

**Patterns in Student Self-Report
and Teacher Report Measures of
Social-Emotional Mindsets, Skills, and Habits**

Initial findings from the Boston Charter Research Collaborative

A Working Paper By
**KATIE BUCKLEY &
SARA BARTOLINO KRACHMAN**

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Note that the views expressed in this paper do not necessarily reflect those of the Walton Family Foundation or the members of our National Advisory Board. Any errors in fact and interpretation are our own.

About Our Working Papers

Transforming Education is pleased to issue a series of working papers that are meant to distill information of value to educators, policymakers, and others in the field of Mindsets, Essential Skills, & Habits (MESH) in a form that can be readily updated as knowledge continues to emerge and be refined. Our working papers summarize the current state of knowledge and evidence about which skills matter for success in school, college, career, and life; how we can responsibly measure and build those skills; and which supports are needed for districts and schools to implement best practices. Because the MESH field is constantly evolving, we expect to revise our working papers periodically. Moreover, we hope educators, researchers, and policymakers will share additional research and effective practices related to MESH skill development.

If you have feedback on Patterns in *Student Self-Report and Teacher Report Measures of Social-Emotional Mindsets, Skills, and Habits* or want to share your own approach to incorporating MESH in your district or school, please e-mail press@transformingeducation.org.

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Patterns in Student Self-Report and Teacher Report Measures of Social-Emotional Mindsets, Skills, and Habits

Initial findings from the Boston Charter Research Collaborative

The Boston Charter Research Collaborative (the Collaborative, or BCRC) is a multi-year researcher-practitioner partnership among six high-performing charter management organizations (CMOs);¹ researchers at the Harvard Graduate School of Education (HGSE) and the Massachusetts Institute of Technology (MIT); and Transforming Education (TransformEd). These organizations combine their expertise to conduct research and improve practice that supports growth in students' cognitive skills and social-emotional skills. TransformEd refers to the latter as the “mindsets, essential skills, and habits” (MESH) that contribute to student success in school, college, career, and life.²

The BCRC is currently investigating a variety of issues related to the measurement of students' MESH that are of particular interest to school practitioners. The initial findings coming out of the BCRC offer an important step forward in understanding how student and teacher surveys can be used to assess student's MESH. Research suggests that the surveys used provide reliable reports of student mindsets, skills, and habits. Further, student scores from MESH surveys are aligned in the expected direction with both academic and behavioral outcomes, suggesting that MESH competencies are important contributors to students' academic success.

The primary takeaways we share in this report include:

- Within the BCRC cohort, older students tend to report lower levels of social-emotional skills compared to younger students (especially in grit and math self-efficacy). This is in line with research that finds that students tend to experience a drop in skills related to self-control during adolescence.
- On average, students from the participating BCRC schools tend to report differences in their fall and spring MESH surveys, with declines evident in certain grades/competencies. These declines are likely due in part to time-of-year effects and should not necessarily be interpreted as a decline in student competencies due to school environment/practices.

EXECUTIVE SUMMARY

continued

- Among students with similar scores on the MESH survey in the fall, those whose self-reported MESH scores improve more over the course of the school year tend to have higher GPAs and higher standardized test scores in the spring compared to those whose scores improve less. This suggests that the changes in survey scores over time capture changes in mindsets, skills and habits that support academic success.
- While both student and teacher reports predict student outcomes, teacher reports are more strongly correlated with students' academic and behavioral outcomes, including standardized test scores and attendance. That said, student self-report data provides an important complement to teacher reports and offers distinct information on non-observable mindsets and skills, for which teacher reports are unavailable. Further, giving students the chance to self-report their skills is an important way to ensure that students' voices are part of the conversation about MESH development.
- On average, students tend to self-report higher levels of MESH compared to teacher reports of their skills. The largest degree of over-reporting, on average, tends to occur among males and students with an Individualized Education Plan (IEP). Over-reporting (versus underreporting) one's MESH compared to the teacher is associated with lower academic outcomes. As such, comparing how students rate their MESH competencies with how teachers rate students' MESH competencies can provide actionable information about challenges students may be facing that might not otherwise be evident.

We describe these results, and the implications of the results for school practice, in greater detail in the body of the report.

Patterns in Student Self-Report and Teacher Report Measures of Social-Emotional Mindsets, Skills, and Habits

Initial findings from the Boston Charter Research Collaborative

INTRODUCTION

The Boston Charter Research Collaborative (the Collaborative, or BCRC) is a multi-year researcher-practitioner partnership among six high-performing charter management organizations (CMOs);³ researchers at the Harvard Graduate School of Education (HGSE) and the Massachusetts Institute of Technology (MIT); and Transforming Education (TransformEd). These organizations combine their expertise to conduct research and improve practice that supports growth in students' cognitive and social-emotional skills. TransformEd refers to the latter as the “mindsets, essential skills, and habits” (MESH) that contribute to student success in school, college, career, and life.⁴

The BCRC's work consists of three primary activities: 1) measuring students' MESH and cognitive competencies, 2) creating a comprehensive student-level data warehouse that makes it possible to examine the relationship between these competencies and other student outcomes, and 3) evaluating targeted and scalable interventions to improve students' cognitive and MESH competencies. This report is the second in a series that will share lessons learned from the activities of the Collaborative. Here we focus on the first year of data collected on student MESH and present initial findings on a) how these competencies change over the course of the school year, and b) the relationship between student self-reports and teacher reports of students' MESH competencies.

Measurement of MESH Within BCRC

Researchers at Harvard's Center for Education Policy Research (CEPR), in partnership with TransformEd, have developed a multi-year research agenda and measurement plan for assessing student MESH.⁵ Building on the work of the [CORE Districts](#) in California, who began incorporating MESH surveys into their School Quality Improvement Index in 2014, the BCRC administers student MESH surveys to students in grades 5-12 across the participating school networks. The competencies that BCRC schools prioritized for assessment are grit, growth mindset, mindful attention awareness, self-efficacy, self-management, and social awareness.⁶ The BCRC also asks teachers in the network to complete corresponding reports of their students' skills in three areas that are likely to be observable: grit, self-management, and social awareness. The response options for each competency of the MESH survey are on a 5-point Likert scale. (See [Table 1](#) for a list of competencies, definitions, and surveys administered. See [Appendix A](#) for sample student survey questions and [Appendix B](#) for sample teacher questions.)

