMI = Healthy Minds Index; ICSE = Inventario de Competencias Socioemocionales (Socio-emotional Competencies Inventory); ITES = Implicit Theories of Emotion Scale; MAIA = Multidimensional Assessment of Interoceptive Awareness; ERQ = Emotion Regulation Questionnaire; IRI = Interpersonal Reactivity Index; CS = Compassion Scale; PBIS = Prosocial Behavioral Intentions Scale; TSES = Teachers' Sense of Efficacy Scale; PSES = Principals' Sense of Efficacy Scale; MBI = Maslach Burnout Inventory; GAD-7 = Generalized Anxiety Disorder–7; PHQ-8 = Patient Health Questionnaire; TSC = Teacher Social Competence; ω = McDonald's omega.

Transparency and Openness

This study was not preregistered. We report how we determined our sample size, all data exclusions (see Supplemental Material S2), all manipulations, and all measures in the study, and reporting follows APA Journal Article Reporting Standards (JARS; Appelbaum et al., 2018). De-identified educator-level data, codebooks, and reproducible analysis code are available via the Open Science Framework (OSF; Open Science Framework, 2026) view-only link for peer review: https://osf.io/wvbd2/overview?view_only=d338f21f0a86441994681c3690b4d370. Student-level data will be shared under a protected-access data use agreement (DUA) to safeguard privacy and remain consistent with consent and institutional approvals. Analyses were conducted in R (R Core Team, 2024) with the tidyverse (version 2.0.0), lme4 (version 1.1-37), lmerTest (version 3.1-3), effectsize (version 1.0.1), emmeans (version 1.11.2-8), lavaan (version 0.6-21), and psych (version 2.5.6) packages. We report in accordance with CONSORT guidelines, including the CONSORT-Cluster extension for cluster randomized trials (Campbell et al., 2012; see Figure 3 for the CONSORT Diagram).

Statistical Analyses

Preliminary data inspection and baseline equivalence

Prior to hypothesis-testing models, we inspected descriptive and distributional properties of educator outcomes and covariates. This included screening for implausible values and outliers, evaluating univariate distributions using visual inspection and normality diagnostics (Supplemental Table S7), and examining bivariate correlations among T1 educator outcomes and the age covariate to summarize construct overlap and assess potential multicollinearity (Supplemental Table S8). Raw-score normality tests indicated departures from normality across outcomes, as expected for bounded Likert-type measures in a large sample, so primary analyses

relied on mixed-effects models, for which assumptions were evaluated at the residual level (Supplemental Figure S1), and CFA-based construct scores estimated using robust maximum likelihood (MLR), which reduces sensitivity to non-normality. Baseline equivalence between randomized groups was assessed using standardized mean differences for educator and school characteristics measured at T1; Table 1 also reports descriptive characteristics of the T4 student sample by condition.

Attrition and missing data

Overall, missing data were multivariate and comprised a mix of monotonic and nonmonotonic patterns (Supplemental Tables S9–S10). Across T2–T4, 63.9% of educators completed all follow-up surveys; among those with any missing follow-up data, monotonic dropout patterns were more common than intermittent patterns (69.7% vs. 30.3%; Supplemental Table S9). Formal discontinuation was rare (43 educators, 2.0% of the randomized educator sample), so most analytic missingness reflected missed follow-up surveys rather than formal withdrawal. Because missingness was primarily at the survey level, educator attrition was operationalized at each wave as noncompletion of the T2, T3, or T4 follow-up survey. We summarized attrition by randomized group at each relevant level of the cluster design (educators and schools contributing T4 student outcomes). Participant flow for educators, schools contributing educator data, and schools contributing T4 student outcomes is shown in the CONSORT diagram (Figure 3), with detailed attrition counts reported in Supplemental Table S11.

Following What Works Clearinghouse (WWC) recommendations (What Works Clearinghouse, 2022), overall attrition was defined as the proportion of randomized units missing the outcome at a given wave, and differential attrition as the absolute between-group difference

in attrition rates. Educator survey attrition was 4.6% at T2, 22.0% at T3, and 25.6% at T4, with differential attrition of 4.5, 3.9, and 5.7 percentage points, respectively. Benchmarked against WWC attrition boundaries, educator differential attrition fell within the cautious boundary at T2 and T3 and was approximately 1 percentage point above the cautious boundary at T4 (cautious boundary = 4.7% at 26% overall attrition) but remained within the optimistic boundary (9.0%). For student outcomes, data were collected at T4 in 288 of 421 randomized schools (overall school attrition = 31.6%; differential = 0.6%), which is below the WWC cautious differential-attrition boundary for this overall attrition level (3.8% at 32% overall attrition), consistent with WWC group-design standards at the school level.

To evaluate whether missingness was systematically related to treatment condition or observed baseline characteristics, we fit mixed-effects logistic regression models predicting wave-level survey nonresponse with a random intercept for school (Supplemental Table S12). Predictors included condition, educator age, occupational role, school marginalization, and baseline anxiety and depressive symptom scores. Condition was associated with higher odds of nonresponse at T2 and T4. Educator nonresponse was higher in the EW group at T2 and T4 but lower at T3 (see Supplemental Table S11). Older educators had lower odds of nonresponse at T3 and T4, teachers had higher odds of nonresponse than principals at T2, and educators in higher marginalization categories had lower odds of nonresponse at T3 and T4. Baseline symptom scores did not predict nonresponse at any wave. Supplemental Table S13 provides complementary baseline comparisons of respondents and nonrespondents.

These diagnostics indicate that missingness was not completely at random (MCAR), as nonresponse was associated with treatment assignment and several observed baseline characteristics; they do not, however, establish the missing-at-random (MAR) assumption, which

requires that, conditional on observed information represented in the analysis, missingness does not depend on unobserved outcome values. Primary outcome models were estimated under an intent-to-treat framework using likelihood-based mixed-effects models, and CFA-based construct scores were estimated using full-information maximum likelihood (FIML), so that all available data contributed to estimation under the MAR assumption; however, if missingness depended on unobserved outcomes, or on observed predictors not represented in the primary outcome models, estimates could still be biased (Graham, 2009).

Primary intention-to-treat impact models

Educator outcomes were analyzed under intention-to-treat (ITT) using linear mixed-effects models that treated repeated assessments at baseline (T1) and follow-ups (T2, T3, T4) as a longitudinal outcome vector. Models included random intercepts for educators and schools to account for within-person correlation and school-level clustering. Timepoint was modeled categorically, and intervention effects were estimated via the timepoint $\times$ condition interaction.

Our primary specification used constrained longitudinal data analysis (cLDA) (Liu et al., 2009), in which baseline is retained as part of the repeated outcome vector and baseline means are constrained to be equal across randomized groups by omitting the condition main effect. In randomized trials with a baseline outcome and a small number of common follow-ups, cLDA is an efficient generalization of ANCOVA: under complete data, the two yield equivalent follow-up contrasts under standard conditions. In the present study, however, follow-up data were incomplete. We therefore implemented cLDA within a mixed-effects framework so that all available repeated measurements contributed to estimation under the stated missing-data assumptions, rather than restricting analyses to complete cases (Coffman et al., 2016; Fitzmaurice et al., 2012).

The cLDA model was specified as $\text{value} \sim \text{Timepoint} + \text{Group}:\text{Timepoint} + \text{age} + (1|\text{CCT}/\text{ID})$, with baseline equality enforced by the absence of a group main effect. Consistent with the COVID-related completion extensions described above, T2 is treated as an interim assessment, T3 as post-intervention, and T4 as follow-up; treatment effects were defined *a priori* as planned EW–control contrasts at each follow-up timepoint (T2, T3, T4), obtained from estimated marginal means from the fitted model (emmeans). For outcomes administered at T1, T2, and T4 only (secondary/mechanistic measures), we fit analogous models spanning those waves and report EW–control contrasts at T2 and T4. Maximum likelihood estimation used all available outcome data under the missing-data assumptions described above (Fitzmaurice et al., 2012).

As robustness checks, we re-estimated treatment effects using (a) a baseline-adjusted ANCOVA parameterization (post-baseline outcomes as the response; baseline as a covariate) and (b) an unconstrained longitudinal data analysis parameterization allowing separate baseline means by group; model comparisons are reported in Supplemental Figure S2.

The impact of EW on student outcomes was analyzed using three-level random-intercept models in which the single-timepoint teacher ratings on current-year student SEL change were regressed on school-level assignment (EW vs. waitlist), with random effects for students nested within teachers, and teachers nested within schools. School-level covariates were management type, marginalization level, and tier of implementation; student-level covariates were gender and grade. We included pre-treatment school contextual factors and student demographics (gender and grade) as precision covariates because teacher-rated socioemotional competencies and implementation conditions may vary systematically across school contexts, developmental stages, and gender in early childhood. Adjusting for these characteristics improves estimation

precision and guards against chance imbalance without altering the randomized ITT estimand.

We interpret these models as posttest differences in perceived improvement rather than pre–post change.

Type I Error Control and effect sizes

To address multiplicity across educator outcomes within each wave, we controlled the false discovery rate (FDR) using the Benjamini–Hochberg procedure (Benjamini & Hochberg, 1995), within each outcome family (e.g., self-awareness, emotion regulation, prosociality, well-being/distress) at each timepoint. This approach controls the expected proportion of false discoveries among rejected hypotheses at $q = .05$. For interpretability and comparability to prior intervention work, we report standardized effect sizes as Hedges' g (SD units), computed by dividing each model-based EW–control contrast by the pooled within-groups standard deviation of the outcome (pooled within-groups baseline SD for educator outcomes; pooled within-groups T4 SD for student outcomes), with confidence intervals scaled accordingly (Feingold, 2009), and applying the small-sample bias correction J , with degrees of freedom defined as $n_{EW} + n_{control} - 2$ (Hedges, 1981). Given the sample size, this correction was negligible ($J \approx .9996$ – $.9997$ across outcomes) and did not alter any estimate at the reported precision. Student outcomes were corrected separately for multiplicity. Effect magnitudes are interpreted using education-relevant benchmarks (Small < 0.05 , Medium 0.05 – 0.20 , and Large ≥ 0.20 standard deviations; Kraft, 2020).

Exploratory Moderation Analyses

We examined whether intervention effects differed among participants with clinically elevated levels of anxiety and separately depressive symptoms at baseline by categorizing participants as clinical/non-clinical using established scale cutpoints (i.e., ≥ 10 ; Kroenke et al.,

2009; Spitzer et al., 2006). Using the same cLDA framework, we interacted the baseline clinical/non-clinical variable with group and follow-up timepoints. Using the same approach, we also tested whether role (teachers vs. principals) moderated intervention effects. When a significant interaction was detected, we probed the interaction using estimated marginal means (emmeans) derived from the full mixed-effects model. Specifically, we estimated EW–Control simple effects at each follow-up (T2–T4) within each subgroup (e.g., clinical vs. non-clinical; teachers vs. principals) and contrasted these subgroup-specific effects to quantify differences in treatment effects across subgroups (i.e., difference-in-effects). Educator moderation contrasts were FDR-adjusted within the symptom-moderation family.

To test moderation of student effects by school marginalization level, we re-estimated the student effects models described above including a group $\times$ marginalization interaction term. The six resulting contrasts were adjusted jointly as a separate exploratory family.

RESULTS

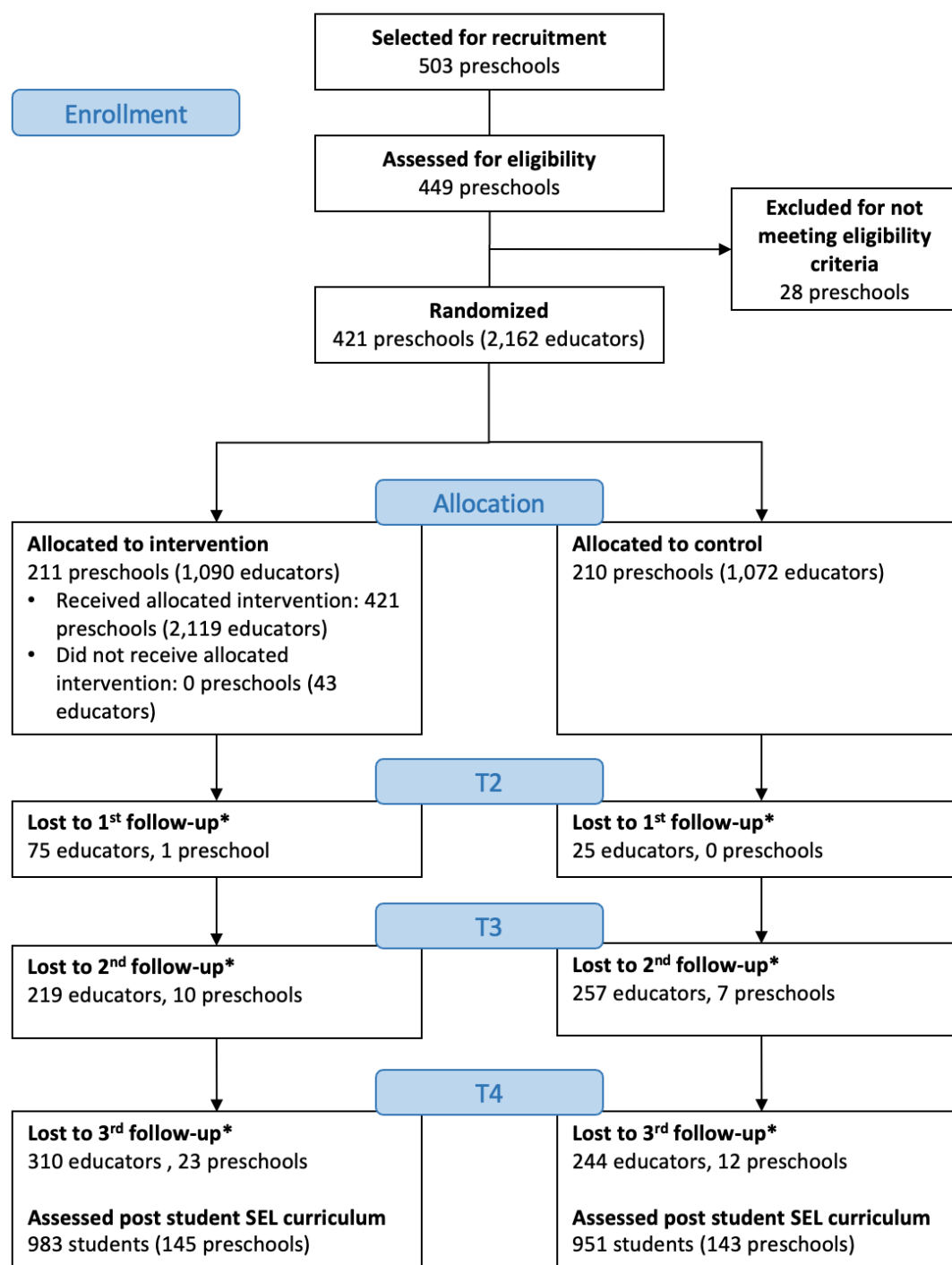
Participant Flow and Baseline Equivalence

Randomization was conducted at the school level and included 421 schools, comprising 2,162 educators (1,767 teachers and 395 principals) in the analytic sample. Student outcomes were collected at T4 from 1,934 students rated by participating teachers across 288 schools. Table 1 presents educator and school baseline characteristics, along with student descriptive characteristics at T4, by condition. There were no meaningful baseline differences between conditions on educator or school characteristics measured at T1. Descriptive characteristics of the T4 student sample were also similar across conditions. Participant flow and wave-specific

survey completion are shown in Figure 3; attrition and missing-data diagnostics are described in the Methods and reported in full in the Supplemental Tables S9-S13.

