

# Measuring School Contributions to Growth in Social-Emotional Learning

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**D**o schools contribute to the development of their students' social-emotional learning (SEL), and can school growth (i.e., value-added) models measure this contribution? We find that, overall, our estimates of contributions to the development in student SEL differ among schools. However, these estimates vary substantially for the same schools from one year to the next. This lack of stability raises concerns about the practical value of creating school-level estimates from self-reported SEL measures and using them to evaluate school performance. Yet, although these models may not reliably distinguish most schools from each other, a number of schools stand out as consistently very effective or very ineffective at supporting students' SEL development. Hence, school value-added measures of SEL may help identify standout schools that could provide insights into effective approaches for supporting students' SEL development.

May 2019

California’s approach to measuring and reporting school performance has changed dramatically over the past decade. New state policy structures, such as the Local Control Funding Formula (LCFF) and the related Local Control and Accountability Plan (LCAP) process, encourage the use of multiple measures of school performance based on local context to support continuous improvement and strategic resource allocation. The federal Every Student Succeeds Act (ESSA) reinforces this approach nationwide, expanding the definition of student and school success.<sup>1</sup>

California’s school performance measurement approach includes reports of state and local measures on eight state priorities covering the categories of learning, student outcomes, and engagement.<sup>2</sup> Evidence on the strengths of different measures can inform what data is collected, how it is analyzed and reported, and how it is used to understand school performance and track improvements.

Recently, social-emotional learning (SEL) as an additional measure of student success has been gaining attention. SEL broadly refers to intrapersonal skills (such as the ability to regulate one’s behavior in pursuit of long-term goals) and interpersonal skills (such as the ability to collaborate with others). These skills appear to be key complements to cognitive ability in determining students’ success in school, post-secondary education, and the workforce,<sup>3</sup> and a growing body of research points to experiences in schools as one factor that can influence students’ SEL.<sup>4</sup>

A growing number of districts and states are considering using SEL measures to better understand student success and to define school quality more holistically. For example, in California, school-level SEL scores could be reported under state Priority 6 of the LCFF,<sup>5</sup> given their close relationship to school climate measures.<sup>6</sup> Nationwide, states could measure and report SEL as a “school quality or student success” indicator.<sup>7</sup> Although no state has chosen to measure SEL for school accountability at this time, as of 2017, all 50 states had SEL standards at the preschool level and eight states had SEL standards for K–12.<sup>8</sup> Additionally, more than half of states, including California, are working to develop state-level policies and structures for supporting SEL.<sup>9</sup> At a district level, *CORE Districts* — a non-profit collaborative of California school districts focused on data-driven school improvement — is at the forefront of this movement; since 2014, it has collected data on students’ SEL from self-reported surveys.<sup>10</sup>

If SEL is something states and districts care about, there must be dependable evaluations to determine whether schools are improving student outcomes in this domain.<sup>11</sup> For a measure of SEL to be appropriate for assessing school performance, it should capture the underlying elements of SEL that we would expect schools to be able to control or influence.

For traditional measures of student success, such as test scores in English Language Arts (ELA) and math, school value-added models are often used to measure

this school effectiveness. These models measure how much individual students in a school grow relative to similar students in other schools. These kinds of school value-added measures may be a viable option to measure schools' contribution to growth in other outcomes beyond standardized tests, as well.<sup>12</sup> Although there has been recent work applying value-added models to outcomes like attendance,<sup>13</sup> to date, relatively little is known about how well these models can be applied to SEL measures. If they *can* be successfully applied, such measures may be useful for understanding differences in school performance with regard to students' SEL and, in that case, could be used productively in an accountability system to expand the definition of student success. However, if they do not distinguish schools meaningfully, they may not be useful for accountability systems or for policy.

To this end, in this brief we discuss what we have learned about the possible use of students' self-reported SEL to assess school performance in the CORE Districts. Specifically, this brief presents the results of two papers that analyze school effects on SEL using CORE's survey-based SEL measures.<sup>14</sup>

## Measuring Social-Emotional Learning in the CORE Districts

When the CORE Districts developed their shared accountability system under a No Child Left Behind waiver in 2013, they aimed to measure elements of student and school performance that had been neglected under previous policies.<sup>15</sup> As the result of a collaborative process, the CORE Districts chose to develop a multiple-measures system that includes survey-based measures of SEL, school culture, and school climate alongside both traditional academic indicators (e.g., ELA and math performance and growth) and non-academic measures (e.g., chronic absenteeism and suspension rates).

