



Measuring Social Emotional Learning

Best Practices and Lessons Learned for SEL Assessment

MEASURING SOCIAL EMOTIONAL LEARNING: BEST PRACTICES AND LESSONS LEARNED FOR SEL ASSESSMENT

NOVEMBER 2019

EXECUTIVE SUMMARY

In this memo, we present the steps that organizations might consider for measuring students' social and emotional learning (SEL). We highlight the lessons we have learned from the research and analytics Education Analytics has conducted on SEL survey measures. We also discuss future directions of SEL measurement that policymakers and practitioners at the state and district level should consider. Our recommendations include:

- 1. Follow an SEL framework and/or a set of key criteria that fit local contexts best when selecting social emotional competencies and questions to measure.** Given the sheer number of competencies and frameworks available, selecting robust and coherent measures that best fit local stakeholder needs is key.
- 2. Consider best practices related to designing the SEL measures.** This includes selecting existing measures versus developing local measures, aligning to K-12 SEL standards, considering equity and cultural responsiveness, and selecting the length, frequency, and format of the measures.
- 3. Be mindful of the importance of making continuous improvement to the SEL survey measures.** Rigorous pilot testing of changes to SEL measures prior to operationalizing them ensures you can improve the measures over time while still maintaining the ability to track trends.
- 4. Adopt a rigorous score reporting method.** Traditional metrics for reporting SEL score results may be intuitive but lack some statistical rigor that can help ensure the robustness of conclusions drawn from the data; use of Item Response Theory to produce scale scores can improve this rigor but also requires additional technical skill.
- 5. Provide a user-friendly reporting system for practitioners to use.** Providing intuitive ways for different stakeholders to explore SEL data at the school and grade level are key for driving continuous improvement in SEL practices.
- 6. Recognize the challenge of appropriately interpreting survey results and making comparisons across grades and over time.** There are limits to the kinds of conclusions that can be drawn from SEL measures (especially student self-report survey), so being mindful of appropriate use is important.
- 7. Be cautious with the inclusion of SEL growth measures in accountability systems.** The research is clear that SEL measures are not yet ready to be used in accountability systems to make high-stakes decisions. However, SEL measures for use in progress monitoring may be appropriate when the survey administration is high quality.
- 8. Build SEL measures through a developmental lens matching various developmental stages of children and youth.** Researchers have identified the importance of adopting a developmental lens when assessing SEL to align with students' developmental stage, background, and context.
- 9. Explore innovative measurement formats and item types that have the potential to address potential biases from self-report surveys.** Though self-report measures are the most common to assess SEL, other formats and item types are available and should be considered depending on the context and intended use.
- 10. Develop an SEL item bank to avoid question staleness over time.** Like any assessment, survey items can become stale when students respond to the same ones year after year. Therefore, developing an item bank can maintain the integrity of the measures while allowing for scores that are comparable over time.



MEASURING SOCIAL EMOTIONAL LEARNING: BEST PRACTICES AND LESSONS LEARNED FOR SEL ASSESSMENT

This is an exciting era for policymakers, educators, researchers, and all stakeholders who are involved in the field of social emotional learning (SEL). With the mounting evidence from the research community on the fundamental role that students' social emotional skills play in their future success as well as recent policy changes and initiatives at the national and state levels, promoting and measuring SEL has become an increasingly central focus in K-12 education. Despite near unanimous interest in measuring students' SEL, the field has not reached consensus on many measurement-related issues. Many states and districts have just begun to plan their own SEL journeys and will benefit from lessons learned from SEL early adopters in the field.

One such early adopter that Education Analytics has partnered with is the CORE Districts—a consortium of California school districts that have been measuring social emotional competencies annually since the 2014-15 school year. CORE administers a student survey to more than 400,000 students in grades 4 through 12 in more than 1,500 schools. This is the first large-scale implementation of student-level SEL surveys in the country. Education Analytics has partnered with the CORE Districts to analyze the data from these surveys, conduct research on the properties and uses of the survey measures, and advise the CORE Districts on how to continuously improve the measures over time. In this memo, we highlight the lessons we have learned from our research and analytics on SEL survey measures (#1-#7). We also discuss future directions of SEL measurement that policymakers and practitioners at the state and district level should consider (#8-#10).