Figure 3

CONSORT diagram



* Reference is the sample allocated to intervention/control.

Main Outcomes Analyses

Acceptability and Feasibility

Educators reported high acceptability of EW. Overall satisfaction averaged 9.7/10, and 98% reported that they would recommend the program to friends, colleagues, or family members. Most participants strongly or very strongly endorsed that the Educator Training's content and tools helped them better manage their stress (90% of participants), gave them tools to better cope with the COVID-19 crisis (89% of participants), helped them develop their SECs (92% of participants), helped them feel prepared for the upcoming school year (92% of participants), contributed to new knowledge about SEL (93% of participants), gave them greater clarity about how to implement SEL with their students (93% of participants), provided tools to integrate SEL in their work as educators (93% of participants), and was central to their overall professional development (92% of participants).

Even amidst these extraordinary conditions of the pandemic, 79% of educators attended $\geq 80\%$ of the synchronous sessions. After extending the program timeline (from T2 to T3), 69% of educators met the certification requirements. 49% of participants reported using the companion app, with a majority of these participants (67%) reporting using it at least once per week. At T4, 57% of teachers in the intervention group reported delivering SEL lessons at least once per week (92% among teachers responding to the T4 survey). Together, these indicators suggest high acceptability and substantial uptake at scale, although timely completion required considerable pandemic-related flexibility.

Impact On Educators' Socioemotional Competence and Well-Being

Impact estimates of EW on educator and student outcomes are reported in Table 3 with additional details in Supplemental Tables S14 and S16.

Self-Awareness.

No statistically significant intervention effects were observed for mindfulness in teaching (MTS) at T2–T4 or for the self-awareness factor at T2 or T4 after FDR correction.

Emotion Regulation.

At T2, the intervention group showed improvements relative to the waitlist control in reappraisal ($g = 0.15$, $pFDR = .003$), suppression ($g = 0.12$, $pFDR = .011$), emotion mindset (ITES; $g = 0.43$, $pFDR < .001$), and the emotion regulation factor score ($g = 0.09$, $pFDR < .001$). At T3, only reappraisal and suppression were assessed; the intervention continued to show a statistically significant improvement in suppression (i.e., greater reductions in suppression in the intervention group; $g = 0.17$, $pFDR < .001$), but not reappraisal ($g = 0.09$, $pFDR = .111$). At T4, intervention effects persisted for emotion mindset ($g = 0.31$, $pFDR < .001$) and the emotion regulation factor score ($g = 0.07$, $pFDR = .004$), but not reappraisal ($g = 0.05$, $pFDR = .446$) or suppression ($g = 0.09$, $pFDR = .153$).

Prosociality.

At T2, the intervention group showed significant gains in empathy ($g = 0.17$, $pFDR < .001$), prosocial intentions ($g = 0.16$, $pFDR = .003$), and prosocial composite ($g = 0.12$, $pFDR = .004$). At T3, only empathy and prosocial intentions were assessed; intervention group improvements in empathy remained statistically significant ($g = 0.17$, $pFDR < .001$), but prosocial intentions did not ($g = 0.09$, $pFDR = .111$). At T4, significant intervention effects persisted on empathy ($g = 0.15$, $pFDR = .005$), prosocial intentions ($g = 0.15$, $pFDR = .028$), and prosocial composite ($g = 0.10$, $pFDR = .025$). Overall, EW's clearest and most consistent

effects were on emotion regulation and prosociality, the competencies most directly and repeatedly practiced in the Educator Training.

Self-Efficacy / Positive Functioning.

There was no evidence that the intervention improved the self-efficacy/positive functioning factor at T2 compared to controls ($g = 0.00$, $pFDR = .959$). At T3, there was a significant intervention effect ($g = 0.16$, $pFDR < .001$) that did not persist at T4 ($g = 0.07$, $pFDR = .217$).

Psychological Distress.

Between-group changes on the psychological distress factor were not significantly different at any timepoint. Thus, at the whole-sample level the intervention did not produce detectable effects on educators' broader distress, and evidence for well-being effects was limited to the time-limited improvement in efficacy/positive functioning noted above.

Robustness tests.

Re-estimating models using ANCOVA and unconstrained LDA parameterizations did not impact substantive conclusions (see Supplemental Figure S2).

Table 3

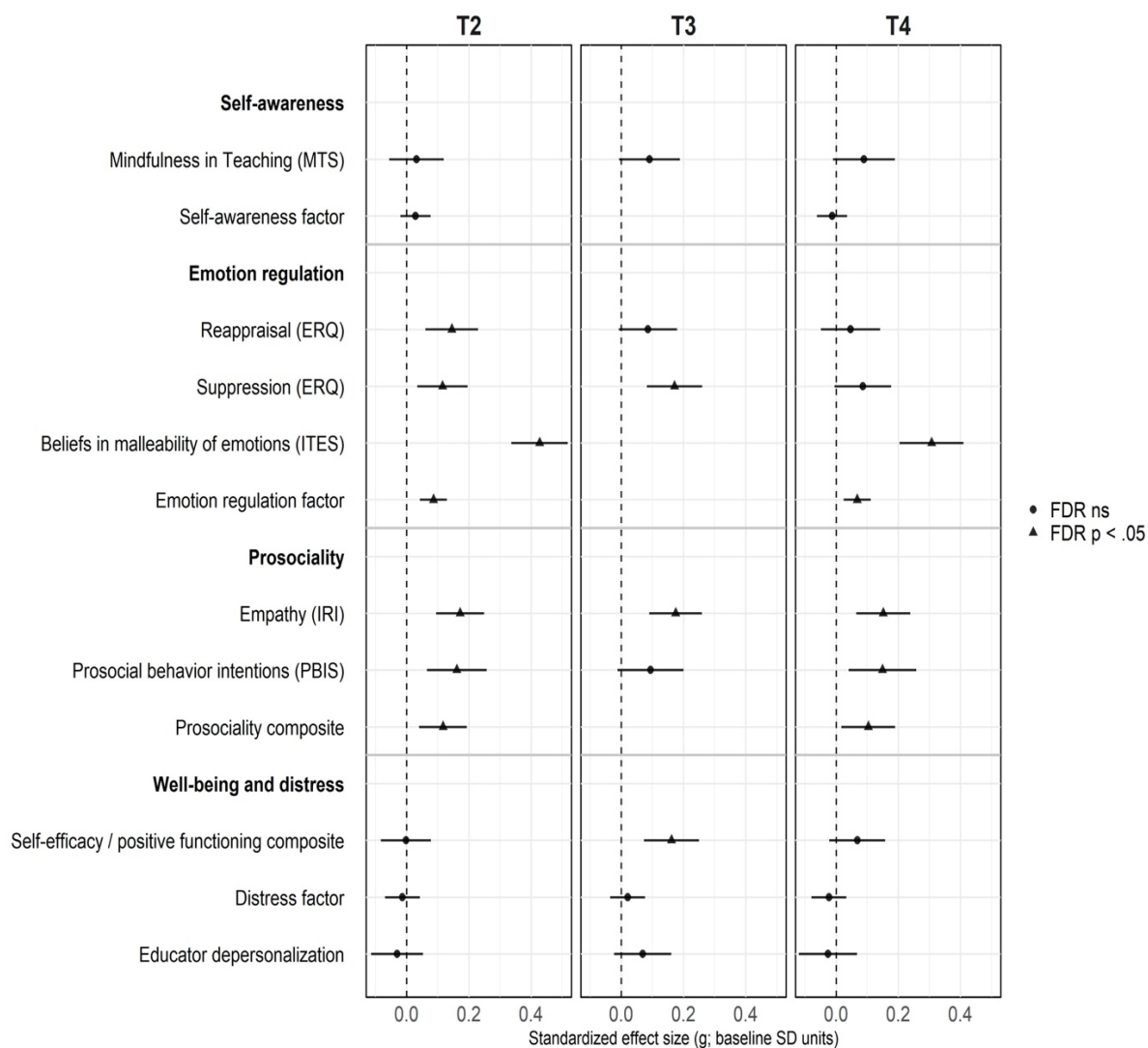
Educating for Well-being impacts on educators and students' outcomes (primary analysis)

Construct	T2			T3			T4		
	<i>g</i>	(95% CI)	<i>p</i> -value	<i>g</i>	(95% CI)	<i>p</i> -value	<i>g</i>	(95% CI)	<i>p</i> -value
EDUCATOR OUTCOMES									
Self-awareness									
Mindfulness in Teaching (MTS)	0.03	(-0.06,0.12)	0.636	0.09	(-0.01,0.19)	0.111	0.09	(-0.01,0.19)	0.153
Self-awareness factor	0.03	(-0.02,0.08)	0.245				-0.01	(-0.06,0.04)	0.609
Emotion regulation									
Reappraisal (ERQ)	0.15	(0.06,0.23)	0.003	0.09	(-0.01,0.18)	0.111	0.05	(-0.05,0.14)	0.446
Suppression (ERQ)	0.12	(0.03,0.20)	0.011	0.17	(0.08,0.26)	<0.001	0.09	(0.00,0.18)	0.153
Beliefs in malleability of emotions (ITES)	0.43	(0.34,0.52)	<0.001				0.31	(0.20,0.41)	<0.001
Emotion regulation factor	0.09	(0.04,0.13)	<0.001				0.07	(0.02,0.11)	0.004
Prosociality									
Empathy (IRI)	0.17	(0.09,0.25)	<0.001	0.17	(0.09,0.26)	<0.001	0.15	(0.07,0.24)	0.005
Prosocial behavior intentions (PBIS)	0.16	(0.07,0.26)	0.003	0.09	(-0.01,0.20)	0.111	0.15	(0.04,0.26)	0.028
Prosociality composite	0.12	(0.04,0.19)	0.004				0.10	(0.02,0.19)	0.025
Well-being and distress									
Self-Efficacy / Positive Functioning composite	0.00	(-0.08,0.08)	0.959	0.16	(0.07,0.25)	<0.001	0.07	(-0.02,0.16)	0.217
Distress factor	-0.01	(-0.07,0.04)	0.732	0.02	(-0.04,0.08)	0.471	-0.02	(-0.08,0.03)	0.490
Depersonalization (MBI-D)	-0.03	(-0.11,0.05)	0.636	0.07	(-0.02,0.16)	0.163	-0.03	(-0.12,0.07)	0.589
STUDENT OUTCOMES									
Emotion Regulation							0.49	(0.26,0.72)	<0.001
Prosocial behavior							0.36	(0.15,0.57)	<0.001

Note. g = Standardized Effect Size (Hedges' g). Positive g values indicate improvement; CI = Confidence Interval; MTS = Mindfulness in Teaching Scale; ERQ = Emotion Regulation Questionnaire; ITES = Implicit Theories of Emotion Scale; IRI = Interpersonal Reactivity Index; PBIS = Prosocial Behavioral Intentions Scale; MBI = Maslach Burnout Inventory. All p-values are FDR-adjusted p-values.

Figure 4

Standardized effects on educator outcomes across post-baseline timepoints.



Points show standardized effects (Hedges' g; baseline SD units) and 95% confidence intervals at T2 (6 months after baseline; during training), T3 (9 months; post-training, primary post-program), and T4 (18 months; follow-up). The primary estimates reported in Table 3 are from the baseline-constrained longitudinal data analysis (cLDA) specification. Outcomes are oriented so that positive values indicate improvement. Filled triangles denote FDR $p < .05$ within outcome families at each timepoint; circles denote FDR non-significance. All statistically significant effects favored EW.