The BCRC surveys were administered to all students in grades 5-12 in fall 2014, spring 2015, and spring 2016. Surveys were administered only to 5th graders and new students in grades 6-12 in the fall of 2015 and 2016 for baseline data on this population. A subset of teachers across the participating schools completed reports on their students in spring 2015 and spring 2016. The current report discusses findings from the first year of data collection, fall 2014–spring 2015.

Table 1. MESH Competencies Assessed in BCRC

		Definition	Student Reports grades 5-12	Teacher Reports grades 5-12
COMPETENCY	Grit	Grit is a combination of passion and persistence. Having grit means pursuing your goal with vigor and focus over an extended period of time. Less gritty individuals are easily discouraged or frequently led off track by new interests.	✓	✓
	Growth Mindset	Growth Mindset is the belief that one’s abilities can grow with effort. Students with a growth mindset see effort as necessary for success, embrace challenges, learn from criticism, and persist in the face of setbacks.	✓	
	Mindful Attention Awareness	Mindful Attention Awareness means maintaining a moment-by-moment awareness of one’s thoughts, feelings, bodily sensations, and surrounding environment.	✓	
	Self-Efficacy	Self-efficacy is the belief in one’s own 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.	✓	
	Self-Management	Self-management 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 academic goals.	✓	✓
	Social Awareness	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. ⁷	✓	✓

Table 2. BCRC MESH Survey Sample

	Fall 2014	Spring 2015	Fall 2015	Spring 2016	Fall 2016
Student Survey Population	All students in grades 5-12	All students in grades 5-12	All students in grade 5; only new students in grades 6-12	All students in grades 5-12	All students in grades 5-12
Student <i>n</i>	N=3,210	N=3,211	N=933	N=4,287	N=1,067
Teacher reports grade level	n/a	Subset of teachers reporting on students in grades 5-12	n/a	Subset of teachers reporting on students in grades 3-12 ^a	n/a
Teacher <i>n</i>	n/a	N=164	n/a	N=181	n/a

Questions to Explore

The BCRC is investigating a wide range of issues related to the measurement of student mindsets, skills, and habits that are of particular interest to school practitioners. This report summarizes findings on a subset of questions from the overall BCRC research agenda, focusing on two main areas of inquiry: I) How do student self-reports of MESH change over the course of a school year, from fall to spring?; and II) What is the relationship between students’ perceptions of their own MESH competencies and teacher perceptions of students’ MESH competencies? Specifically, we discuss findings on the following questions:

PART I: How do student self-reports of MESH vary across grades and change over the course of a school year?

1. What factors might explain fall-to-spring changes in students’ self-reported MESH?
2. To what extent are fall-to-spring changes in students’ self-reported scores on the MESH survey reflected in changes in student academic outcomes? For example, do students whose self-reports indicate an improvement in MESH over the course of the academic year also see improvements in their course grades and test scores?

PART II: What is the relationship between students’ perceptions of their own MESH competencies and teacher perceptions of students’ MESH competencies?

1. Are student or teacher reports more strongly correlated with students’ academic and behavioral outcomes?
2. To what degree do differences between student and teacher perceptions of students’ MESH align with student outcomes?

FINDINGS

Part I

How do student self-reports of MESH vary across grades and change over the course of a school year?

In order to understand how to make sense of and act on student self-reports of MESH, a primary question for practitioners is how student self-reports of MESH change from fall to spring, and whether observed differences over the course of a school year are valid indicators of changes in students' underlying competencies. Prior research suggests that many of the MESH competencies being assessed by BCRC are malleable, particularly in the adolescent years.⁹ However, open questions remain about the level of change in scores that typically occurs from fall to spring and whether that change is truly indicative of changes in students' underlying competencies.

In general, students in successive grades report fairly similar scores on fall surveys of MESH (see Figure 1). However, there does appear to be a slight downward trend in self-reported scores in grit and math self-efficacy among students in successive cohorts. For example, the 6th grade cohort tends to report slightly lower levels of grit and math self-efficacy than the 5th grade cohort. Because this observation comes from a snapshot in time, we don't yet know whether individual students tend to report lower scores as they progress through grade levels, or whether the small across-grade differences reflect differences in how the particular cohort of students participating in this Collaborative perceive their skills. That said, research does suggest that it is typical for students to experience declines in skills related to self-control during adolescence.¹⁰

Further, simply because a student reports a high level of one MESH competency does not mean that (s)he will report high levels of other MESH competencies. Of the competencies we assessed, self-management and social awareness tend to be most highly correlated with one another, such that students who report high levels of self-management at a particular time also tend to report higher levels of social awareness during

Figure 1: Average Student-Reported Fall Competency Score, by Gender and Grade Level¹¹