CORE's decision to measure SEL was part of a growing consensus among researchers, educators, and the public that schools should develop, support, and monitor the social-emotional development of their students. Given the relative recency of states' and school districts' attention to SEL as part of their schools' definition of student success, the large-scale SEL student survey administered by the CORE districts provides a unique opportunity to investigate the properties of survey-based SEL measures. Surveys are an appealing approach for measuring SEL because of their relatively low cost and low burden. Other SEL assessments, such as performance-based assessments, direct observation, and embedded tasks, are usually more expensive and onerous.<sup>16</sup>

Six of the eight CORE districts have administered the SEL survey each year since 2014-15 to students in grades 4 through 12.<sup>17</sup> The survey comprises a battery of items designed to measure four dimensions of SEL (see box on following page).<sup>18</sup>

### What dimensions of SEL does CORE's student survey measure?

- Self-management, also referred to as self-control or self-regulation, is the ability to regulate one's emotions, thoughts, and behaviors effectively in different situations. This includes managing stress, delaying gratification, motivating oneself, and setting and working toward personal and academic goals.<sup>19</sup>
- Growth mindset is the belief that one's abilities can grow with effort. Students with a growth mindset believe that they can develop their skills through effort, practice, and perseverance. These students embrace challenges, see mistakes as opportunities to learn, and persist in the face of setbacks.<sup>20</sup>
- Self-efficacy is the belief in one's ability to succeed in achieving an outcome or reaching a goal. Self-efficacy reflects confidence in the ability to exert control over one's own motivation, behavior, and environment and allows students to become effective advocates for themselves.<sup>21</sup>
- Social awareness is the ability to take the perspective of and empathize with others from diverse backgrounds and cultures, to understand social and ethical norms for behavior, and to recognize family, school, and community resources and supports.<sup>22</sup>

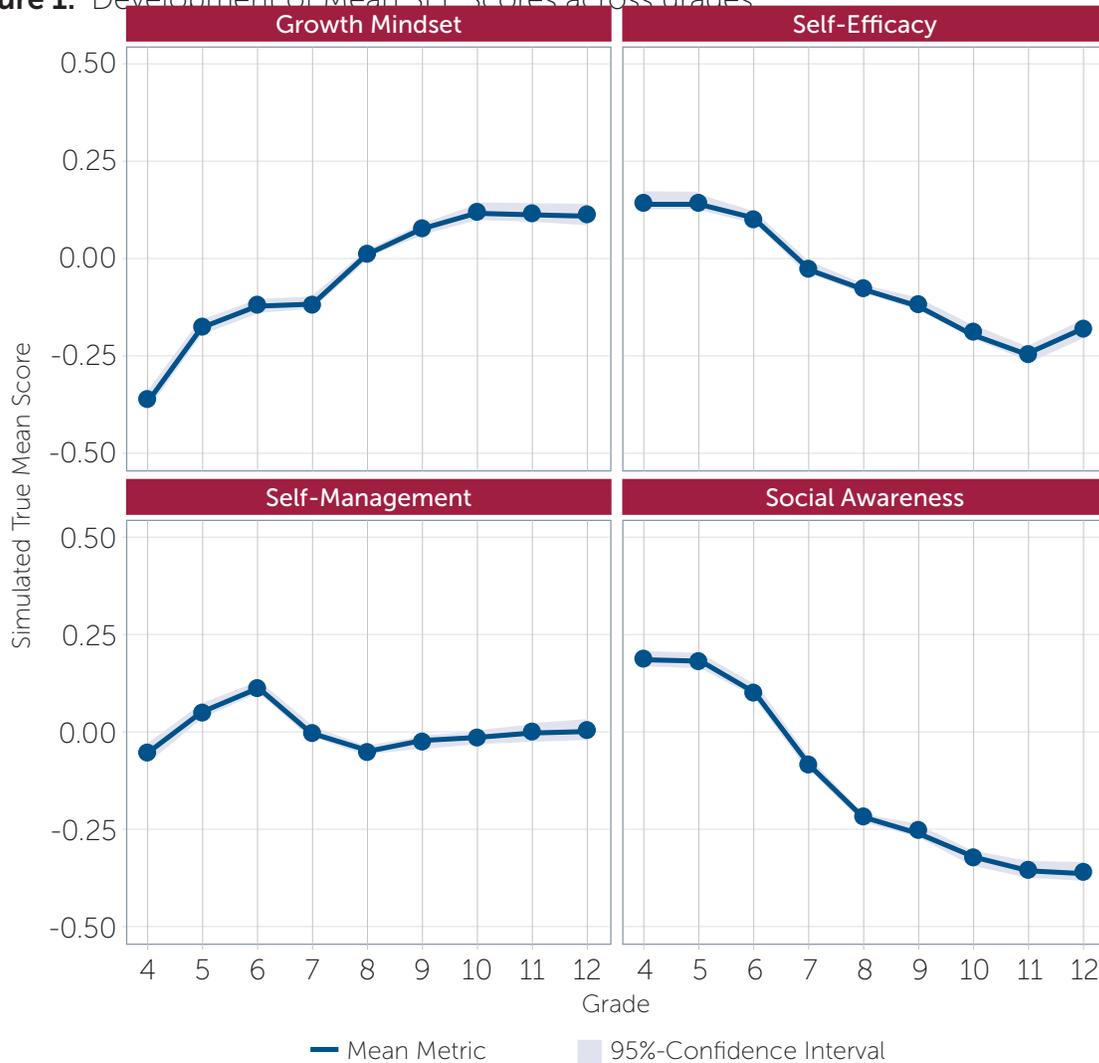
### The Development of an SEL School Growth Model

