



[How To Meet Students' Social Emotional and Academic Needs When Schools Reopen](#)

Accompanying Technical Memo

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How do student perceptions of their social-emotional learning competencies (SEL) and of school culture/climate factors (CC) relate to each other? How do these dynamics influence students' academic outcomes? In a resource-constrained environment, what should educators prioritize to boost math and reading outcomes—SEL or CC? Of the 14 different SEL and CC indicators that we regularly measure across our portfolio of innovative schools, which are the highest-leverage variables of academic performance?

These are some of the questions at the heart of our 2018-19 research and learning agenda. In this technical memo, we outline three general approaches to addressing them through our partnership with [Transforming Education](#) (TransformEd):¹

- Correlation analysis,
- Factor analysis,
- Mediation analysis, and
- Regression analysis.

The source for our studies is a comprehensive dataset with SEL, CC, and academic data from more than 12,500 students in 46 schools across the country.²

The results of these analyses provided the empirical evidence for our [2020 Insight Brief](#)³ The brief focuses on “four lessons educators can use to accelerate students’ academic learning by focusing on specific school culture factors and social-emotional competencies”:

- Insight 1. Students who feel physically and emotionally safe tend to do better academically.
- Insight 2. When students believe their abilities and skills can grow with effort, they are more likely to have higher learning outcomes.
- Insight 3. Students who develop ways to cope with stress, emotions, feelings, and behaviors in different situations are likely to do better academically.
- Insight 4. Two “power pairs” are associated with higher learning outcomes than any single culture factor or social-emotional competency.

The insight brief is rich with real-world examples of EDSS practices from our portfolio of innovative schools and was written with school leaders and educators in mind.

As an extension of that work, this technical memo is a companion document intended for researchers and other readers interested in the design and methodological details of our EDSS studies. For those

We are grateful to Katie Buckley and her research team at Transforming Education for their steadfast vision, empirical guidance, and overall partnership throughout this project. We also wish to acknowledge Kat Schenke of Catalyst Methods and Nate Jensen at NWEA for their collaborative technical leadership.

who are especially interested in research and measurement endeavors, we aim to elevate six high-level implications from our multi-year EDSS research project—some of which are addressed directly, others indirectly, in our 2020 Insight Brief.

The first three headlines confirm prior discoveries across the field:

1. Student self-report surveys are a valuable tool for measuring SEL and understanding social-emotional drivers of various student success metrics;⁴
2. There is a positive relationship between students' SEL and their academic outcomes;⁵ and
3. *Growth mindset* and *self-management* are particularly important for academic outcomes.⁶

Three additional implications are more novel in nature and add to a growing body of research about the science of whole-child education and student development. Our results suggest that:

4. It is through the development of SEL that CC primarily affects academic outcomes;
5. *School safety* is the lone CC factor that is distinctively associated with academic outcomes, even when controlling for student SEL and demographic factors; and
6. Certain “power pairs” of SEL and CC indicators further accelerate math and reading performance beyond the impact we see from any single SEL/CC variable.

If you have any questions or comments about this technical memo, please reach out to our Director of Research & Learning, Jason Atwood, at jatwood@newschools.org.

Now, onto and into the data!

Correlation Analysis

The correlation coefficient, symbolized as r , is a statistic that tells us the strength and direction of a linear relationship between two variables. Correlations have a value between -1.0 and +1.0. A coefficient close to 0 means there is a weak relationship. As the value of one variable increases or decreases, there is little to no pattern of change on the other variable.

A coefficient closer to 1 means there is a positive and strong relationship whereby the value of one variable increases as the other variable also increases. In contrast, a coefficient closer to -1 means there is a negative and strong relationship such that the value of one variable goes up (or down) when the other variable goes down (or up).⁷

In our [2020 EDSS Insights Brief](#), we spotlight several statistically significant and positive correlational relationships. Based on guidance from Kraft (2019) about how to interpret the magnitude of these relationships in an education context, each of the following correlations in Table 1 is considered *large*.⁸

Table 1: Student-level correlations between select Spring 2019 SEL/CC indicators and Spring 2019 MAP RIT scores highlighted in our 2020 EDSS Insight Brief

Indicator	Math		Reading	
	Overall (n = 3,904)	Grades 4-5 (n = 1,126)	Overall (n = 3,840)	Grades 4-5 (n = 1,108)
School safety	.21***	.33***	.20***	.30***
Growth mindset	.37***	.44***	.40***	.45***
Self-management	.28***	.32***	.28***	.34***

*** $p < .001$

The full set of 2018-19 correlation tables — quantifying the relationships between each SEL/CC indicator and math/reading scores by grade level and race/ethnicity — are included in the Appendix. These correlations are based on an analytic sample of nearly 4,000 students in grades 4-12 from our 2018-19 EDSS dataset using standardized within-grade SEL and CC scores and standardized within-grade, within-subject MAP Growth RIT scores.

In addition to what we report in our insight brief, we find stronger associations between SEL indicators and academic achievement than between CC indicators and academic achievement. This makes intuitive sense since CC survey items prompt students to report on factors that are more external in nature (i.e., subjective and affective elements of the learning environment), whereas the SEL survey items tap into

student perceptions of specific internal factors like self-mindsets, habits, and skills that are associated with academic motivation and performance.

It is also worth noting the year-over-year consistency of certain patterns in our correlational analyses; in each of our 2016-17, 2017-18, and 2018-19 datasets, growth mindset is the SEL competency most strongly associated with math and reading performance. Similarly, student perception of school safety is the CC factor that has the strongest relationship with achievement.

Factor Analysis

Our [EDSS framework](#) includes [7 social-emotional competencies and 7 culture/climate factors](#).⁹ Table 2 outlines their factor loadings using our 2018-19 dataset based on our initial categorization schema.¹⁰ It helps us test whether the initial grouping of indicators is statistically appropriate. In other words, should we group *curiosity*, *perseverance*, etc. together in a rolled-up measure for the underlying construct of student SEL? We ask the same question about our attempt to understand if *engagement*, *fairness*, etc. are the right combination of variables to assess CC at a construct level.

Table 2: Factor loadings based on original categorization

SEL Indicators	λ	CC Indicators	λ
Curiosity	.72	Engagement	.72
Growth mindset	.34	Fairness	.64
Perseverance	.79	Learning strategies	.75
Self-awareness	.63	Rigorous expectations	.72
Self-efficacy	.74	School safety	.41
Self-management	.78	Sense of belonging	.77
Social awareness	.80	Teacher-student relationships	.79
Fit indices: CFI: .84, TLI .83, RMSEA .07, $r = .81$			

The resulting fit indices tell us that the correlation between the two constructs — SEL and CC — is fairly high. We also see that most of the factor loadings within each construct are fairly high. This suggests a strong relationship between each indicator and its presumed categorical construct, either SEL or CC.

But two factor loadings are relatively low: growth mindset and school safety. One potential explanation is that they function as distinctively different kinds of indicators than other SEL competencies or CC factors—that they deserve attention as unique and individual constructs instead of, in addition to, being thought of as part of a broader SEL construct or CC construct.¹¹ The low factor loading of growth mindset could also be a consequence of using negatively worded items in the survey.¹² And it is worth noting that although school safety has the weakest factor load among all indicators in the CC category, it exceeds the loading cut-off of .40.