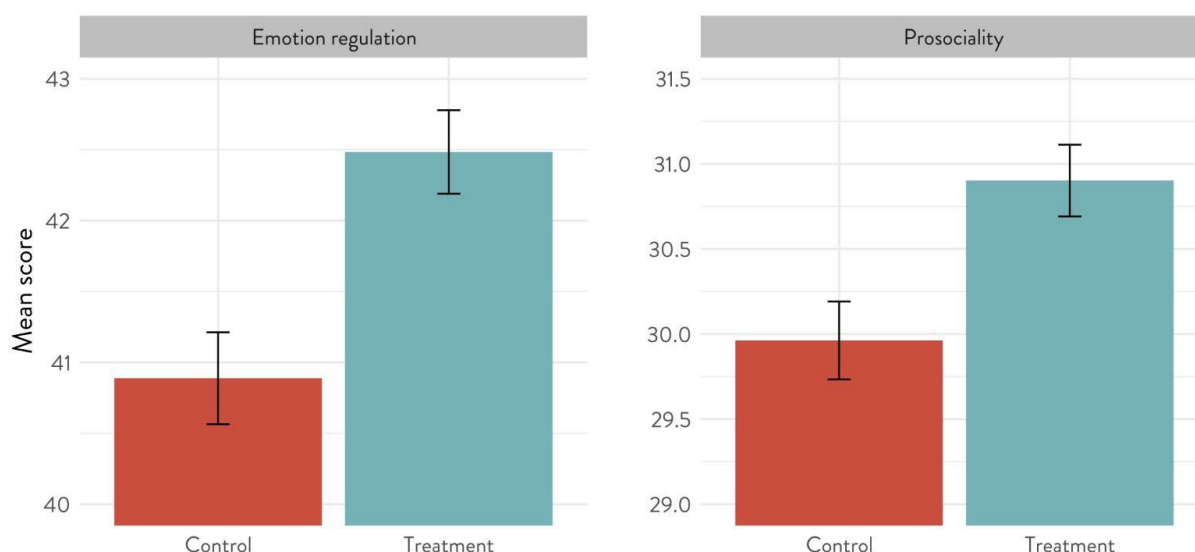
Note. Positive g values indicate improvement; SD = Standard deviation; MTS = Mindfulness in Teaching Scale; ERQ = Emotion Regulation Questionnaire; ITES = Implicit Theories of Emotion Scale; IRI = Interpersonal Reactivity Index; PBIS = Prosocial Behavioral Intentions Scale; MBI = Maslach Burnout Inventory.

Impact On Students' Socioemotional Outcomes

At T4, teachers in the intervention condition reported greater school-year improvements in students' socioemotional competencies—emotion regulation ($g = 0.49, pFDR < .001$) and prosocial behavior ($g = 0.36, pFDR < .001$)—relative to control group teachers (Table 3; Figure 5). Because student outcomes were collected as single-timepoint, end-of-year ratings of perceived school-year change, made by teachers who were aware of condition, these findings should be interpreted as differences in teacher-perceived improvement rather than independently observed child change.

Figure 5

Teacher-reported school-year change in students' emotion regulation and prosociality.



Exploratory Moderation Analyses

Moderation Analyses of Educator-Level and Student-Level Intervention Effects

We conducted exploratory moderation analyses to examine whether EW effects on educator anxiety and depressive symptoms varied as a function of baseline clinical symptom levels or occupational role (see Table 4 for moderation results, Figure 6 for trajectories by treatment group and baseline clinical status, and Supplemental Table S15 for subgroup effect sizes).

Baseline clinical levels of anxiety and depression moderated EW effects on the corresponding outcomes. For anxiety, educators with clinical baseline anxiety showed greater reductions at T2 in the intervention group relative to the control group (interaction $g = 0.31$;

$pFDR = .009$; clinical subgroup $g = 0.25$; non-clinical subgroup $g = -0.06$). For depression, those with clinical baseline levels showed greater relative decreases at T2 (interaction $g = 0.25$; $pFDR = .044$; clinical subgroup $g = 0.24$; non-clinical subgroup $g = -0.01$) and T3 (interaction $g = 0.46$; $pFDR < .001$; clinical subgroup $g = 0.49$; non-clinical subgroup $g = 0.03$). Moderation contrasts were not statistically significant at T4 for either outcome.

Occupation moderated EW effects on anxiety only at T3, with larger reductions among principals than teachers (interaction $g = 0.26$; $pFDR = .044$; principals $g = 0.24$; teachers $g = -0.03$). Role-based moderation effects were not statistically significant for depression at any timepoint.

Teacher-reported effects on student SEL were not moderated by school marginalization level (see Table 4).

Table 4

Exploratory moderation effects

Construct	T2			T3			T4		
	g_{int}	(95% CI)	p -value	g_{int}	(95% CI)	p -value	g_{int}	(95% CI)	p -value
EDUCATOR OUTCOMES									
Exploratory moderation analysis on anxiety and depression									
Anxiety (clinical vs non-clinical at T1)	0.31	(0.12,0.49)	0.009	0.19	(-0.02,0.40)	0.122	-0.05	(-0.26,0.16)	0.682
Depression (clinical vs non-clinical at T1)	0.25	(0.05,0.46)	0.044	0.46	(0.23,0.68)	<0.001	0.02	(-0.21,0.25)	0.848
Anxiety (principals vs teachers)	0.20	(0.01,0.39)	0.101	0.26	(0.06,0.47)	0.044	0.08	(-0.13,0.29)	0.614
Depression (principals vs teachers)	0.17	(-0.01,0.35)	0.122	0.17	(-0.03,0.37)	0.135	0.06	(-0.14,0.26)	0.671
STUDENT OUTCOMES									
Exploratory moderation analysis by school marginalization level									
Emotion Regulation (low vs very low marginalization)							-0.14	(-0.53,0.26)	0.863
Emotion Regulation (medium vs very low marginalization)							-0.03	(-0.39,0.33)	0.863
Emotion Regulation (high vs very low marginalization)							0.07	(-0.35,0.48)	0.863
Prosocial behavior (low vs very low marginalization)							-0.06	(-0.45,0.34)	0.863
Prosocial behavior (medium vs very low marginalization)							0.08	(-0.28,0.44)	0.863
Prosocial behavior (high vs very low marginalization)							0.17	(-0.25,0.59)	0.863

Note. g_{int} = Standardized Interaction Effect (Hedges' g , SD units). Positive values indicate that the EW–control contrast was more favorable in the first-named subgroup than in the reference subgroup; CI = Confidence Interval. p -values were BH-FDR-adjusted within moderation family; the six student marginalization contrasts were adjusted jointly, raw p -values ranged from .420 to .863, and all six adjusted values were .863.

Figure 6

Trajectories of Educators' Anxiety and Depression by Treatment Group and Baseline Clinical Status (T1–T4)

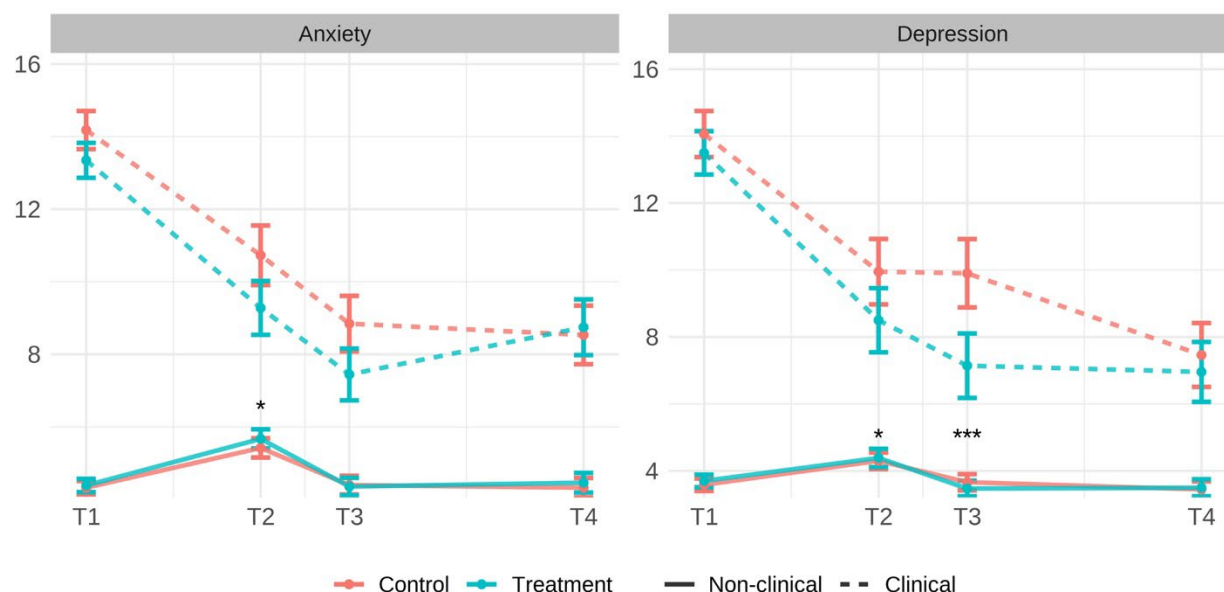


Figure note: Solid lines = non-clinical baseline ($GAD-7/PHQ-8 < 10$); dashed = clinical (≥ 10). Error bars are 95% CIs. Asterisks mark between-group differences at the timepoint (* $pFDR < .05$; *** $pFDR < .001$).

Adverse events

No serious adverse events were observed or reported.

DISCUSSION

Preschool educators play a central role in shaping the daily interactions and classroom climates through which young children develop foundational skills for learning and well-being. Consistent with a growing consensus across developmental science and educational psychology,

strengthening educators' SEC is increasingly viewed as an important lever for supporting children's development and school success (Center on the Developing Child, 2021; Elbertson et al., 2025; Greenberg, 2023; Jennings & Greenberg, 2009; Mahfouz et al., 2025; Shonkoff & Fisher, 2013). In this large, pragmatic trial, EW—an educator SEL professional development program linked to a preschool SEL curriculum—was associated with modest but reliable improvements on educator-reported measures of SEC and well-being, with the clearest and most sustained benefits on emotion regulation and prosociality, which were directly trained and repeatedly rehearsed in the program. At the child level, intervention-group teachers also reported greater end-of-year improvement in students' emotion regulation and prosocial behavior; however, because these student outcomes relied on a single teacher-reported change measure without a matched baseline assessment, they should be interpreted cautiously, as we discuss below.

One important goal of this study was to examine, for the first time at scale in Mexico, the feasibility and acceptability of EW's model for SEL development (RQ-1). Overall, the program appeared highly acceptable to participating educators, who expressed strong endorsement across multiple satisfaction indicators. Feasibility indicators also suggest that EW can be implemented at scale under pragmatic conditions: 79% of educators attended at least 80% of synchronous sessions, and 69% ultimately completed enough of the program to receive Ministry of Education credit-bearing certification. Interpreting these implementation indicators requires attention to the pandemic context. Only 25% completed the program on the originally designed timeline, likely reflecting the extraordinary demands and disruptions educators faced during COVID-19; thus, timing-based feasibility under typical conditions cannot be inferred directly from this trial.

At the same time, completion rates observed here compare favorably with other large-scale and/or online PD contexts (e.g., 12%–42% completion in the TeachUP RCT, depending on subgroup; Azzolini et al., 2023; and 0.7%–52.1% across MOOCs, median 12.6%; Jordan, 2015), suggesting that the extended completion rate of 69% is relatively strong for a large-scale blended model delivered during a period of high strain. Finally, EW’s delivery as a credentialed PD experience embedded within an existing policy structure is not merely administrative: credit-bearing certification may function as a sustainability mechanism by aligning educators’ effort with formal professional incentives (Desimone, 2011; Durlak & DuPre, 2008; Fullan, 2018; Popova et al., 2022), and thus may be a meaningful lever for participation and completion that future implementation research should test explicitly (e.g., as a predictor of uptake, completion, and sustained use).

In terms of educator impacts (RQ-2), the clearest pattern is that EW produced its most consistent benefits on outcomes that were explicitly trained and repeatedly rehearsed in the program: emotion-regulation beliefs and skills (e.g., adopting more adaptive emotion mindsets and applying regulation strategies), and prosocial dispositions (e.g., empathy and prosocial orientation). This pattern aligns with the program’s theory of change and with prior educator SEL interventions that most strongly influence proximal skills. For example, CARE reported significant improvements in teachers’ adaptive emotion regulation and mindfulness, reductions in psychological distress, and improvements in observed classroom emotional support (Jennings et al., 2017). In that context, the present findings add evidence from a markedly different setting (Mexican preschools; public system scale; pandemic conditions) that educator PD can shift core adult competencies that are theorized to shape classroom climate and co-regulation processes.

Mechanistically, shifts in emotion mindsets plausibly increase educators' willingness to attempt regulation in difficult moments (Ford & Gross, 2019; Tamir et al., 2007), while improvements in regulation skills may support co-regulation with young children in real time (Taxer & Gross, 2018). Similarly, sustained gains in empathy and prosocial orientation are consistent with pathways through which educators support warmer, more supportive classroom relationships that facilitate engagement and adjustment (Bjärehed & Bjärehed, 2025). Emotion regulation strategies may also diffuse socially within groups (Pinus et al., 2025), a hypothesis worth testing in future schoolwide studies.

The present trial extends and complements the CARE evidence base. CARE included observational classroom measures—a strength not present in the current trial—whereas EW extends this line of work by testing a related adult SEL/PD logic at substantially larger scale, in preschool rather than elementary settings, within a Latin American public education system, under pandemic conditions, and with a linked child SEL curriculum.

Two features of the design bear on how the findings should be interpreted in relation to EW's two components. EW was evaluated as a bundled, sequential program rather than as independently randomized components; the trial therefore does not identify the separate causal contributions of the Educator Training and the student curriculum. The assessment timeline provides partial, but not causal, separation: educator outcomes at T2 and T3 were assessed during and shortly after the Educator Training period, before the student curriculum had been implemented for a full school year, whereas teacher-reported student outcomes and the T4 educator follow-up were assessed at the end of the curriculum-implementation year and therefore reflect the combined, sequential EW model. These alignments reflect the timing of measurement, not estimates of either component's independent effect. We therefore interpret T2/T3 educator

effects as most directly aligned with the Educator Training period, while interpreting teacher-reported student outcomes and T4 educator follow-up estimates as effects of assignment to the bundled, sequential program.

At the same time, EW's effects were not uniform across SEC domains. Self-awareness outcomes showed generally positive point estimates but did not remain statistically reliable after FDR correction. One possibility is timing: self-awareness is emphasized early (Module 1), whereas emotion regulation and prosociality are emphasized later (Modules 2–3), so effects on early competencies may have been more apparent during training (e.g., at T2) and less detectable by longer follow-up. Future work should sharpen measurement of trained self-awareness skills and test whether reinforcement supports improve durability in this domain.

Effects on educators' well-being were modest, time-limited and were primarily reflected in gains in educators' efficacy/positive functioning. Educators' efficacy/positive functioning increased after training completion ($g = 0.16$ at T3) but diminished by follow-up. Even time-limited gains in self-efficacy/personal accomplishment may matter for educators' work lives and systems outcomes, given consistent links with instructional quality, job satisfaction, burnout, and intentions to leave (Madigan & Kim, 2021; C. Skaalvik, 2020; E. Skaalvik & Skaalvik, 2016; Van Eycken et al., 2024; Zee & Koomen, 2016). Our results add to meta-analytic evidence showing that SEL-focused interventions can strengthen educators' personal accomplishment and related burnout-protective functioning, supporting the value of integrating SEL within educator training (Oliveira et al., 2021b). In the full sample, we did not detect statistically significant effects on the distress construct score or depersonalization, but we found no evidence of harm.

