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The Effect of Second Step on Middle School Students' Perceptions of a Healthy School Climate

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Executive Summary

This report describes a study examining the impact of the Second Step Middle School Digital Program, a universal social and emotional learning (SEL) curriculum, on middle school students' perceptions of a healthy school climate in California. Using statewide implementation data, student survey responses from the California Healthy Kids Survey, and a quasi-experimental design with propensity score matching, the study found that high-fidelity implementation of Second Step (defined as completing 80% or more of lessons) was associated with small-to-moderate positive effects on students' perceptions of caring relationships and overall school environment. Lower fidelity implementations showed no significant effects. The research underscores the critical role of implementation fidelity for SEL program effectiveness and highlights the importance of systemic supports such as professional development, leadership engagement, and monitoring tools to promote consistent delivery. The findings contribute to evidence supporting SEL as a lever for improving school climate and call for future longitudinal and equity-focused research to deepen understanding of how SEL impacts diverse student populations over time.

This study meets the What Works Clearinghouse evidence standards with reservations and the Collaborative for Academic, Social, and Emotional Learning (CASEL) Guide to Effective Social and Emotional Learning Programs design criteria by including a baseline equivalence comparison group and finding a significant effect on an outcome in the behavioral student outcome domain.

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Promoting a supportive and engaging learning environment for middle school students is a priority in research and practice. Adolescence is a critical developmental stage marked by rapid emotional, cognitive, and social changes, making middle school students particularly sensitive to their school climate (King et al., 2014; Madjar & Cohen-Malayev, 2016; Wang & Eccles, 2011). A growing body of evidence suggests that universal social and emotional learning (SEL) programs can play a pivotal role in shaping students' experiences during this transitional period (McBride et al., 2016; Taylor et al., 2017). Among universal SEL programs, Second Step stands out as a widely implemented model aimed at enhancing students' socio-emotional skills and, critically, fostering a positive school environment and climate (Moy et al., 2018). Myriad studies highlight the multifaceted nature of school climate, which encompasses students' perceptions of safety, relationships, and support within the educational setting (Thapa et al., 2013; Toomey et al., 2020). A core assumption of the Second Step program, which provides a structured curriculum designed to cultivate emotional competence, empathy, and conflict resolution skills, is that improvements in SEL can directly influence perceptions of school climate (Akiba et al., 2021). However, positive impacts from universal SEL programs on perceptions of school climate are actualized when those programs are implemented with fidelity (Low et al., 2016). Thus, it is imperative to explore not only the implementation of SEL initiatives but also their fidelity of implementation, because it may significantly affect outcomes (Clayback et al., 2022).

Middle school is a particularly salient setting for SEL programs. Students in grades 6–8 often experience heightened academic pressure, evolving peer relationships, and shifts in identity development (Verhoeven et al., 2019). These changes can contribute to declines in school connectedness and increased behavioral challenges (Evans et al., 2018). As such, SEL programs may mitigate these challenges by providing students with tools and skills to navigate their social environments, regulate emotions, and make responsible decisions. Research underscores the

importance of targeting these competencies during early adolescence, when students are particularly receptive to acquiring new social–emotional skills (e.g., Durlak et al., 2011).

Evidence of Impacts of Universal SEL Programs

Over the past two decades, meta-analyses have consistently affirmed the effectiveness of universal, school-based SEL programs. These programs, which are designed to foster students' competencies in areas such as emotional regulation, empathy, relationship skills, and responsible decision-making, have demonstrated positive outcomes across multiple domains, including behavioral, emotional, and academic indicators (Durlak et al., in press; Corcoran et al., 2018).

Durlak et al. (in press) synthesize twelve meta-analyses involving more than one million students globally, report consistent, statistically significant post-test effects for key outcomes such as increased SEL skills, prosocial behaviors, academic achievement, and the reduction of conduct problems and emotional distress. Effect sizes at post-test ranged from small to moderate (d = 0.09–0.70), with follow-up effects persisting at smaller magnitudes (d = 0.07–0.33), indicating that SEL programming has durable, but modest, long-term impacts. Corcoran et al. (2018) conducted a meta-analysis on the relations between universal SEL and academic achievement, finding positive effects on reading (d = 0.25), mathematics (d = 0.26), and science achievement (d = 0.19).

Despite promising effects, there is substantial heterogeneity in outcomes depending on contextual and implementation factors. Several reviews noted that program fidelity, implementation quality, and alignment with developmental stages critically influence program effectiveness (Jones et al., 2021; Mahoney et al., 2021). Further, moderator analyses revealed inconsistent findings, particularly around individual characteristics such as age, race/ethnicity, and baseline skill levels, suggesting a need for more nuanced subgroup analyses and disaggregated reporting in future research (Durlak et al., in press; Cipriano et al., 2022).

Equity considerations have also emerged as a central theme in recent reviews. Universal SEL programs, while designed for all students, must be inclusive and culturally responsive to be effective across diverse school contexts (Jagers et al., 2018). There is growing evidence that systemic SEL implementation approaches—those that address school-wide practices and adult SEL alongside universal classroom curricula—offer a more sustainable and equitable model for implementation (Mahoney et al., 2021). Reviews have emphasized the importance of embedding SEL into broader school structures and aligning with community values to maximize relevance and impact.

Unfortunately, a persistent call across the meta-analyses is for more rigorous and transparent implementation reporting, particularly regarding fidelity and dosage. The current evidence base suffers from underreporting of critical implementation variables, such as how many lessons

were completed, limiting the ability to draw conclusions about what works for whom and under what conditions (Shoesmith et al., 2021). Future research should integrate implementation science frameworks and employ longitudinal tracking to assess sustained effects over time.

The Relationship Between Universal SEL and School Climate

Universal SEL programs are designed to foster foundational social and emotional competencies among all students in a school. These competencies—including emotional regulation, empathy, and responsible decision-making—are deeply intertwined with the broader school climate in which they are implemented (Collaborative for Academic, Social, and Emotional Learning [CASEL], 2023; La Salle-Finley et al., 2024). Emerging research suggests that a positive school climate is both a prerequisite for and an outcome of effective universal SEL implementation. Collie, Shapka, and Perry (2012) found that teachers' beliefs in their ability to deliver universal SEL content and their perceptions of a supportive school climate predicted lower levels of occupational stress, higher teaching efficacy, and greater job satisfaction. These teacher-related factors are essential, as teacher well-being and professional confidence are known to influence the quality and fidelity of SEL program implementation (Jennings & Greenberg, 2009).

La Salle-Finley et al. (2024) provide further evidence that universal SEL programs can shape school climate, especially when implemented as part of broader systemic approaches such as Multi-Tiered Systems of Support (MTSS) or Positive Behavioral Interventions and Supports (PBIS). Their findings indicate that fidelity in SEL implementation correlates with enhanced perceptions of safety, stronger peer and adult relationships, and greater academic engagement. However, they also caution that these positive outcomes are not uniformly experienced. Students from historically underrepresented backgrounds often report less favorable school climate perceptions.

SEL as a Lever for Climate Transformation

SEL programming serves not only to develop individual student competencies but also to function as a systemic lever for improving the overall educational environment. When SEL is effectively integrated into daily school practices, it promotes a climate characterized by trust, collaboration, and mutual respect (CASEL, 2023). These climate attributes, in turn, support student development and academic achievement.

The interpersonal dynamics encouraged by universal SEL directly influence indicators of school climate. For example, Collie et al. (2012) reported that teachers who feel confident in their SEL delivery also report stronger classroom management and more supportive interactions with

students. This reinforces a positive feedback loop in which supportive environments empower educators, who in turn contribute to even more positive student experiences.

Moreover, when SEL practices are embedded within a school's broader behavioral and academic systems, they can enhance coherence and alignment across initiatives. According to La Salle-Finley et al. (2024), this systemic alignment is especially important for schools serving diverse populations, as it ensures that efforts to promote safety, engagement, and emotional well-being are not fragmented or redundant.

