The Evaluation of the Enhanced Positive School Climate Model

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Purpose. The Santa Ana Unified School District received an i3 grant (Investing in Innovation; funded by the U.S. Department of Education Grant number U411C160074) to build on their existing school climate practices. Called the Enhanced Positive School Climate Model, the aim is to improve school climate, student-adult relationships, create social emotional learning programs, and provide students the needed structure to access challenging curriculum and expectations. As part of this enhanced model, School Climate Liaisons (SCLs) were hired to support and provide coaching to schools in the intervention group on PBIS, RP implementation, and behavioral interventions. As part of the i3 grant requirements, the district employed a rigorous cluster-randomized trial whereby half of the district's elementary schools were assigned to receive the Enhanced Positive School Climate Model and half were assigned to a waitlist control. The confirmatory research question is:

> Do students in grades 4 and 5 at follow-up, in schools assigned to receive support from PBIS and Restorative Practice school climate specialists and community liaisons, who receive services for two years, exhibit higher levels of self-management at the end of the second year, as compared to students in grades 4 and 5 in schools assigned to not receive such support?

Additionally, there were exploratory research questions examining changes in other SEL measures including growth mindset, self-efficacy, and social awareness.

Methods. This study employed a cluster-randomized controlled design whereby half of the study schools were assigned to the treatment condition and the other half of schools were assigned to the "business as usual" control condition. In total, 35 schools (30 K-5 schools; 5 K-8 schools) were randomly assigned to either the treatment or control condition. All students within these schools were included in the evaluation. Students in the treatment schools (n = 17) were eligible to receive services through the grant. Randomization occurred in May 2017. The 2016-17 school year served as a baseline school year (i.e., no services were provided). The Enhanced Positive School Climate Model began in the 2017-18 school year and continued into the 2018-19 school year for treatment schools only. Control schools were waitlisted and began receiving services in the 2019-20 school year. Students enrolled in district schools in May 2017 were tracked using student roster information through the end of the 2018-19 school year. Only students who were in study schools continuously from the 2016-2017 to 2018-2019 school years were included in the impact analysis. The confirmatory and exploratory outcomes referenced below were conducted using extant data from the district. Data were used from routine data collection processes within the district from the annual CORE climate student survey. The primary outcome measure was the five-item self-management scale on the CORE District's student survey (Taylor, Oberle, Durlak, & Weissberg, 2017; Transforming Education, 2014; https://www.rand.org/education-and-labor/projects/assessments/tool/2014/panorama-social-emotional-learning-questionnaire-measures.html) asked of all students in grades 4-12 each year. For the confirmatory research question (and all exploratory questions), adjusted post-intervention outcomes for students in treatment schools were compared to the outcomes for their counterparts in the control schools. This involved fitting conditional multilevel regression models (i.e., hierarchical linear modeling [HLM]), with additional terms to account for the nesting of individuals within schools (see Goldstein 1987; Raudenbush & Bryk, 2002; Murray 1998).

Results. Eight two-level models were estimated per grade level to address the confirmatory and exploratory research questions. Although the students in treatment schools had slightly higher self-management, growth mindset and self-efficacy scores at follow-up, only the difference in fourth grade self-efficacy scores was statistically significant. In contrast, students in control schools had very slightly higher social awareness scores; this finding was not statistically significant.

Implications. Meaningful and statistically significant differences were not found between students who attended schools that received the Enhanced Positive School Climate Model compared to their peers in schools that did not receive the Enhanced Positive School Climate Model. The lack of findings may be due to the other changes in school climate practices throughout the district during the study period. Additionally, variations in the implementation of the Enhanced Positive School Climate Model may have contributed to the lack of findings. Although the findings are not significant, the direction of results is mostly consistent, indicating increases in SEL competencies for students receiving additional school climate supports. Future studies should continue to investigate the relationship between whole-school approaches to school climate and changes in SEL competencies for students.

The Evaluation of the Enhanced Positive School Climate Model

The purpose of Santa Ana Unified School District's i3 (Investing in Innovation; funded by the U.S. Department of Education Grant number U411C160074) proposal was to build on their existing school climate practices -- called the Enhanced Positive School Climate Model (PSCM). Santa Ana Unified School District (SAUSD) is the largest school district in Orange County and seventh largest in California. At the start of the project, the district was comprised of 54 schools, serving over 53,000 students, and ranked 2nd in the state for student population density. Based on the National Free and Reduced Lunch Program (FRLP), 91 percent of SAUSD students qualified for FRLP, an indicator of child poverty. SAUSD had 82 percent of its students categorized as English Learners (EL), making it the number one port of entry for new EL students in the country.