In exploratory moderation analyses (RQ-4), educators with clinically meaningful baseline anxiety or depression reported larger reductions in symptoms during and immediately following the intervention (T2–T3), but not at the 9-month follow-up (T4). Probing simple subgroup effects clarified the pattern: EW–control differences were negligible and not statistically significant among educators below the cut-point (anxiety and depression effects were near zero). In contrast, statistically significant EW–control differences were observed among educators in the elevated range at T2–T3 (absolute standardized effects $|g| = 0.24–0.49$, depending on outcome and timepoint). Thus, where moderation was detected, effects were concentrated among educators with greater initial symptom burden. Because these analyses were exploratory and the differences did not persist at T4, this pattern should be interpreted as preliminary evidence of heterogeneity rather than a diagnostic subgroup effect. This pattern aligns with prior evidence that individuals with higher baseline symptom severity tend to realize larger improvements in mindfulness-based and other SEL interventions (Goldberg et al., 2018; Jennings et al., 2019). Emerging evidence finding high rates of educator distress (Hirshberg et al., 2023) and linking higher levels of teacher depressive symptoms to lower quality instruction and reduced student learning (e.g., McLean & Connor, 2015) highlight the importance of supporting educator mental health, particularly for those experiencing elevated symptoms who may also be at greater risk of burnout and professional attrition.

Using education-specific benchmarks, many of the reliable educator effects fall within the medium-to-large range for scalable interventions in real-world educational settings (Kraft, 2020). However, compared with prior teacher SEL professional-development syntheses, our estimates are generally smaller than pooled effects reported by Oliveira et al. (2021a) across 43 studies (3,004 teachers) for teachers' social-emotional competence ($g = 0.59$) and well-being (g

= 0.35). They are also smaller than the significant burnout-domain effects reported by Oliveira et al. (2021b) for personal accomplishment ($g = 0.45$). At the same time, these literatures are dominated by relatively small, heterogeneous studies and show evidence of publication bias in some domains (Oliveira et al., 2021a). Effect sizes also tend to attenuate as studies become larger and more pragmatic (Kraft, 2020; de Vries et al., 2023), so our trial—2,162 educators across 421 preschools, approaching the total teacher sample in much of the prior evidence base—may provide a conservative but policy-relevant benchmark for impacts at scale. Importantly, the magnitudes observed here are consistent with CARE, the largest prior trial of contemplative-informed teacher SEL/PD (224 teachers in 36 schools; Jennings et al., 2017; Jennings et al., 2019), and even small average shifts can be consequential at the population level (Greenberg & Abenavoli, 2017).

Regarding student outcomes (RQ-3), intervention-group teachers reported greater school-year improvement in students' emotion regulation ($g = 0.49$) and prosocial behavior ($g = 0.36$) at T4, self-regulatory competencies central to preschool readiness and long-term well-being (Blair & Raver, 2015; Denham & Brown, 2010; McClelland et al., 2017; Moffitt et al., 2011). We interpret these student findings cautiously because the teachers providing the ratings also received the intervention and were not blind to condition, creating the possibility of reporting bias. At the same time, teacher perceptions of students are themselves consequential for classroom interactions and for how students view themselves as learners (see Flook et al., 2025). However, the present measures cannot determine whether the observed differences reflect changes in child behavior, changes in teacher perceptions, or both.

These teacher-reported differences are notable given international reports of pandemic-related setbacks in children's social-emotional skills (OECD, 2021; UNICEF, 2020). The

corresponding standardized effect-size estimates (emotion regulation $g = 0.49$; prosocial $g = 0.36$) are larger than contemporary meta-analytic averages for comparable domains ($g = 0.22$ and 0.18 ; Cipriano et al., 2023). As noted above, however, these estimates should be interpreted cautiously given the reliance on teacher-reported perceived change. This pattern is consistent with EW's developmental theory of change, in which stronger educator emotion regulation and prosociality are expected to support calmer, more predictable routines and responsive interactions that scaffold children's regulatory capacities (Blair & Raver, 2015; Center on the Developing Child, 2021; Jennings & Greenberg, 2009); however, the present trial did not directly test this pathway. Exploratory analyses suggested little evidence of moderation by school marginalization level, indicating that the teacher-reported student effects did not differ systematically across schools serving different socioeconomic populations. This pattern is consistent with the possibility that EW may be broadly applicable across diverse educational contexts, though future studies with stronger student measures and greater power to detect heterogeneity are needed to test whether impacts vary by levels of school disadvantage.

This trial extends the literature on SEL in four main ways. First, this study was conducted in the novel context of Mexican preschools during the COVID-19 pandemic. There have been few studies in LMICs and none to our knowledge in LMICs during the pandemic. Second, the intervention was approved by the Sinaloa Ministry of Education as an accredited PD program, demonstrating institutional feasibility and suggesting potential scalability to similar Mexican public-school contexts; broader generalizability remains to be tested. Third, the trial included a relatively long, nine-month post-intervention follow-up for educator outcomes. Few adult SEL studies have included follow-ups beyond a few months; ours allowed us to examine persistence and attenuation over time. The partial attenuation observed at T4 for several educator outcomes

is consistent with meta-analytic evidence that intervention impacts on social-emotional and cognitive skills often diminish over time, even when initial effects are robust (Hart et al., 2024). Although that review focused on child and adolescent outcomes, it suggests that durable effects may require ongoing opportunities to practice the targeted competencies.

Fourth, the study contributes to the emerging literature on contemplative-informed SEL interventions for educators. Most prior studies of contemplative practices for educators rely on small samples and short follow-ups; the present trial provides large-scale randomized evidence from a real-world public system. The trial does not test the full structural-opportunity or sociocultural-ecological models (García Coll et al., 1996; Vélez-Agosto et al., 2017). Rather, its Ministry-embedded, credit-bearing delivery illustrates one structural opportunity through which a public education system can expand access to educator SEL supports; the hypothesized proximal classroom processes were not measured directly.

Limitations

There are several study limitations. First, in response to pandemic effects on educators, the study design was altered in process to accommodate an extended timeline for intervention completion. This decision resulted in the planned post-test (T2) becoming an interim assessment for most participants and the planned post-test (T3) becoming the closest to a post-test assessment. For the 25% of intervention participants who completed training on the original timeline, T3 was effectively a follow-up; treating T3 as the post-intervention assessment may therefore have reduced estimated treatment effects. Additionally, study interpretation is more complex because intervention participants were at different stages in relation to the intervention at T2 and T3. These pandemic-related timing disruptions, together with the absence of multiple

child assessment waves, also limited our ability to fit more complex latent-growth or multilevel structural equation models with uniformly spaced repeated measures.

A second limitation concerns our reliance on self- and teacher-report. Educator outcomes were assessed through educator self-report and student outcomes through teacher report; both are susceptible to reporter bias—including social desirability and, because participants were aware of condition, expectancy effects—as well as shared-method variance. Thus, the trial supports causal inference about assignment effects on reported outcomes, while limiting inference about independently observed behavioral change in educators, classrooms, or children. This limitation is most acute for the student outcomes: the student analyses estimate between-group differences in perceived year-end improvement—rated at a single timepoint by teachers aware of condition—rather than observed pre–post change (Duckworth & Yeager, 2015). Convergence across methods and informants would strengthen substantive interpretation, and we identify multi-informant and observational assessment as a priority for future EW evaluations. Implementing such measures at the present scale was constrained by pandemic-era school closures.

A third limitation concerns attrition and missing data. Student school-level attrition and educator attrition at T2 and T3 qualified as low attrition under the WWC cautious boundary; educator attrition at T4 qualified only under the optimistic boundary (see Methods). These designations reflect low risk of bias due to compositional change. However, nonresponse was associated with treatment condition, indicating that the data were not missing completely at random. Although likelihood-based estimation used all available data under a missing-at-random assumption, this assumption is untestable, and we cannot rule out bias if missingness depended on unobserved outcomes or on observed predictors not represented in the outcome models.

Fourth, the waitlist control design cannot rule out nonspecific factors contributing to observed intervention effects and can yield larger effect-size estimates than usual-care controls (Cuijpers et al., 2024). Fifth, because schools were randomized to the bundled, sequential EW program rather than to separate component arms, the trial does not identify the independent causal contributions of the Educator Training and the student curriculum. Last, we did not preregister the study.

Future Directions

Although this trial provides encouraging evidence of EW's impacts on educators and preschool students, important questions remain about mechanisms, heterogeneity, and durability. Future work should build on the present CFA-based measurement approach by using structural equation models—and, where feasible, latent-growth models—to test whether changes in educator SEC mediate changes in educator well-being, classroom processes, and student outcomes. It will also be valuable to examine predictors of impact and engagement—including whether different types and amounts of participation (e.g., certification completion, contemplative practice frequency, app use, curriculum delivery intensity) forecast differential benefits, and whether patterns of attrition are systematic (i.e., who disengages and why). Identifying these predictors could clarify for whom EW works best and inform tailored implementation strategies that strengthen feasibility and effectiveness at scale.

A second priority is to extend EW evaluation across longer time horizons and contexts, including educator labor and health outcomes (e.g., absenteeism, turnover, sick leave) and children's longer-run school readiness and academic performance. Future studies should also test sustainment supports—such as professional learning communities, structured peer feedback, and coaching—that can help maintain skill use and promote the development of expertise in

educators' socioemotional competencies (Roeser et al., 2025). Digital reinforcement tools, including just-in-time adaptive interventions (Nahum-Shani et al., 2016), may further support practice during moments of stress and extend learning beyond formal training. Finally, EW's Leadership Training component was not evaluated here; a fully powered test could examine whether strengthening school leaders improves implementation quality and supports school-wide, culturally responsive SEL, building on promising pilot evidence (Chernicoff et al., 2025).

Conclusion

This trial provides initial evidence that EW—a combined PD program for educators and a preschool SEL curriculum—can improve key aspects of educator-reported emotion regulation and prosociality, with time-limited improvements in efficacy/positive functioning. Exploratory analyses further suggest that the training was associated with greater reductions in anxiety and depressive symptoms among educators with elevated baseline symptoms. Teachers in EW schools also reported greater school-year improvement in students' emotion regulation and prosocial behavior following implementation of the student curriculum, although these estimates should be interpreted cautiously because they were based on teacher-reported change ratings. By embedding educator training within existing policy structures and complementing it with a developmentally appropriate student curriculum, EW provides a feasible, scalable pathway toward reducing early inequalities and supporting healthier developmental trajectories for children.

Declaration of Generative AI and AI-assisted technologies in the writing process

During manuscript preparation, the authors used ChatGPT (OpenAI), Claude (Anthropic), and Grammarly to improve clarity and readability and to review or debug R code

used in the analyses. The authors reviewed and edited all outputs and take full responsibility for the publication's content. No confidential or participant data were entered into these systems.

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Supplemental Materials

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S1. EW full program description

EW is structured around three interdependent components, each playing a critical role in ensuring long-term SEL sustainability. While each component is designed to be implemented progressively, a full cycle of EW is typically completed over the course of an academic year (or two semesters). These components include: (1) Educator Training (ET), a professional development program that equips teachers with the knowledge, skills, and personal competencies needed to integrate SEL into their teaching; (2) Leadership Training (LT), which prepares school and district leaders to embed SEL into schoolwide policies and organizational structures; and (3) SEL Curriculum for Students, a research-based framework designed to provide explicit and embedded SEL instruction that fosters student well-being and academic success.

Together, these components create a systemic approach to SEL that moves beyond individual classrooms and into the broader educational ecosystem, ensuring that SEL is not only taught but also lived within school communities. The following sections provide a detailed description of each component, outlining their structure, objectives, and implementation strategies.

Note: In the present study, only components 1 and 3 (ET and the children's SEL curriculum) were implemented and evaluated. We include the LT description for completeness.

Educating for Well-being: Educator Training (ET)

The Educator Training (ET) program is a structured, 20-week intervention designed to support educators' well-being, professional growth, and capacity to implement socioemotional learning (SEL) in their classrooms. ET has three primary goals: (1) to enhance educators' beliefs, attitudes, and competencies in SEL, with a focus on self-awareness, self-regulation, and prosocial

behavior; (2) to strengthen educators' understanding of child development, equipping them to create developmentally appropriate learning experiences that promote students' social, emotional, and academic growth; and (3) to prepare educators to implement SEL curricula, specifically Ten agreements (Los 10 Acuerdos para Estar Bien) and Psychonauts (Siconautas), in ways that enhance student well-being and classroom climate.

Structure of ET. ET comprises the following components:

1. Introduction to the Theory and Practice of SEL (10 hours over ~2.5 weeks, synchronous)–Designed to establish foundational SEC development and SEL awareness.
2. Online Course with Reinforcement Workshops (70 hours over ~17–18 weeks, blended format)–Designed to deepen SEC skills and integrate SEL into pedagogy while providing guided implementation support and sustained practice.

The program follows a blended learning model, integrating synchronous (live, in-person, or Zoom-based) and asynchronous (self-paced, online) learning experiences. All synchronous sessions share a consistent pedagogical structure that includes declarative learning, where participants engage with key SEL concepts and theories (e.g., the process model of emotion regulation); evidence-based contemplative practices from the ACIP framework (Dahl et al., 2022; Chernicoff et al., 2015), supporting active skill building; self-reflection activities, prompting educators to explore how SEL principles relate to their personal and professional experiences; small-group discussions, fostering peer and collaborative learning; movement-based play activities (active pause), reinforcing learning while promoting engagement and well-being; and practical application strategies, ensuring that educators can integrate SEL principles into their own lives and

classrooms. A similar structure is followed in the online modules, with peer interactions occurring through asynchronous discussion groups and movement exercises provided as guided activities on the platform. This structured approach to skill acquisition ensures that educators develop both declarative (theoretical) and procedural (applied) knowledge, allowing them to internalize and effectively model SEL competencies.