We explored several alternative categorization schema to see if we could improve overall fit indices. Table 3 illustrates one well-fitting iteration, with SEL renamed as *self-perceptions* and CC renamed as *school perceptions* to distinguish it from our original categorization.

Table 3: Factor loadings based on alternative categorization

Self-Perceptions Indicators	λ	School Perceptions Indicators	λ
Curiosity	.73	Engagement	.70
Growth mindset	.35	Fairness	.67
Learning strategies	.79	Rigorous expectations	.71
Persistence	.80	School safety	.43
Self-awareness	.63	Sense of belonging	.79
Self-efficacy	.76	Teacher-student relationships	.82
Self-management	.76		
Social awareness	.78		
Fit indices: CFI: .87, TLI .84, RMSEA .06, $r = .78$			

These results suggest that the *learning strategies* indicator may act more like an SEL indicator, while engagement could be placed in either the SEL or CC category.

An aside about the SEL/self-perceptions and CC/school perceptions labels: Practically and on the whole, our initial SEL and CC dichotomy is popular, useful, and statistically defensible; but it may also be overly simplistic if we ignore context about how these categories are better conceptualized as a Venn diagram with some overlapping components.¹³ Technically, for mediation analyses at the construct level, we tended to use the labels of “self-perceptions” and “school perceptions”; for analyses at the indicator level, we tended to use the labels of “SEL” and “CC.” We recognize that such parsing exercises can feel more pedantic than practical. So for colloquial purposes and throughout this brief, we use SEL and self-perceptions as general categorical synonyms, just as CC and school perceptions function as general categorical synonyms.

For a deeper exploration about the psychometric properties of our EDSS self-report survey items, see our [measurement working paper](#).¹⁴

Mediation Analysis

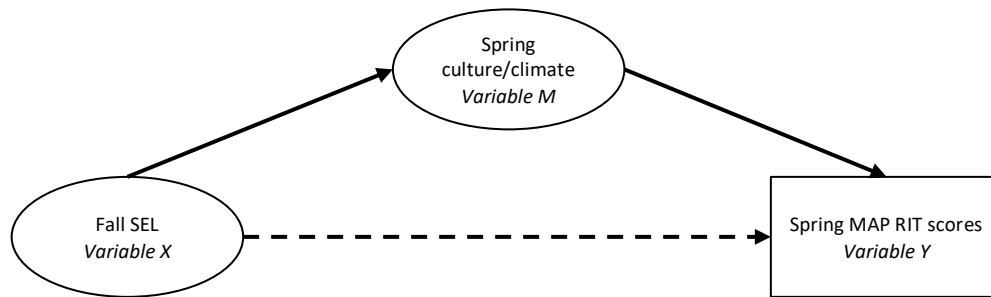
Mediation analysis is a statistical procedure that can illuminate “the process or mechanism by which one variable affects another” (MacKinnon, Fairchild, & Fritz, 2010, p. 594).¹⁵ It’s a new technique we’re using to explore the potential directionality, and otherwise hidden influence, of relationships among social-emotional competencies, perceptions of the learning environment, and academic achievement.

The analytic sample for our mediation analyses includes all 4th through 12th grade students in our EDSS dataset for whom we have SEL, CC, and MAP Growth data in Fall 2018 and Spring 2019, plus data about their race/ethnicity, gender, and ELL status. The resulting n-size for our mediation analyses was around 3,000 students.¹⁶

At a high-level, mediation analysis allowed us to test two hypotheses.

One, that SEL influences achievement indirectly through its impact on CC (see Figure 1).

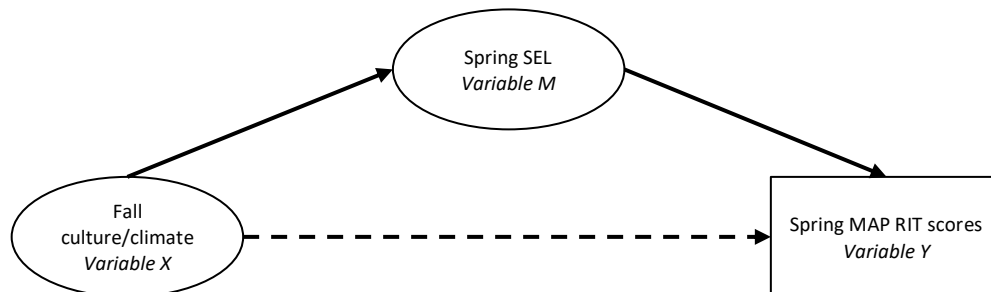
Figure 1: Conceptual model for hypothesis X (SEL) → M (CC) → Y (RIT)



Ultimately, we did not find evidence to support this particular sequence of relationships.

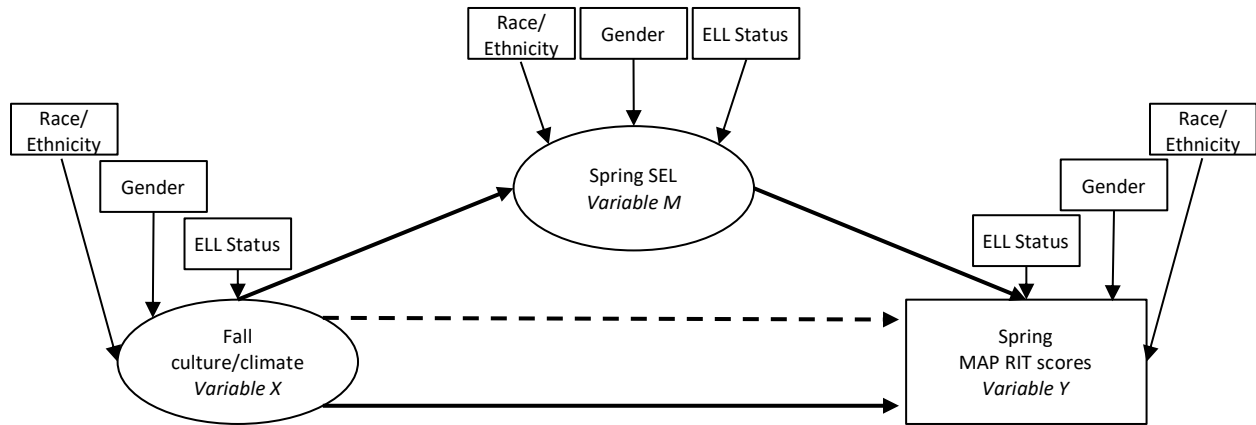
And two, we hypothesized that CC influences achievement indirectly through its impact on SEL (see Figure 2).

Figure 2: Conceptual mediation model for hypothesis X (CC) → M (SEL) → Y (RIT)



We did find evidence to support this second conceptualized model, which we built upon by adding demographic controls (see Figure 3). All resulting analyses presented in this section controlled for students' race, gender, and ELL status.