Second Step Middle School Program

The Second Step Middle School Digital Program (Second Step) is specifically designed to address the unique needs of adolescents. The program includes weekly lessons on topics such as emotion regulation, empathy, and problem-solving, and is delivered through multimedia content, interactive discussions, and group-based activities. The middle school curriculum is built upon developmental research and aligned with the CASEL competencies (CASEL, 2023). By embedding SEL instruction into the school day, Second Step aims to promote a culture of respect, inclusion, and safety, ultimately contributing to students' academic success and well-being.

The Second Step digital program is a web-based, interactive curriculum designed for grades 6–8. It was launched to improve flexibility and usability, based on feedback from educators using the paper version. The digital format is intended to make delivery more consistent and adaptable to diverse classroom environments. Key features included the following:

1. Web-based access
    - Fully accessible via an online platform with secure login
    - No physical materials needed, which reduces loss and facilitates updates
2. Modular, grade-level lessons
    - Divided into short, easily digestible weekly lessons (~25 minutes)
    - Organized by grade and follows a spiral structure that revisits and builds upon core skills over time
3. Interactive media
    - Includes high-quality videos, discussion prompts, and real-time activities
    - Interactive digital components increase student engagement compared to static print lessons

4. Built-in assessment tools
    - Includes pre- and post-lesson reflections, knowledge checks, and progress monitoring tools
    - Can track implementation and student progress within the platform
5. Implementation supports
    - Access to online training, planning tools, and implementation guides
    - Real-time updates and resources are pushed directly through the platform
6. Adaptability and inclusivity
    - Digital format supports culturally responsive content updates and visual diversity in media
    - Allows for flexible integration into homeroom, advisory, or subject-area classes

Core differences between the digital and print versions are presented in Figure 1. An additional feature of the digital version is the ability for teachers, administrators, and district staff to monitor lesson completion, providing an opportunity to assess dosage, a core component of fidelity of implementation.

Empirical studies of the print version of Second Step in middle schools have yielded promising findings. For instance, Low et al. (2016) found that the implementation of Second Step was associated with reduced aggressive behaviors and increased prosocial behavior among students. Similarly, Espelage et al. (2013) reported reductions in bullying and victimization in schools adopting the program. These outcomes suggest that SEL programming, when implemented with fidelity, can positively impact the social dynamics of school environments. However, despite these encouraging findings, variation in program fidelity and implementation quality remains a challenge in large-scale applications of universal SEL programs.

As noted above, program fidelity—the degree to which an intervention is delivered as intended—is particularly important for universal SEL programs like Second Step, which rely on consistent, scaffolded delivery of skill-building content. Clayback et al. (2022) emphasized that higher fidelity of implementation is associated with stronger student outcomes, including improved behavior, classroom climate, and emotional regulation. Yet many schools encounter obstacles to high fidelity implementation, including limited instructional time, insufficient training, and competing academic priorities. These contextual factors complicate efforts to draw conclusions about program effectiveness.

Thierry et al. (2022) identified several key implementation supports that can increase the likelihood that teachers deliver the Second Step with fidelity. Their research highlights the

interplay between macro-, school-, district-, and individual-level factors that collectively shape implementation decisions and effectiveness.

Systemic Support for SEL Implementation

A major facilitator of teacher-led implementation—an approach linked to more consistent and effective SEL delivery—is systemic support at both the district and state levels. Thierry et al. (2022) found that schools located in states or districts that either allocated federal Elementary and Secondary School Emergency Relief (ESSER) funds for SEL programs or participated in CASEL's Collaborating Districts Initiative (CDI) were significantly more likely to adopt teacher-facilitated implementation. These schools benefitted from structured strategic planning around systemic SEL, including professional development, integration of SEL with academic content, and coordination among staff. Access to these supports increased the likelihood of teacher-facilitated implementation by 64%, suggesting that providing comprehensive policy and financial backing is crucial to achieving schoolwide, high-fidelity adoption of SEL programs.

Addressing Staff Capacity and Buy-in

At the school level, limited teacher capacity and low buy-in were frequently cited as barriers to teacher-facilitated implementation. In many schools, the responsibility for delivering SEL lessons fell to counselors, often because teachers were viewed as too overburdened or lacked confidence in their ability to teach SEL content (Thierry et al., 2022). However, this approach poses risks: counselors typically do not have the time or authority to ensure that SEL instruction is reinforced across classrooms and school contexts. To transition toward teacher-led implementation, schools need to invest in building teacher self-efficacy around SEL. This includes providing targeted training in SEL pedagogy and classroom management and ensuring that teachers see the relevance and value of SEL to their everyday practice.

Strategic Use of Early Adopters

A promising strategy identified in the study involves leveraging early adopter teachers as change agents. These individuals can co-teach with counselors, model SEL lesson delivery, and build momentum among peers. As trust in the program grows, more teachers may be encouraged to adopt the curriculum, increasing the scope and consistency of SEL delivery. Moreover, providing teachers with ready-to-use materials—such as pacing guides, planning templates, and brief overviews—can reduce the logistical burden of implementation, making adoption more feasible and sustainable.

Leadership and Organizational Alignment

Leadership engagement emerged as another critical factor. When principals and school leaders are not actively involved in supporting SEL implementation, it is unlikely to become integrated

into the broader school culture. In contrast, when leaders position SEL as an essential component of teaching and learning—by embedding it in professional learning plans, allocating resources, and modeling its principles—teachers are more likely to view SEL as part of their core responsibilities (Thierry et al., 2022).

Purpose

Further complicating evaluation efforts is the limited availability of large-scale, independent evaluations of Second Step implementation in middle schools. While existing studies often rely on self-report surveys or small pilot samples, there is a need for rigorous, school-level assessments that account for implementation fidelity and school demographic variables. Additionally, few studies have explored how student perceptions of school climate outcomes, such as caring relationships and emotional safety, are affected by varying levels of Second Step implementation.

To address these gaps, the present study draws upon a large, statewide dataset to examine the relationship between the Second Step digital version implemented with fidelity and middle school students' perceptions of school climate. Specifically, we evaluate differences in outcomes between students in schools with high-fidelity implementation, partial implementation, and matched comparison schools that did not implement Second Step. By controlling for key demographic and contextual covariates through propensity score matching, this study aims to isolate the association between Second Step implemented with fidelity and outcomes such as peer relationships, school connectedness, and perceptions of safety.

Through this investigation, we seek to contribute to the growing literature on SEL effectiveness in secondary education and inform school-based implementation practices. Understanding the differential impact of program fidelity on student outcomes is essential for refining SEL delivery models and supporting educators in creating inclusive, emotionally safe learning environments for all students. This study was guided by the following research questions:

1. What is the effect of the Second Step Middle School Digital Program implemented with fidelity on middle school students' perceptions of school climate?
2. What is the effect of the Second Step Middle School Digital Program implemented with moderate or high fidelity on middle school students' perceptions of school climate?

Method

We used statewide Second Step implementation data, identifying schools that implemented Second Step with fidelity, and compared student perceptions of a healthy school climate from a measure administered statewide and unrelated to Second Step. We used a rigorous quasi-experimental design approach that meets What Works Clearinghouse (WWC) evidence standards with reservations.

Sample

We reviewed Second Step implementation for all middle schools in California and merged these data with school-level demographics from the National Center for Educational Statistics (NCES), school-level reading achievement data from the California Department of Education (CDE), and student-level California Healthy Kids Survey (CHKS) data from CDE. During the 2022–2023 school year, 1,077 middle schools had active Second Step licenses. We merged the Second Step dataset with the California County, District, and School Code (CDS Code) from CDE. We then merged the Second Step data with school demographics for all schools in California from the NCES and reading achievement data from CDE using the CDS Code. Finally, we reduced the school-level dataset to include only schools that implemented at least 60% of the Second Step lessons. We did this to (a) ensure that we conducted a treatment on the treated (TOT) analysis, and (b) remove all schools from the dataset that purchased Second Step, but did not implement it with fidelity, so that students in those schools could not be in the comparison group.