Santa Ana is the most populous city in the county and the 8th most densely populated city in the United States. Second and third generation families live under the same roof, many of whom live in converted garages or rooms not meant for human occupancy. The Department of Housing and Urban Development (HUD) designated four Santa Ana residential areas as **Empowerment Zones**, or in severe and immediate need for intervention in the areas of economic development, health care, housing, childcare, and transportation. In Santa Ana, families often work multiple minimum wage paying jobs with long hours, yet lack the finances to provide essentials, such as consistent shelter, food, and clothing for the family.

In 2008, SAUSD started to focus on building a positive school culture and climate with its initial roll-out of Positive Behavioral Intervention and Supports (PBIS). By the 2015-16 school year, district-wide efforts to train and implement Positive Behavioral Intervention and Supports (PBIS) and Restorative Practice (RP) were in place. At the start of this grant, all school sites within the district were participating in trainings for PBIS and RP based on their differentiating levels of implementation. By infusing restorative practices, an alternative to punitive practices, within the PBIS framework, SAUSD has been able to monitor instructional, behavioral, and evidence-based intervention practices for students with its Enhanced Positive School Climate Model (Enhanced PSCM).

Reporting on Intervention and Comparison Conditions

Description of Project Intervention Activities

The Enhanced PSCM's aim was to improve school climate, student-adult relationships, create social emotional learning programs, and provide students the needed structure to access challenging curriculum and expectations. As part of this enhanced model, School Climate Liaisons (SCLs) were hired to support and provide coaching to schools in the intervention group on PBIS, RP implementation, and behavioral interventions. While schools assigned to both intervention and control groups, implemented PBIS and RP, schools assigned to the intervention group were provided additional supports from the SCLs. The additional supports provided by SCLs included coaching school site staff, implementation support, and school climate enhancement activities implemented by the school climate liaisons.

The focus of this evaluation was to examine the extent to which providing these additional supports improved the effectiveness of SAUSD's existing PSCM. The theory of change for the Enhanced PSCM was that -- by providing personnel and resources; organizational support and internal expertise; input from parents and the community; by providing coaching and trainings to school staff and administrators on PBIS and RP tools and behavioral interventions; by training parents on PBIS, RP tools, and behavioral interventions; and by connecting families to resources to meet their needs -- there would be increases in students' social emotional skills (including self-management), a reduction in office discipline referrals and suspensions, and an increase in parent awareness of PBIS and RP strategies.

The Logic Model provides an overview of SAUSD's PSCM, the Enhanced PSCM funded by i3, and the short- and long-term outcomes (Exhibit 1). The key components of the Enhanced PSCM, as outlined in the logic model, are:

provide coaching to intervention school sites on Tiers 1-3,

provide training to parents on PBIS, RP tools, and behavioral interventions,

provide parent trainings on PBIS, RP strategies, behavioral interventions,

conduct home visits with families, and

assist families by connecting them to resources.

Exhibit 1: Logic Model: Santa Ana Unified School District's Enhanced PSCM

Positive School Climate Model	Enhanced - Positive School Climate Model Key Components	Short-term Outcomes (Mediators)	Long-term Outcomes
Provide training to Positive Behavioral Interventions & Supports (PBIS) leadership on School-wide Information System (SWIS). Implement the use of SWIS. Provide Tier 2 and 3 services to students. Provide trainings on behavioral interventions to school staff.	Provide coaching to school sites on interventions for Tiers 1-3. Coaching examples include: a. Fidelity of PBIS practices b. Implementation of RP tools (e. g. conferences, circles) c. Collecting and monitoring data Provide trainings to parents on PBIS and RP Tools and behavioral interventions. Parent trainings include	The successful implementation of the Positive School Climate Model (PSCM) will result in: • Increase measure of fidelity of the model. • Increase networking of SPLCs between schools to share ideas about PSCM. • Greater use of SWIS for documenting data by school coordinators at target sites. • Increased staff awareness of	Students in target schools will improve SEL and well-being. The successful implementation of the PSCM results in: • An increase of student self-management skills. • More students exhibiting more self-efficacy and growth mindset skills. • A reduction in rate of office discipline referrals. • A reduction in student suspension rate.

Implement Restorative Conferences with youth (Tier 3). Host Data Dialogues. Provide trainings to counselors, school psychologists, teachers, administrators, and to PBIS leadership teams on PBIS, restorative practice (RP) tools, and behavioral interventions.	Parent School Climate Institutes. Conduct home visits with families. Assist parents with identifying resources to meet student/ family needs.	behavioral interventions. • Parent attendance at RP, PBIS or Parent School Climate Institute Trainings. • Increase in parents' awareness of PBIS and RP strategies. • Streamline communication with community partners	• An increase in student academic achievement. The successful implementation of the enhanced PSCM will result in teachers/staff having greater knowledge, skills, and practice of PBIS, RP, and behavioral interventions. The successful implementation of the enhanced PSCM will nurture an attendance going culture at schools to promote school connectedness.