Figure 3: Mediation model with demographic controls



Quantifying the X (CC) → M (SEL) → Y (RIT) relationships at the construct level

To quantify the relationships among SEL, CC, and academic variables, we constructed multiple models to account for potential collinearity. For example, we had separate models to calculate the effect size of growth mindset and math/reading scores (which controlled for CC and excluded the other SEL indicators); separate models to calculate the effect size of school safety and math/reading scores (which controlled for SEL and excluded the other CC indicators); and separate models to calculate the coefficients for the indirect effect of school perceptions on math/reading scores; etc.

The outputs from all these models are captured in Tables 4 through 5C. In Table 4, it is worth noting that the magnitude of the relationship between CC and academics *at the construct level and when mediated by SEL* (.56; highlighted in blue for easier tracking purposes) is more than twice as large as the relationship between SEL and academics alone (.27) and more than five times as large as the relationship between CC and academics alone (.10).

Table 4: Effect sizes of construct-level relationships between school perceptions (CC) / self-perceptions (SEL) and academics (RIT)

Relationship	RIT Scores		
	Math	Reading	Average
X (CC) → Y (RIT), direct	.11***	.09***	.10***
X (CC) → Y (RIT), indirect	0	0	0
X (CC) → M (SEL) → Y (RIT)	.56***	.56***	.56***
M (SEL) → Y (RIT)	.27***	.27***	.27***

*** $p < .001$

Quantifying the X (CC) → M (SEL) → Y (RIT) relationships at the indicator level

In Tables 5A (CC → RIT), 5B (CC → SEL), and 5C (SEL → RIT), the effect sizes of relationships are reported at the indicator-level. These coefficients are based on standardized deviation units. It is useful to recall Kraft’s (2019) guidelines about how to interpret effect sizes in educational settings, with the statistical context that correlational relationships are typically larger than causal effects. To the extent that relationships exist in Table 5A, they tend to be small-to-medium in size. Those captured in Table 5B are medium-to-large in size. And the nature of relationships summarized in Table 5C are mostly medium in size.

The influence of select CC indicators on academics. There is a lot of information contained in Table 5A, in particular. Let’s translate some of these numbers into text by focusing on the *school safety x indirect effect* cells, which are shaded in blue for easier tracking purposes.

From these results, we can say:

- On average—after controlling for race, gender, ELL-status, and SEL outcomes—the typical student who scores 1 standard deviation (SD) higher than the within-grade, within-indicator mean on our school safety instrument has math scores that are .15 SDs higher than their peers. This is considered a statistically significant, medium-size relationship.
- In reading (ELA), the effect size is .17, which is also statistically significant and medium in size.

Table 5A: Effect sizes of CC indicators and RIT scores ($X \rightarrow Y$), plus estimated impact conversions

Effect size on math and reading RIT scores, estimated change in average RIT score points, and estimated percentile rank on nationally-normed assessments for students scoring 1SD higher on each CC indicator										
CC indicator	Not controlling for SEL					Controlling for SEL				
	Effect Size in Math	Effect Size in ELA	Avg Effect Size	RIT score point equiv.	Perc. rank	Effect size in Math	Effect size in ELA	Avg. Effect Size	RIT score point equiv.	Perc. rank
School safety	.20***	.22***	.21***	3.78	58th	.15***	.17***	.16***	2.88	56th
Rigorous expectations	.13***	.14***	.14***	2.43	55th	--	--	--	--	--
Fairness	.08***	.08**	.08**	1.44	53rd	--	--	--	--	--
Engagement	.07**	--	.04	0.63	51st	-.06*	-.09***	-.08**	-1.35	47th
Sense of belonging	.06*	--	.03	0.54	51st	-.05*	-.10***	-.08**	-1.35	47th
Teacher-student relationships	--	--	--	--	--	-.06**	-.05*	-.06*	-.99	48th

* $p < .05$, ** $p < .01$, *** $p < .001$

The technical aspects of these sentences are likely to leave practitioners seeking a more intuitive, familiar, and incisive way to make meaning of the results.

To approach this challenge, we report two additional outputs based on effect size translations.

One is the RIT score point equivalency metric. We calculate this by multiplying (a) the average standardized effect size of math and reading scores (which is .16 in our school safety example) and (b) the average standard deviation in RIT scores across grade levels and subjects in our EDSS dataset (which is 18). This makes it possible to say that higher school safety ratings translate to about 3 RIT score points in math and reading.

But it is not always easy to decipher if an estimated addition of 3 or so RIT score points is suggestive of substantial differences in student achievement. Thus we also report the estimated percentile ranking of the average student in our EDSS dataset who reports 1SD higher on our school safety instrument. A simple Excel formula (NORMDIST) makes this an easy calculation:

$$=NORMDIST(.16)*100 \rightarrow 56.35$$

With this metric, we can say that students who feel more physically and emotionally safe at school are estimated to have math and reading scores that place them at the 56th percentile on nationally-normed assessments—6 percentile points higher than the mean performance.

School safety is the only CC indicator in our mediation analysis that, when controlling for SEL, has a positive relationship on academic achievement.

Our hope is that in reporting several different outputs, we balance the researcher’s goal of statistical accuracy and precision with the practitioner’s interest in directional and actionable clarity.

The influence of select CC indicators on SEL. The data in Table 5B allows us to talk about the statistical relationships between our CC and SEL self-report surveys, specifically how individual school-perception indicators drive self-perception outcomes.

Let’s take the outputs associated with the notion of engagement—which we define as being attentive and invested in class—as one example of how to read this table. The relevant row is highlighted in blue for easier tracking purposes.

On average—after controlling for the aforementioned demographic variables of race, gender, and ELL-status and excluding the five other non-engagement CC indicators—students who score 1 SD higher than the within-grade, within-indicator mean on our engagement instrument also report SEL scores that are .47 SDs higher than their peers. This particular relationship is statistically significant and large in size.

Table 5B: Effect sizes of CC indicators and SEL ($X \rightarrow M$), plus estimated impact conversions

CC indicator	Effect size on overall SEL scores, estimated point change in average SEL scores, and percentage change on SEL scores for students scoring 1 SD higher on each CC indicator		
	Self-perceptions/ SEL construct effect size	SEL point equivalent	Percent change
Engagement	.47***	.41	8.2
Rigorous expectations	.41***	.36	7.1
Sense of belonging	.40***	.35	7.0
Teacher-student relationships	.37***	.32	6.4
Fairness	.30***	.26	5.2
School safety	.21***	.18	3.7

*** $p < .001$

With our emphasis on plain-language research-to-practice data translation, we need another way to talk about these results. This is where we can look to metrics like survey response choices, as counted by points on a Likert-type response scale, to inform our translation efforts. Across grade levels and SEL indicators, the standard deviation in survey responses is .87 points along a 5-point Likert-type scale.

By multiplying the relevant coefficient (which, in the case of engagement, is .47) by .87, then we can report that the average student who tends to say things like

- They're *quite eager* versus *somewhat eager* to participate in class and
- They *frequently* versus *sometimes* talk about ideas from class outside of school

are estimated to typically score .41 points higher on our 5-point scale of self-perceptions.

At a conceptual level, this means that one category-level positive change in the way students rate themselves as engaging in class is associated with roughly an 8 percent increase on their self-report measure of SEL. Or, more simply: Students who report high levels of engagement are more likely to also have higher SEL outcomes.