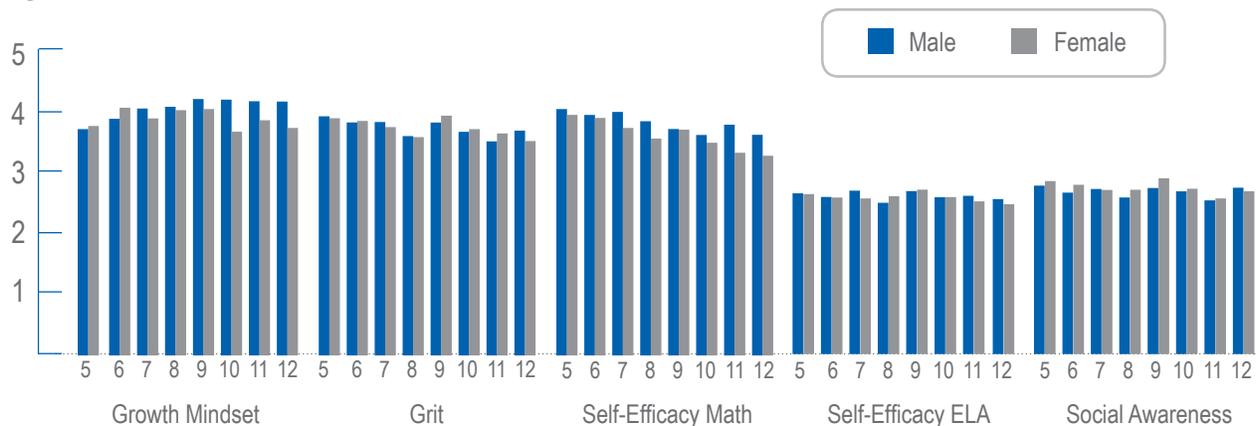
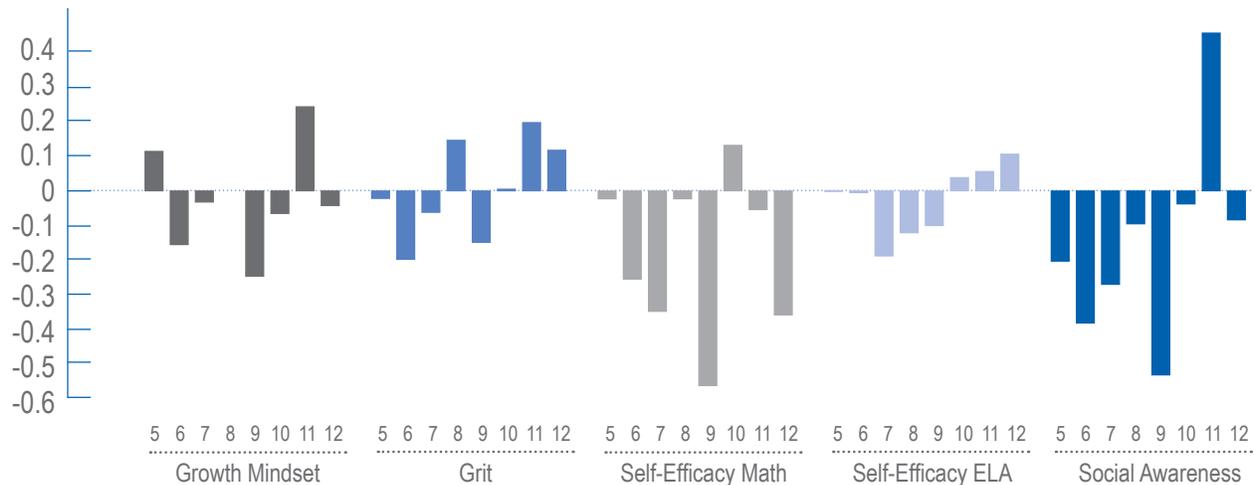


Figure 2: Average Fall-to-Spring Change in Student-Reported Competency, by Grade Level¹²



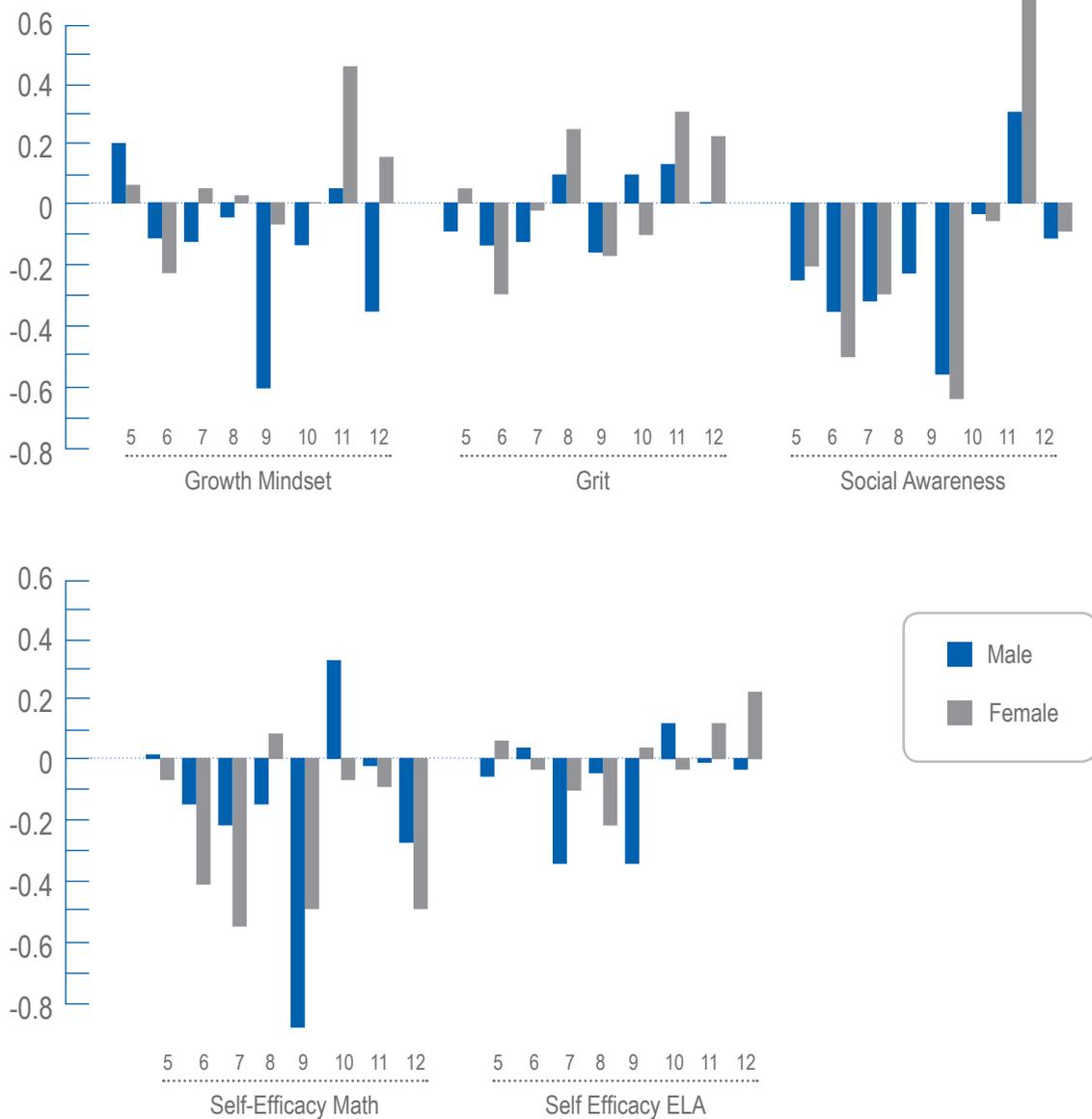
the same time period. However, students with high growth mindset do not necessarily report high levels of self-management, social awareness, and grit. As such, the competencies assessed seem to be meaningfully different from one another, and measuring multiple competencies provides a more holistic picture of students’ development.