In this brief, we report estimates of how much a school contributes to the SEL development of its students in a given grade. These effects are estimated with a value-added model similar to those commonly used with academic measures, including in the CORE school performance measurement system.<sup>23</sup> For each grade, we estimate how much of a student's development from one year to the next in each of the four dimensions in SEL can be attributed to the school the student attends. The models take into account (i.e., they "control" for) a student's scores in all four SEL dimensions, Smarter Balanced Assessment Consortium (SBAC) scores in math and ELA in the previous year, as well as demographic characteristics, such as indicators for gender, race/ethnicity, English learner status, disability status, economic disadvantage, homelessness, and foster care. If a measure of school quality does not account for these factors, it will likely capture differences in the student body in addition to the actual contribution of school environment and practices, which has problematic implications for equity and fairness. We created growth models separately for each of the four SEL dimensions. For comparative purposes, we also created growth models for SBAC scores in ELA and math.<sup>24</sup> With these analyses, we aim to understand the extent to which school value-added measures of SEL can meaningfully distinguish schools based on their contribution to their students' growth in SEL.

The estimated school effect can be interpreted as the average contribution of a school in a given grade to its students' SEL growth from the previous grade. These effects include the influences of all school-level factors, including teachers, school

culture and climate, school policies, and school neighborhood. Note that, in contrast to academic measures, SEL is not necessarily expected to continuously increase as students move through school. Figure 1 shows mean scores for each dimension of SEL. With the exception of growth mindset, the CORE SEL measures decrease after Grade 6.<sup>25</sup> Therefore, when we talk about school contributions to growth in student SEL, we mean school contributions to changes in student SEL relative to these trends. For example, a school contribution could be *high* if its students' SEL decreases less than would be expected compared to similar students in other schools, or a contribution could be *average* if its students' SEL decreased the same amount as would be expected based on these trends.