AtentaMente-certified instructors deliver all synchronous sessions following a highly scripted structure to ensure fidelity, scalability, and consistency across implementations. While this structured approach supports high-quality replication of the program, it is important to note that contextual and cultural adaptations are an integral part of Educating for Well-being. These adaptations are made thoughtfully to align with the diverse needs of different educational contexts while maintaining the core integrity of the program. Further details on cultural and contextual adaptations are discussed in a later section.

Phase 1: Introduction to the Theory and Practice of SEL (10 hours over ~2.5 weeks total).

The Sensitization Workshop serves as the entry point to Educating for Well-being (EW) and the Educator Training (ET) program. Designed to be highly engaging and meaningful, this workshop immerses participants in the foundational principles of SEL, helping them recognize its profound impact on their personal well-being, their students, and the broader school community. The final session of this phase ensures a seamless transition into the second phase, as participants—having explored the relevance of SEL—are now motivated to actively develop these skills. With a clear understanding of how SEL can enhance their professional and personal lives, they are prepared to embark on a structured journey of skill-building that will support both their own well-being and that of the children and communities they serve.

Participants engage in guided reflection, practical exercises, and collaborative discussions to examine the role of socioemotional learning in education and its impact on personal and professional well-being. They explore how SEL fosters resilience, supports student engagement, and contributes to the creation of nurturing, inclusive classroom environments. Through structured activities, educators reflect on their own socioemotional competencies and define a personal socioemotional vision that aligns their values and teaching goals. They then extend this reflection to the collective level, co-constructing a shared socioemotional vision that establishes a common framework for fostering well-being within their school communities. Educators also engage in experiential learning focused on emotional awareness and self-regulation, developing skills to identify, understand, and manage emotions effectively. The workshop introduces attention training as a key practice for enhancing self-regulation and stress management, providing educators with concrete strategies to cultivate emotional balance both personally and in their classrooms. Finally, participants are guided through the practical application of SEL principles using Ten agreements and Psychonauts, ensuring they gain a foundational understanding of how these tools can be seamlessly integrated into their teaching practice to create emotionally safe, supportive learning environments.

Phase 2: Online Course with Reinforcement Workshops (70 hours over ~17–18 weeks total). The online course consists of three structured modules, each supported by Synchronous Reinforcement Workshops (SRW) that provide opportunities for guided practice, peer discussions, and implementation planning. Each SRW is strategically placed between weeks 3 and 6 of the corresponding module to consolidate learning and ensure practical application. These workshops follow a consistent structure that includes: (1) reviewing key concepts and strategies from the

module, reinforcing foundational skills such as breath awareness for self-regulation; (2) modeling and practicing lessons from Ten agreements and Psychonauts, ensuring educators gain confidence in delivering SEL activities in their classrooms; and (3) providing a space for educators to share experiences, reflect on challenges and successes, and collaboratively refine their approach to integrating SEL practices into their personal and professional lives. This structured progression ensures that by the end of ET, educators have both the theoretical understanding and practical experience needed to fully implement the SEL curricula.

- 1. *Module 1: SEL and its Importance.*** This online module establishes the foundation for SEL in education by exploring its role in enhancing well-being, fostering a positive school climate, and supporting academic development. The focus then shifts to self-awareness, introduced through three interconnected dimensions: purpose and goals, attention training, and emotional awareness. Participants engage in reflective exercises to explore their personal values, professional motivations, and long-term aspirations as educators, aligning them with the development of a shared socioemotional vision for their school community. Attention training is introduced as a fundamental practice for self-regulation and emotional balance, providing educators with strategies to enhance focus, presence, and emotional stability in the classroom. The module concludes with an initial exploration of emotions as dynamic processes, emphasizing how they arise, influence behavior, and can be shaped through intentional practices. Educators also begin to discuss how SEL can be explicitly integrated into classroom routines using Ten agreements and Psychonauts.

- 2. *Reinforcement Workshop 1.*** Between weeks 3 and 6, participants engage in the first reinforcement workshop, which consolidates key concepts and practices from Module 1. Educators revisit core skills such as breath awareness and attentional training as foundational self-regulation strategies. They review and model the first lessons from *Ten agreements* and *Psychonauts*, ensuring they can confidently introduce SEL activities into their classrooms. The workshop also provides a space for participants to share their experiences implementing SEL practices, discuss challenges, and collaboratively refine their approaches to fostering socioemotional skills in students.
- 3. *Module 2: Self-Awareness and Emotion Regulation.*** This module builds on self-awareness, deepening educators' understanding of emotions and how they can be effectively managed. It introduces James Gross's Process Model of Emotion Regulation and Paul Ekman's model of emotions as theoretical foundations. Educators examine how emotions arise, how they impact behavior, and how they can be shaped through intentional practices. They learn to regulate their emotional experiences, particularly in relation to anger and other emotions that may disrupt teaching and relationships. Emotion regulation strategies are structured according to Gross's model, including situation selection and modification, attentional deployment, cognitive reappraisal, and response modulation.
- 4. *Reinforcement Workshop 2.*** Between weeks 3 and 6 of Module 2, the second reinforcement workshop allows educators to practice emotion regulation

strategies through guided exercises. They refine their application of MAPA-based techniques, focusing on identifying and managing emotional triggers in the classroom. Participants also deepen their familiarity with the Agreements 4–7 and Psychonauts lessons 2–3, modeling their implementation to enhance student self-regulation. This session fosters collaborative problem-solving as educators share their experiences applying emotion regulation in their professional and personal lives.

5. *Module 3: Constructive Relationships and Extending to Others.* This module builds on the previous module by focusing on prosocial skills, which support well-being and foster healthy, safe, and collaborative environments in schools. Rather than focusing solely on reducing unhelpful emotions, this module emphasizes actively cultivating empathy, kindness, care, gratitude, and an altruistic intention to help others. Educators engage in structured exercises that help them develop these skills and integrate them into their teaching practice. These skills help children feel emotionally safe and supported, particularly in early childhood education. They also explore how to model and reinforce prosocial behaviors in students, strengthening classroom relationships and contributing to a positive school climate.
6. *Reinforcement Workshop 3.* During weeks 3 to 6 of Module 3, the final reinforcement workshop provides an opportunity to consolidate prosocial skills. Educators practice empathy-building and connection exercises, refining strategies for fostering positive classroom relationships. They engage in role-

playing and discussion to enhance conflict-resolution skills and explore techniques for promoting gratitude and appreciation in school settings. Finally, they review the Agreements 8–10 and the final Psychonauts activities, ensuring that they are fully prepared to implement SEL curricula effectively.

Progressive Integration of SEL Competencies and Curriculum Implementation in Educator Trainings. Through the ET program, educators first develop their own social and emotional competencies, applying them to both their personal and professional lives to improve well-being, manage stress, and strengthen interpersonal relationships. As their skills deepen, they learn to create a safe and nurturing classroom environment where students feel supported and engaged. The final stage of ET prepares educators to model and explicitly teach the skills embedded in the children's SEL curriculum, Ten Agreements and Psychonauts. This progression is scaffolded over time, beginning with an emphasis on educators' personal growth in the sensitization phase. While discussions on implementing the SEL curricula start early, the initial focus is on internalizing these competencies before shifting toward practical classroom application. As educators advance through the program and build confidence in their skills, the emphasis on curriculum implementation increases, ensuring they are fully prepared to integrate SEL practices effectively by the end of ET.

Leadership Training (LT)

Leadership Training (LT) follows and builds on the foundation established in the Educator Training (ET) program, shifting the focus from individual and classroom-level SEL implementation to systemic, schoolwide transformation. LT is designed for a selected group of

educators who have demonstrated high engagement, proactive SEL implementation, and a commitment to fostering a positive school climate. This group includes both early adopters—those who naturally take the lead in integrating innovative practices—and individuals in established leadership roles, such as principals, supervisors, and sector heads, who have the capacity to institutionalize SEL within school and district structures.

LT strategically builds leadership capacity by integrating CASEL's systemic SEL implementation model, Michael Fullan's movement leadership approach, Peter Senge's systems thinking framework, Triple Focus (self, others, and the wider system), and the development of Adult Social and Emotional Competencies (SEC). These perspectives provide a structured, research-based approach to ensure that SEL is not only implemented effectively but sustained over time.

Drawing on CASEL's "Organize → Implement → Improve" framework, LT ensures that SEL becomes a systemic priority rather than an isolated initiative. Organizing begins with helping the school community build a shared vision for SEL, ensuring alignment with holistic education and well-being goals. Leaders are trained to engage all school stakeholders, including educators who have not yet been trained, parents, and students. Once a strong foundation is established, implementation focuses on embedding SEL within teaching practices, school policies, and professional development structures. Finally, through the continuous improvement phase, leaders learn how to observe, assess, and refine SEL strategies to ensure long-term sustainability.

At the heart of LT is a redefinition of leadership itself, grounded in Fullan's movement leadership model. Rather than relying on traditional, top-down leadership structures, LT cultivates collaborative, horizontal leadership, where school leaders act as facilitators of change rather than sole decision-makers. Leaders are trained to see themselves as lifelong learners, working within a

learning community that encourages shared responsibility, innovation, and continuous reflection. This shift in leadership approach fosters a culture of trust, shared decision-making, and distributed leadership, ensuring that SEL efforts do not depend on a single individual but are embedded throughout the school system.

To support this systemic transformation, LT incorporates Senge's systems thinking framework, equipping leaders with the tools to analyze their school as an interconnected system. Participants learn to identify leverage points that can accelerate SEL adoption, understand the broader dynamics of change, and align SEL efforts with institutional priorities. This perspective enables leaders to move beyond isolated SEL initiatives and instead integrate SEL as a core organizing principle for educational and school climate improvement.

Applying Leaders' SECs to Systemic Change. Throughout LT, there is a strong emphasis on applying and deepening the social and emotional competencies (SECs) that participants developed during Educator Training (ET). Having already cultivated self-awareness, self-regulation, and interpersonal skills, LT participants now revisit, practice, and refine these competencies in the context of systemic leadership. The training provides structured opportunities to apply SECs to real-world leadership challenges through self-reflection, emotional regulation, and collaborative problem-solving. Participants engage in simulations, case studies, and guided discussions, ensuring they are not only reinforcing their SECs but also adapting them to lead SEL effectively at a schoolwide level.

Structure of LT. LT is an 80-hour professional training program delivered over the course of a semester through a blended format, balancing theoretical learning, skill development, and collaborative problem-solving. The program is structured as follows:

1. Two in-person workshops (opening and closing sessions, 6 hours each).
2. Seven online instructional modules (delivered via Zoom, 3 hours each, scheduled biweekly).
3. Biweekly virtual study groups and tutorials for ongoing support and reflection.
4. 40 hours of practical implementation, ensuring participants apply their learning in real-world settings.

Biweekly virtual study groups and tutorials provide an essential layer of support throughout the program. Conducted in smaller groups, these sessions allow participants to share their progress in implementing CASEL rubric activities, receive individualized feedback from AtentaMente instructors, and engage in peer discussions. This collaborative space fosters reflection and troubleshooting, enabling leaders to refine their strategies while building a strong professional learning community.

Each module is designed to progressively build leadership capacity while aligning with CASEL, Systems Thinking, Fullan's Leadership Model, Triple Focus, and Adult SEC development.

1. *Module 1: Systemic Leadership.* LT begins with an in-person session designed to harness the enthusiasm and commitment of participants who have already demonstrated strong engagement with SEL. This opening session is an opportunity to establish a collaborative learning environment and set the tone for

the program. Participants review the three levels of SEL—individual, interpersonal, and systemic—through the lens of the Triple Focus framework. They explore the key elements of systemic leadership based on Fullan’s movement leadership model, identifying the skills necessary for effective leadership within their educational contexts. A strong emphasis is placed on developing adult SECs, particularly self-awareness, emotion regulation, and relationship-building skills, which are essential for fostering a positive and supportive school culture. The module concludes with the co-construction of a shared vision for SEL, applying systems thinking principles to align personal and institutional goals. Participants are also introduced to CASEL’s evidence-based methodology for systemic SEL implementation, ensuring a structured and research-backed approach to schoolwide transformation.

- 2. *Module 2: Organizing Systemic SEL Implementation.*** In this module, participants engage with CASEL’s rubric for organizing and planning SEL within their schools, focusing on the essential elements for building a strong foundation for SEL integration. They learn about the formation of a core implementation team, emphasizing the importance of collaboration and distributed leadership in creating sustainable change. A key aspect of this module is raising awareness within the school community about SEL, equipping leaders with the tools to communicate its importance effectively to educators, parents, and students. The session also introduces systems thinking principles, helping participants analyze

key actors and relationships within their school systems to identify opportunities for meaningful change.

3. *Module 3–8: Implementation and Leadership in Action.* These modules serve as the core of the LT experience, where participants actively implement SEL leadership strategies in their school communities. Each module focuses on a specific aspect of systemic SEL integration, reinforcing leadership competencies, deepening SEC development, and applying systems thinking principles to real-world school environments.
 - a. *Module 3: Building and Sustaining Collaborative SEL Teams* – Participants explore the principles of effective team collaboration, drawing on Fullan’s framework for learning communities. They learn strategies for fostering trust, managing team dynamics, and ensuring shared leadership within their institutions.
 - b. *Module 4: Continuous Improvement and Adaptive Leadership* – Leaders develop skills in strategic planning and ongoing assessment, using CASEL’s implementation rubric to refine SEL strategies and ensure long-term sustainability.
 - c. *Module 5: Supporting Adult SEL Development* – This session emphasizes the importance of adult well-being in SEL leadership. Participants learn to model SECs, integrate SEL into professional learning communities, and support educators in managing stress and preventing burnout.

- d. *Module 6: Embedding SEL in Student Learning* – Leaders explore ways to integrate SEL into academic instruction and schoolwide practices, ensuring that SEL is seamlessly embedded into the student experience.
- e. *Module 7: Strengthening Family-School Partnerships for SEL* – Participants develop strategies for engaging families and caregivers in SEL implementation, creating authentic partnerships that reinforce socioemotional learning beyond the school environment.
- f. *Module 8: Expanding SEL Through Community Engagement* – Leaders examine how community partnerships can enhance SEL efforts, exploring strategies for working with local organizations, policymakers, and broader networks to sustain SEL initiatives.