Approximately 70% of school districts and 50% of schools in California use the CHKS (CDE, 2025). We merged the school-level dataset with the student-level CHKS data, and all middle schools that implemented Second Step also used the CHKS. The final analytic middle school dataset included 4,522 student s in grades 6th, 7th, and 8th in 18 middle schools that implemented Second Step with fidelity (60% or more lessons completed) and used the CHKS.

Measures

Second Step Fidelity

We used lesson completion data from the digital tracking in Second Step's online platform to measure fidelity of implementation of Second Step. Teachers log in to the Second Step portal to access their lessons. Each time a lesson is completed, the system automatically records the completion or prompts the teacher to mark it as complete. Teachers can generate completion reports by classroom or grade level, and these reports can be accessed by school well-being coordinators or administrators. For this study, we defined fidelity as completing at least 60% of

the assigned lessons based on recommendations from Second Step developers (personal communication with Committee for Children). We also created an additional fidelity group for high-fidelity implementers, defined as 80% or greater completion.

The California Healthy Kids Survey

The CHKS is a statewide, school-based survey developed by WestEd in collaboration with CDE. It is designed to assess students' health behaviors, school climate, and social–emotional well-being. The CHKS is intended for students in elementary and secondary grades and includes validated measures related to substance use, mental health, school connectedness, perceived safety, and developmental supports (WestEd, 2023). The survey is anonymous, voluntary, and typically completed online during the school day.

For the present study, we used data from the 2022–2023 CHKS administration, focusing on the Secondary Core Modules. The secondary version includes more comprehensive and detailed measures across a broader range of domains. These include substance use, suicidal ideation, school discipline, sexual orientation/gender identity, resilience assets, school engagement, and perceived supports. The secondary modules also allow for greater customization, with optional modules that can address mental health, school climate, violence and safety, and social–emotional learning. Response formats use Likert-type scales with greater variability (e.g., 4–5 points), suitable for older adolescents.

California Statewide Reading Achievement Measure

California middle school reading achievement is measured using the Smarter Balanced Summative Assessment for English Language Arts/Literacy (SBAC ELA), part of the California Assessment of Student Performance and Progress (CAASPP) system. The SBAC ELA is a standardized assessment administered annually to students in grades 3 through 8 and grade 11. It is aligned with the Common Core State Standards (CCSS) and is designed to assess students' proficiency in reading, writing, listening, and research/inquiry.

The assessment is computer-adaptive, meaning that the difficulty of items adjusts in real time based on student responses. It includes both selected-response and constructed-response items, as well as performance tasks that require students to analyze texts and produce extended written responses. The assessment yields scale scores that correspond to four performance levels: Standard Not Met, Standard Nearly Met, Standard Met, and Standard Exceeded. For research and accountability purposes, schools often report the percentage of students who met or exceeded the standard as a summary indicator of reading achievement.

The SBAC ELA has undergone extensive psychometric validation. According to the Smarter Balanced Technical Report, the internal consistency reliability (Cronbach's alpha) for the ELA scale scores in grades 3–6 is high, typically ranging from 0.90 to 0.92, indicating strong

measurement precision. The assessment also demonstrates strong content and construct validity due to its alignment with the CCSS and comprehensive test design.

Data Analysis

Propensity Score Matching

To strengthen causal inference and reduce potential confounding, we employed propensity score matching (PSM) to achieve baseline equivalence between the treatment and comparison groups on observed covariates. Propensity scores were estimated using logistic regression, with the treatment indicator (i.e., participation in Second Step) regressed on a comprehensive set of student- and school-level covariates. At the student level, covariates included grade level, gender, and race/ethnicity. School-level covariates comprised total enrollment, locale classification (urban, suburban, town, or rural), percentage of students eligible for free or reduced-price lunch (FRPL), and racial/ethnic composition (i.e., proportion of students identifying as male, American Indian, Asian, Hispanic, Black, or White).

Nearest neighbor matching (1:1 ratio without replacement) was performed using the MatchIt package in R (Ho et al., 2011). Matching quality was evaluated by examining standardized mean differences (SMDs) for each covariate before and after matching. In accordance with What Works Clearinghouse (WWC, 2024) guidelines, covariates with post-matching SMDs less than 0.05 are considered well-balanced. Variables with SMDs between 0.05 and 0.25 must be adjusted for in outcome models, while those with SMDs greater than 0.25 indicate insufficient balance and raise concerns about baseline equivalence.

Because this study utilized anonymous CHKS data that cannot be linked across years, pretest adjustment was not feasible. Therefore, to satisfy WWC standards with reservations in the absence of individual-level pretest data, the analysis was required to meet baseline equivalence on (a) a broad, continuous, and standardized measure of student academic achievement, and (b) at least two demographic characteristics, including grade level and race/ethnicity (WWC, 2024, pp. 54–55). The matched dataset was used in all subsequent analyses to ensure comparability between groups and adherence to these methodological standards.

Multilevel Modeling

To account for the hierarchical structure of the data—where students were nested within schools and schools were further nested within districts—we estimated linear mixed-effects models (LMMs) using the lmer function from the *lme4* package in R (Bates et al., 2015). This multilevel modeling approach enabled us to model random intercepts at both the school and district levels, thereby appropriately adjusting for within-cluster dependence and improving the precision of our fixed effect estimates. Given that several CHKS subscale scores exhibited positive skew, we applied square root transformations to all dependent variables. This

transformation was implemented uniformly across models to better approximate normality and to satisfy model assumptions regarding the distribution of residuals. We then estimated the following three-level hierarchical model:

$$CHKS\_subscale_{ijk}=\beta_0+\beta_1 SecondStep_{ijk}+\sum \beta_x X_{ijk}+u_k+v_j+\varepsilon_{ijk}$$

where:

- i represents students, j represents schools, and k represents districts
- β_o is the fixed intercept
- β_1 is the fixed effect of Second Step participation
- X_{ijk} represents additional covariates (e.g., demographics, FRPL status)
- u_k, and v_j are random intercepts at the district and school levels, respectively
- ε_{ijk} is the residual variance

We included all covariates in the models to ensure we controlled for any differences between the groups that exceeded .05 standard deviation units per recommendations from the What Works Clearinghouse (WWC, 2024).

Effect Size Calculation. We calculated standardized mean difference effect sizes (Cohen's *d*) for statistically significant treatment effects. Specifically, we used the standardized coefficients adjusted for the multilevel structure of the data using the formula:

$$d = \beta / \sigma_{total}$$

where β represents the fixed effect estimate and σ_{total} is the total standard deviation of the model, incorporating both residual and random effect variances:

$$\sigma_{total} = sqrt(\sigma^2_{residual} + \sigma^2_{school} + \sigma^2_{district})$$

Kraft (2020) emphasized that in educational settings—particularly those involving school-based interventions—effect sizes are often smaller than in controlled experimental contexts but may still be educationally meaningful. To aid in interpreting the magnitude of observed effects, Kraft proposed revised benchmarks tailored for education research: effect sizes between $d = 0.05$ and 0.20 should be considered small, $d = 0.20$ to 0.40 as moderate, and $d > 0.40$ as large. These benchmarks offer a more contextually grounded framework for evaluating the impact of interventions in real-world school environments. All statistical analyses were conducted using R (R Core Team, 2023).

Results

Establishing Baseline Equivalence

We applied PSM to construct a baseline equivalent comparison group in alignment with WWC standards (WWC, 2024), meeting criteria for standards with reservations. According to WWC guidelines, baseline equivalence is established when the SMD between treatment and comparison groups is less than 0.25, using (a) a broad, approximately continuous, and standardized measure of student academic readiness or achievement and (b) at least two student-level demographic characteristics, such as grade level and race/ethnicity. In this study, grade level and race/ethnicity were measured at the student level, while reading achievement was measured at the school (cluster) level. As noted by the WWC, "If the study cannot satisfy the individual-level baseline equivalence standard, satisfying the cluster-level baseline equivalence standard is sufficient instead" (WWC, 2024, p. 60).