Content, Duration, and Intensity of Key Activities and Intensity

The key elements of the Enhanced PSCM are focused on two systems – PBIS and RP– in place within the district. While these systems were already established before the i3, there was variation in the level of implementation/adoption at each school. There were schools that had adopted these processes several years before the i3 project was funded, while other sites had started implementing these systems a year before the start of this grant. Below is a description of PBIS and RP:

1. Positive Behavioral Intervention and Supports provides a layered continuum of supports for the students in the district. Every student receives universal supports such as school-wide and classroom expectations, mental health awareness, use of affective statements, and positive reinforcement systems (Tier 1). Some students also receive targeted supports such as social skills, self-management, mentoring, and case management (Tier 2). Using the PBIS framework, only a few students receive intensive supports such as intensive social skills teaching and individual behavior management plans (Tier 3).

   Two of the key Tier 2 strategies included the Coordination of Services Teams (COSTs) and Check In, Check Out (CICO). COST is a multidisciplinary team of school staff and providers who collaborate on linking referred students to resources and interventions. The goal of COST is to provide an avenue for identifying the needs of individual students, creating linkages for students, and supporting students' academic success and healthy development. CICO is another Tier 2 support based on intervention that focuses on checking in with specific students to monitor goals and provide encouragement.

2. Restorative practices at SAUSD focus on the belief that relationships within schools are central components of school climate. RP includes the practice of affective statements, restorative

questions, small impromptu conversations for de-escalating problems quickly, structured circles designed to strengthen and repair relationships, and conferences that bring people together to discuss serious concerns and discipline issues.

District staff facilitated professional learning activities related to PBIS and RP in all schools in the district as part of the business as usual professional learning. This included classroom management, interventions, assessments, SWIS, and RP. The treatment sites had the additional support of SCLs at their site one day per week. Each school had a designated school climate liaison. SCLs provided substantive coaching to personnel on their PBIS approach, on organizing evidence-based practices, improving the implementation of those practices, on how to implement RP strategies, and COST meeting practices. SCLs provided multiple types of coaching support for school sites that focused on strategies such as conference circles and the collection and monitoring of data to address students' needs. Additionally, SCLs supported the target school sites with their PBIS Tiered Fidelity Inventory Survey (TFI) completion and provided consultations with staff on referring students to school-based and community-based services.

The type of coaching provided was differentiated based on the needs of the school. In some schools they provided demonstrations of how to lead restorative practices such as classroom circles, mediation, and conferences. In other sites, they co-facilitated circles with staff trained in RP strategies. SCLs also encouraged school staff at treatment sites to attend RP training provided by the district in an effort to strengthen sustainability of practices and fidelity of RP practices at the sites.

Parent trainings were provided by School Climate Liaisons at the intervention sites. The topics for the parent trainings were differentiated based on school site needs but mostly focused on parenting strategies, behavioral interventions, and restorative practice tools. SCLs also facilitated restorative practice circles with parents. School Climate Parent Institutes were held annually and only parents from treatment sites were invited to attend the institutes. School Climate Liaisons worked with each intervention site to recruit a designated number of parents to participate in the institutes. The goal of the institutes was to provide in-depth training to a select group of parents from each treatment site on PBIS, RP, social-emotional learning, and graduation requirements. SAUSD held a pilot School Climate Institute for parents in June 2017. Based on feedback received from the pilot, additional Institutes were held each school year. Parents attending the institute completed approximately a 10-hour course over a series of weeks. SCLs also provided resources and linkages to families to community resources through parent meetings and home visits. The resources provided were based on the needs of students and families.

Objectives of key activities

The Enhanced PSCM tracked progress on the following goals and objectives over the course of the grant:

Goal 1: Improve social-emotional learning (SEL) and well-being of students in target schools

Objective 1.1: School sites participating in the Positive School Climate Model will reduce the rate of office discipline referrals (ODRs) by 15 percent by spring 2019 as measured by

referral data in SWIS (school-wide information systems) and District Student Information System (AERIES).

Objective 1.2: School sites participating in the Positive School Climate Model will reduce the rate of suspensions by 25 percent by the spring 2019 as measured by AERIES.

Objective 1.3: At least 75% of students in participating schools will report an increase, by spring 2019, in self-management as measured by the California Office of Reforming Education (CORE SEL) Survey.

Objective 1.4: The overall attendance rate at school sites participating in the Positive School Climate Model will improve by .5 percent by school level by spring 2019 as measured by AERIES.