This is a general trend for all CC indicators, whereby students'

- Level of attentiveness and investment in their classes (engagement);
- Beliefs about the extent to which teachers hold them to high expectations around effort, understanding, persistence, and performance in class (rigorous expectations);
- Feelings of being valued, socially connected, supported, and respected in their school community (sense of belonging);
- Assessments about the strength of social connections they have with teachers (teacher and student relationships);
- Perceptions of how adults in the school treat them and their peers based on identity markers like gender, race, ethnicity, socioeconomic status, and cultural background (fairness); and
- Feelings of physical and emotional safety (school safety)

each have a statistically positive association with their self-perceptions of social-emotional competencies. As students feel more positive about the culture/climate of their school, so too do they exhibit stronger mindsets, habits, and skills that are associated with academic success.

The influence of select SEL indicators on academics. With Table 5C, we illustrate the magnitude of the relationship between SEL indicators and academic outcomes and provide relatively practitioner-friendly estimations about how to make sense of these effect sizes. We use the same calculations as outlined earlier for Tables 5A and 5B to estimate

- the average number of additional RIT score points in reading and math that a student benefits from when scoring 1SD higher on each measure of SEL indicators,¹⁷ and
- the percentile rank that students are estimated to perform at on nationally-normed assessments of academic achievement.¹⁸

As an example of how to interpret the data in Table 5C, we can look at the growth mindset row, which is highlighted in blue.

Table 5C: Effect sizes of SEL indicators and RIT scores (M → Y)

SEL indicator	Effect Size on RIT Scores			Est. change in average RIT score points and est. percentile rank on nationally-normed assessments for students scoring 1SD higher on each SEL indicator	
	Math	Reading	Average	RIT score point equiv.	Perc. rank
Growth mindset	.32***	.35***	.34***	6.03	63rd
Self-management	.23***	.25***	.24***	4.32	59th
Self-efficacy	.25***	.21***	.23***	4.14	59th
Learning strategies	.19***	.19***	.19***	3.42	58th
Self-awareness	.10***	.20***	.15***	2.70	56th
Social awareness	.15***	.13***	.14***	2.52	56th
Curiosity	.13***	.09**	.11***	1.98	54th
Persistence	.10***	.10***	.10***	1.80	54th

** $p < .01$, *** $p < .001$

Our mediation analysis allows us to say that the average effect size of growth mindset scores and academic performance is .34, which is statistically significant and large in size. This is based on calculations that control for students' race, gender, ELL-status, and school-perceptions (CC). In more practical language, we might say that a typical student who scores .87 points higher on our growth mindset survey also averages around 6 additional RIT score points in math and reading. At a conceptual level, students who are more likely to express beliefs in the malleability of their intelligence are estimated to perform at the 63rd percentile on nationally-normed academic assessments.

It is worth noting that we see the same overall trend for each SEL indicator in our mediation analysis, where every relationship with academics is statistically significant even as the practical effects vary in size.

Regression Analysis

The above analyses investigated the relationships between and among individual indicators and constructs. But we were also curious to learn whether there is an additive effect, so to speak, of multiple indicators; for example, when students feel safe in school *and* exhibit a growth mindset; or if students believe their teachers have high expectations *and* students score high on our self-efficacy measure.

Table 6 captures the results of what we're calling our *power pairs analysis* among three social-emotional competencies and three culture/climate factors. These six indicators were among the most impactful SEL competencies and CC factors as demonstrated by the above mediation analyses. For the power pairs analyses, we regressed math / reading RIT scores from Spring 2019 on the specific SEL and CC indicators from Fall 2018, controlling for race, gender, ELL-status, cohort, and school.

Most notably, the power pair analysis further bolsters the case for attending to student perceptions of physical and emotional safety. Let's look at the school safety column, highlighted in blue for easier tracking purposes, to translate the results into more practical language.

Here we see that after applying the aforementioned variables, students who report 1 SD above the within-grade, within-indicator mean on school safety in the Fall semester *and* growth mindset in the Spring semester produce end-of-year math and reading RIT scores that are .44 SDs higher than the mean, which is both statistically significant and practically meaningful. Conceptually, this additive effect is the estimated equivalent of moving from the 50th percentile on nationally-normed assessments to the 67th percentile. NWEA considers this quantitative leap as the qualitative difference between *average* academic performance and *above average* academic performance.¹⁹ We see the same overall trend when looking at the additive effects of school safety and self-efficacy, whereby high indicator scores are associated with performance that ranks at the 64th percentile on academic outcomes, and also when looking at safety and self-management, which is associated with math and reading performance at the 63rd percentile on nationally-normed assessments.

Table 6: Effect sizes, estimated RIT score point equivalency, and estimated percentile rank on nationally-normed assessments when there is a “power pair”

Is there an additive effect of ___ and ___?	School safety	Rigorous expectations	Fairness
Growth mindset Effect size Est. RIT score point equiv Est. percentile rank	Yes .44 7.92 points 67th percentile	Yes .40 7.2 points 66th percentile	No
Self-efficacy Effect size Est. RIT score point equiv Est. percentile rank	Yes .35 6.3 points 64th percentile	No	No
Self-management Effect size Est. RIT score point equiv Est. percentile rank	Yes .34 6.12 points 63rd percentile	No	No

In Table 6, we also see that students’ growth mindset—when coupled with students’ beliefs that teachers have rigorous expectations for them—has a meaningful impact on academic achievement. We estimate that students who score 1 SD higher on both the Fall semester rigorous expectations instrument and Spring semester growth mindset instrument average RIT scores that are 7.2 points higher than the mean, which would place them at the 66th percentile on nationally-normed assessments.

To complete the walkthrough of results from our power pairs analysis, it is worth noting that there are no statistically significant additive effects when we include both self-efficacy and rigorous expectations in a model; nor do we see a meaningful boost to academic achievement when we include self-management and rigorous expectations in the model. We also cannot say that the addition of fairness—when paired with growth mindset, self-efficacy, or self-management—has a statistically significant effect above and beyond the influence of any one of those three SEL indicators on its own.

Closing Thoughts

This technical memo documents the methodological details and decisions that shaped the empirical foundation of our [2020 EDSS Insight Brief](#). The core question we sought to address with a combination of correlational analysis, factor analysis, mediation analysis, and regression analysis is how student perceptions of their social-emotional competencies, their perceptions of the school culture/climate, and student academic outcomes are related to each other. We found strong evidence about the nature of these relationships, summarized in tables throughout this memo.

Our findings confirm several themes from existing literature, namely that (i) self-report surveys are a valuable tool for exploring the social-emotional components of student success across a range of outcome metrics; (ii) there is a positive relationship between SEL and academic achievement; and (iii) growth mindset and self-management are particularly important for academic outcomes.

There are also several innovative dimensions to our findings. For one, we demonstrated the chain of relationships within our EDSS framework: It is through the development of SEL that student perceptions of the learning environment primarily affects academic performance. Two, we elevated the importance of school safety as the most influential CC indicator in our EDSS framework that is associated with academic outcomes. And three, we learned that certain combinations of SEL and CC indicators seem to accentuate math and reading performance beyond the impact we observe from any single SEL/CC variable. The two most notable “power pairs” are (i) growth mindset and school safety and (ii) growth mindset and rigorous expectations.