We employed one-to-one nearest neighbor matching to pair 3,896 students attending Second Step schools (with fidelity and complete CHKS data) with 3,896 comparable students in non–Second Step schools. Table 1 displays student- and school-level demographic characteristics for the matched PSM comparison group, the full treatment sample (defined as 60% implementation fidelity or higher), as well as subgroups representing moderate fidelity (60%–79%) and high fidelity (≥80%). At the school-level, there were 18 schools that implemented with at least 60% fidelity (15 moderate fidelity and 3 high fidelity). Students in the comparison condition were in 251 different middle schools.

Using the characteristics in Table 1, we calculated SMDs between groups to assess baseline equivalence. For binary variables, SMDs were adjusted using the recommended correction for dichotomous outcomes (Cohen, 1988). These comparisons are reported in Table 2. All comparisons between the PSM comparison group and the full treatment group satisfied the WWC threshold for baseline equivalence (SMD < 0.25). However, the Grade 6 and Urban indicators exceeded this threshold when comparing the PSM group to the 60%–79% fidelity subgroup (SMD > 0.25). Moreover, most characteristics failed to meet equivalence thresholds when comparing the PSM group with the 80% or greater fidelity group. To account for residual baseline differences, all covariates included in the matching process were subsequently included as control variables in statistical outcome models.

Treatment Effect Models

We conducted a series of multilevel linear models to assess the impact of Second Step implementation fidelity on student-reported CHKS outcomes. The first set of models compared the PSM comparison group to students attending schools implementing Second Step with at

least 60% fidelity. To begin, we estimated intercept-only (empty) models to calculate intraclass correlation coefficients (ICCs), followed by fully adjusted models that included all covariates. No statistically significant treatment effects were observed across any CHKS outcome when comparing the PSM comparison group to the full treatment group.

Next, we disaggregated the treatment group into two fidelity levels, 60–79% fidelity and ≥80% fidelity, and estimated the same multilevel models with these categories as the key predictors. Results for these models are presented in Tables 3–15. Among all CHKS subscales, two statistically significant effects were identified. Students in schools implementing Second Step with ≥80% fidelity reported significantly higher scores on the Caring Relationships in Schools and Overall School Environment subscales compared to matched peers. SMD effect sizes were computed using the covariate-adjusted fixed effects. The SMD for Caring Relationships in Schools was 0.34, and for Overall School Environment was 0.27, indicating small-to-moderate improvements in students' perceptions of school climate in high-fidelity Second Step schools.

Discussion

The results of this study suggest that implementation fidelity of the Second Step program in middle schools plays a significant role in shaping students' perceptions of their school climate, particularly in schools where fidelity levels met or exceeded 80%. The data indicate positive effects on perceptions related to Caring Relationships in Schools and Overall School Environment, with effect sizes demonstrating small-to-moderate improvements. These results corroborate previous research emphasizing the importance of fidelity in implementing behavioral interventions (Clayback et al., 2022; Toomey et al., 2020). By contrasting students from schools with varying levels of fidelity, this study highlights the necessity of delivering the program as intended to maximize its effectiveness, which aligns with existing literature advocating for careful measurement of implementation fidelity as a critical aspect of intervention success (Akiba et al., 2021; Stewart et al., 2023).

The observed effects for students in high implementation schools imply that engaging with the Second Step program through high fidelity may contribute positively to the social–emotional dimensions of students' experiences, which has significant implications for school policies and practices aimed at enhancing school climate (Clayback et al., 2022; Stewart et al., 2023). Conversely, the absence of statistically significant treatment effects amongst lower fidelity implementations prompts important considerations regarding adequate resources, training, and support for educators tasked with delivering SEL interventions. Addressing the prevalent barriers that teachers face, such as insufficient training or administrative support, is crucial to

fostering an environment where SEL programs like Second Step can thrive (Akiba et al., 2021; Clayback et al., 2022). Furthermore, as previous studies have shown, the interplay between teacher self-efficacy and fidelity of implementation cannot be overlooked; enhancing educators' beliefs in the effectiveness of such programs may further align practice with intended outcomes (Stewart et al., 2023).

Implications for Practice

Findings from this study underscore the need for district and school leaders to invest in robust implementation supports to ensure universal SEL programs like Second Step are delivered as intended and actualize positive results. These supports include ongoing professional development, fidelity monitoring, and coaching, which have been shown to increase the quality and consistency of delivery (Domitrovich et al., 2015). School administrators should consider building implementation teams that include instructional leaders, mental health professionals, and classroom teachers who are equipped to promote and sustain high-fidelity implementation across school years. In addition, schools should allocate time within the academic schedule specifically for universal SEL instruction, thereby signaling its importance and enabling teachers to integrate the curriculum effectively.

Given that fidelity was a determining factor in observed outcomes, districts may also consider linking program fidelity with continuous improvement frameworks. This is particularly relevant for digital programs that provide easy access for multiple stakeholders to monitor and track implementation fidelity in real time. Doing so allows educators to systematically reflect on implementation data to make evidence-informed adjustments to practice. Finally, equitable implementation must remain a central focus—ensuring that all students, especially those from underrepresented backgrounds, receive high-quality SEL instruction in inclusive environments.

Implications for Future Research

Although this study contributes to a growing body of evidence on SEL program fidelity and outcomes, it also highlights important avenues for future research. First, longitudinal studies are needed to examine how fidelity of implementation influences student outcomes over time. Understanding whether high fidelity yields cumulative benefits in later academic years will provide critical insights into the long-term value of sustained SEL programming. Second, future research should investigate the mechanisms that facilitate or hinder fidelity within school contexts. Mixed-methods designs that include teacher interviews or implementation observations may help identify specific facilitators—such as leadership support or curriculum usability—and barriers, such as competing instructional demands or limited training.

Third, additional research is warranted to examine subgroup differences in SEL outcomes. Given the persistent disparities in school climate perceptions reported by students from historically

marginalized groups (Gregory et al., 2010), it is important to assess whether high-fidelity SEL implementation can help close these gaps. Finally, researchers should consider expanding fidelity measurement beyond dosage to include dimensions such as adherence, quality of delivery, and participant responsiveness—key components that may better explain variability in outcomes (Durlak & DuPre, 2008).

Conclusion

Together, these findings offer compelling evidence that when implemented with high fidelity, the Second Step program can meaningfully enhance students' perceptions of school climate in middle school settings. As school systems continue to adopt SEL curricula to meet students' social and emotional needs, this study reinforces the critical importance of implementation quality. By supporting educators with training, tools, and time, and by rigorously evaluating fidelity and outcomes, schools can ensure that SEL programs realize their full potential in fostering safe, supportive, and inclusive learning environments.

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Table 1. Student and School Demographic Characteristics

Variable	PSM Comparison (n = 3,896)	Second Step (n = 3,896)	Fidelity (n = 3,755)	High Fidelity (n = 141)
Grade				
6	508 (13%)	432 (11%)	148 (5.3%)	52 (4.7%)
7	2,882 (74%)	2,729 (70%)	1,893 (68%)	836 (75%)
8	506 (13%)	735 (19%)	752 (27%)	184 (17%)
Race/Ethnicity				
American Indian	258 (8%)	159 (5%)	153 (5%)	6 (4%)
Asian	1,270 (38%)	1,118 (37%)	1,117 (39%)	1 (1%)
Black	328 (10%)	225 (8%)	205 (7%)	20 (14%)
Hispanic	1,347 (40%)	1,409 (47%)	1,291 (45%)	118 (81%)
White	152 (5%)	89 (3%)	89 (3%)	0%
Locale				
Urban	2,705 (69%	2,397 (62%)	2,347 (80%)	50 (35%)
Suburban	765 (20%)	1,018 (26%)	97 (3%)	91 (65%)
Town	385 (10%)	457 (12%)	437 (16%)	0%
Rural	41 (1%)	24 (1%)	24 (1%)	0%
	M (SD)	*M (SD)*	*M (SD)*	*M (SD)*
School Enrollment	902 (407)	942 (314)	953 (313)	633 (102)
% FRPL	36% (29%)	36% (29%)	35% (29%)	65% (3%)
% Male	52% (3%)	52% (2%)	52% (2%)	50% (3%)
% AI	0% (0%)	0% (0%)	0% (0%)	0% (0%)
% Asian	28% (25%)	23% (19%)	23% (19%)	0% (0%)
% Hispanic	38% (29%)	39% (28%)	38% (26%)	87% (11%)
% Black	3 % (3%)	2% (4%)	2% (3%)	11% (11%)
% White	24 (19%)	27% (14%)	28% (13%)	1% (1%)
% or Standard Met or Above: Reading	61.5 (20.43)	59.3 (17.1)	59.0 (16.9)	50.1 (5.3)