1. Follow an SEL framework and/or a set of key criteria that fit local contexts best when selecting social emotional competencies and questions to measure

For states and districts that are at the initial planning phase of developing an SEL survey, the first puzzle to solve is, "How do you decide what to measure?" What's reassuring is that different practitioners often choose to measure different sets of social emotional competencies that work the best for their local context. It is important to provide an overarching SEL framework, evaluate broader and local contexts and needs, and develop a set of key criteria that fit these contexts before creating or selecting an SEL survey. Several helpful online resources have been developed in recent years to guide educators on these issues, such as the [SEL frameworks series](#) and [SEL Assessment Guide developed by the Collaborative for Academic, Social, and Emotional Learning \(CASEL\)](#), [RAND Education Assessment Finder](#), [AIR's ready to assess tool](#), and Harvard University's Taxonomy Project and its [Explore SEL navigator](#).

For example, CORE prioritized a set of key criteria in the selection of individual SEL constructs and survey items that best met its stakeholder needs. CORE adopted **three key criteria (i.e., the "3Ms")** in selecting SEL constructs; the selected competency should be:

Meaningful

"Predictive of important academic, career, and life outcomes for students."

Measureable

"Measured reliably through an assessment that is feasible to administer at scale in school settings."

Malleable

"There is evidence to suggest that the competency can be developed through in-school interventions."

In addition, CORE prioritized some other criteria, including:

Intra/Interpersonal Skills

The competencies should include both intrapersonal and interpersonal skills.

Clearly Defined

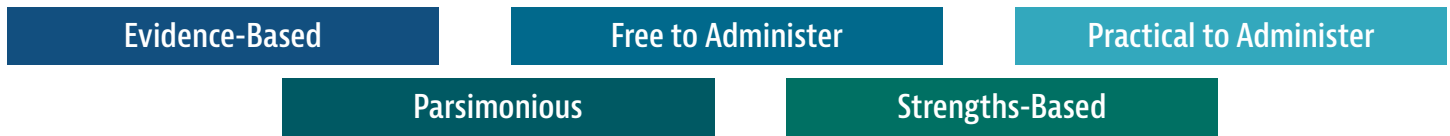
They should be clearly defined and not redundant.

Academic Achievement

The SEL measures should have at least a minimal relationship with students' academic achievement.



Based on these considerations and evidence from [prior research](#), the CORE Districts voted to prioritize four competencies: self-management, growth mindset, self-efficacy, and social awareness. Once finalizing the four social emotional competencies, survey items were curated for each competency that were identified as “[the most promising measures](#)”. The set of criteria used to determine item inclusion included:



With these criteria in mind, the original CORE SEL survey included a total of 25 items measuring the four SEL constructs above. Each construct includes four to nine survey items where students rate themselves on a 5-point Likert scale.

2. Consider best practices related to designing the SEL measures

After determining what social emotional competencies to measure, states and districts still face several other decisions related to the design of an SEL measure.

- **Adopting existing measures vs. designing custom measures:** Practitioners need to choose between adopting existing SEL measures (like CORE) and designing custom SEL measures. Some may prefer writing their own questions customized to local interests. Others may like the benefit of using trustworthy measures that have documented reliability and validity information, while others prefer having benchmarks based on a large sample for the ease of score interpretation and comparison. For example, using CORE’s SEL data from nearly half a million students in grades 4-12, [a benchmarking report](#) is available to be used as a proxy for nationally-normed benchmarks on the four SEL constructs measured by CORE Districts. As a result, states and districts that choose to administer the CORE Districts’ SEL survey will be able to compare these benchmarks to their own data. In addition, a hybrid of the two strategies may work for practitioners; the key is to find out what best fits the needs of the local context.
- **Developing K-12 SEL Standards:** Many states, [including RI](#), have recently developed [statewide K-12 SEL competencies/standards](#). When available, these state competencies/standards should be considered when designing the SEL measures, such that any measure aligns to the competencies and standards for a given grade level. In addition, such standards can be helpful for laying out the developmental trajectory of various SEL competencies over time, which can inform survey design or selection.
- **Integrating equity and cultural responsiveness:** Equity and cultural responsiveness are key factors to consider ensuring an SEL survey [properly addresses diversity](#) among school communities and ensure the social and emotional needs of students from historically marginalized backgrounds are prioritized. Those developing surveys can use several strategies for ensuring that questions are culturally responsive, and have similar meaning across various groups of students.
 - When developing the survey, a diverse group of stakeholders should be involved in the process.
 - During piloting, a representative group of students should be selected for cognitive interviews/think-aloud protocols where they are asked how they interpret the question(s).
 - During analysis, differential item functioning analysis can be used to determine whether students from one student group (like ELLs), who are otherwise similar to a majority group, might be less likely to respond positively to an item.
- **Deciding on a single instrument or multiple instruments:** If the goal is to develop SEL survey(s) for a wide range of grade levels (e.g., the CORE SEL survey is administered to students in grades 4-12), it is important to determine if one set of the same items or several sets of different items should be developed for students at different developmental stages.
- **Survey length and testing burden:** Most SEL practitioners are striving to achieve a balance between survey length (e.g., the number of competencies assessed, the number of items within each competency) and testing time in order to minimize students’ testing burden while getting precise information on students’ social emotional skills. For instance, all SEL constructs in the 2018-19 CORE SEL survey consists of four or five items in order to try to strike this balance.