Goal 2: Increase teacher/staff knowledge, skills, and practice of PBIS, RP, and behavioral interventions

Objective 2.1: School sites participating in the Positive School Climate Model that also received a Tiered Fidelity Inventory (TFI) score below 70 percent will increase their score to at least 85 percent by the end of the school year as measured by the District PBIS team members.

Goal 3: Increase parent awareness of PBIS and RP strategies to improve student behavior and engagement

Objective 3.1: At least 5% of parents based on school ADA from participating schools will attend trainings on PBIS, RP, or Parent School Climate Institute by spring 2019 as measured by training logs

Resources/training/coaching provided to individuals delivering the intervention

The Program Specialist and School Climate Liaisons hired at the beginning of grant participated in a series of trainings over the course of several weeks. The Program Specialist was a certificated staff member who had been an existing district employee. The SCLs included both certificated and classified staff and their onboarding included trainings on the following:

RP: Certified district trainers provided a 2-day RP training that included circle scenarios and how to coach school staff in integrating RP practices in their classroom. The SCLs also received annual RP refresher trainings.

PBIS: Three of the initial SCLs hired for the grant, were already PBISApps certified. Training on the PBIS framework was provided by PBIS-trained facilitators. SCLs were also trained in administering the Tiered Fidelity Inventory (TFI) to measure the fidelity of PBIS. The training was a PBIS multi-day training focused on each Tier:

Tier 1: 6-hour training.

Tier 2 Part A: 6-hour training that focused on systems and included COST.

Tier 2 Part B: 2-hour training that focused on Check In, Check Out.

Tier 3: 2-day training that focused on behavior assessments and interventions.

Coaching: The Program Specialist and SCLs participated in Cognitive Coaching Series training provided by an outside provider.

Procedural/Site Level Administrator: SCLs participated in a training provided by district staff that focused on processes and strategies to collaborate with the administrators. In addition, the training included content on how to support sites in integrating services.

Other: SCLs were trained on required district policies and procedures including child abuse reporting and the school district's data and reporting system.

Each SCL was shadowed by the i3 Coordinator and Program Specialist during the roll-out period of the grant. Over the course of the grant, some turnover occurred with SCLs. Trainings were provided to new SCLs when new staff were hired. New staff were also shadowed after completion of their on-boarding training.

The Independent Evaluation of the Enhanced School Climate Model

WestEd was contracted to provide an independent evaluation of the project. WestEd conducted the randomization, impact analysis, and reporting independent of the grantee. Data collection relied on routine, extant data collected by the school district on an annual basis and was not implemented specifically for this project. The confirmatory evaluation question is:

Do students in grades 4 and 5 at follow-up, in schools assigned to receive support from PBIS and Restorative Practice school climate specialists and community liaisons, who receive services for two years, exhibit higher levels of self-management at the end of the second year, as compared to students in grades 4 and 5 in schools assigned to not receive such support?

Additionally, there were exploratory research questions examining changes in other SEL measures including growth mindset, self-efficacy, and social awareness.

The remainder of the report discusses WestEd's evaluation of the Enhanced Positive School Climate Model.

The Participants in the Intervention

This study employed a cluster-randomized controlled design whereby half of the study schools were assigned to the treatment condition and the other half of schools were assigned to the "business as usual" control condition. The study design and randomization processes are discussed in more detail in the *Study Design and Sample*s section.

The eligibility criteria for inclusion in the study were elementary schools serving students in grades 2-5 because the confirmatory evaluation question focuses on students who were in grades 4 and 5 at follow-up (i.e., students were in grades 2 and 3 at baseline). This included all elementary schools in the district except for one school because they only served students K-3. The evaluation focuses on grades 4 and 5 because there are not enough schools serving grades 6-12 in the district to reliably detect impacts for school types serving these grade levels.

In total, 35 schools (30 K-5 schools; 5 K-8 schools) were randomly assigned to either the treatment or control condition. All students within these schools were included in the evaluation. Students in the treatment schools (n = 17) were eligible to receive services through the grant.

Santa Ana Unified School District serves high proportions of students at risk of failing academically. At the time of the grant application, approximately 91 percent of students in the district qualified for eligibiblity for free/reduced-price meals, and 82 percent of students were categorized as EL students.

Randomization occurred in May 2017. The 2016-17 school year served as a baseline school year (i.e., no services were provided). The Enhanced Positive School Climate Model began in the 2017-18 school year and continued into the 2018-19 school year for treatment schools only. Control schools were waitlisted and began receiving services in the 2019-20 school year.

Students in treatment schools received the Enhanced PSCMD. The Enhanced Positive School Climate model included multiple tiers of services as described in *Description of Project Intervention Activities* Section.