Table 2. Standardized Mean Differences (SMDs) by Group

Variable	SMD: Comparison vs. Second Step	SMD: Comparison vs. Fidelity	SMD: Comparison vs. High Fidelity
Grade 6	0.06	0.27	0.07
Grade 7	0.08	0.13	0.03
Grade 8	0.17	0.37	0.11
American Indian	0.10	0.10	0.05
Asian	0.04	0.05	1.00
Black	0.09	0.10	0.19
Hispanic	0.15	0.12	0.60
White	0.09	0.09	0.32
Urban	0.17	0.28	0.76
Suburban	0.17	0.59	1.53
Town	0.07	0.15	0.57
Rural	0.03	0.03	0.18
School Enrollment	0.10	0.13	0.92
% FRPL	0.00	0.03	1.0
% Male	0.00	0.00	0.67
% AI	0.00	0.00	0.00
% Asian	0.21	0.21	1.12
% Hispanic	0.03	0.03	1.81
% Black	0.04	0.04	1.0
% White	0.18	0.20	1.33
% Reading Proficiency	0.11	0.12	0.56

Note. SMD values represent the standardized differences between the PSM Comparison group and each treatment group.

Table 3. Descriptive Statistics of California Healthy Kid Survey Subscale Scores

Variable	PSM Comparison (n = 3,896)	Second Step (n = 3,896)	Fidelity (n = 3,755)	High Fidelity (n = 141)
	M (SD)	*M (SD)*	*M (SD)*	*M (SD)*
School Caring Relationship	0.61 (0.38)	0.62 (0.38)	0.62 (0.38)	0.66 (0.38)
School High Expectations	0.73 (0.36)	0.73 (0.36)	0.73 (0.36)	0.77 (0.35)
School Meaningful Participation	0.29 (0.31)	0.28 (0.31)	0.28 (0.31)	0.25 (0.30)
Overall School Environment	0.54 (0.28)	0.55 (0.28)	0.54 (0.28)	0.56 (0.27)
School Connectedness	0.60 (0.35)	0.57 (0.35)	0.57 (0.35)	0.58 (0.35)
Academic Motivation	0.66 (0.33)	0.66 (0.33)	0.66 (0.33)	0.69 (0.30)
Parent Involvement	0.56 (0.38)	0.53 (0.39)	0.53 (0.39)	0.55 (0.37)
Optimism	0.55 (0.42)	0.54 (0.43)	0.54 (0.43)	0.47 (0.44)
Distress	0.26 (0.33)	0.25 (0.32)	0.25 (0.32)	0.25 (0.30)
Satisfaction	0.68 (0.30)	0.69 (0.30)	0.69 (0.30)	0.66 (0.29)
Victimization	0.31 (0.31)	0.32 (0.31)	0.32 (0.31)	0.25 (0.27)
Perpetration	0.05 (0.14)	0.05 (0.14)	0.06 (0.14)	0.05 (0.13)

Table 4. Multilevel Models for School Caring Relationship

	Empty Model			Full Model		
Predictors	*Estimates*	*CI*	*P*	*Estimates*	*CI*	*p*
(Intercept)	0.68	0.66 – 0.70	**<0.001**	1.10	0.56 – 1.64	**<0.001**
Fidelity (60-79%)	0.00	-0.05 – 0.06	0.857	0.01	-0.03 – 0.06	0.519
High Fidelity (80% or greater)	0.06	-0.04 – 0.17	0.223	0.12	0.03 – 0.22	**0.013**
Female				-0.04	-0.05 – -0.03	**<0.001**
American Indian				0.00	-0.03 – 0.04	0.820
Asian				0.03	0.01 – 0.06	**0.002**
Black				0.00	-0.03 – 0.03	0.999
Hispanic				-0.04	-0.06 – -0.02	**<0.001**
Native Hawaiian/ Pacific Islander				-0.03	-0.07 – 0.02	0.288
White				0.06	0.04 – 0.07	**<0.001**
Enrollment				-0.00	-0.00 – 0.00	0.446
Suburban				0.02	-0.02 – 0.05	0.342
Town				-0.08	-0.14 – -0.03	**0.005**
Rural				0.01	-0.10 – 0.11	0.905
% FRPL				-0.03	-0.17 – 0.11	0.665
% Male				0.00	-0.51 – 0.51	0.988
% AI				2.52	-2.66 – 7.71	0.341
% Asian				-0.29	-0.81 – 0.24	0.288
% Hispanic				-0.28	-0.79 – 0.22	0.273
% Black				-0.71	-1.43 – 0.01	0.054
% White				-0.22	-0.79 – 0.34	0.439
Grade 7				-0.06	-0.09 – -0.03	**<0.001**
Grade 8				-0.08	-0.11 – -0.04	**<0.001**

School Reading Achievement		-0.00	-0.00 – 0.00	0.667
Random Effects				
σ^2	0.13	0.13		
τ_{00}	0.00 cdscode	0.00 cdscode		
	0.00 district	0.00 district		
ICC	0.04	0.02		
N	269 cdscode	269 cdscode		
	141 district	141 district		
Observations	7792	7792		
Marginal R^2 / Conditional R^2	0.001 / 0.041	0.039 / 0.059		

Table 5. Multilevel Models for School High Expectations

	Empty Model			Full Model		
Predictors	*Estimates*	*CI*	*P*	*Estimates*	*CI*	*p*
(Intercept)	0.77	0.76 – 0.79	**<0.001**	1.22	0.76 – 1.67	**<0.001**
Fidelity (60-79%)	0.01	-0.03 – 0.05	0.661	0.02	-0.02 – 0.06	0.263
High Fidelity (80% or greater)	0.03	-0.05 – 0.12	0.463	0.06	-0.02 – 0.14	0.147
Female				-0.03	-0.04 – -0.02	**<0.001**
American Indian				-0.03	-0.06 – 0.00	0.087
Asian				0.04	0.02 – 0.06	**<0.001**
Black				-0.01	-0.04 – 0.02	0.585
Hispanic				-0.05	-0.07 – -0.03	**<0.001**
Native Hawaiian/ Pacific Islander				-0.03	-0.08 – 0.01	0.125
White				0.04	0.02 – 0.06	**<0.001**
Enrollment				-0.00	-0.00 – 0.00	0.825
Suburban				0.01	-0.02 – 0.04	0.495
Town				-0.08	-0.13 – -0.03	**0.003**
Rural				-0.02	-0.11 – 0.08	0.732
% FRPL				-0.07	-0.19 – 0.05	0.244
% Male				0.00	-0.44 – 0.44	0.998
% AI				0.98	-3.62 – 5.57	0.676
% Asian				-0.34	-0.79 – 0.10	0.133
% Hispanic				-0.29	-0.72 – 0.14	0.182
% Black				-0.58	-1.20 – 0.05	0.071
% White				-0.33	-0.82 – 0.16	0.189
Grade 7				-0.04	-0.07 – -0.01	**0.003**
Grade 8				-0.06	-0.09 – -0.03	**<0.001**