In terms of changes in student scores over the course of a school-year, we observe differences in how students from the participating schools self-report their MESH competencies in the fall and the spring. In certain grades, we tend to see declines in students’ self-reported MESH from fall to spring, particularly in social awareness and math self-efficacy and particularly in transition grades, e.g., 6, 9 (Figure 2). There are some similarities and differences in the extent of reported change from fall to spring by gender and grade (see Figure 3). For example, both males and females in the BCRC schools tend to report relatively large declines in math self-efficacy and social awareness regardless of grade; however only males report large declines in growth mindset in 9th and 12th grade.

What factors might explain fall-to-spring changes in student-reported MESH?

There are several potential reasons for the observed fall-to-spring changes in student self-reported MESH. First, any assessment will be subject to random error, such that scores may change from one test administration to the next due to differences in student experiences from day to day that can affect the student’s score but have little to do with the student’s actual competencies. For example, on a particular day, the student may have received a bad test score leading them to report a lower level of growth mindset than they might report the day before or the day after. However, this type of random error occurs with all assessments and tends to average out across students. More systematic variation, however, could be explained by time-of-year effects, whereby the time of year in which a student takes a survey influences how (s)he responds. For example, stu-

Figure 3: Average Fall-to-Spring Change in Student Self-Reported Competency, by Gender and Grade Level¹³



dents may be more confident about their skills in the fall or experience testing fatigue in the spring. Time-of-year effects make it difficult to distinguish actual change in students’ underlying competencies over the course of a school year from differences in student experiences at different time points that affect how they report on those competencies.

That said, the general declines in students’ self-reported scores in 6th, 7th, 9th and 12th grade is supported by literature suggesting that transition years may affect MESH development.¹⁴ It is possible that during these transition periods (e.g., elementary to middle school, middle to high school), students experience actual declines in MESH, leading to a case in which, for example, 12-year-olds are less able to manage their behavior

and emotions than 11-year-olds. While we cannot rule out this explanation of the decline in scores, there are other possible reasons to consider.

It is also possible that changes in student scores from fall to spring represent differences in students' frame of reference as the school year progresses due to exposure to the skill level of their peers. Under this hypothesis, how a student interprets a "2" versus a "4" on a 5-point Likert scale might change from fall to spring due to new experiences over the course of the school year. For example, imagine that a student begins the school year believing she has a high level of social awareness and therefore gives herself a score of "5" on most items on the social awareness survey scale. However, as this student observes her classmates' social skills throughout the school year, she might realize that her level of social awareness is actually lower than that of her peers. She may conclude that some of her peers are actually a "5" on the social awareness scale and that a "4" better represents her current skill level. In this case, it is not that the student's underlying level of social awareness declined from fall to spring, but that the student's frame of reference changed after she had an opportunity to observe what high and low social awareness looked like among her classmates. If this occurs across a data set, it could be very difficult to compare MESH self-reports across schools, since an individual student's score would be highly dependent on the school in which (s)he is enrolled and the group of peers (s)he is exposed to, rather than the student's underlying MESH competencies.

The BCRC data suggest that reference bias alone isn't leading to lower spring scores among BCRC students for two reasons. First, if reference bias were driving the decline in scores, we might expect to see a greater decline in scores among students who were new to charter schools compared to students who were in a charter school in the prior year, since new-to-charter students would have more ground to cover in terms of norming with their peers' frame of reference, while continuing-charter students would have already had an opportunity to norm with their peers in prior years. However, among BCRC students, there is not a meaningful difference in the fall-to-spring declines seen for new-to-charter students versus continuing-charter students. Secondly, if reference bias were driving the fall to spring decline in scores, we would expect to see declines only or primarily for those skills that are externally observable (e.g., self-management but not growth mindset), since students are more likely to have opportunities to norm with their peers on externally observable skills. The BCRC data, however, suggests that similar fall-to-spring declines occur for both externally observable and non-externally observable skills.

To what extent are fall-to-spring changes in students' self-reported scores on the MESH survey related to changes in student academic outcomes?

One way to understand whether changes in students' MESH self-reports from fall to spring are meaningful is to examine whether they are positively correlated with changes in academic outcomes. Therefore, an additional question investigated by the BCRC is whether, among similar peers (i.e., those students with similar MESH self-reports in the fall, eligibility for free or reduced price lunch, prior year state test scores, etc.) those students who improve their MESH scores from fall to spring also have better academic outcomes (e.g., end-of-year GPA or spring scores on state tests). In other words, imagine that two students, John and Jane, each report a score of 4.0 on the self-efficacy survey scale. In the spring, suppose John now rates his self-efficacy at a 2.0, while Jane rates her self-efficacy at a 3.0. Both students' fall-to-spring scores have declined, but Jane's score declined less. The question is whether reporting an increase from fall to spring, or less of a decrease from fall to spring, is positively correlated with academic outcomes (i.e., whether Jane is likely to perform better than John academically).

Data from the BCRC suggests that, among students with similar self-reported MESH scores on the fall survey, those who self-report higher scores in the spring tend to have higher end-of-year GPAs and higher

spring test scores than students who self-report lower MESH scores in the spring. Within-year self-reported improvements in self-efficacy, growth mindset, and grit are positively associated with end-of-year GPA even when controlling for the student's GPA and test score performance during the prior year. In other words, how a student's self-reported MESH changes over the course of a school year relative to his or her peers appears to capture information about the development of student skills that matter for academic outcomes.

Discussion

The primary takeaway from this line of research is that changes in students' self-reported competencies contain valuable information, if analyzed properly. At the same time, changes at the aggregate level (such as the general decrease in self-reported scores between fall and spring) may be misleading. It is unclear what the primary driver of these changes is; however, literature has documented time-of-year effects on self-reported measures of well-being.¹⁵ This makes it difficult to uncover how much of the observed decline is due to actual decreases in students' competencies versus and how much is an artifact of the time of year that students take the survey. Nonetheless, it can still be quite instructive to examine relative changes in fall to spring scores (i.e., did a particular student or group of students decline more than their peers). In fact, students who have positive changes in self-reported MESH scores from fall to spring appear to have better academic outcomes. Further, the finding that fall-to-spring changes are positively associated with GPA suggests the potential value of using fall-to-spring differences in student self-reports to guide the development of interventions targeting specific MESH competencies at key points during the school year. When attempting to learn about ways in which schools and classrooms are impacting students' MESH, practitioners should also examine spring-to-spring change, which removes the issue of time-of-year effects.