The analytic sample did not include joiners. Students enrolled in district schools in May 2017 (the point of school randomization) were tracked using student roster information through the end of the 2018-19 academic year. Only students who were in study schools continuously from May 2017 to May 2019 were included in the impact analysis.

Students were analyzed as part of the group they were assigned to at baseline (e.g., if they were in a treatment school at baseline, but then transferred to another school, they were analyzed as part of the treatment group). To preserve the integrity of random assignment, and account for self-selection, outcome analyses included all randomly assigned schools, regardless of whether they actually received support from school climate specialists and community liaisons.

During the study years (i.e., 2017-18-2018-19), the control schools received business-as-usual.

Study Design and Sample

Schools were randomized in May 2017 using two nested blocking variables. Schools were first stratified by grade level (i.e., K-5, K-8), and then based on aggregated grade-specific academic test scores within each school grade-level stratum. In elementary schools (K-5 grades), the average of 3rd grade math and reading Smarter Balanced scale scores was used to determine randomization strata, whereby the school average scores were ranked and placed into 4 strata based on quartiles. In K-8 schools, 3rd and 6th grade math and reading Smarter balanced scale scores were averaged, and schools were placed into two strata based on the median of school-specific averages across the 5 schools. The randomization resulted in the following distribution of schools, within school type and randomization strata, assigned to treatment and control conditions. The strata are included in Figure 2.

Exhibit 2. Randomization Stratum and Study Condition

		Study Condition	Study Condition	

School Type	Stratum	Control	Treatment	Total Schools
K-5	1	4	3	7
K-5	2	4	4	8
K-5	3	4	4	8
K-5	4	3	4	7
K-8	5	1	1	2
K-8	6	2	1	3
	Total Schools by Condition	18	17	35

WestEd's lead analyst who was unfamiliar with the study schools conducted the randomizations using Stata. In instances where there were an odd number of schools within a stratum (e.g., stratum 1), assignment to treatment or control alternated. Every school had a 50 percent chance of assignment to either condition. All schools were randomly assigned in May 2017.

Following random assignment, no changes were made to the schools included in the study. The student sample included students who were in grades 2 and 3 at baseline and were thus in grades 4 and 5 at follow-up. Students' school membership was captured using attendance records from the 2017-18 school year. Students' school membership was tracked each subsequent year using the same attendance records data source.

Baseline and Outcome Measures

Students enrolled in district schools in May 2017 were tracked using student roster information through the end of the 2018-19 school year. Only students who were in study schools continuously from the 2016-2017 to 2018-2019 school years were included in the impact analysis. The confirmatory and exploratory outcomes referenced below were conducted using extant data from the district. Data was used from routine data collection processes within the district from the annual CORE student survey. Thus, the evaluators were not involved in data collection.

Measures

The primary outcome measure was the five-item[1] self-management scale on the CORE District's student survey (Taylor, Oberle, Durlak, & Weissberg, 2017[i]; Transforming Education, 2014[ii]; https://www.rand.org/education-and-labor/projects/assessments/tool/2014/panorama-social-emotional-learning-questionnaire-measures.html) asked of all students in grades 4-12 each year. The CORE student survey is a survey developed and implemented by the CORE Districts of California, which are situated in Fresno, Garden Grove, Long Beach, Los Angeles, Oakland, Sacramento, San Francisco, and Santa Ana. The items ask how often in the past 30 days students regulated emotions and behaviors (e.g., I stayed calm even when others bothered or criticized me"), with responses ranging from 1 (almost never) to 5 (almost all of the time). The scale has previously been shown to have good internal reliability

[1] Note that this measure was implemented as a 9-item measure in the 2016-17 school year, but only a 5-item measure in the 2018-19 school year.

and WestEd found good reliability for the current sample (See Figure 3). Over the years of project implementation this scale was reduced to five items from the original nine. For the impact analysis, the five-item scale was used for baseline and year 2 measures. Panorama Education has demonstrated face validity of the construct. The CORE student survey has been shown to be a good indicator of changes in social and emotional learning.

Exploratory measures from the same CORE student survey included: Growth mindset, self-efficacy, and social awareness (See Figure 3). Similar to the self-management measure, the social awareness items were reduced to five items from the original eight. The table below displays the reliability statistics from the 2016-17 and 2018-19 survey administrations. The CORE subscales and alphas are displayed in Figure 3.

The CORE student survey is administered to students in grades 4-12, thus no student survey data was available at baseline when students were in grades 2 and 3. As a result, the baseline measure of the outcomes for the CORE student survey scales for grades 4 (for the grade 2 analytic model) and 5 (for the grade 3 analytic model) were imputed using the school level averages of the respective outcomes for 4th and 5th graders at baseline.