School Reading Achievement		-0.00	-0.00 – 0.00	0.674
Random Effects				
σ^2	0.11	0.11		
τ_{00}	0.00 cdscode	0.00 cdscode		
	0.00 district	0.00 district		
ICC	0.03			
N	269 cdscode	269 cdscode		
	141 district	141 district		
Observations	7792	7792		
Marginal R^2 / Conditional R^2	0.000 / 0.026	0.039 / NA		

Table 6. Multilevel Models for Student Meaningful Participation

	Empty Model			Full Model		
Predictors	*Estimates*	*CI*	*P*	*Estimates*	*CI*	*p*
(Intercept)	0.40	0.38 – 0.42	**<0.001**	0.73	0.20 – 1.26	**0.007**
Fidelity (60-79%)	0.00	-0.05 – 0.05	0.952	0.01	-0.03 – 0.05	0.687
High Fidelity (80% or greater)	-0.03	-0.13 – 0.08	0.630	0.06	-0.04 – 0.15	0.249
Female				-0.03	-0.04 – -0.02	**<0.001**
American Indian				0.02	-0.01 – 0.05	0.268
Asian				0.02	-0.00 – 0.04	0.103
Black				0.02	-0.01 – 0.05	0.243
Hispanic				-0.06	-0.08 – -0.04	**<0.001**
Native Hawaiian/ Pacific Islander				0.01	-0.03 – 0.06	0.611
White				0.00	-0.02 – 0.02	0.866
Enrollment				-0.00	-0.00 – 0.00	0.346
Suburban				0.01	-0.03 – 0.04	0.678
Town				-0.07	-0.12 – -0.01	**0.015**
Rural				-0.04	-0.14 – 0.05	0.370
% FRPL				-0.01	-0.14 – 0.12	0.848
% Male				0.15	-0.35 – 0.66	0.551
% AI				2.56	-2.41 – 7.52	0.313
% Asian				-0.24	-0.75 – 0.27	0.357
% Hispanic				-0.24	-0.73 – 0.25	0.340
% Black				-0.71	-1.40 – -0.02	**0.044**
% White				-0.17	-0.72 – 0.37	0.529
Grade 7				-0.09	-0.12 – -0.06	**<0.001**
Grade 8				-0.11	-0.14 – -0.08	**<0.001**

School Reading Achievement		-0.00	-0.00 – 0.00	0.804
Random Effects				
σ^2	0.12	0.11		
τ_{00}	0.00 cdscode	0.00 cdscode		
	0.00 district	0.00 district		
ICC	0.04	0.02		
N	269 cdscode	269 cdscode		
	141 district	141 district		
Observations	7792	7792		
Marginal R^2 / Conditional R^2	0.000 / 0.043	0.039 / 0.059		

Table 7. Multilevel Models for Overall School Environment

	Empty Model			Full Model		
Predictors	*Estimates*	*CI*	*P*	*Estimates*	*CI*	*p*
(Intercept)	0.68	0.66 – 0.69	**<0.001**	1.06	0.69 – 1.43	**<0.001**
Fidelity (60-79%)	0.01	-0.03 – 0.05	0.633	0.02	-0.02 – 0.05	0.313
High Fidelity (80% or greater)	0.03	-0.06 – 0.11	0.546	0.07	0.00 – 0.13	**0.045**
Female				-0.03	-0.04 – -0.02	**<0.001**
American Indian				-0.01	-0.03 – 0.02	0.528
Asian				0.03	0.01 – 0.04	**<0.001**
Black				0.00	-0.02 – 0.03	0.805
Hispanic				-0.04	-0.06 – -0.03	**<0.001**
Native Hawaiian/ Pacific Islander				-0.02	-0.05 – 0.01	0.229
White				0.03	0.02 – 0.05	**<0.001**
Enrollment				-0.00	-0.00 – 0.00	0.701
Suburban				0.01	-0.02 – 0.03	0.556
Town				-0.07	-0.12 – -0.03	**0.001**
Rural				-0.02	-0.09 – 0.06	0.625
% FRPL				-0.06	-0.16 – 0.04	0.250
% Male				0.04	-0.31 – 0.40	0.813
% AI				2.34	-1.38 – 6.06	0.217
% Asian				-0.26	-0.63 – 0.11	0.170
% Hispanic				-0.24	-0.59 – 0.11	0.183
% Black				-0.60	-1.11 – -0.09	**0.022**
% White				-0.21	-0.62 – 0.19	0.297
Grade 7				-0.05	-0.08 – -0.03	**<0.001**
Grade 8				-0.07	-0.09 – -0.04	**<0.001**

School Reading Achievement		-0.00	-0.00 – 0.00	0.265
Random Effects				
σ^2	0.06	0.06		
τ_{00}	0.00 cdscode	0.00 cdscode		
	0.00 district	0.00 district		
ICC	0.05	0.03		
N	269 cdscode	269 cdscode		
	141 district	141 district		
Observations	7792	7792		
Marginal R^2 / Conditional R^2	0.000 / 0.054	0.053 / 0.081		

Table 8. Multilevel Models for Support for School Connectedness

	Empty Model			Full Model		
Predictors	*Estimates*	*CI*	*P*	*Estimates*	*CI*	*p*
(Intercept)	0.68	0.66 – 0.70	**<0.001**	1.21	0.63 – 1.80	**<0.001**
Fidelity (60-79%)	-0.01	-0.07 – 0.05	0.805	-0.01	-0.05 – 0.04	0.758
High Fidelity (80% or greater)	0.01	-0.12 – 0.13	0.927	0.05	-0.07 – 0.16	0.400
Female				-0.08	-0.09 – -0.07	**<0.001**
American Indian				-0.01	-0.04 – 0.02	0.369
Asian				0.01	-0.01 – 0.03	0.422
Black				-0.04	-0.07 – -0.01	**0.005**
Hispanic				-0.03	-0.05 – -0.02	**<0.001**
Native Hawaiian/ Pacific Islander				-0.03	-0.07 – 0.01	0.150
White				0.01	-0.00 – 0.03	0.140
Enrollment				0.00	-0.00 – 0.00	0.936
Suburban				-0.01	-0.04 – 0.03	0.677
Town				-0.04	-0.10 – 0.02	0.190
Rural				-0.01	-0.11 – 0.09	0.827
% FRPL				-0.06	-0.20 – 0.08	0.406
% Male				-0.03	-0.60 – 0.53	0.908
% AI				1.28	-3.87 – 6.43	0.625
% Asian				-0.38	-0.93 – 0.17	0.175
% Hispanic				-0.33	-0.86 – 0.20	0.223
% Black				-0.75	-1.50 – -0.01	**0.046**
% White				-0.38	-0.96 – 0.20	0.202
Grade 7				-0.07	-0.09 – -0.04	**<0.001**
Grade 8				-0.07	-0.10 – -0.05	**<0.001**

School Reading Achievement		0.00	-0.00 – 0.00	0.173
Random Effects				
σ^2	0.09	0.09		
τ_{00}	0.01 cdscode	0.00 cdscode		
	0.00 district	0.00 district		
ICC	0.08	0.05		
N	269 cdscode	269 cdscode		
	141 district	141 district		
Observations	7792	7792		
Marginal R^2 / Conditional R^2	0.000 / 0.085	0.075 / 0.126		