Each session builds progressively toward a comprehensive understanding of how SEL can be sustained at the institutional level.

- 4. *Module 9: Evaluation, Reflection, and Future Planning (In-Person)*. The final module brings participants together for a culminating in-person session. This closing session is designed to consolidate learning, celebrate achievements, and establish a long-term vision for SEL leadership. Participants reflect on their growth throughout the program, assessing their development as SEL leaders and their impact on schoolwide transformation. They engage in structured evaluation processes using CASEL-aligned SEL rubrics, continuous improvement frameworks, and action planning exercises to ensure sustained implementation

beyond the training. The session concludes with collaborative discussions on future steps, ensuring that participants leave with a personalized roadmap for advancing SEL leadership in their schools and districts.

SEL Curriculum for Students

EW's children's curriculum consists of the *Los 10 Acuerdos para Estar Bien* (Ten Agreements for well-being) and *Siconautas* (Psychonauts) (Barkovich, 2019; Chernicoff, 2021). These are complementary curricula designed for the progressive development of young children's social and emotional skills, emphasizing children's self-regulation and prosociality. The Ten Agreements serves as a less structured, organic approach for PreK-1 and PreK-2 students (ages 3 and 4), fostering SEL through daily classroom activities and the practice of core strategies such as "Mountain Pose," "Silence," and "Kindness", akin to SEL kernels (R. Bailey et al., 2019; Embry & Biglan, 2008). On the other hand, *Siconautas*, targeting PreK-3 students (5-year-olds), builds on the Ten Agreements and provides a more structured and comprehensive SEL curriculum. It employs direct instruction and activities to build students' SEL skills systematically. *Siconautas* comprises a structured 5-unit curriculum complete with lesson plans and activities to implement with students. This dual approach offers a developmentally appropriate scaffolding strategy that gradually prepares children for academic success and continuous social and emotional development as they advance into elementary school.

Both the Ten Agreements and Psychonauts provide age-appropriate content to be delivered formally in dedicated sessions, in a SAFE fashion (sequenced, active, focused, and explicit), and informally throughout the day, embedding multiple opportunities for teachers and children to practice in unstructured activities. They provide knowledge and practice of SEL skills, presented

as sequenced “Agreements” that scaffold student SEC development through games, stories, pictures, drawing, discussion, songs, contemplative practices, etc. (Agreements: Learning how to Calm Myself, Listening and connecting, Knowing my emotions, Being Patient, Being attentive, Being a good friend) and eight self-regulatory strategies or “Tools” to help them practice the Agreements (Tools: I listen, Stopping, The talking wand, Mountain Pose, Breathing to calm myself, the Emotion Jar, Rabbit-O). A shared vision of the classroom is constructed at the beginning of the year, expressing the group’s desired way of being, feeling, and relating. It serves as a north star for using and building the Agreements and Tools into practice, guiding personal behavior and classroom management in a supportive, caring and positive manner. As with adults, students are guided to understand, practice and integrate knowledge and skills into their behavior and daily lives.

The full Ten Agreements and Psychonauts workbooks and teacher guides can be found [here](#) (in Spanish). For reviewers only.

S2. Data exclusions / measures not analyzed (students)

What was collected. At T3, teachers completed the Teacher Social Competence (TSC) instrument using the peer-comparison frequency section (e.g., rating how often a behavior occurs *compared with classmates*). At T4, teachers completed the TSC change section, providing single posttest, teacher-reported ratings of improvement over the school year for each sampled student in emotion regulation and prosocial behavior.

Why T3 was excluded. The TSC's frequency (peer-comparison) and change (improvement) sections are designed and validated as distinct sections and are not commensurate in scale meaning, anchors, or interpretation. Consequently, T3 frequency scores cannot serve as a baseline or covariate for T4 change ratings without introducing construct and scaling mismatch (i.e., any modeled “change” would mix relative frequency vs peers with absolute improvement over time, yielding ambiguous estimates).

Analytic implication. Primary student analyses therefore estimate between-group differences in T4 teacher-reported change only. No student baseline enters the models. This choice prevents mis-specified pre–post contrasts and preserves interpretability of the T4 estimand.

Attrition classification (WWC). Excluding T3 from analysis does not affect attrition classification. At the school level, overall attrition = 31.6% and differential attrition = 0.6%, which is below the WWC v5.0 cautious boundary (3.8% at ~32% overall)—thus low attrition and meets WWC standards without reservations.

Transparency and timing. The T3 exclusion was made prior to final modeling after verifying the non-comparability of sections. T3 materials and documentation are listed in the repository; T4 analysis code and model specifications are fully shared. Student-level data are available via DUA as noted in the Transparency and Openness statement.

Table S1. Item-Level Omega Coefficients by Timepoint

Measures	Indicators	ω			
		T1	T2	T3	T4
Mindfulness in teaching	MTS	0.78	0.77	0.83	0.84
Awareness	HMI-Awareness	0.82	0.85	-	0.86
Purpose	HMI-Purpose	0.94	0.94	-	0.93
Emotional awareness	ICSE	0.89	0.90	-	0.91
Reappraisal	ERQ-R	0.86	0.87	0.86	0.87
Suppression	ERQ-S	0.73	0.72	0.77	0.80
Beliefs in malleability of emotions	ITES	0.51	0.63	-	0.72
Attentional deployment	MAIA	0.89	0.89	-	0.92
Insight	HMI-Insight	0.85	0.85	-	0.86
Emotion regulation	ICSEE	0.88	0.88	-	0.90
Empathy	IRI	0.76	0.79	0.80	0.82
Prosocial behavior intentions	PBIS	0.80	0.83	0.85	0.90
Compassion	CS	0.85	0.88	-	0.91
Connection	HMI-Connection	0.80	0.81	-	0.83
Educational self-efficacy - T	SES	0.82	0.79	0.82	0.83
Educational self-efficacy - P	SES	0.76	0.88	0.85	0.79
Personal accomplishment -T	MBI-EP	0.91	0.91	0.92	0.91
Personal accomplishment- P	MBI-EP	0.90	0.94	0.94	0.94
Emotional exhaustion -T	MBI-AE	0.92	0.92	0.93	0.93

-P	Emotional exhaustion	MBI-AE	0.90	0.	0	0.
			91	.91	94	
	Anxiety	GAD-7	0.94	0.	0	0.
			94	.94	95	
	Depression	PHQ-8	0.94	0.	0	0.
			94	.95	95	
	Depersonalization - T	MBI-D	0.74	0.	0	0.
			75	.81	88	
	Depersonalization - P	MBI-C	0.85	0.	0	0.
			91	.94	95	

Table S2. Key psychometric evidence from prior research for each instrument

Measure	Instrument	Spanish version available	α (Spanish version)	α / ω	Key references (Spanish validation; original instrument)
Mindfulness in Teaching	MTS	Y	.79 (intrapersonal), .70 (interpersonal)	.87 (intrapersonal), .71 (interpersonal)	Moyano et al., 2021; Frank et al., 2016
Awareness	HMI–Awareness	Y	.74	.91	Charles-Leija et al., 2025; Kral et al., 2024
Purpose	HMI–Purpose	Y	.91	.92	Charles-Leija et al., 2025; Kral et al., 2024
Emotional awareness	ICSE	Y	.78	-	Mikulic et al., 2015
Reappraisal	ERQ–R	Y	.73	.79	delValle et al., 2021; Gross & John, 2003
Suppression	ERQ–S	Y	.71	.73	delValle et al., 2021; Gross & John, 2003
Beliefs in malleability of emotions	ITES	N	-	.75	Tamir et al., 2007

Attentional deployment	MAIA	Y	.85	.83	Valenzuela-Moguillansky & Reyes-Reyes, 2015; Mehling et al., 2012
Insight	HMI– Insight	Y	.71	.91	Charles-Leija et al., 2025; Kral et al., 2024
Emotion regulation	ICSEE	Y	.68	-	Mikulic et al., 2015
Empathy	IRI	Y	.68 - .76 across subscales	.68 - .78 across subscales	Carrasco et al., 2011; Davis, 1980
Prosocial behavior intentions	PBIS	N	-	.81	Baumsteiger & Siegel, 2019
Compassion	CS	N	-	$\alpha = .77 - .90$ across studies $\omega = .91 - .95$ across studies	Pommier et al., 2020
Connection	HMI– Connection	Y	.78	.91	Charles-Leija et al., 2025; Kral et al., 2024
Educational self- efficacy	SES	Y	.80 – .83 across subscales	.90	Burgueño et al., 2018; Tschannen-Moran & Hoy, 2001
Personal accomplishment	MBI–EP	Y	.71	.71	Maslach et al., 1996
Professional efficacy	MBI–GS	Y	.85	-	Gil Monte, 2002

Emotional exhaustion	MBI-AE	Y	.85	.90	Gil Monte, 2005; Maslach et al., 1996
Anxiety	GAD-7	Y	.93	.92	García-Campayo et al., 2010; Spitzer et al., 2006
Depression	PHQ-8	Y	.78 - .90 across studies	.89	Martínez et al., 2023; Kroenke, Spitzer & Williams, 2011
Depersonalization	MBI-D	Y	.58	.79	Gil Monte, 2005; Maslach et al., 1996
Cynicism	MBI-C	Y	.74	-	Gil Monte, 2002

** The PHQ-8 is derived from the PHQ-9 by omitting the item assessing suicidal ideation. Prior validation studies have shown that removing this item has minimal impact on scoring and that identical thresholds for depression severity can be used for the PHQ-8 and PHQ-9 (Kroenke & Spitzer, 2002). Therefore, the internal consistency reported for the PHQ-9 is presented here as a reference.*

Table S3. One-Factor EFA Loadings and Model Fit Indices

Construct	Measure	Indicators	Results			Fit		
			Loadings	h^2	u^2	D Diagonal fit	BI C	R MSEA
Self-awareness	Mindfulness in teaching	MTS	0.19	0.04	0.96	1	13.91	0
	Awareness	HMI–Awareness	0.67	0.45	.55			
	Purpose	HMI–Purpose	0.53	0.29	.71			
	Emotional awareness	ICSE	0.59	0.35	.65			
Emotion regulation	Reappraisal	ERQ–R	0.37	0.14	.86	0	27	0
	Suppression	ERQ–S	0.07	0.01	.99	.87	7.37	.132

ality	Prosoci	Beliefs in malleability of emotions	ITES	0.18	03	0.	.97	0	1	9.68	-	.029	0
		Attentional deployment	MAIA	0.74	55	0.	.45	0					
		Insight	HMI-Insight	0.66	43	0.	.57	0					
		Emotion regulation	ICSEE	0.55	30	0.	.70	0					
		Empathy	IRI	0.74	55	0.	.45	0					
		Prosocial behavior intentions	PBIS	0.37	14	0.	.86	0					
		Compassion Scale	CS	0.66	43	0.	.57	0					
		Sense of connection	HMI-Connection	0.55	30	0.	.70	0					
		Educational self-efficacy	SES	-	09	0.	.91	0					
		Personal accomplishment	MBI-EP	0.34	12	0.	.88	0					
Well-being/Distress		Emotional exhaustion	MBI-AE	0.52	27	0.	.73	0	.88	0	49	.169	0
		Anxiety	GAD-7	0.80	64	0.	.36	0					
		Depression	PHQ-8	0.89	78	0.	.22	0					
		Depersonalization	MBI-D	0.26	07	0.	.93	0					

Table S4. CFA Loadings at T1 and Longitudinal CFA Loadings

	Measure	Indicators	Results Baseline			Longitudinal (T1)		
			Loadings	CFI	R ² MSEA	Loadings	CFI	R ² MSEA
Latent factor 1	Awareness	HMI-Awareness	0.67			0.66		
	Purpose	HMI-Purpose	0.54	1	0	0.56	0.998	0.014
	Emotional awareness	ICSE	0.59			0.61		
Latent factor 2	Attentional deployment	MAIA	0.78			0.75		
	Emotion regulation	ICSEE	0.54			0.55	0.999	0.01
	Insight	HMI-Insight	0.63	1	0	0.65		
Latent factor 3	Emotional exhaustion	MBI-AE	0.49			0.48		
	Anxiety	GAD-7	0.80	1	0	0.83	0.99	0.039
	Depression	PHQ-8	0.91			0.88		

Table S5. Intercorrelations Among Composite Variables

Measure			Indicators	ii- corr
osite 1	Comp	Connection	HMI– Connection	0.35
		Compassion scale	CS	
osite 2	Comp	Educational self- efficacy	SES	0.43
		Personal accomplishment	MBI–EP	

Table S6. Composite and Latent Factor Omega Coefficients by Timepoint

Measures			Indicators	ω			
				T1	T2	T3	T4
Latent factor 1	Awareness		HMI– Awareness	0.91	0.92	-	0.92
	Purpose		HMI– Purpose				
	Emotional awareness		ICSE				
Latent factor 2	Attentional deployment		MAIA	0.90	0.90	-	0.91
	Insight		HMI– Insight				
	Emotion regulation		ICSEE				

factor 3	Latent (Teachers)	Depression	PHQ-8	0.93	94	0.	0	0.
		Anxiety	GAD-7					
factor 3	(Principal s)	Emotional exhaustion	MBI-AE	0.93	94	0.	0	0.
e 1	Composit	Connection	HMI- Connection	0.87	89	0.	-	0.
		Compassion	CS					
e 2	Composit (Teachers)	Educational self- efficacy	SES	0.91	92	0.	0	0.
		Personal accomplishment	MBI-EP					
e 2 s)	Composit (Principal	Educational self- efficacy	SES	0.91	91	0.	0	0.
		Personal accomplishment	MBI-EP					