- **Frequency of administration:** Given that a limited number of items are used to measure an individual SEL construct, survey results can suffer from relatively large measurement error compared to much longer academic achievement tests. One way to help mitigate measurement error while restricting the length of the survey is to assess students more frequently (e.g., once a quarter, once a month) to obtain more precise information of students' SEL skills. For example, a few CORE Districts started to administer the SEL survey twice a year, and some districts are moving towards formative and more frequent assessment of SEL.
- **Assessment format:** Most practitioners measuring SEL on a large scale use self-report surveys as their primary measurement approach, because it allows for the collection of large amounts of information over a short period of time for minimal cost and logistical effort. Although innovative SEL measurement formats, such as direct assessments and naturalistic behavioral observations, are emerging as ideal methods for measuring SEL, it is not yet clear how they can be feasibly leveraged for large-scale assessments. Different assessment formats are needed for different needs and stakeholders. For instance, although a survey may be best for large-scale administration (e.g., as a universal screener), direct observation or performance-based tasks may be more suitable for a targeted group of students receiving more intensive support around social, emotional, and behavioral needs.
- **Item format:** Likert scale items are the most commonly used item format in large-scale settings. Other innovative item types, such as situational judgment tests, anchoring vignette, and forced-choice items, have their own pros and cons (see #9 below), but are also worth considering.

3. Be mindful of the importance of making continuous improvement to the SEL survey measures

A best practice in assessment/survey development is to update items over time, after they have been administered operationally. Thus, it is critical to take deliberate action to continuously improve any SEL measure over time. Adopting widely used SEL measures with reasonable measurement properties is far from reaching the finish line of an SEL journey. An SEL measure may have been researched previously using small samples of high school or college students and concluded to be "valid," but in such cases, there's no way to know if elementary students would misunderstand the questions or interpret them differently. In addition, the same set of questions may work well in the first couple of years, but they may become stale over time as students respond to them repeatedly.

In the case of CORE, our research has shown that, overall, CORE's SEL measurement scales **"have reasonable measurement properties. Yet, they have room for improvement."** For example, **a major finding** identified challenges related to the negative phrasing of the items in the growth mindset construct, especially for students at lower grades. Compared to the other scales, the growth mindset construct had lower reliability (as measured by Cronbach's α) and higher variance in student responses. We also found that students in younger grades, English language learners (ELLs), and those who have lower reading test scores were more likely to be confused by those items. As a result, EA recommended that CORE reword these negatively phrased items as part of a pilot test in 2017-18; analyses of these pilot data showed that positively worded growth mindset items that we pilot tested have more desirable measurement properties than the original negatively worded growth mindset items (Wang, Pier, Meyer & Bolt, 2019). Despite the widespread use of the negatively phrased growth mindset items in other contexts, CORE District members voted to use the pilot tested positively worded growth mindset items starting in 2018-19. Additional readings on the major research findings from CORE's SEL survey administration can be found in [Appendix B: Reading Resources](#).

To ensure that such pilot testing can be executed successfully, several other factors related to the survey administration platform and pilot survey design are worth considering:

- **Randomization:** The survey administration platform should be flexible so that it is not limited to only be able to administer a fixed survey form for all students. One important function of such survey administration platform is to allow random assignment of survey forms with different item orders and different item combinations to students within classrooms at a certain grade level or a grade band. In pilot testing, each student often only sees a subset of piloted items to minimize total survey time. Different survey forms may include different combinations of piloted items presented in different orders to enable linkages between pilot

and operational items and future score reporting. Therefore, the survey platform should be able to support such survey designs. Education Analytics has used a matrix sampling approach in pilot testing of SEL items. For example, one round of piloting tested 10 new items using a total of 84 different survey forms. Each student was administered one form containing only four pilot items.