Part II

What is the relationship between students' perceptions of their own MESH competencies and teacher perceptions of students' MESH competencies?

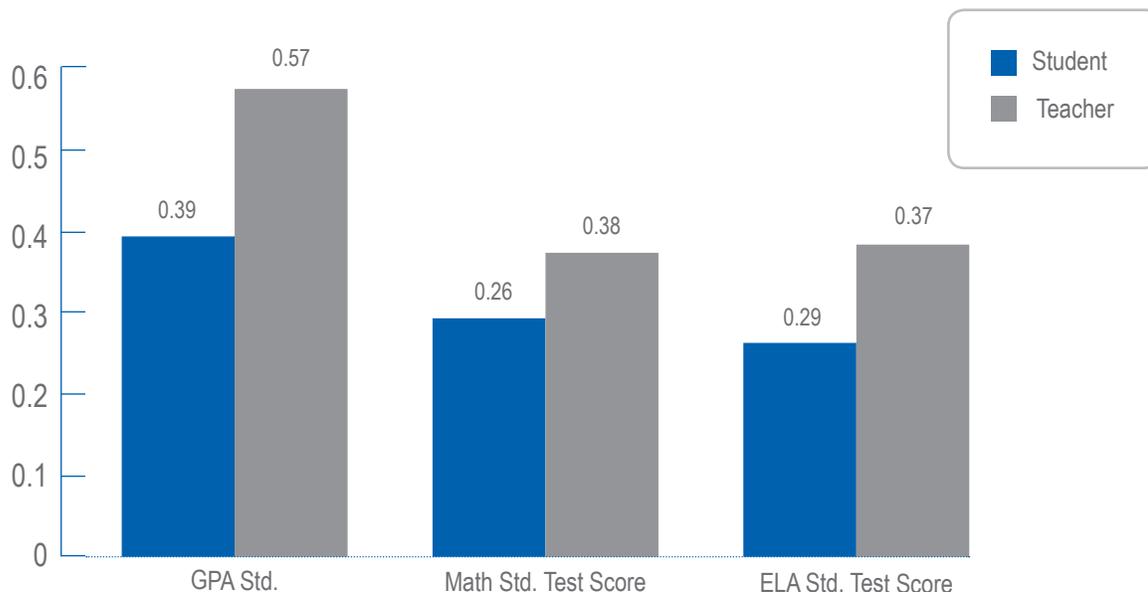
Practitioners have grappled with whether to use student self-reports or teacher reports to assess students' MESH. Without having a known measure of students' true underlying mindsets, skills, and habits with which to compare student and teacher reports, it is difficult to know which type of report provides a more accurate measure of the underlying construct. However, BCRC data can shed light on this question through examinations of the following: (1) the extent to which student and teacher reports are related to one another; (2) the extent to which each type of report predicts student academic outcomes, such as student test scores;¹⁶ and (3) whether divergence in scores between student and teacher reports provides helpful information in and of itself.

One caveat to this line of inquiry is that teacher reports can only be used to assess students' externally observable skills, such as self-management and social awareness, since it is difficult for a teacher to have knowledge about a student's internally held mindsets, such as growth mindset or self-efficacy. Therefore, teacher reports cannot be used as the primary mode of assessment for every MESH competency.

How do student self-reports and teacher reports of student MESH relate to one another?

Using data from the BCRC, researchers examined the extent to which student reports and teacher reports of students' MESH aligned with one another. Their results suggest that the two types of reports provide a somewhat similar picture of students' skillset. In general, the greatest alignment between the two sets of re-

Figure 4: Correlations between Student Self-Reports and Teacher Reports of Student Self-Management and Student Academic Outcomes



ports occurred with self-management, where the correlation between teacher reports and student self-reports is 0.5.¹⁸ The least amount of alignment between student and teacher reports occurs with social awareness, where the correlation between the two sets of reports is 0.3. This lower correlation may be due to the fact that certain items within the social awareness survey are focused on mindsets and beliefs that are less externally observable. On the whole, teacher and student reports are related to each other in statistically significant ways, but they do not provide exactly the same information, which prompted our further exploration of the differences between them (see more below).

Are student or teacher reports more strongly correlated with academic and behavioral outcomes?

While both student and teacher reports of student MESH are correlated with student outcomes, teacher reports tend to be more strongly related to students' academic and behavioral outcomes, including standardized test scores and attendance (see, for example, Figure 4, which shows correlations of student-reported scores in self-management and teacher-reported scores in self-management with academic outcomes). This finding is supported by prior literature, which has found that self-reports of skills tend to be less reliable than others' reports.¹⁹ A likely explanation for this finding is that teachers can draw upon prior experience observing many different students over time and may have developed a more objective idea of what strong MESH looks like in practice.

While teacher reports tend to be more strongly related to student outcomes than student self-reports do, both sets of reports provide independent information about student outcomes, and each is important in its own right. In particular, student self-reports help explain additional variation in student academic outcomes above