Table S7. Univariate descriptives and raw-score normality statistics for T1 Educator outcomes

n	Domain	Outcome	N	Mean	SD	Skewness	Kurtosis	SW	SW <i>p</i> -value
Self-awareness		Mindfulness	1						
		in Teaching (MTS)	782	21.02	3.75	-1.28	1.67	0.878	<0.001
		Self-awareness factor	2	0.00	0.81	-0.62	0.34	0.976	<0.001
			154						
Emotion regulation		Suppression (reversed)	2	14.91	5.86	0.06	-0.75	0.982	<0.001
			092						
		Reappraisal	2	33.43	7.05	-1.09	1.23	0.915	<0.001
			092						
		Emotion regulation factor	2	0.00	0.85	-0.70	1.03	0.973	<0.001
			154						
		Beliefs in malleability of emotions	2	18.02	3.61	-0.15	-0.45	0.966	<0.001
			106						

ality	Prosoci	Empathy	2	55.38	7.50	-0.19	-0.53	0.987	<0.001
			113						
	behavior intentions	Prosocial	2	22.77	2.31	-2.63	8.33	0.605	<0.001
			089						
	composite	Prosociality	2	0.00	0.82	-0.55	0.38	0.982	<0.001
			124						
		Efficacy/posi	2	0.00	0.85	-1.12	1.54	0.922	<0.001
		tive functioning	140						
being/distress	Well-	Distress	2	0.00	0.93	-1.06	1.48	0.933	<0.001
		factor (reversed)	158						
		Depersonaliz	2	0.38	0.67	2.39	7.20	0.633	<0.001
		ation (reversed)	140						

Table S8. Bivariate Pearson correlations among T1 Educator outcomes and the age covariate

		M		E	E	E	I	I	P	P	E	D	M	A
		TS	AF	RQ-S	RQ-R	RF	TES	RI	BIS	C	/PF	F	BI-D	ge (scaled)
	MTS	—												
	SAF	.00	—											
		.15												
	ERQ-	-.01		—										
S		0.04	0.25											
	ERQ-	.00		.00										
R		.12	.28	.22										
	ERF	.00		-.01	.00					—				
		.11	.65	0.09	.32									
	ITES	.00		-.01	.00	.00								
		.14	.22	0.19	.18	.14		—						
	IRI	.00		-.01	.00	.00	.00							
		.22	.38	0.22	.19	.30	.26		—					

PBIS	0	-	0	0	0	0	0	—					
	.07	.12	0.04	.12	.16	.07	.26						
PC	0	-	0	0	0	0	0	0	—				
	.19	.44	0.13	.22	.47	.19	.55	.29					
E/PF	0	-	0	0	0	0	0	0	0	—			
	.16	.49	0.08	.21	.51	.14	.23	.15	.38				
DF	0	-	0	0	0	0	0	0	0	0	—		
	.03	.52	0.19	.17	.47	.16	.18	.01	.19	.31			
MBI-	-	0	-	-	-	-	-	-	-	-	-	—	
D	0.08	0.21	.15	0.06	0.1	0.11	0.18	0.05	0.14	0.18	0.23		
Age(s	-	0	0	0	-	-	-	-	0	0	0	0.	—
caled)	0.1	.08	.02	.19	0.01	0.05	0.03	.1	.16	.09	03		

Note. MTS = Mindfulness in Teaching Scale; SAF = Self-Awareness Factor; ERQ-S = Emotion Regulation–Suppression (reversed); ERQ-R = Emotion Regulation–Reappraisal; ERF = Emotion Regulation Factor; ITES = Implicit Theories of Emotion Scale; IRI = Interpersonal Reactivity Index; PBIS = Prosocial Behavior Intentions Scale; PC = Prosociality Composite; E/PF = Efficacy/Positive Functioning (MBI–EP + SES); DF = Distress Factor (reversed; higher = better); MBI-D = Depersonalization (reversed).

Table S9. Missing-data patterns across educator follow-up waves

Pattern code	Description	Pattern type	Control, n (%)	EW, n (%)	Overall, n (%)
000	Observed at T2, T3 and T4	Complete	689 (64.3)	692 (63.5)	1381 (63.9)
001	Missing T4 only	Monotonic dropout	119 (11.1)	156 (14.3)	275 (12.7)
011	Missing T3 and T4	Monotonic dropout	109 (10.2)	107 (9.8)	216 (10.0)
111	Missing T2, T3, and T4	Monotonic dropout	13 (1.2)	40 (3.7)	53 (2.5)
010	Missing T3 only	Intermittent	130 (12.1)	60 (5.5)	190 (8.8)
100	Missing T2 only	Intermittent	4 (0.4)	16 (1.5)	20 (0.9)
101	Missing T2 and T4, observed T3	Intermittent	3 (0.3)	7 (0.6)	10 (0.5)
110	Missing T2 and T3, observed T4	Intermittent	5 (0.5)	12 (1.1)	17 (0.8)

T2	20	21.3	4.6	16.7	1.18	0.900
T3	11	38.6	22.6	16.0	2.73	0.924
T4	20	40.3	26.6	13.6	5.55	0.966

Note. Missingness within follow-up waves was strongly clustered across outcomes, particularly at T3 and T4, indicating that missingness often reflected noncompletion of substantial portions of a follow-up survey rather than isolated item nonresponse.

Table S11. Attrition by nested unit and condition

Panel A. Educator attrition by wave and condition

Wave	Rando	Mi	Attrit	Rando	Mi	Attrit	Over	Diffe	WWC
	mized educators (Control)	ssing educators (Control)	ion % (Control)	mized educators (EW)	ssing educators (EW)	ion % (EW)	all attrition %	rential attrition (pp)	interpretation
2	1072	25	2.3	1090	75	6.9	4.6	4.5	Within cautious boundary
3	1072	25 7	24	1090	21 9	20.1	22	3.9	Within cautious boundary
4	1072	24 4	22.8	1090	31 0	28.4	25.6	5.7	Above cautious boundary; within optimistic boundary

Panel B. Attrition by role $\times$ condition

Role	R N at T1 (Control)	N at T1 (EW)	T2	T2	T3	T3	T4	T4
			Responded, n	Responded, n	Responded, n	Responded, n	Responded, n	Responded, n
			(%) (Control)	(%) (EW)	(%) (Control)	(%) (EW)	(%) (Control)	(%) (EW)
Principals	194	20	190	195	153	174	157	149
		1	(97.9%)	(97.0%)	(78.9%)	(86.6%)	(80.9%)	(74.1%)
Teachers	878	88	857	820	662	697	671	631
		9	(97.6%)	(92.2%)	(75.4%)	(78.4%)	(76.4%)	(71.0%)

Panel C. School contribution of educator outcome data by wave and condition

Wave	Randomized schools		Schools missing educator data		Randomized schools		Schools missing educator data		School attrition %	Overall school attrition %	Differential attrition (pp)
	(Control)	(Control)	(Control)	% (Control)	(EW)	(EW)	(EW)	(EW)	(EW)		
2	210	210	0	0	211	209	2	0.9	.5		0.9
3	210	203	7	3.3	211	201	10	.7	.4	.4	1.4
4	210	198	12	5.7	211	188	23	0.9	1	.8	5.2

Panel D. School-level attrition for student outcomes at T4

Condi tion	Randomiz ed schools	School s contributing T4 student data	Schools missing T4 student data	School attrition %	Differential attrition (pp)
Contr ol	210	143	67	31.9	
EW	211	145	66	31.3	0.6
Overa ll	421	288	133	31.6	

Table S12. Mixed-effects logistic regression models predicting educator wave-level survey nonresponse

Wave	Predictor	OR	95% CI	p
T2	Condition (EW vs. Control)	.24	[1.301, 8.070]	.012
T2	Age	.009	[0.979, 1.040]	.553
T2	Role (Principal vs. Teacher)	.403	[0.171, 0.950]	.038
T2	Low vs. Very low marginalization	.957	[0.306, 2.998]	.940
T2	Medium vs. Very low marginalization	.024	[0.311, 3.372]	.969
T2	High vs. Very low marginalization	.882	[0.220, 3.542]	.860
T2	Baseline PHQ-8	.028	[0.946, 1.116]	.517

T2	Baseline GAD-7	1	[0.946,	0
		.031	1.124]	.483
T3	Condition (EW vs. Control)	0	[0.459,	0
		.684	1.019]	.062
T3	Age	0	[0.961,	0
		.975	0.990]	.001
T3	Role (Principal vs. Teacher)	0	[0.554,	0
		.792	1.131]	.200
T3	Low vs. Very low	0	[0.277,	0
	marginalization	.47	0.797]	.005
T3	Medium vs. Very low	0	[0.491,	0
	marginalization	.835	1.419]	.504
T3	High vs. Very low	0	[0.327,	0
	marginalization	.604	1.113]	.106
T3	Baseline PHQ-8	1	[0.995,	0
		.038	1.084]	.086
T3	Baseline GAD-7	0	[0.936,	0
		.977	1.019]	.279
T4	Condition (EW vs. Control)	1	[1.023,	0
		.574	2.421]	.039

T4	Age	0	[0.970,	0
		.985	0.999]	.043
T4	Role (Principal vs. Teacher)	0	[0.600,	0
		.848	1.198]	.349
T4	Low vs. Very low	0	[0.236,	0
	marginalization	.413	0.722]	.002
T4	Medium vs. Very low	0	[0.306,	0
	marginalization	.547	0.977]	.042
T4	High vs. Very low	0	[0.154,	0
	marginalization	.304	0.601]	.001
T4	Baseline PHQ-8	1	[0.957,	0
			1.044]	.982
T4	Baseline GAD-7	1	[0.963,	0
		.004	1.048]	.845

Table S13. Baseline characteristics of respondents vs nonrespondents by wave

Panel A. Respondents vs Nonrespondents at T2

Characteristic	Respondent	Nonrespondent	p	S MD
n	2062	100		
			0.5	0.0
Age, mean (SD)	38.14 (9.68)	37.55 (10.27)	51	59
				0.2
Occupational role (%)			—	49
Teachers	1677 (81.3%)	90 (90.0%)		
Principals	385 (18.7%)	10 (10.0%)		
			0.4	0.1
School marginalization (%)			92	59
Very low	904 (44.4%)	38 (40.0%)		
Low	403 (19.8%)	16 (16.8%)		
Medium	456 (22.4%)	24 (25.3%)		
High	275 (13.5%)	17 (17.9%)		

Panel B. Respondents vs Nonrespondents at T3

Characteristic	Respondent	Nonrespondent	p	S MD
n	1686	476		
			<	0.2
Age, mean (SD)	38.65 (9.60)	36.22 (9.84)	.001	49
				0.1
Occupational role (%)			—	37
Teachers	1359 (80.6%)	408 (85.7%)		
Principals	327 (19.4%)	68 (14.3%)		
			0.0	0.1
School marginalization (%)			09	82
Very low	711 (42.7%)	231 (49.3%)		
Low	322 (19.4%)	97 (20.7%)		
Medium	399 (24.0%)	81 (17.3%)		
High	232 (13.9%)	60 (12.8%)		

Panel C. Respondents vs Nonrespondents at T4

Characteristic	Respondent	Nonrespondent	p	S MD
n	1608	554		
Age, mean (SD)	38.48 (9.43)	37.05 (10.42)	0.03	0.144
Occupational role (%)			—	0.078
Teachers	1302 (81.0%)	465 (83.9%)		
Principals	306 (19.0%)	89 (16.1%)		
School marginalization (%)			< .001	0.286
Very low	647 (40.8%)	295 (53.9%)		
Low	318 (20.1%)	101 (18.5%)		
Medium	381 (24.0%)	99 (18.1%)		
High	240 (15.1%)	52 (9.5%)		

Note. Respondent status is defined by completion of the corresponding follow-up survey. SMD = standardized mean difference. *p*-values for categorical variables refer to omnibus comparisons across categories. School marginalization was coded

as 1 = Very low, 2 = Low, 3 = Medium, and 4 = High; no schools were classified as Very high in these analyses. Percentages for school marginalization are based on non-missing values.

Table S14. Model coefficients and observed intraclass correlation coefficients

Outcome	T2		T3		T4	
	g [95% CI]	ICC	g [95% CI]	ICC	g [95% CI]	ICC (school / individual)
		(school / individual)		(school / individual)		
Mindfulness in Teaching	0.03 [-0.06, 0.12]	0.021 / 0.321	0.09 [-0.01, 0.19]	0.021 / 0.321	0.09 [-0.01, 0.19]	0.021 / 0.321
Self-awareness factor	0.03 [-0.02, 0.08]	0.000 / 0.813	—	—	-0.01 [-0.06, 0.04]	0.000 / 0.813
Reappraisal	0.15** [0.06, 0.23]	0.018 / 0.314	0.09 [-0.01, 0.18]	0.018 / 0.314	0.05 [-0.05, 0.14]	0.018 / 0.314

Outcome	T2		T3		T4	
	g [95% CI]		g [95% CI]		g [95% CI]	
	ICC (school / individual)		ICC (school / individual)		ICC (school / individual)	
Suppression (reversed)	0.12* [0.03, 0.20]	0.022 / 0.412	0.17*** [0.08, 0.26]	0.022 / 0.412	0.09 [-0.01, 0.18]	0.022 / 0.412
Beliefs in malleability of emotions	0.43*** [0.34, 0.52]	0.018 / 0.286	—	—	0.31*** [0.21, 0.41]	0.018 / 0.286
Emotion regulation factor	0.09*** [0.04, 0.13]	0.003 / 0.839	—	—	0.07** [0.02, 0.11]	0.003 / 0.839
Empathy	0.17*** [0.09, 0.25]	0.033 / 0.507	0.18*** [0.09, 0.26]	0.033 / 0.507	0.15** [0.07, 0.24]	0.033 / 0.507
Prosocial behavior	0.16** [0.07, 0.26]	0.006 / 0.338	0.09 [-0.01, 0.20]	0.006 / 0.338	0.15* [0.04, 0.26]	0.006 / 0.338
Prosociality composite	0.12** [0.04, 0.19]	0.026 / 0.523	—	—	0.10* [0.02, 0.19]	0.026 / 0.523
Self-efficacy / positive functioning composite	-0.00 [-0.08, 0.08]	0.031 / 0.434	0.16*** [0.07, 0.25]	0.031 / 0.434	0.07 [-0.02, 0.16]	0.031 / 0.434