- **Item Response Theory (IRT) scale scores:** If analyses show that the pilot items function better, and educators decide to replace some of the original survey items with the pilot items, it is important to use IRT to create student-level scale scores that are comparable across years despite changes to the item content over time.
- **Measures of engagement:** When a student is disengaged from answering a low-stakes survey (e.g., a student may quickly click through the questions on the computer screen), the collected survey data is not an accurate measure of the student's actual SEL. [Research on response time](#) has shown some promise in flagging students displaying disengagement behavior, and then incorporating response time in further analysis. Therefore, educators can consider partnering with a survey vendor, like Qualtrics, whose survey platform allows automatically recording of students' time spent answering each item during the survey administration.

4. Adopt a rigorous score reporting method

Traditionally, survey results are reported as the sum total or the average score of questions (e.g., on a 1-5 rating scale) in an SEL construct; another popular metric to report is the percent of students who respond positively (e.g., with a 4 or a 5 on a 5-point Likert scale). Two disadvantages of this type of method are:

1. These metrics don't properly account for missing responses. For example, for an SEL scale with four items, a student who answered 3, 3, 3, 3 and a student who answered 4 and 2 on the first two items and skipped the last two will receive different sum scores (12 vs. 6), but the same mean score of 3;
2. Survey scores cannot be directly compared or tracked over time if there are content changes in the survey. IRT calculates scale scores based on students' response patterns, even if students chose to skip some items (it does this by providing an estimate based on responses from all other students who had the same response patterns on the first two items, but estimates larger measurement error for the student who skipped items). IRT also allows score comparison across different survey forms with different item content when they are designed carefully and administered successfully. Currently, Education Analytics estimates and uses IRT scale scores for research purposes; the CORE Districts are interested in transitioning towards full adoption of IRT scoring for their operational reporting.

IRT can also be combined with other scoring techniques such as augmented scores, which provide scores for individual constructs by "borrowing" information from other related constructs on the test/survey; we have found these augmented scores help improve the reliability of SEL measures (Wang, Meyer & Rice, 2018). Though it is technical, this is a rigorous technique worth considering, since survey measures are often based on a limited number of items and have relatively large measurement error. Most statistical software packages, including Stata and SPSS, offer fairly intuitive ways to create IRT scale scores. A number of IRT-specific software packages, such as PARSCALE, are also available for a fee. Finally, the open-source R software also can create IRT scale scores for those familiar with R.

Lastly, when aggregated at the school level, various SEL constructs may become less distinct from one another, compared to constructs at the student level (Bolt, Wang & Meyer, 2019). This is important to consider when designing a score reporting system at the student and the school levels, as there may be reasons to report an overall SEL metric at the school level and more fine-grained (i.e., construct-specific) metrics at the student level.

5. Provide a user-friendly reporting system for practitioners to use

A user-friendly reporting system is beneficial in that it allows educators and other stakeholders to easily interpret specific social and emotional competencies at the school (and grade) level and to identify how patterns differ across subgroups and years, so that they can best understand bright spots in schools' practices and target resources to better support students' social and emotional development. For example, Education Analytics has built and maintains a **comprehensive dashboard** for the CORE Districts to report both cognitive and noncognitive metrics at the subgroup, school, and district level. This allows CORE District stakeholders to make data-informed decisions based on a wide swath of data. It also creates opportunities for building a professional learning community among districts and schools to learn from each other's successes and challenges.

6. Recognize the challenge of appropriately interpreting survey results and making comparisons across grades and over time

SEL measures used in schools and districts are typically much shorter than standardized mathematic and ELA achievement tests, as well as traditional psychological or personality assessments. In addition, these measures typically assess a subset of social and emotional competencies (e.g., CORE District's SEL survey in 2018-19 measures four SEL constructs with a total of 18 questions). Potential response biases on self-report items raise additional concerns that survey results may suffer from large measurement error. Therefore, survey results need to be interpreted carefully and accurately, specifically in generalizing the meaning of scores based on a few questions to a certain SEL construct, and in comparing scores across subgroups, across grades, and over time. One example of this is evident in the CORE Districts' ongoing research-practice partnership since 2015 with Policy Analysis for California Education (PACE) at Stanford University and with Education Analytics, which supports educators and stakeholders in better understanding their SEL data and prioritizing continuous improvement in their SEL measures. More broadly, consulting or partnering with measurement and content matter experts is helpful for practitioners as they work to minimize misleading or unfounded interpretations of the SEL survey results.