Our results are based on correlational relationships, not causal models, so we must be mindful not to overinterpret the implications. But the consistency and magnitude of the relationships are compelling. School leaders and other educators who are looking to put these findings in practical context will draw ideas and inspiration from our [2020 Insight Brief](#). And for those looking for conversation about the research implications and methodological details of our EDSS project, please reach out to Jason Atwood, our Director of Research & Learning, at jatwood@newschools.org. We are also eager to discuss our current research priorities.

Future research questions

In the coming months and throughout the 2020-21 school year, we are planning to investigate several additional research questions alongside our partner at TransformEd to advance our EDSS learning agenda, such as:

- How stable are students’ social-emotional competencies and culture/climate perceptions over time?
- In what ways do within-student changes in SEL and CC influence patterns of academic performance? Do these relationships vary by demographic factors?

- How do student and teacher perceptions of their school's culture/climate relate to one another? How might these perceptions vary across school models? How do SEL scores vary across school models?

And as we seek to better serve the needs of our school communities, we are also elevating several COVID-related questions:

- What was the impact of school closures and distance learning throughout Spring 2020 on student SEL, CC, and academic outcomes?
- To what extent, if any, might previously-reported SEL and CC outcomes serve as a protective factor for how students feel about reentering school and are able to perform academically? For example, what are the academic outcomes of students who had a notably strong growth mindset, or who already felt especially safe in their school environment, compared to their peers who had a relatively fixed mindset or did not report feeling safe in their schools pre-COVID?

We look forward to sharing *everything we learn as fast as we learn it* via future insight briefs, technical memos, presentations, and conversations with school leaders, researchers, community members, funders, and other partners committed to an expanded definition of student success.

Appendix A

EDSS Survey Items

Social-emotional competencies

1. Curiosity
2. Growth mindset
3. Perseverance
4. Self-awareness
5. Self-efficacy
6. Self-management (fka self-regulation)
7. Social awareness

Culture/climate factors

1. Engagement
2. Fairness (fka cultural/linguistic competence)
3. Learning strategies
4. Rigorous expectations
5. School safety
6. Sense of belonging
7. Teacher and student relationships

Definitions, survey items, response choices, and relevant literature about the design and validation for each self-report measure is available [here](#). Additional details about the psychometric properties of our EDSS surveys are available in our [measurement working paper](#).

Appendix B.1

Correlations Between Spring 2019 SEL Indicators and Spring 2019 MAP RIT Scores²⁰

Subject: Math	Overall	Grade Level		Student Race/Ethnicity			
		Elementary (Grades 4-5)	Secondary (Grades 6-12)	AAPI	Black	Latino	White
Curiosity	.117***	.134***	.129***	.349**	.0796*	.123***	.109*
Growth mindset	.365***	.441***	.368***	.398***	.372***	.356***	.310***
Perseverance	.116***	.135***	.126***	.252*	.084*	.156***	.063
Self-awareness	.144***	.175***	.145***	.273*	.167***	.129***	.120**
Self-efficacy	.252***	.288***	.270***	.408***	.186***	.270***	.279***
Self-management	.275***	.315***	.283***	.317**	.249***	.313***	.180***
Social awareness	.187***	.217***	.190***	.329**	.175***	.195***	.076
n	3,904	1,126	2,778	78	986	948	559

Subject: Reading	Overall	Grade Level		Student Race/Ethnicity			
		Elementary (Grades 4-5)	Secondary (Grades 6-12)	AAPI	Black	Latino	White
Curiosity	.048*	.083*	.050*	.359**	.030	.031	.014
Growth mindset	.395***	.452***	.413***	.504***	.400***	.372***	.335***
Perseverance	.081***	.147***	.070**	.278*	.046	.125***	.004
Self-awareness	.129***	.158***	.128***	.270*	.140***	.152***	.082
Self-efficacy	.183***	.257***	.182***	.456***	.114***	.173***	.207***
Self-management	.279***	.340***	.281***	.332**	.238***	.326***	.193***
Social awareness	.195***	.239***	.193***	.352**	.173***	.226***	.091*
n	3,840	1,108	2,732	77	992	942	551

* $p < .05$, ** $p < .01$, *** $p < .001$

Appendix B.2

Correlations Between Spring 2019 CC Indicators and Spring 2019 MAP RIT Scores²¹

Subject: Math	Overall	Grade Level		Student Race/Ethnicity			
		Elementary (Grades 4-5)	Secondary (Grades 6-12)	AAPI	Black	Latino	White
Engagement	.082***	.141***	.079**	.186	.031	.117***	.080
Fairness	.174***	.303***	.146***	.222	.147***	.187***	.069
Learning strategies	.190***	.256***	.185***	.376**	.121***	.220***	.168***
Rigorous expectations	.158***	.193***	.162***	.387***	.133***	.223***	-0.038
School safety	.209***	.327***	.180***	.063	.218***	.226***	.111*
Sense of belonging	.092***	.155***	.071**	.062	.069*	.139***	-.015
Teacher-student relationships	.135***	.183***	.133***	.295*	.124***	.149***	.041
n	3,904	1,126	2,778	78	986	948	559

Subject: Reading	Overall	Grade Level		Student Race/Ethnicity			
		Elementary (Grades 4-5)	Secondary (Grades 6-12)	AAPI	Black	Latino	White
Engagement	.044*	.106**	.030	.251*	-.004	.049	.070
Fairness	.162***	.296***	.115***	.243*	.134***	.178***	.087*
Learning strategies	.160***	.243***	.143***	.396***	.110**	.165***	.136**
Rigorous expectations	.170***	.227***	.157***	.370***	.144***	.245***	-.022
School safety	.202***	.303***	.171***	.159	.194***	.225***	.133**
Sense of belonging	.040*	.099**	.010	.036	.015	.084*	-.058
Teacher-student relationships	.119***	.180***	.103***	.296*	.085*	.128***	.089*
n	3,840	1,108	2,732	77	992	942	551

* $p < .05$, ** $p < .01$, *** $p < .001$

Appendix B.3

Correlations Between Spring 2018 SEL Indicators and Spring 2018 MAP RIT Scores²²

Subject: Math	Overall	Grade Level		Student Race/Ethnicity			
		Elementary (Grades 4-5)	Secondary (Grades 6-12)	AAPI	Black	Latino	White
Curiosity	.115***	.137***	.125***	.179	-.060	.117***	.209***
Growth mindset	.324***	.406***	.310***	.417***	.337***	.255***	.409***
Perseverance	.138***	.157***	.165***	.257***	.186***	.105***	.118***
Self-awareness	.119***	.185***	.095***	.114	.025	.129***	.195***
Self-efficacy	.262***	.297***	.302***	.387***	.140**	.236***	.323***
Self-management	.219***	.263***	.243***	.334**	.068	.209***	.238***
Social awareness	.100***	.177***	.177***	.177*	.119***	.047**	.134***
n	2,719	1,454	1,249	73	403	1,472	575