**Figure 1.** Development of Mean SEL Scores across grades

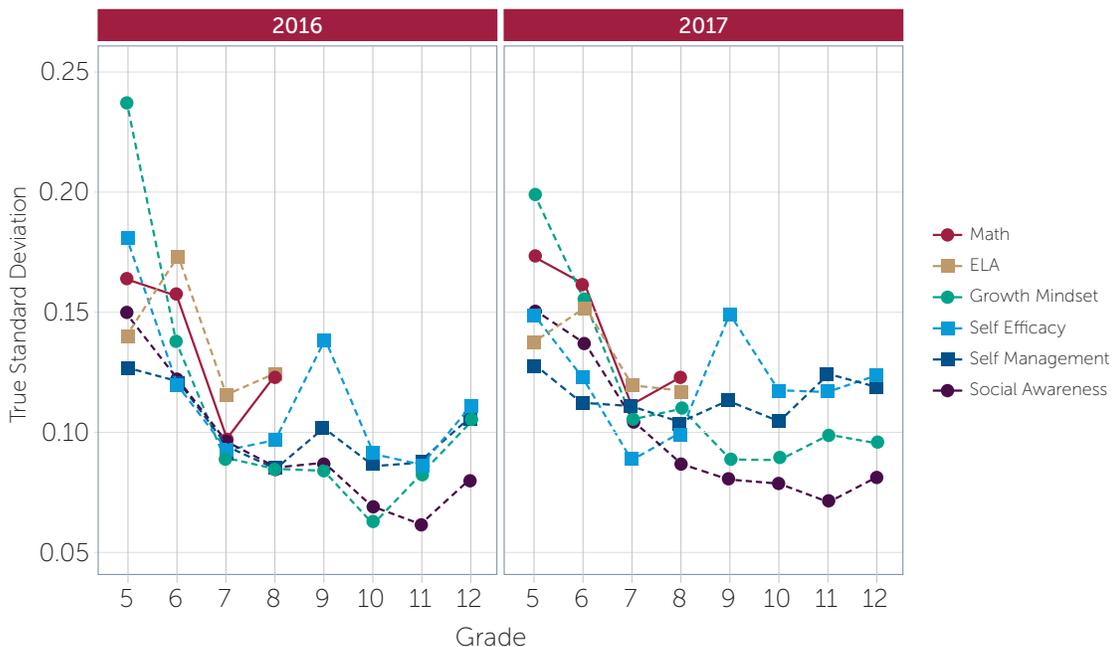


## Finding 1. Estimates of schools' effects on SEL appear to vary as much as estimates of schools' effects on academic outcomes

If stakeholders, such as district and school administrators, and policy makers, are going to use growth models to make determinations about schools, one of the first things we need to understand is whether schools vary in these growth measures enough to reliably differentiate schools that are exceeding or falling short of expectations. If the growth measures do not markedly differ from each other, the estimates do not provide enough data across schools to inform practice or policy. The standard deviation of the school effects articulates how much schools' contributions to student growth in these dimensions of SEL vary among schools in a given grade. The larger the standard deviation is, the more school-level factors appear to influence the development of students' SEL and the better we can distinguish schools based on this influence.

In a finding that shows promise for using SEL growth measures, the variation in school effects on student growth in the four SEL measures are similar to those for SBAC math and ELA scores. Figure 2 shows the standard deviation of school effects for ELA, math, growth mindset, self-efficacy, self-management, and social awareness for students by grade for the years 2015-16 and 2016-17. Standard deviation is a common statistical metric to compare the amount of variation in different measures. In general, these graphs show standard deviations decreasing somewhat for higher grades, indicating that there are more meaningful differences in the impact of schools in the lower grades. The standard deviations for each of the six measures are relatively similar to each other, which shows a generally similar pattern of school impacts across the four dimensions of SEL and the two academic outcomes.

**Figure 2.** Standard Deviations of School Effects Across Grades in 2015-16 and 2016-17



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**Finding 2. Estimates of schools' effect on SEL vary substantially from year to year and may not measure stable differences in school performance**

We find, however, that the estimated school effects are not stable from one year to the next year for most schools. Overall, the correlation of school effects on SEL estimated using two consecutive years of growth data (i.e., outcomes measured in 2015-16 and 2016-17) are positive but lower than those for school effects on math and ELA. This suggests that although a school's contribution to growth of students' self-reported SEL in a given grade in one year is somewhat predictive of its contribution in the next year, much of how effective a school seems to be according to this contribution does not appear to be related from one year to the next.<sup>26</sup> On the one hand, the fact that these correlations are positive provides some evidence that school value-added models using self-reported SEL measure real contributions. On the other hand, the fact that these correlations are rather low raises concerns about the degree to which these school effects can consistently differentiate the contributions of most schools to social-emotional competencies.