Table 9. Multilevel Models for Academic Motivation

	Empty Model			Full Model		
Predictors	*Estimates*	*CI*	*P*	*Estimates*	*CI*	*p*
(Intercept)	0.75	0.73 – 0.76	**<0.001**	1.18	0.74 – 1.62	**<0.001**
Fidelity (60-79%)	0.00	-0.03 – 0.04	0.799	0.01	-0.02 – 0.04	0.475
High Fidelity (80% or greater)	0.03	-0.04 – 0.10	0.395	0.03	-0.05 – 0.11	0.421
Female				-0.02	-0.03 – -0.01	**0.002**
American Indian				-0.00	-0.03 – 0.03	0.797
Asian				0.01	-0.01 – 0.02	0.469
Black				-0.05	-0.08 – -0.02	**<0.001**
Hispanic				-0.04	-0.05 – -0.02	**<0.001**
Native Hawaiian/ Pacific Islander				-0.03	-0.06 – 0.01	0.190
White				-0.00	-0.02 – 0.01	0.751
Enrollment				-0.00	-0.00 – 0.00	0.560
Suburban				0.00	-0.02 – 0.03	0.790
Town				-0.03	-0.07 – 0.02	0.227
Rural				-0.01	-0.09 – 0.08	0.853
% FRPL				-0.10	-0.21 – 0.00	0.054
% Male				-0.16	-0.58 – 0.27	0.472
% AI				2.09	-2.06 – 6.24	0.323
% Asian				-0.24	-0.66 – 0.17	0.255
% Hispanic				-0.15	-0.56 – 0.25	0.459
% Black				-0.23	-0.79 – 0.33	0.427
% White				-0.30	-0.75 – 0.14	0.177
Grade 7				-0.07	-0.10 – -0.05	**<0.001**
Grade 8				-0.11	-0.13 – -0.08	**<0.001**

School Reading Achievement		0.00	-0.00 – 0.00	0.638
Random Effects				
σ^2	0.09	0.09		
τ_{00}	0.00 cdscode	0.00 cdscode		
	0.00 district	0.00 district		
ICC	0.02	0.02		
N	269 cdscode	269 cdscode		
	141 district	141 district		
Observations	7792	7792		
Marginal R^2 / Conditional R^2	0.000 / 0.020	0.028 / 0.044		

Table 10. Multilevel Models for Parent Involvement

	Empty Model			Full Model		
Predictors	*Estimates*	*CI*	*P*	*Estimates*	*CI*	*p*
(Intercept)	0.64	0.62 – 0.66	**<0.001**	0.98	0.36 – 1.59	**0.002**
Fidelity (60-79%)	0.00	-0.05 – 0.05	0.991	-0.00	-0.05 – 0.04	0.827
High Fidelity (80% or greater)	-0.01	-0.11 – 0.09	0.829	0.02	-0.09 – 0.14	0.726
Female				-0.06	-0.07 – -0.04	**<0.001**
American Indian				-0.03	-0.07 – 0.00	0.069
Asian				-0.01	-0.03 – 0.02	0.576
Black				-0.05	-0.09 – -0.02	**0.002**
Hispanic				-0.01	-0.03 – 0.01	0.350
Native Hawaiian/ Pacific Islander				0.00	-0.05 – 0.05	0.888
White				-0.01	-0.03 – 0.01	0.172
Enrollment				-0.00	-0.00 – 0.00	0.308
Suburban				-0.00	-0.04 – 0.04	0.894
Town				-0.09	-0.15 – -0.03	**0.005**
Rural				-0.03	-0.14 – 0.07	0.536
% FRPL				0.12	-0.03 – 0.27	0.121
% Male				-0.01	-0.60 – 0.59	0.981
% AI				-0.82	-6.47 – 4.82	0.775
% Asian				-0.29	-0.87 – 0.30	0.335
% Hispanic				-0.28	-0.85 – 0.28	0.326
% Black				-0.66	-1.44 – 0.12	0.097
% White				-0.25	-0.87 – 0.37	0.434
Grade 7				-0.09	-0.12 – -0.06	**<0.001**
Grade 8				-0.11	-0.15 – -0.08	**<0.001**

School Reading Achievement		0.00	-0.00 – 0.00	0.056
Random Effects				
σ^2	0.14	0.14		
τ_{00}	0.00 cdscode	0.00 cdscode		
	0.00 district	0.00 district		
ICC	0.03	0.03		
N	269 cdscode	269 cdscode		
	141 district	141 district		
Observations	7792	7792		
Marginal R^2 / Conditional R^2	0.000 / 0.034	0.031 / 0.057		

Table 11. Multilevel Models for Optimism

	Empty Model			Full Model		
Predictors	*Estimates*	*CI*	*P*	*Estimates*	*CI*	*p*
(Intercept)	0.60	0.58 – 0.62	**<0.001**	0.63	0.02 – 1.23	**0.042**
Fidelity (60-79%)	-0.01	-0.05 – 0.04	0.705	-0.01	-0.05 – 0.03	0.500
High Fidelity (80% or greater)	-0.08	-0.18 – 0.02	0.122	-0.08	-0.19 – 0.03	0.142
Female				-0.11	-0.13 – -0.10	**<0.001**
American Indian				0.02	-0.02 – 0.06	0.329
Asian				0.00	-0.02 – 0.03	0.784
Black				-0.01	-0.04 – 0.03	0.790
Hispanic				-0.01	-0.04 – 0.01	0.259
Native Hawaiian/ Pacific Islander				-0.00	-0.05 – 0.05	0.992
White				-0.03	-0.05 – -0.01	**0.009**
Enrollment				-0.00	-0.00 – 0.00	0.873
Suburban				-0.01	-0.05 – 0.03	0.525
Town				-0.04	-0.10 – 0.02	0.179
Rural				0.00	-0.11 – 0.12	0.976
% FRPL				-0.08	-0.23 – 0.07	0.303
% Male				0.19	-0.39 – 0.77	0.524
% AI				2.63	-3.15 – 8.42	0.372
% Asian				0.12	-0.47 – 0.70	0.697
% Hispanic				0.17	-0.39 – 0.73	0.554
% Black				0.10	-0.69 – 0.89	0.806
% White				0.17	-0.45 – 0.79	0.590
Grade 7				-0.09	-0.12 – -0.05	**<0.001**
Grade 8				-0.12	-0.15 – -0.08	**<0.001**

School Reading Achievement		0.00	-0.00 – 0.00	0.460
Random Effects				
σ^2	0.18	0.17		
τ_{00}	0.00 $_{cdscode}$	0.00 $_{cdscode}$		
	0.00 $_{district}$	0.00 $_{district}$		
ICC		0.01		
N	269 $_{cdscode}$	269 $_{cdscode}$		
	141 $_{district}$	141 $_{district}$		
Observations	7792	7792		
Marginal R^2 / Conditional R^2	0.001 / NA	0.044 / 0.057		

Table 12. Multilevel Models for Distress

	Empty Model			Full Model		
Predictors	*Estimates*	*CI*	*P*	*Estimates*	*CI*	*p*
(Intercept)	0.36	0.34 – 0.38	**<0.001**	0.33	-0.21 – 0.87	0.230
Fidelity (60-79%)	-0.02	-0.06 – 0.02	0.353	-0.01	-0.04 – 0.03	0.751
High Fidelity (80% or greater)	-0.01	-0.10 – 0.09	0.917	-0.02	-0.11 – 0.08	0.734
Female				0.15	0.13 – 0.16	**<0.001**
American Indian				-0.01	-0.05 – 0.03	0.590
Asian				-0.01	-0.03 – 0.01	0.529
Black				0.03	-0.00 – 0.06	0.065
Hispanic				0.03	0.01 – 0.05	**0.010**
Native Hawaiian/ Pacific Islander				0.04	-0.00 – 0.09	0.075
White				0.06	0.04 – 0.08	**<0.001**
Enrollment				-0.00	-0.00 – 0.00	0.876
Suburban				0.00	-0.03 – 0.04	0.841
Town				-0.04	-0.09 – 0.02	0.160
Rural				-0.09	-0.19 – 0.01	0.086
% FRPL				-0.02	-0.15 – 0.11	0.797
% Male				-0.48	-0.99 – 0.04	0.068
% AI				-0.46	-5.53 – 4.61	0.859
% Asian				0.05	-0.47 – 0.56	0.853
% Hispanic				-0.00	-0.50 – 0.49	0.989
% Black				0.38	-0.31 – 1.08	0.277
% White				0.01	-0.53 – 0.56	0.958
Grade 7				0.05	0.02 – 0.08	**0.001**
Grade 8				0.07	0.04 – 0.10	**<0.001**