Outcome	T2		T3		T4	
	ICC		ICC		ICC (school / individual)	
	g [95% CI] (school / individual)		g [95% CI] (school / individual)		g [95% CI]	
Distress factor (reversed)	-0.01 [-0.07, 0.04]	0.013 / 0.717	0.02 [-0.04, 0.08]	0.013 / 0.717	-0.02 [-0.08, 0.03]	0.013 / 0.717
Educator depersonalization (reversed)	-0.03 [-0.11, 0.05]	0.000 / 0.368	0.07 [-0.02, 0.16]	0.000 / 0.368	-0.03 [-0.12, 0.07]	0.000 / 0.368

*Note. Values are standardized effect sizes (Hedges' g) with 95% confidence intervals. ICC = intraclass correlation coefficient (school-level / individual-level). Significance reflects BH-FDR adjusted p-values. * $p < .05$, ** $p < .01$, *** $p < .001$.*

Table S15. Subgroup analyses

Construct	Population	T2		T3		T4	
		Effect size	<i>p</i>	Effect size	<i>p</i>	Effect size	<i>p</i>
		(95% CI)	<i>-value</i>	(95% CI)	<i>-value</i>	(95% CI)	<i>-value</i>
Anxiety	Non-clinical	-0.06 (-0.13; 0.02)	0 .142	0.00 (-0.08; 0.08)	0 .971	-0.05 (-0.13; 0.04)	0 .971
	Clinical	0.25** (0.08; 0.42)	0 .0048	0.19 (0.00; 0.38)	0 .051	-0.10 (-0.30; 0.09)	0 .307
	Teachers	-0.05 (-0.14; 0.03)	0 .215	-0.03 (-0.12; 0.06)	0 .566	-0.08 (-0.17; 0.02)	0 .104
	Principals	0.15 (-0.03; 0.32)	0 .098	0.24* (0.05; 0.42)	0 .013	0.00 (-0.19; 0.20)	0 .973
	Non-clinical	-0.01 (-0.08; 0.06)	0 .263	0.03 (-0.05; 0.11)	0 .422	-0.02 (-0.10; 0.06)	0 .682
	Depression						

al	Clinic	0.24*	0	0.49***	0	0.01	0
		(0.05; 0.44)	.013	(0.28; 0.70)	.000	(-0.21; 0.22)	.957
ers	Teach	-0.02	0	0.04	0	-0.03	0
		(-0.10; 0.06)	.693	(-0.04; 0.13)	.319	(-0.11; 0.06)	.561
pals	Princi	0.15	0	0.21*	0	0.03	0
		(-0.01; 0.32)	.071	(0.04; 0.39)	.018	(-0.15; 0.22)	.715

Note. Values are standardized effect sizes (Hedges' g). CI = Confidence Interval.

** p-value < 0.05; ** p-value < 0.01; *** p-value < 0.001*

Table S16. Estimated Effects of EW vs Control on Raw Scale Outcomes Across Time (cLDA; baseline constrained; FDR-adjusted p-values)

Construct	Outcome	T2		T3		T4	
		Effect		Effect		Effect	
		size [95% CI]	p- value (FDR)	size [95% CI]	p- value (FDR)	size [95% CI]	p- value (FDR)
Self-awareness	Mindfulness in teaching	0.03	0.477	0.09	0.069	0.09	0.069
		[-0.06, 0.12]	(0.561)	[-0.01, 0.19]	(0.113)	[-0.01, 0.19]	(0.113)
	Awareness	0.03	0.419			0.02	0.088
		[-0.04, 0.11]	(0.559)			[-0.07, 0.1]	(0.588)
Emotional awareness	Purpose	0.13**	0.001			0.04	0.009
		[0.05, 0.21]	(0.003)			[-0.05, 0.12]	(0.009)
Emotional reappraisal	Emotional awareness	0.01	0.074			0.06	0.005
		[-0.06, 0.09]	(0.074)			[-0.02, 0.15]	(0.005)
Emotional reappraisal	Reappraisal	0.15**	0.001	0.09	0.072	0.05	0.004
		[0.06, 0.23]	(0.003)	[-0.01, 0.18]	(0.113)	[-0.05, 0.14]	(0.004)

						46	
Prosody	Suppression	0.12**	0.005	0.17***	0.000	0.09	0.001
		[0.03, 0.2]	(0.011)	[0.08, 0.26]	(0.001)	[0, 0.18]	(0.001)
	Beliefs in malleability of emotions	0.43***	0.000			0.31***	0.000
		[0.34, 0.52]	(0.000)			[0.2, 0.41]	(0.000)
	Attentional deployment	0.29***	0.000			0.23***	0.000
		[0.22, 0.35]	(0.000)			[0.15, 0.3]	(0.000)
	Insight	0.08	0.029			0.04	0.044
		[0.01, 0.16]	(0.053)			[-0.04, 0.13]	(0.044)
Prosody	Emotion regulation	-	0.000			-0.06	0.000
		0.18***	0.000			[-0.14, 0.01]	0.000
		[-0.25, -0.11]	(0.000)				
	Empathy	0.17***	0.000	0.17***	0.000	0.15**	0.004
		[0.09, 0.25]	(0.000)	[0.09, 0.26]	(0.000)	[0.07, 0.24]	(0.004)
	Prosocial behavior intentions	0.16**	0.001	0.09	0.084	0.15*	0.004
		[0.07, 0.26]	(0.003)	[-0.01, 0.2]	(0.115)	[0.04, 0.26]	(0.008)

Educator depersonalization	-0.03	0.	0.07	0.1	-0.03	0
	[-0.11, 0.05]	476 (0. 561)	[-0.02, 0.16]	42 (0.1 74)	[-0.12, 0.07]	(5)

Note: All outcomes were harmonized so that higher scores indicate better functioning; positive effect sizes favor the intervention.

CI = Confidence Interval.

FDR-adjusted p-value < 0.05; ** FDR-adjusted p-value < 0.01; * FDR-adjusted p-value < 0.001*

Figure S1. Residual Diagnostics for Primary Mixed-Effects Models

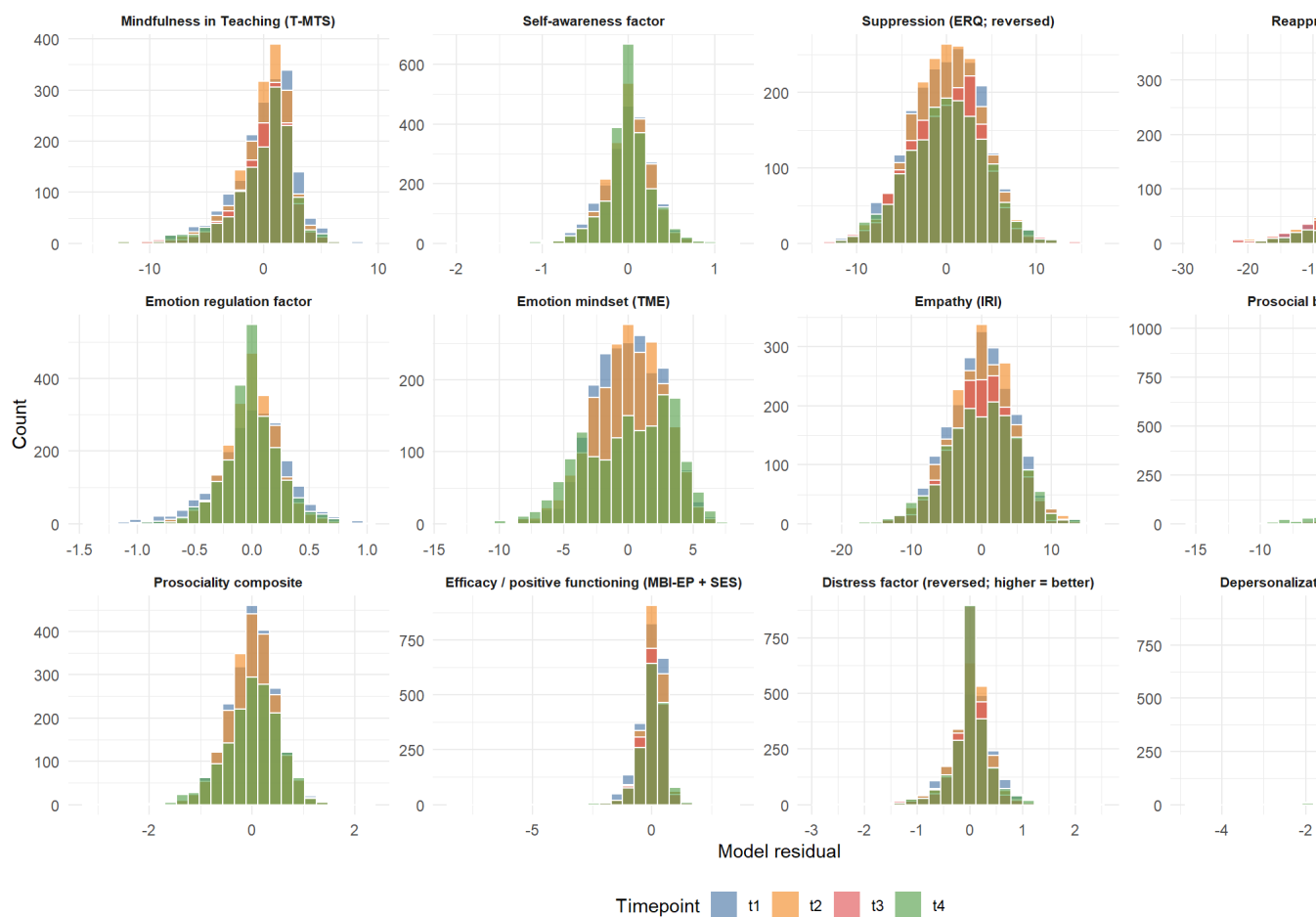
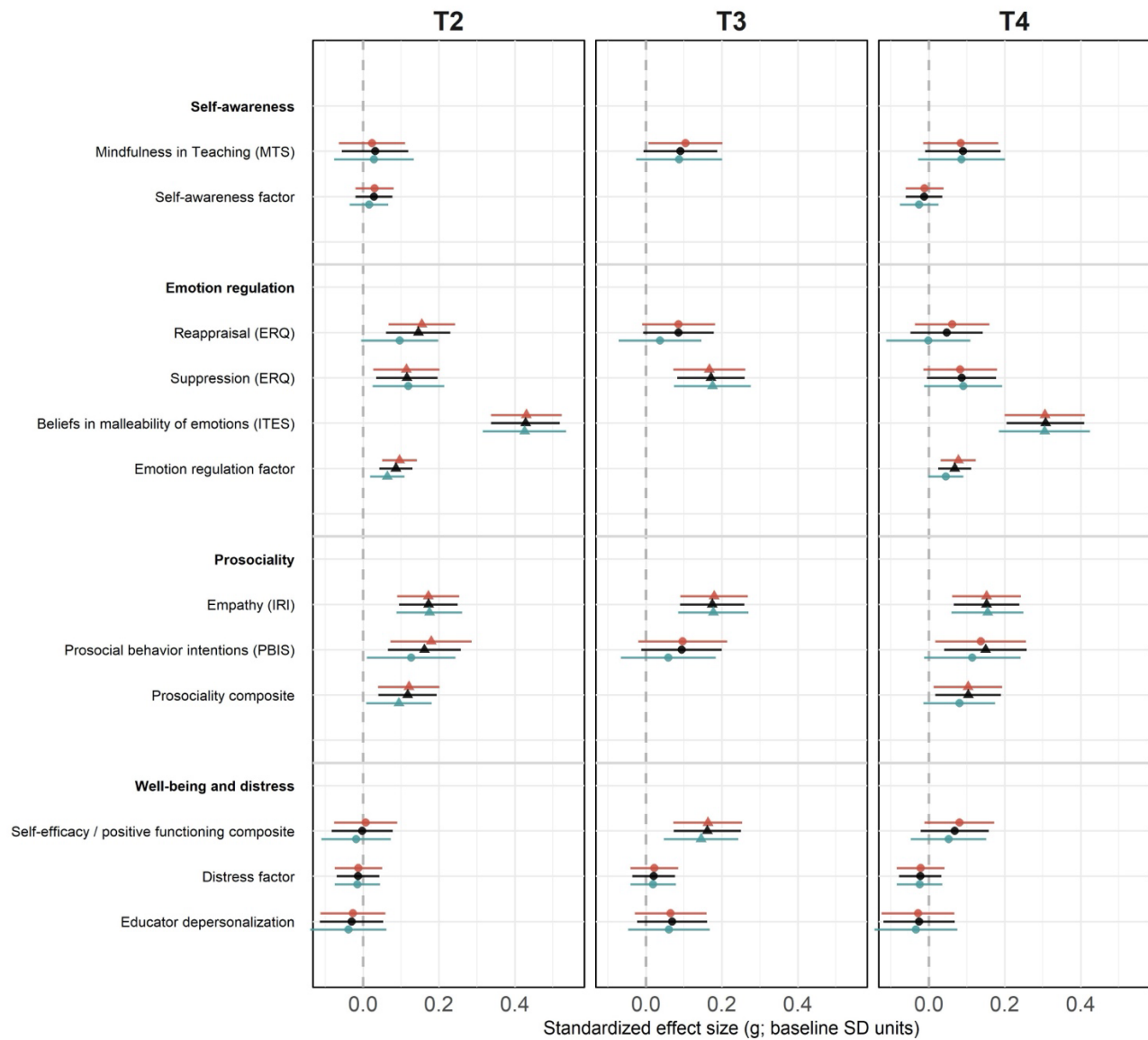


Figure S2. Robustness of Intervention Effects Across Model Parameterizations



Note: Points show standardized effects (Hedges' g; baseline SD units) and 95% confidence intervals at T2 (6 months after baseline; during training), T3 (9 months; post-training, primary post-program), and T4 (18 months; follow-up). The primary estimates reported in Table 3 are from the baseline-constrained longitudinal data analysis (cLDA) specification. Outcomes are oriented so that positive values indicate improvement. Filled triangles denote FDR $p < .05$ within outcome families at each timepoint; circles denote FDR non-significance. All statistically significant effects favored EW.

Note. Positive g values indicate improvement; SD = Standard deviation; MTS = Mindfulness in Teaching Scale; ERQ = Emotion Regulation Questionnaire; ITES = Implicit Theories of Emotion Scale; IRI = Interpersonal Reactivity Index; PBIS = Prosocial Behavioral Intentions Scale; MBI = Maslach Burnout Inventory.