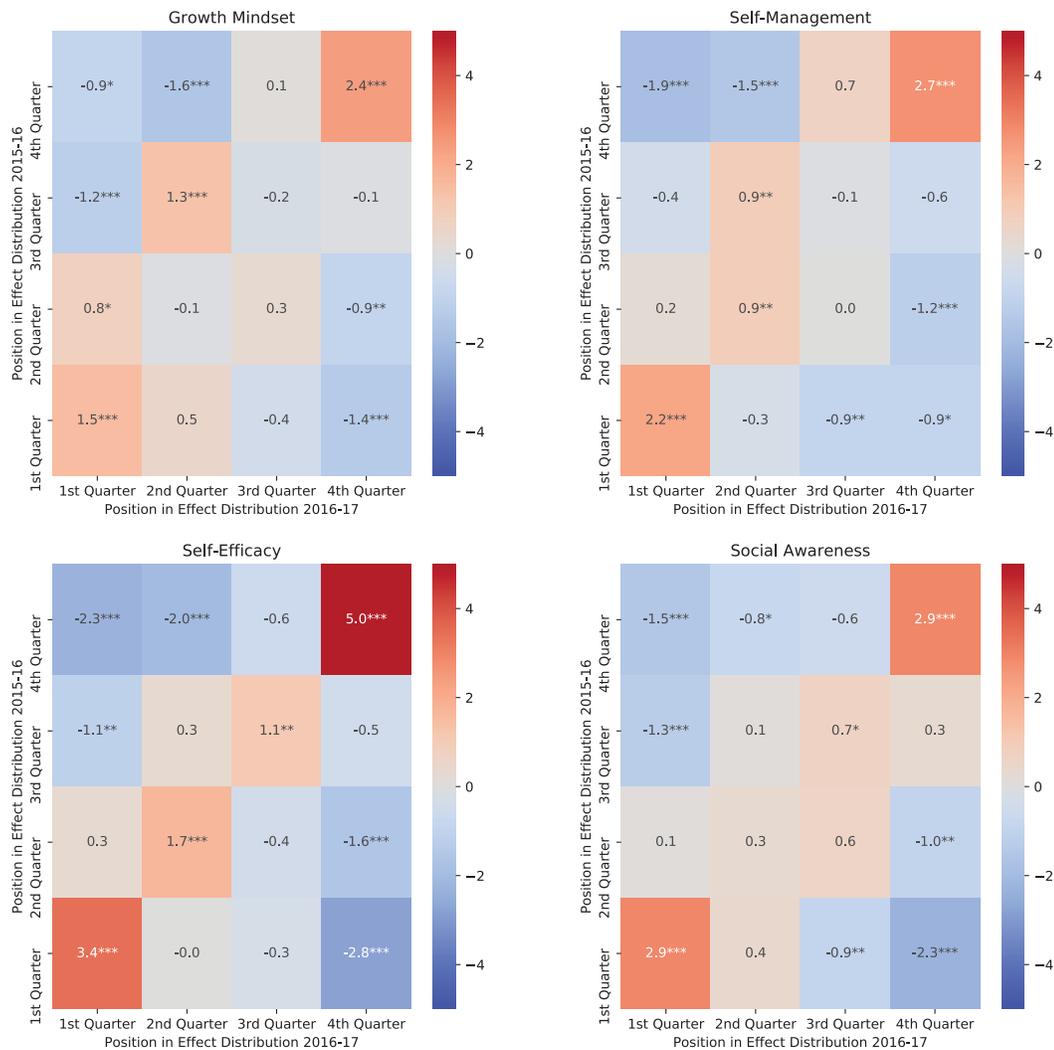
This lack of stability points to the likelihood that survey-based measures of SEL may not be accurate enough to create school growth measures that identify true differences in school performance consistently over time. Instead, the estimates include a great deal of noise, such as environmental differences (e.g. weather, current events, etc.) during survey administration. It is worth noting that these conclusions are based on three years of data (i.e., two years of growth). Although including more years of data can deepen our understanding of the stability of these measures over time, the results presented here nevertheless highlight important findings.

**Finding 3. Although growth measures may be too imprecise to capture differences among most schools across two years, some schools stand out as consistently effective or ineffective**

Although the correlation of estimates from one year to the next are low for SEL across most schools, a significant number of schools are consistently in the top or the bottom of the school effect distribution for a given grade, suggesting that some schools consistently have high or low impacts and can therefore distinguish themselves from one another. Figure 3 compares individual schools' positions in the school effect distribution in 2015-16 to their position in 2016-17 for all four dimensions of SEL. The vertical axis displays a school's position in a given grade by quarters of the effect distribution (i.e., whether the school is in the bottom quarter, the second quarter, etc.) in 2015-16, and the horizontal axis displays the position in 2016-17. The first quarter represents the 25% of schools with the lowest contribution to growth in student SEL in a given grade and year, and the fourth quarter represents the 25% of schools with the highest contribution in a given

grade and year. The numbers in Figure 3 indicate the percentage of schools in each cell above or below the percentage of schools that we would expect if school effects were fully unrelated from year to year. If the distribution of scores was completely random, we would expect there to be 6.25% of schools in each cell. If substantially more schools than 6.25% are in any given cell, it shows that scores are more consistent or stable for those schools. The asterisks signal whether or not this difference is statistically significant.<sup>27</sup>

**Figure 3.** Transitions from 2015-16 to 2016-17



The figure shows that there are a significant amount of schools that are persistently in the top and bottom quarter in all four dimensions of SEL. For example, for self-efficacy, the number of schools that were in the highest quarter in both years was 5 percentage points higher than what would be expected by chance. This suggests that although school growth measures of survey-based SEL may not meaningfully distinguish schools over time as a *whole*, they may still be useful for identifying a subset of schools that are either consistently very effective or ineffective at supporting students' SEL development.