Subject: Reading	Overall	Grade Level		Student Race/Ethnicity			
		Elementary (Grades 4-5)	Secondary (Grades 6-12)	AAPI	Black	Latino	White
Curiosity	.060**	.070**	.073*	.087	-.107	.056*	.155***
Growth mindset	.360***	.429***	.340***	.412***	.392***	.305***	.427***
Perseverance	.136***	.132***	.143***	.251***	.169***	.106***	.128
Self-awareness	.121***	.180***	.084**	.050	.063	.107***	.219***
Self-efficacy	.198***	.248***	.201***	.308**	.072	.168***	.282***
Self-management	.233***	.264***	.259***	.286*	.091	.217***	.262***
Social awareness	.121***	.186***	.192***	.207**	.144***	.062***	.180***
n	2,679	1,442	1,223	72	392	1,456	572

* $p < .05$, ** $p < .01$, *** $p < .001$

Appendix B.4

Correlations Between Spring 2018 CC Indicators and Spring 2018 MAP RIT Scores²³

Subject: Math	Overall	Grade Level		Student Race/Ethnicity			
		Elementary (Grades 4-5)	Secondary (Grades 6-12)	AAPI	Black	Latino	White
Engagement	.056**	.055*	.056*	.265*	-.110	.073**	.033
Fairness	.128***	.172***	.110***	.303**	.067	.095***	.098*
Learning strategies	.162***	.160***	.215***	.338**	.045	.192***	.140***
Rigorous expectations	.094***	.126***	.072*	.295**	.079	.097***	.107*
School safety	.212***	.272***	.180***	.315**	.112*	.212***	.180***
Sense of belonging	.006	.036	.002	.328**	.068	.003	.004
Teacher-student relationships	.047*	.074**	.025	.230*	.001	.043	.045
n	2,747	1,463	1,265	76	415	1,477	582

Subject: Reading	Overall	Grade Level		Student Race/Ethnicity			
		Elementary (Grades 4-5)	Secondary (Grades 6-12)	AAPI	Black	Latino	White
Engagement	.029	.035	.018	.216	-.123	.048	.038
Fairness	.163***	.220***	.119***	.343**	.099*	.129***	.173***
Learning strategies	.143***	.153***	.168***	.211	.063	.149***	.151***
Rigorous expectations	.114***	.116***	.118***	.194	.124*	.121***	.129**
School safety	.234***	.309***	.165***	.352**	.153**	.221***	.231***
Sense of belonging	-.004	.034	-.032	.245*	.091	-.018	.036
Teacher-student relationships	.068***	.086**	.047	.147	.029	.062*	.106*
n	2,708	1,453	1,238	75	404	1,460	581

* $p < .05$, ** $p < .01$, *** $p < .001$

Appendix B.5

Correlations Between Spring 2017 SEL Indicators and Spring 2017 MAP RIT Scores²⁴

Subject: Math	Overall	Grade Level		Student Race/Ethnicity			
		Elementary (Grades 4-5)	Secondary (Grades 6-12)	AAPI	Black	Latino	White
Curiosity	.159***	.108*	.208***	.165	.031	.149**	.227***
Growth mindset	.431***	.478***	.386***	.652***	.377***	.338***	.454***
Perseverance	.168***	.161***	.174***	.019	-.062	.158**	.236***
Self-awareness	.178***	.193***	.161***	.124	.016	.185***	.135**
Self-efficacy	.326***	.332***	.321***	.386**	.117	.240***	.423***
Self-management	.283***	.256***	.309***	.146	.010	.275***	.287***
Social awareness	.155***	.165***	.146***	.123	-.083	.161**	.158**
n	1,064	518	547	46	138	380	421

Subject: Reading	Overall	Grade Level		Student Race/Ethnicity			
		Elementary (Grades 4-5)	Secondary (Grades 6-12)	AAPI	Black	Latino	White
Curiosity	.127***	.108*	.208***	.076	-.044	.159**	.164***
Growth mindset	.440***	.478***	.386***	.658***	.428***	.346***	.444***
Perseverance	.164***	.161***	.174***	.116	-.062	.203***	.165***
Self-awareness	.197***	.193***	.161***	.185	.091	.218***	.120*
Self-efficacy	.306***	.332***	.321***	.424**	.029	.261***	.364***
Self-management	.294***	.256***	.309***	.28	.014	.291***	.290***
Social awareness	.200***	.165***	.146***	.314*	.002	.206***	.170***
n	1,043	518	547	44	134	370	418

* $p < .05$, ** $p < .01$, *** $p < .001$

Appendix B.6

Correlations Between Spring 2017 CC Indicators and Spring 2017 MAP RIT Scores²⁵

Subject: Math	Overall	Grade Level		Student Race/Ethnicity			
		Elementary (Grades 4-5)	Secondary (Grades 6-12)	AAPI	Black	Latino	White
Engagement	.027	.036	.018	.028	-.126	.022	.095
Fairness	.119***	.159***	.080	.220	-.106	.095	.120*
Learning strategies	.181***	.164***	.198***	.325*	-.051	.187***	.211***
Rigorous expectations	.199***	.191***	.205***	.084	.035	.191***	.228***
School safety	.167***	.205***	.130**	.279	.072	.191***	.067
Sense of belonging	.038	.047	.029	-.012	-.144	.048	.088
Teacher-student relationships	.074	.050	.096*	.007	-.099	.054	.138**
n	1,061	518	547	46	138	380	421

Subject: Reading	Overall	Grade Level		Student Race/Ethnicity			
		Elementary (Grades 4-5)	Secondary (Grades 6-12)	AAPI	Black	Latino	White
Engagement	.029	.062	-.003	.121	-.213*	.073	.080
Fairness	.155***	.203***	.107*	.258	-.103	.173***	.130**
Learning strategies	.164***	.142**	.185***	.284	-.004	.168**	.167***
Rigorous expectations	.227***	.219***	.235***	.190	.03	.240***	.255***
School safety	.230***	.275***	.184***	.568***	.270**	.221***	.107*
Sense of belonging	.035	.0738	-.004	.096	-.139	.068	.045
Teacher-student relationships	.125***	.107*	.142**	.120	-.104	.179***	.158**
n	1,043	517	525	44	134	370	418

* $p < .05$, ** $p < .01$, *** $p < .001$

Appendix C

Mediation Results from Restricted Analytic Sample of 19 Direct-Funded Schools (AY2018-19, n = 1,907)

Table 4-Restricted: Effect sizes of construct-level relationships between school perceptions (CC) / self-perceptions (SEL) and academics (RIT)

Relationship	RIT Scores		
	Math	Reading	Average
X (CC) → Y (RIT), direct	.11***	.09**	.10***
X (CC) → Y (RIT), indirect	0	0	0
X (CC) → M (SEL) → Y (RIT)	.56***	.49***	.53***
M (SEL) → Y (RIT)	.25***	.27***	.26***

Table 5A-Restricted: Effect sizes of CC indicators and RIT scores (X → Y), plus estimated impact conversions