7. Be cautious with the inclusion of SEL growth measures in accountability systems

Education Analytics has recently conducted **several empirical research studies** to assess whether we can quantify school-level and classroom-level impacts on students' growth in SEL. We found substantive variation in students' SEL growth in different schools and classrooms. However, growth estimates at the school level also varied substantially from one year to the next, raising concerns about using growth measures from self-report SEL surveys to evaluate school performance. Given additional concerns around different types of response biases that are possible with self-report surveys, researchers are in unanimous agreement that self-report SEL surveys and their growth measures are not yet ready to be used in accountability systems to make high-stakes decisions. However, these SEL measures may be used for progress monitoring of supports provided to students and/or teachers, assuming that there are not substantial stakes or weight placed on SEL measures alone.

8. Build SEL measures through a developmental lens matching various developmental stages of children and youth

Children and youth at different ages experience and express their social and emotional competencies in different ways. Researchers have called for the adoption of a **developmental lens** when measuring SEL. This means that practitioners or survey developers are recommended to design SEL tasks that are developmentally appropriate and that align with students' developmental stage, background, and context. For example, different SEL items can be developed for students at different grade levels or grade-level bands to reflect their shifting understanding of and proficiency in various SEL competencies.

9. Explore innovative measurement formats and item types that have the potential to address potential biases from self-report surveys

Currently, the most common approach for measuring SEL is via student self-report surveys with Likert scale items. In an effort to minimize potential response bias, many education agencies also administer staff and family surveys of non-cognitive measures to cross-validate information collected from different stakeholders. Other groups are experimenting with innovative measurement formats, such as **direct assessments** (i.e., performance-based or task-based) and naturalistic behavioral observations (e.g., teacher rating scales of students' behavior), as well as **nontraditional self-report item types** such as situational judgment tasks, anchoring vignette, and forced-choice items.

These innovative formats and item types have their drawbacks: they are often more costly, can be logistically challenging to use and score at scale, place higher demands on students' reading abilities, may not directly assess students' beliefs on some SEL constructs (e.g., observation-based measures on students' self-efficacy). In turn, they may be problematic for assessing SEL for students who are younger, are English language learners, have a disability, or are struggling readers. Nevertheless, these innovative formats and item types have several advantages and should be considered by practitioners. Some of these advantages are: They can be less susceptible to certain kinds of response bias (e.g., social desirability bias) and thus, are more reliable. They may also be considered as more "accurate" or objective assessments of students' abilities.

10. Develop an SEL item bank to avoid question staleness over time

Like all types of assessments, survey items may become stale when students see the same set of questions year after year. The development of an SEL item bank (coupled with appropriate IRT-based scoring techniques) allow educators to preserve the integrity of the survey instrument over time, while still providing scores that are comparable in interpretation over time. In addition, an item bank could allow educators to select the competencies that are most appropriate for their local context rather than be restricted to a pre-determined set of items or constructs. Although this requires more work on behalf of the educators or survey developers, it ensures the longevity of any SEL or non cognitive assessment initiative.

APPENDIX A: CORE'S STUDENT SEL SURVEY (2014-15)

Self-Management

First, we'd like to learn more about your behavior, experiences, and attitudes related to school. Please answer how often you did the following during the past 30 days. During the past 30 days...

1. I came to class prepared.
2. I remembered and followed directions.
3. I got my work done right away instead of waiting until the last minute.
4. I paid attention, even when there were distractions.
5. I worked independently with focus.
6. I stayed calm even when others bothered or criticized me.
7. I allowed others to speak without interruption.
8. I was polite to adults and peers.
9. I kept my temper in check.

(Almost Never, Once in a While, Sometimes, Often, Almost All the Time)

Growth Mindset

In this section, please think about your learning in general. Please indicate how true each of the following statements is for you:

10. My intelligence is something that I can't change very much.
11. Challenging myself won't make me any smarter.
12. There are some things I am not capable of learning.
13. If I am not naturally smart in a subject, I will never do well in it.

(Not at All True, A Little True, Somewhat True, Mostly True, Completely True)

Self-Efficacy

How confident are you about the following at school?