Figure 3. CORE Subscales, Items, and Alpha for Current Study

CORE Subscale	Number of Items	2016-17 Coefficient Alpha	2018-19 Coefficient Alpha
Self-Management	5	0.75	0.77
Growth Mindset	4	0.70	0.83
Self-efficacy	4	0.86	0.88
Social Awareness	5	0.72	0.73

Note. Self-management was a 9-item scale in 2016-17 school year, and a 5-item scale in the 2018-19 school year. The alpha shown reflects the same five items across school years for the current study.

Data were extracted from the district's existing database at baseline (Spring 2017) and follow-up (Summer 2019).

Student-level demographic characteristics were acquired from the district at baseline. These demographics included gender, race and ethnicity, English language learner designation, and free and/or reduced-price lunch status.

Reporting on Analytic Approach

For the confirmatory question (and all exploratory questions), adjusted post-intervention outcomes for students in treatment schools were compared to the outcomes for their counterparts in the control schools. This involved fitting conditional multilevel regression models (i.e., hierarchical linear modeling [HLM]), with additional terms to account for the nesting of individuals within schools (see Goldstein 1987[iii]; Raudenbush & Bryk, 2002[iv]; Murray 1998[v]). The study involved school-level randomization and

delivery of additional supports at the school level. The design thus involved clustering at the school level, as students and teachers are nested within schools. The random effect of school was included in the models to account for the nesting of observations within schools. The fixed effects included in the models were treatment group, baseline (pretest) measures of outcome variables, randomization strata, and vectors of aggregated student-level covariates. The purpose of including statistical controls was to minimize random error and to increase the precision of the estimates.

The following type of two-level HLM, in reduced form, for a continuous outcome serves as an example of the model.

$$Selfmgmt_{ij} = \alpha_0 + \beta_1 Preselfmgmt_j + \beta_2 Tx_j + \sum B_I I_{ij} + \tau_j + \varepsilon_{ij} \qquad \textbf{[1]}$$

Where subscripts *i* and *j* denote student and school, respectively; *Selfmgmt* represents the CORE survey 5-item self-management scale, measured at the end of the second implementation year; *Preselfmgmt* represents the baseline measure of the outcome variable aggregated at the school-level; *Tx* is a dichotomous variable indicating student attendance at the school assigned to the treatment condition; and *I* is a vector of other control variables for students and a set of dichotomous variables for all but one of the randomization strata. Lastly, $\boldsymbol{\tau}_j$ represent random variables for schools (clustering groups), and $\mathbf{E}_{ijk}$ is an error term for individual sample members. In this model, the intervention effect is represented by $\beta_2 Tx_j$, which captures the regression adjusted treatment/control school differences in the outcome variable. $\boldsymbol{\tau}_j$ capture random effects (intercepts) of school, which account for the positive intraclass correlations in the data.

The above HLM model was employed for the models of continuous confirmatory and exploratory outcomes of interest. Analysis of each outcome of interest was conducted separately by grade level.

Missing Data Approach

Student records with missing values for the outcome of interest and baseline demographic covariates were not included in the analytic samples.

Baseline Equivalence and Attrition

First, WestEd assessed cluster-level (schools) attrition. Because no schools dropped out of the study, there was no cluster-level attrition. Second, WestEd assessed student-level attrition. For students in grade 4 at follow-up, attrition was 24 percent of students (3,493 students were in schools at randomization; only 2,586 students remained at follow-up). The differential attrition between the treatment and control groups was about 1.8 percent. For students in grade 5 at follow-up, attrition was 26 percent of students (3,934 students were in schools at randomization; only 2,994 students remained at follow-up). The differential attrition between the treatment and control groups was about 0.7 percent. Thus, overall and differential attrition were both low (What Works Clearinghouse v 4.0, 2020) for both grades indicating a tolerable threat of bias under both optimistic and cautious assumptions. Because attrition was low and an RCT was implemented, and there was no need to assess baseline equivalence.

Reporting on Study Results

Attrition

Figure 4 displays the attrition for the grades 2 and 3 students randomized at baseline through the 2-year follow-up period. On average, for all outcome measures there were about 75 percent of grade 4 students and 76 percent of fifth grade students from the treatment group retained through the study period. There were 73 percent of grade 4 students and 76 percent of grade 5 students from the comparison group retained through the study period. This made for 1.8 percent differential attrition for the grade 4 analytic sample and 0.7 percent differential attrition for the grade 5 analytic sample.