## Finding 4. SEL measures can inform improvement within schools.

There are many potential uses for data about student and school performance, and while our results suggest that these measures can't reliably be used to assess school impacts, they can still be used to drive improvement of practices and policy. For example, given results showing that a number of schools stand out as consistently very effective, perhaps these SEL school value-added measures could be used to identify *bright-spot* schools that could provide insights into effective approaches for supporting students SEL development.

In addition to SEL growth measures, other metrics based on the student-reported SEL scores can inform improvement activities and identify student populations in need of support. For instance, the CORE districts report school-by-grade average levels of SEL overall and by subgroup for the four dimensions of SEL. These levels are more stable over time than our SEL school value-added measures.<sup>29</sup> These measures can identify significant gaps between student groups within schools and are informative for identifying schools with the lowest levels of self-reported SEL.<sup>30</sup> Therefore, average levels are valuable to understand SEL disparities among students from different backgrounds and to inform practices to eliminate these disparities. One can control for some of differences in the student body between schools by looking at SEL levels of different student groups in a given year. However, even these subgroup levels are unlikely to accurately identify schools that positively (or not) support their students' social-emotional development, because they do not fully account for SEL differences in previous years.

The CORE SEL survey data is already used for this informative purpose. The measures inform actions and decisions by policymakers, administrators, and educators together serving over one million students. Interviews with administrators document that awareness of the CORE survey data was high and that principals reported using the CORE data or indicated that it had added a sense of importance to their focus on SEL or school culture and climate.<sup>31</sup>

## Conclusion

This brief summarizes the emerging evidence of whether school value-added models can measure school effects on survey-based SEL measures. Using the same approach that has been used to estimate school effects on math and English language arts, estimates of school effects on SEL vary across schools to the same extent that estimates vary across schools in math and ELA. However, much of this variation appears to be unrelated from year to year, as schools that exceed expectations in one year are only slightly more likely to exceed expectations in the next year. One possible explanation of the low stability could be that much of the variation in the measured school effects is random noise unrelated to actual impacts of schools on SEL. Another possible explanation of the low stability could be that, unlike math and ELA instruction, schools may not be

explicitly teaching SEL, thus, they may not have established strategies and practices that are consistently implemented from one year to the next.

Although these results suggest that the value-added measures capture some of the contributions schools make to students' growth in SEL, the instability of these school effects from one year to the next raises concerns about the practical use of value-added measures of self-reported SEL for accountability or high-stakes decision making. While the estimated value-added effects on SEL do not appear to consistently distinguish schools overall, a significant group of schools do stand out. These schools consistently rank in the bottom or in the top of the school effect distribution in a given grade. This finding provides evidence that these measures may help to identify persistently low- or high-performing schools, which then can be used as a source of information for learning about how best to support students' development of social-emotional skills.

Given these constraints, our results suggest that school value-added measures based on SEL surveys should not be used for high-stakes decision making. However, this does not mean that SEL should not be measured, or that such value-added approaches may not be useful and promising based on other measures of SEL. School value-added measures may be used over time and together with existing measures to inform practices and to identify schools and student groups in need of support. The experience of the CORE districts shows that administrators and educators recognize the importance of SEL and SEL measurement and are willing to act on it. As such, educators, administrators, policymakers, and researchers should work together to further develop and improve SEL measurement for various uses.