14. I can earn an A in my classes.
15. I can do well on all my tests, even when they're difficult.
16. I can master the hardest topics in my classes.
17. I can meet all the learning goals my teachers set.

(Not at All Confident, A Little Confident, Somewhat Confident, Mostly Confident, Completely Confident)

Social Awareness

In this section, please help us better understand your thoughts and actions when you are with other people. Please answer how often you did the following during the past 30 days. During the past 30 days...

18. How carefully did you listen to other people's points of view?
(Not Carefully at All, Slightly Carefully, Somewhat Carefully, Quite Carefully, Extremely Carefully)
19. How much did you care about other people's feelings?
(Did Not Care at All, Cared a Little Bit, Cared Somewhat, Cared Quite a Bit, Cared a Tremendous Amount)
20. How often did you compliment others' accomplishments?
(Almost Never, Once in a While, Sometimes, Often, Almost All the Time)
21. How well did you get along with students who are different from you?
(Did Not Get Along at All, Got Along a Little Bit, Got Along Somewhat, Got Along Pretty Well, Got Along Extremely Well)
22. How clearly were you able to describe your feelings?
(Not at All Clearly, Slightly Clearly, Somewhat Clearly, Quite Clearly, Extremely Clearly)
23. When others disagreed with you, how respectful were you of their views?
(Not at All Respectful, Slightly Respectful, Somewhat Respectful, Quite Respectful, Extremely Respectful)
24. To what extent were you able to stand up for yourself without putting others down?
(Not at All, A Little Bit, Somewhat, Quite a Bit, A Tremendous Amount)
25. To what extent were you able to disagree with others without starting an argument?
(Not at All, A Little Bit, Somewhat, Quite a Bit, A Tremendous Amount)



APPENDIX B: READING RESOURCES

- Bolt, D. M., Wang, Y. C., Meyer, R. H. & Pier, L. (2019a). *Evaluating the differentiation of social-emotional learning (SEL) constructs using multilevel factor analysis*. Paper presented at the National Council on Measurement in Education (NCME) 2019 Annual Meeting.
- Bolt, D. M., Wang, Y. C., Meyer, R. H. & Pier, L. (2019b). *An IRT mixture model for rating scale confusion associated with negatively worded items in measures of social-emotional learning*. Stanford, CA: Policy Analysis for California Education.
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- Fricke, H., Loeb, S., Meyer, R. H., Rice, A. B., Pier, L. & Hough, H. (2019). *Measuring school contributions to growth in social-emotional learning*. Stanford, CA: Policy Analysis for California Education.
- Loeb, S., Christian, M., Hough, H., Meyer, R. H., Rice, A. B. & West, M. R. (2019). School differences in social-emotional learning gains: Findings from the first large-scale panel survey of students. *Journal of Educational and Behavioral Statistics*, 44(5), 507-542.
- Meyer, R. H., Pier, L., Mader, J., Christian, M., Rice, A. B., Loeb, S., Fricke, H. & Hough, H. (2019). *Can we measure high-quality SEL instruction? Applying classroom-level value-added models to student's social emotional learning*. In L. Russell (Chair), *Strategies for Measuring and Affecting Social-Emotional Learning*. Symposium presented at the Association for Education and Finance Policy (AEFP) 44th Annual Conference, Kansas City, MO.
- Meyer, R. H., Wang, Y. C. & Rice, A. B. (2018). *Measuring students' social-emotional learning among California's CORE Districts: An IRT modeling approach*. Stanford, CA: Policy Analysis for California Education.
- Wang, Y. C., Meyer, R. H. & Rice, A. B. (2018). *Incorporating collateral information for reporting scores of social-emotional learning measures*. Symposium presented at the 2018 Annual Meeting of the National Council on Measurement in Education, New York, NY.
- Wang, Y. C., Pier, L., Meyer, R. H. & Bolt, D. M. (2019). *Growth mindset versus not a fixed mindset: comparing positively and negatively worded survey items*. In H. J. Hough (Chair), *SEL measurement and continuous improvement: Lessons from the CORE Districts*. Symposium presented at the 2019 Annual Meeting of the American Educational Research Association, Toronto, Canada.
- West, M. R., Pier, L., Fricke, H., Hough, H., Loeb, S., Meyer, R. H. & Rice, A. B. (2018). *Trends in student social emotional learning: Evidence from the first large-scale panel student survey*. Stanford, CA: Policy Analysis for California Education.