Figure 4. Student and cluster level attrition

Outcome Measure	Comparison Group				Treatment Group			
	Clusters		Students		Clusters		Students	
	# randomized	# analytic sample	# randomized	# analytic sample	# randomized	# analytic sample	# randomized	# analytic sample
4th grade								
Self-Management	16	16	1,671	1,253	17	17	1,822	1,334
Growth Mindset	16	16	1,671	1,253	17	17	1,822	1,332
Self-Efficacy	16	16	1,671	1,253	17	17	1,822	1,333
Social Awareness	16	16	1,671	1,253	17	17	1,822	1,333
5th grade								
Self-Management	17	17	1,949	1,484	17	17	1,985	1,510
Growth Mindset	17	17	1,949	1,484	17	17	1,985	1,510
Self-Efficacy	17	17	1,949	1,484	17	17	1,985	1,510
Social Awareness	17	17	1,949	1,484	17	17	1,985	1,511

Outcomes

Eight two-level models were estimated per grade level to address the confirmatory and exploratory research questions. The figures below detail the results from the unadjusted post-test means for the comparison groups and model-adjusted post-test means for the treatment groups (Figures 7-10). The

adjusted models were computed using the outcome of interest, treatment status, strata, and the covariates of gender, race/ethnicity, English language proficiency, free/reduced lunch status and baseline measure of the outcome of interest, all clustered at the school level. Additionally, model-adjusted mean differences were estimated for the outcomes and standardized differences were computed using Hedge's g.

Self-Management

The self-management scale comprises five Likert scale items. Responses to these items were selected from an interval scale of 1 to 5 with 1 representing more negative perceptions of self-management and 5 representing more positive perceptions of self-management. For each student, responses to the five Likert scale items were inclusively averaged (meaning all non-missing responses amongst the five items were averaged).

The adjusted model results for grade 4 show both the treatment (*M* = 3.88) and comparison group (*M* = 3.86) have more positive leaning neutral perceptions of self-management. Though not statistically significant the treatment group did show a 0.02 higher self-management score than the comparison group after two years of participating in the intervention. The grade 5 models show that the treatment and comparison group both showed positive perceptions of self-management. There was virtually no difference in the treatment (*M* = 3.94) and comparison (*M* = 3.945) groups' self-management scores. Figure 7 shows the results for the grades 4 and 5 self-management outcomes.

Figure 7. Self-Management Outcomes Estimates

Outcome	Comparison Group				Treatment Group				Treatment Control Difference	Standardized Difference	p-value
	Sample Size		Mean	SD	Sample Size		Model adj. Mean	SD			
	n clusters	n students			n clusters	n students					
4th Grade											
Self-Management	16	1,253	3.86	0.75	17	1,334	3.88	0.74	0.023	0.027	0.628
5th Grade											
Self-Management	17	1,484	3.95	0.74	17	1,510	3.94	0.71	-0.002	-0.003	0.963

Notes: Adju= Adjusted estimates included covariates: stratum, baseline outcome, gender, ethnicity, English language fluency, and FRL status.

Growth Mindset

The growth mindset scale is comprised of four Likert scale items. Responses to these items were selected from an interval scale of 1 to 5 with 1 representing more negative perceptions of growth mindset and 5 representing more positive perceptions of growth mindset. For each student, responses

to the four Likert scale items were inclusively averaged (meaning all non-missing responses amongst the four items were averaged).

The adjusted model results for grade 4 show both the treatment (*M* = 3.97) and comparison group (*M* = 3.91) have positive perceptions of growth mindset. Though not statistically significant, the treatment group did show a .06-point higher growth mindset score than the comparison group after two years of participating in the intervention. The grade 5 models show positive perceptions for growth mindset for both treatment (*M* = 4.06) and comparison groups (*M* = 4.02). The treatment group exhibited scores that were 0.04-points higher than the comparison group, on average. There was no statistically significant difference. Figure 8 shows the estimates for grades 4 and 5 for growth mindset outcomes.

Figure 8. Growth Mindset Outcomes Estimates

Outcome	Comparison Group Sample Size				Treatment Group Sample Size				Treatment Control Difference	Standardized Difference	p-value
	n clusters	n students	Mean	SD	n clusters	n students	Model adj. Mean	SD			
4th Grade											
Growth Mindset	16	1,253	3.91	0.85	17	1,332	3.97	0.84	0.057	0.062	0.301
5th Grade											
Growth-Mindset	17	1,484	4.02	0.80	17	1,510	4.06	0.77	0.042	0.048	0.333

Notes: Adju= Adjusted estimates included covariates: stratum, baseline outcome, gender, ethnicity, English language fluency, and FRL status.

Self-Efficacy

The self-efficacy scale is composed of four Likert scale items. Responses to these items were selected from an interval scale of 1 to 5 with 1 representing more negative perceptions of self-efficacy and 5 representing more positive perceptions of self-efficacy. For each student, responses to the four Likert scale items were inclusively averaged (meaning all non-missing responses amongst the four items were averaged).

