Mindsets and the Learning Environment:
Learning Mindsets, Teacher Practice, and School Organizations: Becoming Effective Learners Survey and 5 Essentials
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RESEARCH SNAPSHOT | MAY 2019

In this study, the research team set out to understand more about the learning environments and teaching practices that are most predictive of students' academic success. This is a difficult task given the multifaceted, interactive nature of classrooms and schools that can shape learning and development in various ways.

This study leveraged a rich dataset that was designed to compare individual students to themselves across different classroom environments. Data were collected for each student in two of their core classes.

The data include students' perceptions of their own learning mindsets, learning strategies, and learning behaviors; and their perceptions of their learning environment. A complementary survey captured teachers' perceptions of their own practices (i.e., the learning environment they create) and perceptions of the broader school community. Using these surveys, called the Becoming Effective Learners Student (BEL-S)* and Teacher (BEL-T) Surveys, and by using both composite and individual student data, the research team achieved a detailed analysis of classroom learning environments, identifying aspects of teacher practice and classroom composition that were related to students' perceptions of those environments.

STUDY DESIGN

The researchers first tested whether students' perceptions of themselves and the learning environment predicted their academic outcomes. Students reported on their own learning mindsets, strategies, and academic behaviors, by rating their agreement with statements like, "I can learn new things in Algebra II class, but that won't change how good I am at this subject;" and their perceptions of the learning environment, by rating their agreement with statements like, "My Algebra II teacher knows my strengths and weaknesses in class."

The researchers compared these student measures aggregated to the teacher level (i.e., the average of all student reports of classroom practices for a given teacher) to teacher measures (i.e., a teacher's own report of their practice).

Next, the researchers drilled down to examine how the relationship between student perceptions of the learning environment and grades differed by student demographic

*BEL-S is now called the Cultivate Student Survey, available through UChicago Impact.

KEY FINDINGS

- This unique dataset features measures of each student in two different classrooms, which allowed the researchers to examine variation in students' experiences from one classroom to the other.

- The quality of the learning environment predicted course grades for nearly all groups of students and the relationship was strongest for black students and students with middle and lower levels of incoming academic achievement.

- Student reports of teacher classroom practices were weakly correlated with teachers' own reports.

- Gender composition shaped female students' perceptions of their classrooms, in that female students rated classrooms with more female students more positively than comparison classrooms.

- There was a positive relationship between teachers' mindsets (e.g., growth mindset, feelings of belonging) and experiences of their professional work environments (e.g., levels of collaboration and trust they experienced among their colleagues) and students' perceptions of their classrooms.

RESEARCH TEAM

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student experience
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factors like gender, race/ethnicity, free/reduced price lunch eligibility, special education status, English learner status, and prior academic achievement.

Finally, the team wanted to know what predicted differences in how students perceived their classrooms. To accomplish this, they examined classroom composition factors and teacher variables. The full set of factors the researchers examined is outlined in Table 1.

Table 1: Classroom learning environment factors

Classroom composition data gathered from class rosters	Gender composition and match with reporting student*
	Race/ethnicity composition and match with reporting student*
	Incoming academic achievement and relative academic rank*
	Class size
Teachers' self-reported variables	Perception of school leadership (e.g., principal instructional leadership; teacher-principal trust)
	Perception of work environment (e.g., teacher-teacher trust; collaborative practices)
	Mindset (e.g., teacher belonging in the school; intrinsic motivation)

Indicates a factor that can be considered in both absolute terms (e.g., the percentage of students in class with an A average) and relative terms (e.g., how a student ranks relative to their classmates' achievement).

Key Findings

Student reports of their own learning mindsets and their perception of the learning environment predicted course performance.

The researchers found that both types of student survey measures (about their mindsets and their perceptions of the learning environment) were positively associated with final course grades for nearly all groups of students. This was true for both between-student analyses (comparing students to one another) and within-student analyses (comparing students' two reports from different classrooms). This finding supports the hypothesis that students' learning mindsets, perseverance, and academic behaviors might be understood in part as responses to particular learning environments.

The correlation between student perceptions of the classroom learning environment and academic performance was strongest

for black students and students with middle and lower levels of incoming academic achievement.

There was only a weak correlation between student and teacher measures of teacher classroom practices.

Student reports of the learning environment also proved to be more predictive of students' course grades than corresponding teacher reports of the learning environment. This could suggest that what students see and feel (students' perceptions of their teacher's practice) matters more for their course performance than positive but invisible teacher beliefs and behaviors (as perceived and reported by teachers). Likewise, teachers could be unintentionally conveying beliefs that nevertheless influence students' perceptions of them.

There may also be methodological reasons for this finding, in that teachers were asked to report on their "typical classroom," which may not capture important variation in their classroom practices across different classes.

The remaining findings report on within-student analyses, meaning that for each student, the researchers compared the student's two reported perceptions of the learning environment in two different classrooms.

Gender composition shaped female students' perceptions of their classrooms. Female students rated greater gender-match classrooms (with higher numbers of female students) more positively than comparison classrooms.

In other words, differences in percentage of classroom peers with the same gender explained, in part, why the same female student reported differently on two different classroom environments. This was not true among male students.

Teacher mindsets and teachers' experiences of their professional work environment were significant predictors of students' perceptions of their classroom learning environments.

The teacher is a vital part of the classroom learning environment. To create a composite measure of teachers' mindsets, the researchers grouped survey questions about

school commitment, teacher belonging in the school, theories of intelligence, mastery goal orientation, self-efficacy, and intrinsic motivation. To measure teachers' perceptions of the work environment, the researchers grouped survey questions about professional learning climate norms, job characteristics, collective responsibility, teacher-teacher trust, and collaborative practices.

Results indicated that teacher mindsets and teachers' experiences of the work environment were significant predictors of students' perceptions of their learning environments. In other words, the same student in two classrooms was likely to give a higher rating to the classroom where the teacher reported having a more positive mindset or reported experiencing a more positive professional work environment. These associations were particularly strong for black students.

Insights & Future Directions

This project built on other findings showing that students reporting on the same classroom with the same teacher can have very different experiences of that learning environment.[1] The current analysis also shows that the same student can have very different perceptions of one classroom compared to another, and that those differences are related to measurable aspects of classroom composition, teacher practice, teacher mindsets, and teachers' own perceptions of their work environment. By illuminating factors related to students' perceptions of their learning environments, this research is valuable for informing teacher practice and supports.

Future research focused on understanding *how* and *why* a classroom environment or teacher is effective, and for which students, would help education leaders design schools and policies that produce better experiences for all students. Further, with growing evidence that high school grades are not only highly predictive of future outcomes, but also the metric for which there is the greatest payoff to improvement,[2] projects like this one that examine the factors affecting students' course performance are crucial.

References

1. Schenke et al., 2107; Schweig, 2014

2. Roderick et al., 2018