School Reading Achievement			-0.00	-0.00 – 0.00	0.320
Random Effects				
σ^2	0.14	0.13		
τ_{00}	0.00 $_{cdscode}$	0.00 $_{cdscode}$		
	0.00 $_{district}$	0.00 $_{district}$		
ICC	0.03	0.02		
N	269 $_{cdscode}$	269 $_{cdscode}$		
	141 $_{district}$	141 $_{district}$		
Observations	7792	7792		
Marginal R^2 / Conditional R^2	0.001 / 0.027	0.081 / 0.096		

Table 13. Multilevel Models for Satisfaction

	Empty Model			Full Model		
Predictors	*Estimates*	*CI*	*P*	*Estimates*	*CI*	*p*
(Intercept)	0.76	0.75 – 0.78	**<0.001**	0.92	0.54 – 1.30	**<0.001**
Fidelity (60-79%)	0.02	-0.02 – 0.05	0.389	0.01	-0.01 – 0.04	0.347
High Fidelity (80% or greater)	0.01	-0.07 – 0.09	0.792	-0.00	-0.07 – 0.07	0.955
Female				-0.07	-0.07 – -0.06	**<0.001**
American Indian				-0.01	-0.03 – 0.02	0.677
Asian				0.00	-0.01 – 0.02	0.900
Black				-0.04	-0.06 – -0.02	**0.001**
Hispanic				-0.03	-0.04 – -0.02	**<0.001**
Native Hawaiian/ Pacific Islander				-0.04	-0.07 – -0.00	**0.030**
White				-0.01	-0.02 – 0.00	0.129
Enrollment				0.00	-0.00 – 0.00	0.142
Suburban				-0.01	-0.03 – 0.01	0.457
Town				-0.02	-0.06 – 0.02	0.378
Rural				0.03	-0.04 – 0.10	0.351
% FRPL				-0.07	-0.16 – 0.03	0.163
% Male				0.02	-0.33 – 0.38	0.894
% AI				-0.66	-4.22 – 2.90	0.717
% Asian				-0.08	-0.45 – 0.28	0.659
% Hispanic				-0.00	-0.35 – 0.35	0.988
% Black				0.00	-0.49 – 0.50	0.988
% White				-0.05	-0.44 – 0.34	0.799
Grade 7				-0.05	-0.07 – -0.03	**<0.001**
Grade 8				-0.06	-0.09 – -0.04	**<0.001**

School Reading Achievement		0.00	-0.00 – 0.00	0.133
Random Effects				
σ^2	0.06	0.06		
τ_{00}	0.00 $_{cdscode}$	0.00 $_{cdscode}$		
	0.00 $_{district}$	0.00 $_{district}$		
ICC	0.05	0.02		
N	269 $_{cdscode}$	269 $_{cdscode}$		
	141 $_{district}$	141 $_{district}$		
Observations	7792	7792		
Marginal R^2 / Conditional R^2	0.001 / 0.047	0.060 / 0.078		

Table 14. Multilevel Models for Victimization

	Empty Model			Full Model		
Predictors	*Estimates*	*CI*	*P*	*Estimates*	*CI*	*p*
(Intercept)	0.46	0.44 – 0.48	**<0.001**	0.45	-0.16 – 1.05	0.147
Fidelity (60-79%)	-0.01	-0.06 – 0.04	0.661	-0.00	-0.05 – 0.04	0.838
High Fidelity (80% or greater)	-0.07	-0.18 – 0.03	0.152	-0.02	-0.12 – 0.09	0.788
Female				0.07	0.06 – 0.08	**<0.001**
American Indian				0.04	0.00 – 0.07	**0.035**
Asian				-0.01	-0.03 – 0.01	0.221
Black				0.06	0.03 – 0.09	**<0.001**
Hispanic				0.00	-0.02 – 0.02	0.938
Native Hawaiian/ Pacific Islander				0.03	-0.01 – 0.08	0.142
White				0.07	0.05 – 0.08	**<0.001**
Enrollment				0.00	-0.00 – 0.00	0.722
Suburban				0.01	-0.03 – 0.05	0.614
Town				-0.02	-0.08 – 0.04	0.500
Rural				-0.02	-0.12 – 0.09	0.762
% FRPL				-0.03	-0.18 – 0.11	0.659
% Male				-0.20	-0.76 – 0.36	0.489
% AI				2.31	-3.11 – 7.74	0.403
% Asian				0.19	-0.39 – 0.77	0.520
% Hispanic				0.05	-0.51 – 0.60	0.871
% Black				0.20	-0.58 – 0.97	0.619
% White				0.18	-0.43 – 0.80	0.561
Grade 7				0.02	-0.01 – 0.05	0.123
Grade 8				0.01	-0.02 – 0.04	0.527

School Reading Achievement			-0.00	-0.00 – -0.00	**0.005**
Random Effects				
σ^2	0.12	0.11		
τ_{00}	0.00 $_{cdscode}$	0.00 $_{cdscode}$		
	0.00 $_{district}$	0.00 $_{district}$		
ICC	0.04	0.03		
N	269 $_{cdscode}$	269 $_{cdscode}$		
	141 $_{district}$	141 $_{district}$		
Observations	7792	7792		
Marginal R^2 / Conditional R^2	0.001 / 0.040	0.037 / 0.071		

Table 15. Multilevel Models for Perpetration

	Empty Model			Full Model		
Predictors	*Estimates*	*CI*	*P*	*Estimates*	*CI*	*p*
(Intercept)	0.12	0.10 – 0.13	**<0.001**	0.17	-0.18 – 0.52	0.335
Fidelity (60-79%)	-0.00	-0.04 – 0.03	0.815	-0.01	-0.03 – 0.02	0.685
High Fidelity (80% or greater)	-0.03	-0.10 – 0.04	0.440	-0.02	-0.09 – 0.04	0.486
Female				-0.00	-0.01 – 0.00	0.371
American Indian				0.03	0.01 – 0.06	**0.001**
Asian				-0.01	-0.03 – 0.00	0.058
Black				0.08	0.06 – 0.10	**<0.001**
Hispanic				0.03	0.02 – 0.04	**<0.001**
Native Hawaiian/ Pacific Islander				0.06	0.03 – 0.08	**<0.001**
White				0.01	-0.01 – 0.02	0.349
Enrollment				-0.00	-0.00 – 0.00	0.539
Suburban				0.01	-0.01 – 0.04	0.232
Town				0.01	-0.03 – 0.04	0.613
Rural				0.02	-0.05 – 0.08	0.608
% FRPL				-0.02	-0.10 – 0.07	0.692
% Male				-0.03	-0.36 – 0.30	0.867
% AI				3.15	-0.04 – 6.34	0.053
% Asian				0.04	-0.29 – 0.38	0.808
% Hispanic				-0.03	-0.35 – 0.29	0.849
% Black				0.13	-0.32 – 0.58	0.566
% White				0.04	-0.32 – 0.39	0.845
Grade 7				0.03	0.02 – 0.05	**<0.001**
Grade 8				0.05	0.03 – 0.07	**<0.001**

School Reading Achievement			-0.00	-0.00 – -0.00	**0.003**
Random Effects				
σ^2	0.04	0.04		
τ_{00}	0.00 $_{cdscode}$	0.00 $_{cdscode}$		
	0.00 $_{district}$	0.00 $_{district}$		
ICC	0.06	0.03		
N	269 $_{cdscode}$	269 $_{cdscode}$		
	141 $_{district}$	141 $_{district}$		
Observations	7792	7792		
Marginal R^2 / Conditional R^2	0.000 / 0.058	0.040 / 0.065		

Figure 1. Key Differences and Advantages of the Digital Version

Feature	Print Version	Digital Version
Access	Physical binders & DVDs	Web-based portal
Engagement	Static media	Interactive videos and activities
Implementation Monitoring	Manual	Automated tracking & support
Flexibility	Limited	Adaptable for varied schedules
Updates	Fixed (requires repurchase)	Real-time updates & content changes
Culturally Responsive Content	Limited flexibility	Easily revised and more inclusive