## Endnotes

- <sup>1</sup> LCAP Federal Addendum (n.d.) Retrieved from <https://www.cde.ca.gov/re/lc/addendumguidance.asp>
- <sup>2</sup> State Priority Related Resources (n.d.) Retrieved from <https://www.cde.ca.gov/fg/aa/lc/statepriorityresources.asp>
- <sup>3</sup> Pellegrino, J. W., Hilton, M. L., National Research Council, Social Sciences and Education, Board on Science Education, & Committee on Defining Deeper Learning and 21st Century Skills. (2012, July 10). Education for life and work: Developing transferable knowledge and skills in the 21st century. Retrieved from <https://www.nap.edu/catalog/13398/education-for-life-and-work-developing-transferable-knowledge-and-skills>
- <sup>4</sup> Durlak, J. A., Weissberg, R. P., Dymnicki, A. B., Taylor, R. D., & Schellinger, K. B. (2011). The impact of enhancing students' social and emotional learning: A meta-analysis of school-based universal interventions. *Child Development*, 82(1), 405-432. doi:10.1111/j.1467-8624.2010.01564.x
- <sup>5</sup> In California, the LCFF lists eight state priority areas for which every district must detail how they are addressed through the LCAP. Priority 6 addresses student suspension rates, expulsion rates, other local measures including surveys of students, parents and teachers on the sense of safety and school connectedness. For more on the priority areas see <https://www.cde.ca.gov/fg/aa/lc/statepriorityresources.asp>
- <sup>6</sup> Using surveys of students' social-emotional skills and school climate for accountability and continuous improvement (2017, March 10). Retrieved from <https://www.edpolicyinca.org/publications/using-sel-and-cc>
- <sup>7</sup> Elementary and Secondary Education Act of 1965 [As Amended Through P.L. 115–224, Enacted July 31, 2018]. (n.d.). Retrieved from <https://legcounsel.house.gov/Comps/Elementary%20And%20Secondary%20Education%20Act%20Of%201965.pdf>
- <sup>8</sup> Dusenbury, L., Dermody, C., & Weissberg, R. P. (2018). 2018 State scorecard scan - CASEL. Retrieved from <https://casel.org/wp-content/uploads/2018/02/2018-State-Scan-FINAL.pdf>
- <sup>9</sup> As of March 2018, 25 states were working with the Collaborative for Academic and Social and Emotional Learning (CASEL) through the Collaborating States Initiative (R. Weissberg, personal communication, March 23, 2018).
- <sup>10</sup> These eight school districts served roughly 623,000 students in grades 4-12 across 1,347 schools in 2016-17.
- <sup>11</sup> For a more detailed and comprehensive look at how SEL can be assessed, see Rand Education Assessment Finder. (n.d.) Retrieved from <https://www.rand.org/education-and-labor/projects/assessments.html>
- <sup>12</sup> Growth data: It matters, and it's complicated. (January 2019). Washington, DC: Data Quality Campaign.
- <sup>13</sup> Liu, J. & Loeb, S. (In press). Engaging teachers: Measuring the impact of teachers on student attendance in secondary school. *Journal of Human Resources*.
- <sup>14</sup> Fricke, H., Loeb, S., Meyer, R., Rice, A., Pier, L., and Hough, H (2019). Stability of school contributions to student social-emotional learning gains. Policy Analysis for California Education Working Paper <https://www.edpolicyinca.org/publications/sel-school-effects> and Fricke et al. (2019).
- <sup>15</sup> Marsh, J.A., Bush-Mecenas, S., Hough, H.J., Park, V., Allbright, T., Hall, M., & Glover, H. (2016, November). Local control in action: Learning from the CORE Districts' focus on measurement, capacity building, and shared accountability. (2016, October 1). Retrieved from <https://edpolicyinca.org/publications/at-the-forefront>
- <sup>16</sup> See, for example, Measuring SEL: Using data to inspire practice. Retrieved from <https://measuring-sel.casel.org/>.