The adjusted model results for grade 4 students show both the treatment (*M* = 3.64) and comparison group (*M* = 3.52) have more neutral perceptions of self-efficacy. The treatment group displayed a 0.12-point higher self-efficacy score than the comparison group on average after two years of participating in the intervention (*p* = .027). The grade 5 models showed positive leaning neutral perceptions of self-efficacy for both treatment and comparison groups. There was no difference in the groups' self-efficacy scores (*M* = 3.57). Figure 9 shows the self-efficacy outcome estimates for both grade levels.

Figure 9. Self-Efficacy Outcomes Estimates

Outcome	Comparison Group Sample Size				Treatment Group Sample Size				Treatment Control Difference	Standardized Difference	p-value
	n clusters	n students	Mean	SD	n clusters	n students	Model adj. Mean	SD			
4th Grade											
Self-Efficacy	16	1,253	3.52	0.95	17	1,333	3.64	0.93	0.125	0.129	0.027
5th Grade											
Self-Efficacy	17	1,484	3.57	0.96	17	1,510	3.57	0.92	-0.001	-0.001	0.991

Notes: Adju= Adjusted estimates included covariates: stratum, baseline outcome, gender, ethnicity, English language fluency, and FRL status.

Social Awareness

The social awareness scale is comprised of five Likert scale items. Responses to these items were selected from an interval scale of 1 to 5 with 1 representing more negative perceptions of social awareness and 5 representing more positive perceptions of social awareness. For each student, responses to the five Likert scale items were inclusively averaged (meaning all non-missing responses amongst the five items were averaged).

The adjusted model results for grade 4 students show both the treatment (M = 3.84) and comparison group (M = 3.83) had positive leaning perceptions of social awareness. No treatment/comparison group differences in social awareness scores were found after two years of participating in the intervention. The grade 5 models showed similar positive perceptions of self-awareness for the treatment (M = 3.81) and comparison groups (M = 3.79). Although students in the treatment group exhibited social awareness scores that were .02-point higher than their counterparts in the comparison group after two years of participating in the intervention, this difference was not statistically significant. Figure 10 shows the social awareness outcome estimates.

Figure 10. Social Awareness Outcomes Estimates

Outcome	Comparison Group Sample Size				Treatment Group Sample Size				Treatment Control Difference	Standardized Difference	p-value
	n clusters	n students	Mean	SD	n clusters	n students	Model adj. Mean	SD			
4th Grade											

Social Awareness	16	1,253	3.83	0.73	17	1,333	3.84	0.73	0.012	0.014	0.807
5th Grade											
Social Awareness	17	1,484	3.79	0.69	17	1,511	3.81	0.67	0.018	0.021	0.606

Notes: Adju= Adjusted estimates included covariates: stratum, baseline outcome, gender, ethnicity, English language fluency, and FRL status.

Reporting on Implications

Meaningful and statistically significant differences in social and emotional competencies were not found between students who attended schools that received the Enhanced PSCM compared to their peers in schools that did not receive the Enhanced PSCM. However, students in treatment schools did have slightly higher self-management, growth mindset, and self-efficacy scores relative to their peers in control schools. Several factors could explain the lack of statistically significant findings. Specifically, variations in implementation of the Enhanced PSCM occurred across treatment schools. The nature of the Enhanced PSCM is that the approach is tailored to each school site. This means helping school sites identify where they need additional supports and then implementing those supports. The tailored approach to the intervention is thus impacted by differences in buy-in from site level staff, as well as different approaches at each school site. For example, site administrators selected the type of coaching and supports they wanted. In some cases, administrators wanted SCLs to demonstrate practices while other administrators wanted SCLs to co-facilitate strategies with the school staff. Once coaching was provided, school site staff could select how much they participated in coaching services provided by SCLs.

An additional factor that could have contributed to the lack of program impacts is staff turnover at treatment school sites. For example, buy-in for the Enhanced PSCM was high for one school site. However, after a change in school site leadership and some key staff members, it was difficult to maintain momentum for the efforts being led by SCLs. In this case, there was a need to reestablish relationships between the SCL at the site and the new administrators at the site.

Finally, SCLs varied their approaches to providing services under the Enhanced PSCM. Some coaches had set activities and curricula for their school sites. Others were more organic in their approach to coaching. Future studies should incorporate an Enhanced PSCM toolkit with structured activities and a menu approach to providing services. A menu approach would allow for consistent implementation of activities while also allowing for activities to be tailored to each school site.

Despite the lack of significant findings, the direction of results is mostly consistent, indicating increases in SEL competencies for students receiving additional school climate supports. Future studies should continue to investigate the relationship between whole-school approaches to school climate and changes in SEL competencies for students.

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