Effect size on math and reading RIT scores, estimated change in average RIT score points, and estimated percentile rank on nationally-normed assessments for students scoring 1SD higher on each CC indicator										
CC indicator	Not controlling for SEL					Controlling for SEL				
	Effect Size in Math	Effect Size in ELA	Avg Effect Size	RIT score point equiv.	Perc. rank	Effect size in Math	Effect size in ELA	Avg. Effect Size	RIT score point equiv.	Perc. rank
School safety	.18***	.20***	.19***	3.42	58th	.13***	.15***	.14***	2.52	56th
Rigorous expectations	.11***	.14***	.13***	2.25	55th	--	--	--	NA	NA
Fairness	--	.07*	.04	NA	NA	--	--	--	NA	NA
Engagement	--	--	--	NA	NA	-.08**	-.10**	-.09**	-1.62	46th
Sense of belonging	--	--	--	NA	NA	--	-0.11***	-.06*	-0.99	48th
Teacher-student relationships	--	--	--	NA	NA	--	--	--	NA	NA

* $p < .05$, ** $p < .01$, *** $p < .001$

Table 5B-Restricted: Effect sizes of CC indicators and SEL ($X \rightarrow M$), plus estimated impact conversions

CC indicator	Effect size on overall SEL scores, estimated point change in average SEL scores, and percentage change on SEL scores for students scoring 1 SD higher on each CC indicator		
	Self-perceptions/ SEL construct effect size	SEL point equivalent	Percent change
Engagement	.42***	.37	7.3
Sense of belonging	.40***	.35	7.0
Rigorous expectations	.37***	.32	6.4
Teacher-student relationships	.37***	.32	6.4
Fairness	.28***	.25	4.9
School safety	.21***	.18	3.7

Table 5C-Restricted: Effect sizes of SEL indicators and RIT scores ($M \rightarrow Y$)

SEL indicator	Effect Size on RIT Scores			Est. change in average RIT score points and est. percentile rank on nationally-normed assessments for students scoring 1SD higher on each SEL indicator	
	Math	Reading	Average	RIT score point equiv.	Perc. rank
Growth mindset	.30***	.33***	.32***	5.67	62nd
Self-management	.23***	.26***	.25***	4.41	60th
Self-efficacy	.23***	.21***	.22***	3.96	59th
Learning strategies	.17***	.18***	.18***	3.15	57th
Social awareness	.14***	.19***	.17***	2.97	57th
Self-awareness	.08**	.20***	.14***	2.52	56th
Curiosity	.13***	.12**	.13***	2.25	55th
Persistence	.11***	.12***	.12***	2.07	55th

** $p < .01$, *** $p < .001$

Endnotes

¹ For more on the NewSchools and TransformEd research partnership, please see <https://www.transformingeducation.org/our-work/with-schools-and-systems/newschools-invent-partnership/>

² Our EDSS dataset includes the following components collected in the 2016-17, 2017-18, 2018-19, and Fall/Winter 2019 school years:

- [SELweb](#) EE (early elementary) data: Direct assessment of four key social and emotional competencies among students in grades K to 3: *emotion recognition, social-perspective-taking, social problem-solving, and self-control*;
- [NewSchools Invent EDSS Student Self-Reports](#) data: Grades 4-12 student survey data on seven SEL competencies: *growth mindset, intellectual curiosity, perseverance, self-awareness, self-efficacy, self-management* (renamed from *self-regulation* in part to align with California CORE Districts naming schema), and *social awareness*; and seven CC factors: *fairness* (renamed from *cultural/linguistic competence*), *learning strategies, rigorous expectations, school safety, sense of belonging, student engagement, and teacher-student relationships*.
- NWEA [MAP Growth](#) data;
- State [proficiency](#) data;
- [Teacher reports](#) on three observable SEL competencies: persistence, self-management, and social awareness;
- Teacher perspectives on three general domains of their school's culture/climate: The school environment (e.g., *How optimistic are you that your school will improve in the future?*), students (e.g., *On most days, how enthusiastic are the students about being in school?*), and their colleagues/peer teachers (e.g., *How positive are the attitudes of your colleagues?*); plus
- Other key numbers like enrollment, attendance, and suspension data.

For more research on the development and validation of the NewSchools EDSS surveys and SELweb, please see:

- Buckley, K., Subedi, S., Krachman, S., Atwood, J., & Education Analytics (2018). *Working paper: Measurement properties of student social-emotional competency and school culture-climate surveys in the NewSchools Invent cohort*. Transforming Education. <https://www.transformingeducation.org/wp-content/uploads/2019/01/NSI-RQ1-Final-Paper-for-website.pdf>
- McKown, C., Russo-Ponsaran, N. M., Johnson, J. K., Russo, J., & Allen, A. (2015). Web-based assessment of children's social-emotional comprehension. *Journal of Psychoeducational Assessment*, 34(4), 322-338. <https://doi.org/10.1177/0734282915604564>
- McKowan, C., Russo-Ponsaran, N. M., Allen, A., Johnson, J. K., & Warren-Khot, H. K. (2016). Social-emotional factors and academic outcomes among elementary-aged children. *Infant and Child Development*, 25(2), 119-136. <https://doi.org/10.1002/icd.1926>

In general, we collect and analyze SEL and CC data every semester and academic data every year. Due to COVID-19 and school closures, we did not collect academic, SEL, or CC data in Spring 2020.

³ Messano, F., Childress, C., & Atwood, J. (2020). *Meeting the social-emotional and academic needs of students when schools reopen this fall*. NewSchools Venture Fund Insight Brief. <https://bit.ly/EDSS-3>

⁴ See, for example:

- Buckley et al. (2018).
- Jackson, K., Porter, S. C., Easton, J. Q., Blanchard, A., & Kiguel, S. (2020). *School effects on socio-emotional development, school-based arrests, and educational attainment*. CALDER Working Paper No. 226-0220. <https://caldercenter.org/publications/school-effects-socio-emotional-development-school-based-arrests-and-educational>
- West, M. R., Buckley, K., Krachman, S., & Bookman, N. (2018). Development and implementation of student social-emotional surveys in the CORE Districts. *Journal of Applied Developmental Psychology*, 55, 119-129. <https://doi.org/10.1016/j.appdev.2017.06.001>

⁵ See, for example:

- Balfanz, R., & Byrnes, V. (2020, May). *Connecting social-emotional development, academic achievement, and on-track outcomes: A multi-district study of grades 3 to 10 students supported by CityYear AmeriCorps members*. The Everyone Graduates Center at the Center for Social Organization of Schools at the Johns Hopkins University School of Education. https://www.cityyear.org/wp-content/uploads/2020/05/EGC_CityYearReport_BalfanzByrnes.pdf
- Mahoney, J. L., Durlak, J. A., & Weissberg, R. P. (2018, November). An update on social and emotional learning outcome research. *Phi Delta Kappan*. <https://kappanonline.org/social-emotional-learning-outcome-research-mahoney-durlak-weissberg/>

⁶ See, for example:

- Claro, S., & Loeb, S., (2019a). *Students with growth mindset learn more in school: Evidence from California's CORE School Districts*. Policy Analysis for California Education (PACE). <https://www.edpolicyinca.org/publications/mindset-effect-academic-achievement>
- Claro, S., & Loeb, S., (2019b). *Self-management skills and student achievement gains: Evidence from California's CORE School Districts*. PACE. <https://www.edpolicyinca.org/publications/self-management-skills-and-student-achievement-gains-evidence-california-core-districts>
- Hough, H., Kanopa, K., Lee, M. X., Miller, R., Peck, J., & Pier, L. (2020). *Supporting students' social-emotional learning as a force for recovery*. PACE Webinar. <https://edpolicyinca.org/events/pace-webinar-supporting-students-social-emotional-learning-force-recovery>

⁷ If interested in a cogent, highly accessible (i.e., non-jargony) primer on the topic of correlational research, check out Chapter 3 of:

- Huck, S. W. (2012). *Reading Statistics and Research, Sixth Edition*. Pearson.