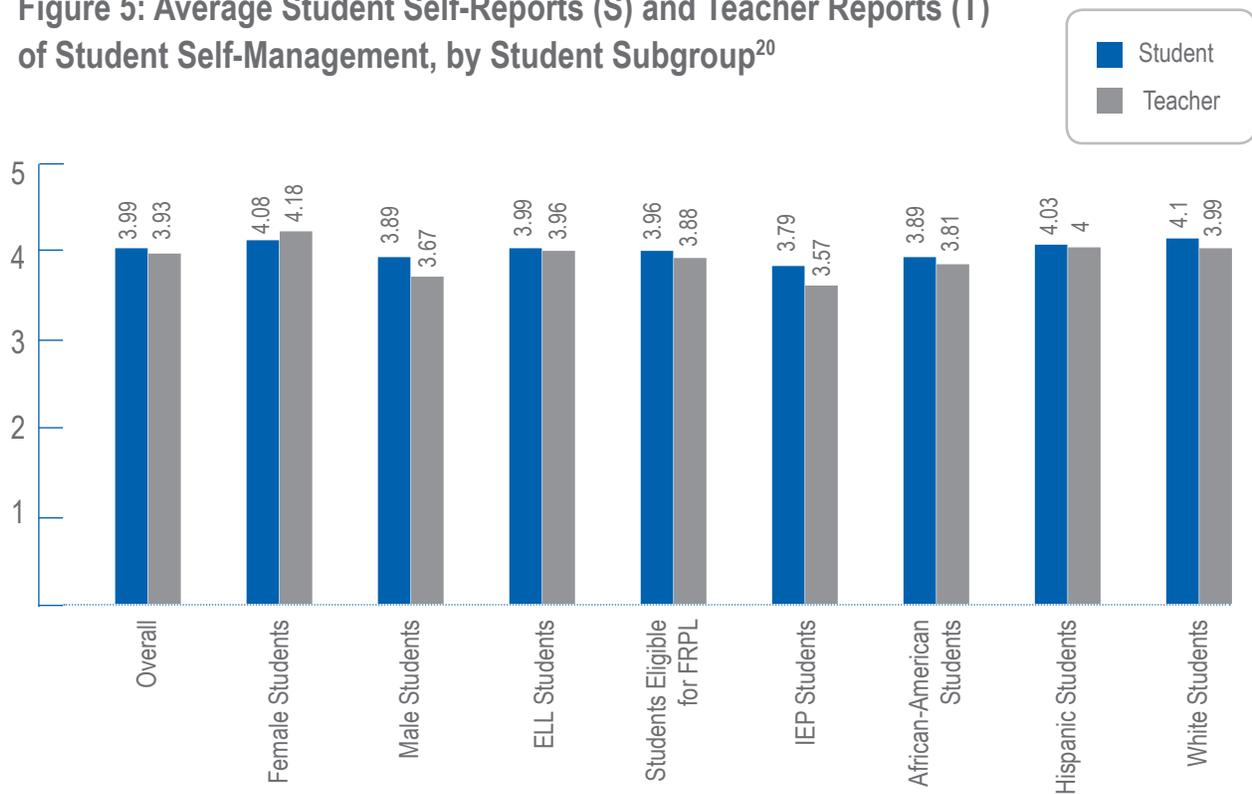
and beyond what teacher reports explain. As such, student surveys are an important complement to teacher reports when trying to learn about students’ underlying MESH competencies. Student surveys also offer an opportunity for students to reflect on their own development and for schools to incorporate student voice into the conversation about MESH. For example, some mindsets, skills, and habits are more internal in nature (e.g., growth mindset, self-efficacy), and students’ own reflections in these domains may provide educators with valuable information about students’ strengths and areas for development in ways that don’t come across through teacher reports or other forms of data collected in school.

To what degree do differences in student and teacher reports of students’ MESH align with student outcomes?

We investigated the extent to which students under-reported or over-reported MESH relative to the teacher. “Under-reporting” means that a student’s self-reported MESH competency was at least half a standard deviation below the teacher’s report of that student’s competency, while “over-reporting” means that a student’s self-reported MESH competency was at least half a standard deviation above the teacher’s report. For example, a student who under-reports may have rated his or her self-management at a “4” on the 5-point Likert scale when the teacher rated that student’s self-management at “3.”

On average, students tend to over-report their skills relative to their teacher (see, for example, Figure 5, which shows student-reported average scores and teacher-reported average scores of student self-management). When the data is disaggregated by subgroup, we find that female students, on average, self-report lower MESH relative to the teacher. The largest degree of student over-reporting relative to the teacher occurs

Figure 5: Average Student Self-Reports (S) and Teacher Reports (T) of Student Self-Management, by Student Subgroup²⁰



among male students and students with an IEP. Importantly, whether students over or under-report relative to the teacher can provide useful information. In particular, we find that students within BCRC who over-report their skills relative to the teacher tend to earn lower grades and perform worse on the state test, even when controlling for their prior academic performance. In other words, students who rated their own MESH competencies higher than the teacher rated their MESH competencies tend to have worse academic outcomes than students who under-reported their MESH competencies relative to the teacher.

Discussion

Overall, it appears that student and teacher reports can provide complementary yet distinct insight into students' MESH. While teacher reports are slightly more predictive of other objective outcomes, our recommendation would be to use both types of measures together, since student self-reports add additional predictive value and offer an opportunity to incorporate student voice into conversations about MESH development. While both types of measures are useful independently, differences between the two can also provide actionable information about where students' and teachers' perspectives differ, which may provide an important entry point for further discussion about a particular mindset, skill, or habit.

CONCLUSION

There is still much to be learned about how to validly assess MESH competencies so that we can support students in building on their strengths and developing further within their areas for growth. In particular, greater investigation is needed to understand exactly what is driving the commonly-observed declines in students' self-reported MESH competencies from fall to spring. As we collect additional longitudinal data, we will also be able to explore trends in students' self-reported MESH development from year to year.

Understanding how to model growth in MESH competencies is a crucial part of making MESH data useful and actionable for educators. While much more work is needed in this area, we have begun to model change over time in MESH self-reports using a standardized approach to control for potential declines from fall to spring. Looking at the data in this way enables our partner schools to identify and share bright spots that can further our collective knowledge about how to support students' MESH development. For example, a school leader might notice that one classroom is showing particularly strong growth in social awareness and subsequently ask the teacher in that classroom to share his/her approach with other educators within the school or network. In this way, early efforts to measure MESH are helping to accelerate our collective pace of learning about which strategies are most effective in supporting students' development.

We are grateful to our partner schools and their students for being at the vanguard of the effort to build a deeper understanding of how we can support students' long-term success by fostering a range of MESH competencies that have been shown to help students flourish within and beyond the classroom. We look forward to sharing results from our ongoing work with the BCRC and addressing many of the open questions above in future working papers as more data become available.