- <sup>17</sup> Approximately 387,000 (about 62%) students completed the survey in 2016-17. For more detail on CORE's survey instrument and administration, see Meyer, R.H., Wang, C., & Rice, A.B. (2018, May). Measuring students' social-emotional learning among California's CORE districts: An IRT modeling approach. Retrieved from <https://www.edpolicyinca.org/publications/sel-measurement>
- <sup>18</sup> The responses to survey items are aggregated into a composite score for each dimension of SEL. For details on the scaling procedure, see <https://www.edpolicyinca.org/publications/sel-measurement>.
- <sup>19</sup> Safe and Sound: An Educational Leader's Guide to Evidence-Based Social and Emotional Learning (SEL) Programs. Illinois Edition. (2004, November 30). Retrieved from <https://eric.ed.gov/?id=ED505373>
- <sup>20</sup> Dweck, C. (2016). *Mindset: The new psychology of success*. New York, NY: Random House.
- <sup>21</sup> Bandura, A. (2012). *Self-efficacy: The exercise of control*. New York, NY: Freeman.
- <sup>22</sup> Safe and Sound: An Educational Leader's Guide to Evidence-Based Social and Emotional Learning (SEL) Programs. Illinois Edition. (2004, November 30). Retrieved from <https://eric.ed.gov/?id=ED505373>
- <sup>23</sup> For technical details, see <https://www.edpolicyinca.org/publications/sel-school-effects> and Fricke et al. (2019).
- <sup>24</sup> SBAC is administered in grades three through eight and 11 in Spring. Because the SBAC is only administered in grades three through eight and 11 and because data from the previous grade a year earlier is needed, this brief only reports results from school value added models for grades five through eight both for the math and ELA scores.
- <sup>25</sup> West, M. R., Pier, L., Fricke, H., Heather, H. J., Loeb, S., Meyer, R. H., & Rice, A. B. (2018, May 01). Trends in student social emotional learning: Evidence from the CORE districts. Retrieved from <https://edpolicyinca.org/publications/sel-trends>
- <sup>26</sup> See Fricke et al. (2019) for the results.
- <sup>27</sup> The graphs include all grades, but the positions are calculated within a given grade. School with less than 20 student observations for the SEL dimension in a given grade were excluded. The significance levels derive from non-parametric permutation p-values. \*, \*\*, \*\*\* correspond to significance levels of 10%, 5%, and 1% respectively.
- <sup>28</sup> Using Data for Improvement: Learning from the CORE Data Collaborative. (2018 September). Retrieved from <https://gettingdowntofacts.com/publications/using-data-improvement-learning-core-data-collaborative>.
- <sup>29</sup> White and Polikoff (2019)
- <sup>30</sup> Hough, H. J., Kalogrides, D., & Loeb, S. (2017, March 8). Using surveys of students' social- emotional learning and school climate for accountability and continuous improvement. - [edpolicyinca.org](https://edpolicyinca.org). Retrieved from [https://edpolicyinca.org/sites/default/files/SEL-CC\\_brief.pdf](https://edpolicyinca.org/sites/default/files/SEL-CC_brief.pdf) and West, M. R., Pier, L., Fricke, H., Heather, H. J., Loeb, S., Meyer, R. H., & Rice, A. B. (2018, May 01). Trends in student social emotional learning: Evidence from the CORE Districts. Retrieved from <https://edpolicyinca.org/publications/sel-trends>
- <sup>31</sup> Marsh, J. A., McKibben, S., Hough, H. J., Hall, M., Allbright, T. N., Matewos, A. M., & Siqueira, C. (2018, April). Enacting social-emotional learning: Practices and supports employed in CORE districts and schools - [edpolicyinca.org](https://edpolicyinca.org). Retrieved from [https://edpolicyinca.org/sites/default/files/Report\\_SEL\\_Practices.pdf](https://edpolicyinca.org/sites/default/files/Report_SEL_Practices.pdf) and Toch, T., & Miller, R. (n.d.). CORE lessons: Measuring the social and emotional dimensions of student success - [future-ed.org](https://future-ed.org). Retrieved February, 2019, from [https://www.future-ed.org/wp-content/uploads/2019/02/FutureEd\\_Core\\_Report.pdf](https://www.future-ed.org/wp-content/uploads/2019/02/FutureEd_Core_Report.pdf)

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## Policy Analysis for California Education (PACE)

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- Provides expert testimony on educational issues to legislative committees and other policy audiences.
- Works with local school districts and professional associations on projects aimed at supporting policy innovation, data use, and rigorous evaluation.

### Recent Publications

Heather Hough, Demetra Kalogrides, Susanna Loeb. [\*Using Surveys of Students' Social-Emotional Learning and School Climate for Accountability and Continuous Improvement\*](#). Policy Analysis for California Education. March 2017.

Heather Hough, Erika Byun, Laura Mulfinger. [\*Getting Down to Facts II: Using Data for Improvement: Learning from the CORE Data Collaborative\*](#). Sept. 2018.

Hunter Gehlbach, Heather Hough. [\*Measuring Social Emotional Learning Through Student Surveys in the CORE Districts: A Pragmatic Approach to Validity and Reliability\*](#). Policy Analysis for California Education. May 2018.

Julie A. Marsh, Susan McKibben, Heather Hough, Michelle Hall, Taylor N. Allbright, Ananya M. Matewos, Caetano Siqueira. [\*Enacting Social-Emotional Learning: Practices and Supports Employed in CORE Districts and Schools\*](#). Policy Analysis for California Education. April 2018.



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