⁸ Kraft, M. (2019). Interpreting effect sizes of education interventions. (EdWorkingPaper: 19-10). Retrieved from Annenberg Institute at Brown University: <https://doi.org/10.26300/8pip-2z74>

- Correlational relationships are one type of an effect size to help research consumers think about the magnitude of an association between two variables.
- In Table 2 of Kraft's working paper, effect sizes <.05 are considered *small*; 0.5 to <.20 are considered *medium*; and .20 or > are considered *large*.

- It is also worth noting Kraft’s discussion about how “correlational relationships are, on average, substantially larger than causal effects” (p. 9).

⁹ Our EDSS framework can be found at <https://bit.ly/EDSS-Graphic>. Our full list of EDSS survey items is available at <https://drive.google.com/file/d/1tblYaPX1rKXmTgQPVCzs06NdbNudyIn/view>.

¹⁰ The factor analysis results presented in this technical memo should be considered an extension of the psychometric research documented in our [measurement working paper](#) (Buckley et al., 2018).

¹¹ For more on the theoretical and empirical overlap of SEL and culture/climate indicators, see:

- Osher, D., & Berg, J. (2017). *School climate and social and emotional learning: The integration of two approaches*. Edna Bennet Pierce Prevention Research Center. Pennsylvania State University. <https://www.air.org/sites/default/files/downloads/report/School-Climate-and-Social-and-Emotional-Learning-Integrative-Approach-January-2018.pdf>

¹² See more on the topic at:

- Bolt, D., Wang, C., Meyer, R. H., & Pier, L. (2019, October). *An IRT mixture model for rating scale confusion associated with negatively worded items in measures of social-emotional learning*. PACE. <https://edpolicynca.org/publications/irt-mixture-model-rating-scale-confusion>

Based on the above psychometric analyses, and informed by SEL measurement experts, we are planning to use a positively-worded growth mindset scale in future EDSS surveys.

¹³ Here again, it’s worth consulting Osher & Berg (2018). Their Venn diagram with distinct and overlapping elements of school climate and social-emotional competencies is particularly illuminating and useful. They arrange notions like *physical environment* and *partnerships with families and community* in the distinctive “school climate” domain; *social and emotional skills* and *identities* in the “social and emotional competence” domain; and *safety* and *cultural competence and responsiveness* in the overlapping domain.

¹⁴ Buckley et al. (2018).

¹⁵ This technical memo is not intended as an explainer of the concepts and statistical details of mediation analysis. For that, consider consulting:

- Kim, B. (2016). *Introduction to Mediation Analysis*. University of Virginia Library: Research Data Services + Sciences. <https://data.library.virginia.edu/introduction-to-mediation-analysis/>
- MacKinnon, D. P., Fairchild, A. F., & Fritz, M. S. (2010). Mediation analysis. *Annual Review of Psychology*, 58, 593-614. [10.1146/annurev.psych.58.110405.085542](https://doi.org/10.1146/annurev.psych.58.110405.085542)

See also:

- Fiedler, K., Schott, M., & Meiser, T. (2011). What mediation analysis can (not) do. *Journal of Experimental Social Psychology*, 47(6), 1231-1236. <https://doi.org/10.1016/j.jesp.2011.05.007>
- Memon, M. A., Cheah, J. H., Ramayah, T., Ting, H., & Chuah, F. (2018) Mediation analysis: Issues and recommendations. *Journal of Applied Structural Equation Modeling*, 2(1), i-ix. <https://jasemjournal.com/home/archive/vol-2-issue-1/>

¹⁶ The sample includes students from all three cohorts of our EDSS study, meaning it is inclusive of students who attended schools that launched in either AY2016-17, AY2017-18, or AY2018-19. Students are represented once in the dataset — with their data from 2018-19 — so as not to bias results from schools with multiple years of EDSS data. A total of 25 schools are represented in our mediation analysis dataset. To achieve sufficient statistical power, we included six schools that have been part of our historical EDSS research partnership but did not receive direct launch funding from NewSchools. Those are the results presented throughout the main copy of this memo and that populate the 2020 EDSS Insight Brief. It is worth noting that we also performed mediation analyses on the smaller sample of 19 schools that received direct funding from us; the headline findings from this restricted sample are the same as the larger, more robust sample, with some results differing at the hundredths decimal point. See the appendix for the mediational analysis outputs from these 19 schools.

¹⁷ Based on the average standard deviation in RIT score points (SD = 18) and SEL scores (SD = .87) across grade levels and subjects/indicators in our EDSS dataset.

¹⁸ Using the NORMDIST formula.

¹⁹ NWEA uses quintiles to categorize RIT scores into five performance categories: 20th percentile or lower = *low*, 21st to 40th percentiles = *below average*, 41st to 60th percentiles = *average*, 61st to 80th percentiles = *above average*, 81st percentile or higher = *high*; <https://community.nwea.org/docs/DOC-2130>.

²⁰ Correlations are based on standardized SEL scores and standardized MAP RIT scores from the Spring 2019 semester. SEL scores are standardized by TransformEd within-grade and within-indicator. MAP RIT scores are standardized within-grade and within-subject based on a nationally normed sample.

²¹ Correlations are based on standardized CC scores and standardized MAP RIT scores from the Spring 2019 semester. CC scores are standardized by TransformEd within-grade and within-indicator. MAP RIT scores are standardized within-grade and within-subject based on a nationally normed sample.

²² Correlations are based on standardized SEL scores and standardized MAP RIT scores from the Spring 2018 semester. SEL scores are standardized by TransformEd within-grade and within-indicator. MAP RIT scores are standardized within-grade and within-subject based on a nationally normed sample.

²³ Correlations are based on standardized CC scores and standardized MAP RIT scores from the Spring 2018 semester. CC scores are standardized by TransformEd within-grade and within-indicator. MAP RIT scores are standardized within-grade and within-subject based on a nationally normed sample.

²⁴ Correlations are based on standardized SEL scores and standardized MAP RIT scores from the Spring 2017 semester. SEL scores are standardized by TransformEd within-grade and within-indicator. MAP RIT scores are standardized within-grade and within-subject based on a nationally normed sample.

²⁵ Correlations are based on standardized CC scores and standardized MAP RIT scores from the Spring 2017 semester. CC scores are standardized by TransformEd within-grade and within-indicator. MAP RIT scores are standardized within-grade and within-subject based on a nationally normed sample.