Appendix A. Sample questions from student MESH surveys

		Description	Sample Items
COMPETENCY	Growth Mindset	Students with a fixed mindset believe that their own intelligence and talent are innate traits that don't change. For example, they might say, "I just can't learn math." These students typically worry about not looking smart, get upset by mistakes, and give up sooner on tough tasks. Students with a growth mindset believe that ability can change as a result of effort, perseverance, and practice. They might say, "Math is hard, but if I keep trying, I can get better at it." Students with a growth mindset see mistakes as ways to learn, embrace challenges, and persist in the face of setbacks. ²¹ Whether or not students are aware of their mindset, a broad body of research has shown that what they believe about their own intelligence can affect their effort, engagement, motivation, and achievement as measured by test scores, school grades, passing rate in post-secondary education, and other metrics. ²²	<p>Please indicate how true each of the following statements is for you:</p> <ol style="list-style-type: none"> 1. My intelligence is something that I can't change very much. 2. Challenging myself won't make me any smarter. <p><i>(Not At All True, A Little True, Somewhat True, Mostly True, Completely True)</i>²³</p>
	Self-Management	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. ²⁴ Students with strong self-management skills arrive to class prepared, pay attention, follow directions, allow others to speak without interruption, and work independently with focus. Self-control in children as young as age 5 can predict important life outcomes such as high school completion, physical health, income, single parenthood, substance dependence, and criminal involvement.	<p>Please answer how often you did the following during the past 30 days. During the past 30 days...</p> <ol style="list-style-type: none"> 1. I got my work done right away instead of waiting until the last minute. 2. I allowed others to speak without interruption. <p><i>(Almost Never, Once in a While, Sometimes, Often, Almost All the Time)</i>²⁵</p>
	Self-Efficacy	Self-efficacy is the belief in one's ability to succeed in achieving an outcome or reaching a goal. An internal belief, self-efficacy is related to whether a student believes that s/he has sufficient control over his/her environment in order to succeed. High self-efficacy reflects confidence in the ability to exert control over one's own motivation, behavior, and environment and allows students to become advocates for their own needs and supports. Decades of research show that self-efficacy is a valid predictor of students' motivation and learning. ²⁶ Students with high levels of self-efficacy participate more in class, work harder, persist longer, and have fewer adverse emotional reactions when encountering difficulties than students with lower self-efficacy. ²⁷ High self-efficacy can also motivate students to use specific learning strategies and to engage in self-directed learning. ²⁸	<p>How confident are you about the following at school?</p> <ol style="list-style-type: none"> 1. I can master the hardest topics in my classes. 2. I can meet all the learning goals my teachers set. <p><i>(Not At All Confident, A Little Confident, Somewhat Confident, Mostly Confident, Completely Confident)</i>²⁹</p>

Appendix A. Sample questions from student MESH surveys (continued)

		Description	Sample Items
COMPETENCY	Social Awareness	<p>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.³⁰ Social awareness is a crucial component of appropriate classroom behavior, which contributes to an environment conducive to learning. Social awareness is also widely established as an important factor in workforce success. One recent employer survey conducted by the Partnership for 21st Century Skills demonstrates that four of the five most important skills for high school graduates entering the work force are linked to social awareness: professionalism, collaboration, communication, and social responsibility.³¹</p>	<p>Please answer how often you did the following during the past 30 days. During the past 30 days...</p> <ol style="list-style-type: none"> How carefully did you listen to other people's points of view? <i>(Not Carefully At All, Slightly Carefully, Somewhat Carefully, Quite Carefully, Extremely Carefully)</i> To what extent were you able to disagree with others without starting an argument? <i>(Not At All, A Little Bit, Somewhat, Quite A Bit, A Tremendous Amount)</i>³²
	Grit	<p>Grit is a combination of passion and persistence. Having grit means pursuing your goal with vigor and focus over an extended period of time. Less gritty individuals are easily discouraged or frequently led off track by new interests.</p>	<p>In the next section, please think about your learning in general. Please indicate how true each of the following statements is for you.</p> <ol style="list-style-type: none"> I finish whatever I begin. I work very hard. I keep working when others stop to take a break. <i>(Not At All Like Me, A Little Like Me, Somewhat Like Me, Mostly Like Me, Very Much Like Me)</i>³³
	Mindful Attention Awareness³⁴	<p>Mindful Attention awareness means maintaining a moment-by-moment awareness of our thoughts, feelings, bodily sensations, and surrounding environment.</p>	<p>Please indicate how often you currently have each experience. Please answer according to what really reflects your experience rather than what you think your experience should be.</p> <ol style="list-style-type: none"> I rush through activities without being really attentive to them. I do jobs or tasks automatically, without being aware of what I'm doing. <i>(Almost Never, Very Infrequently, Somewhat Infrequently, Somewhat Frequently, Often, Almost Always)</i>³⁵

Appendix B. Sample questions from teacher MESH surveys

		Prompt	Response Options
COMPETENCY	Self-Management (School Work)³⁶	<p>First we'd like you to think about how well your students were able to manage themselves with regard to their school work. How frequently did your student display these behaviors during the past 30 days? (Please consider the full set of behaviors and provide a single overall rating for each student.)</p> <ul style="list-style-type: none"> • Came to class ready to learn • Followed directions • Got to work right away instead of waiting until the last minute • Paid attention, even when there were distractions 	<i>Never True, Rarely True, Sometimes True, Often True, Always True</i>
	Self-Management (Interpersonal)³⁷	<p>Next, please think about how well your student was able to manage him/herself with regard to classroom behavior. How frequently did each student display these behaviors during the past 30 days?</p> <ul style="list-style-type: none"> • Stayed calm even when others bothered or criticized him/her • Allowed others to speak without interruption • I was polite to classmates • Controlled his/her temper 	<i>Never True, Rarely True, Sometimes True, Often True, Always True</i>
	Social Awareness³⁸	<p>Next, please think about how well your students were able to manage themselves with regard to their social interactions in class. How frequently did each student display these behaviors during the past 30 days?</p> <ul style="list-style-type: none"> • Listened carefully to other people's points of view • Got along with students who were different from him/her • Disagreed with someone without starting an argument • Noticed and complimented others' accomplishments • Was able to describe his/her thoughts and feelings clearly 	<i>Never True, Rarely True, Sometimes True, Often True, Always True</i>
	Grit	<p>Finally, please think about how well your students demonstrated diligence in their schoolwork. How frequently did each student display these behaviors during the past 30 days?</p> <ul style="list-style-type: none"> • Finished whatever he/she began • Worked very hard and kept working even if others stopped to take a break • Stayed interested in his/her goals, even if they take a long time to complete • Was diligent and didn't give up 	<i>Never True, Rarely True, Sometimes True, Often True, Always True</i>

Sources

1. The BCRC comprises six CMOs in the greater Boston area: Boston Collegiate Charter School, Edward Brooke Charter Schools, Excel Academy, KIPP: MA, Match Education, and Uncommon Schools: Roxbury Prep. Among these six networks there are five elementary schools, 14 middle schools, and five high schools. As of Spring 2016, these schools served a total of 6,779 students, with the majority of the student population spanning grades 5-8.
2. For Further background on the BCRC, please see “Launching a Multi-Year Research-Practice Collaborative: Lessons Learned from Year One” at <https://www.transformingeducation.org/resources/>.
3. The BCRC comprises six CMOs in the greater Boston area: Boston Collegiate Charter School, Edward Brooke Charter Schools, Excel Academy, KIPP: MA, Match Education, and Uncommon Schools: Roxbury Prep. Among these six networks there are five elementary schools, 14 middle schools, and five high schools. As of Spring 2016, these schools served a total of 6,779 students, with the majority of the student population spanning grades 5-8.
4. For Further background on the BCRC, please see “Launching a Multi-Year Research-Practice Collaborative: Lessons Learned from Year One” at <https://www.transformingeducation.org/resources/>.
5. Martin West at the Harvard Graduate School of Education is Principal Investigator of BCRC, while John Gabrieli at the Massachusetts Institute of Technology leads the Collaborative’s research on measuring cognitive skills, including fluid reasoning, working memory, processing speed, and attention control.
6. The CORE Districts administered surveys on the following competencies: growth mindset, self-efficacy, self-management, and social awareness. The CORE Districts refers to these as “social-emotional skills,” not MESH competencies.
7. The items for the social awareness scale ask students about both social awareness (which is an internally-held understanding) and social skills (which may be externally observable). Because part of this competency is observable, teachers in BCRC report on their students’ level of social awareness through a teacher survey.
8. In one CMO, teachers reported on student competencies in grades 3-4, in addition to 5-12.
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11. Analysis conducted by Harvard Center for Education Policy Research.
12. Analysis conducted by Harvard Center for Education Policy Research.
13. Analysis conducted by Harvard Center for Education Policy Research.
14. Allensworth & Easton (2007).
15. See for example, OECD (2013), OECD Guidelines on Measuring Subjective Well-being, OECD Publishing. <http://dx.doi.org/10.1787/9789264191655-en>.
16. In this analysis we focus on test scores rather than GPA because GPA may already reflect teachers’ perceptions of students’ MESH.
17. Analysis conducted by Harvard Center for Education Policy Research.
18. Correlations are based on a scale of -1 to 1 (i.e., a value of 1 means that student’s score of themselves is exactly the same as his or her teacher’s rating, a value of 0 means that there is no clear relationship between the two ratings and a value of -1 indicates that the student and teacher ratings are completely opposite).
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About Transforming Education

Transforming Education (TransformEd) advances research, policy, and practice to support students in developing the social-emotional or competencies they need to succeed in college, career, and life. TransformEd has coined the term “MESH” (Mindsets, Essential Skills, and Habits) to encompass the subset of social-emotional skills that research has linked most clearly to student success and that are, therefore, of the most immediate importance to educators and education policymakers.

TransformEd’s work is grounded in compelling, longitudinal research on the importance of MESH competencies and informed by our on-the-ground experience as:

- **The lead strategic advisor to the CORE Districts:** Six school districts (serving over one million students) that have chosen to integrate MESH competencies alongside academic outcomes in their federally approved accountability and continuous improvement system; and
- **The facilitator of the Boston Charter Research Collaborative:** A collaboration between six high-performing charter management organizations and researchers at Harvard and MIT to develop and pilot innovative ways to assess and develop students’ cognitive and MESH skills.
- **Partner to NewSchools Venture Fund:** A multi-year collaboration to support a growing portfolio of new district and charter schools in expanding their definition of student success. Together, we prioritize and design metrics for a shared set of competencies and skills, address pressing questions about how to track student progress and make meaning from this data, and facilitate knowledge sharing.

Through our relationships with researchers, policymakers, and education system leaders, TransformEd is uniquely positioned to translate lessons learned from our on-the-ground research and practice work into changes in education policy and systemic practices that will help ensure that all students have opportunities to build the MESH skills they need to succeed in school and beyond.

Follow our latest work through the TransformEd [website](#), [news digest](#), [twitter feed](#), and [blog](#).

About the Authors

SARA BARTOLINO KRACHMAN • Co-Founder and Executive Director

Sara Bartolino Krachman serves as the Co-Founder & Executive Director of Transforming Education, a nonprofit that translates the latest research on social-emotional skills into actionable policies and practices that support student success. Prior to founding TransformEd, Sara was a Senior Associate within The Parthenon Group's Education Practice, where she worked with leading national foundations, large urban school districts, and state departments of education on strategic planning and implementation of systems change efforts. Before joining Parthenon, Sara served as Vice president of Operations for INeedAPencil, a provider of free online SAT preparation to low-income students. Sara earned her A.B. in Government from Harvard University, where she was elected Phi Beta Kappa. In 2015, she was named a Finalist for the Young Professional Excellence Award, which honors an emerging nonprofit professional who has made a significant contribution to their organization through their effectiveness, dedication, perseverance, innovative thinking, and interpersonal skills.

KATIE BUCKLEY • Director of Research and Assessment

Katie Buckley is the Director of Research and Assessment at TransformEd, where she is responsible for developing the organization's research agenda, managing evaluation students, and leading TransformEd's work in identifying and validating existing and new assessments of MESH skills. Prior to joining Transforming Education, Katie was a Senior Analyst at Abt Associates and served as a consultant for the Center for Assessment. Katie holds an Ed.D. in Quantitative Policy Analysis in Education and an M.Ed. from the Harvard Graduate School of Education (HGSE), where her research focused on the use of assessments in teacher evaluation systems. While at HGSE, Katie was a teaching fellow for several statistical and policy courses, and served as a graduate fellow at the Center for Education Policy Research (CEPR). Katie received a Master's degree in Public Policy (M.P.P.) from the McCourt School of Public Policy at Georgetown University, and a B.A. in Political Science from Providence College.