School Climate: A Tool to Improve Student Outcomes and Reduce Teacher Turnover

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How can a school's 'climate' affect the experiences of both students and staff? Mindset Scholar Matthew Kraft and colleagues William Marinell and Darrick Shen-Wei Yee analyzed data from New York City Public Schools to explore how dimensions of school climate related to teacher turnover and student achievement.

An effective school enables teachers to help students fulfill their academic and personal potential. Recently, to measure effectiveness, education policy has focused on the outputs of individual teachers, developing ways to measure their performance and impact on student achievement. However, teachers do not work in vacuum; there are many factors that influence their performance and the way they interact with their students. Research over the past five decades has identified school climate as one factor that has important implications for teacher and student outcomes.[1,2,3,4]

Previous studies have linked specific components of the school environment (e.g., amount of teacher collaboration[5]) to student achievement, but have been limited to cross-sectional analyses. In this study, the authors leverage five years of data to examine how multiple dimensions of school climate affect teacher and student outcomes over time, and to assess the relative importance of each dimension of school climate.

KEY FINDINGS:

- Teacher turnover and student achievement gains were associated with unique dimensions of school climate

- Improvements in all four dimensions of school climate measured in the study (leadership, expectations, collaboration, and safety) were associated with reductions in teacher turnover

- Students in schools where the school climate was improving increased their academic achievement gains

- The school safety dimension of school climate had the strongest relationship with student achievement

This research summary highlights findings from the following article:

Kraft, M. A., Marinell, W. H., & Yee, D. (2016). School organizational contexts, teacher turnover, and student achievement: Evidence from panel data. *American Educational Research Journal, 53,* 1411-1499.

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The research team examined how different components of school climate affected teacher turnover and student academic achievement. The team hoped to determine which dimensions of school climate had the largest positive effects, and whether they could be enhanced to maximize improvements in student and teacher outcomes. This study is the first to explore these relationships over time, providing longitudinal data on the interaction of school climate, teacher retention, and student performance.

Study design

The study sample consisted of over 334,000 students and 16,400 teachers from 278 public middle schools in New York City sampled over a five-year period. The research team focused on middle school students due to high rates of teacher turnover in middle schools and because overwhelming evidence supports this period as crucial for both academic and social-emotional development.[6,7]

Teacher responses to the NYC School Survey were used to construct the measures of school climate. The survey is based on development work from the University of Chicago Consortium of School Research, with additional content created specifically to address the needs of New York City schools.

The research team conducted a factor analysis which suggested the survey items captured four unique dimensions of school climate. The dimensions were:

- Leadership and professional development (Leadership)
- High academic expectations for students (Expectations)
- Teacher relationships and collaboration (Collaboration)
- School safety and order (Safety)

Thirty-three questions from the teacher survey were used to measure these characteristics. These items were chosen due to their ability to be directly affected by school leaders. The table below provides example survey questions within the four dimensions.

Category:	Questions:
Leadership	Overall, my professional development experiences this year have…provided me with teaching strategies to better meet the needs of my students.
	The principal at my school… is an effective manager who makes the school run smoothly.
Expectations	My school…sets high standards for student work in their classes.
	My school…has clear measures of progress for student achievement throughout the year.
Collaboration	Teachers in my school…trust each other.
	Teachers in my school…respect colleagues who are the most effective teachers.
Safety	Students in my school are often threatened or bullied.
	Adults at my school are often disrespectful to students.

In addition to the school climate measures, human resources data on teacher turnover and administrative data on school achievement were analyzed. Students' scores on the math and English Language Arts (ELA) New York State standardized tests were used to measure the effects of these climate factors on student achievement.[8]

Relationship between school climate and teacher turnover

The study found that schools with higher quality climates had lower levels of teacher turnover. Importantly, the researchers also found that school climate is malleable and that as it improves, teacher turnover decreases. For example, if a school ranked at the 50th percentile on school climate was able to improve on each of the four measured dimensions of school climate by one standard deviation (i.e., move up to 84th percentile on climate), this improvement could reduce overall teacher turnover by 3.8 percentage points, a 25% reduction.

Although all four dimensions were found to have a positive relationship with teacher retention, leadership was found to have the strongest relationship with teacher turnover. Improving just the leadership dimension by one standard deviation (from 50th percentile to 84th percentile) could reduce teacher turnover by about 1.8 percentage points. This suggests that developing school leaders that are supportive and provide opportunities for relevant professional development is one way to reduce teacher turnover levels.

Relationship between school climate and student achievement

The study team also found robust relationships between school climate and student achievement. In schools with higher rated school climates, students made larger achievement gains. Furthermore, improvements in school climate over time were associated with improvements in achievement gains. There was a stronger relationship between school climate and math performance than school climate and ELA. The dimension of safety was found to have the strongest relationship with student achievement gains in both math and ELA. There were also positive associations between the dimensions of expectations and leadership and student achievement.

Implications for policy and practice

This study affirms the importance of school climate for both teachers' and students' experiences. Importantly, the dimensions of school climate measured in this study are malleable and therefore can be improved. While recent education research and policy has largely focused on the individual contributions of teachers, the findings of this study suggest school leadership and safety are two particularly effective *school-level* levers for improving school outcomes.

As measured by the NYC School Survey administered to teachers, the dimension of 'safety' referred not only to physical safety but also psychological safety. For example, one question asked whether adults are often disrespectful to students and another focused on support for managing conflicts among students. The finding that this component is related to student achievement reinforces the importance of providing students with a learning environment that is both physically and psychologically safe.

Mindset science shows that focusing on creating a learning environment where students feel safe taking risks and learning from mistakes is key to student motivation and performance. Research shows that ensuring all students feel valued by their teachers and peers and that they belong in their learning environment can improve academic outcomes.[9] Studies have also found that showing students the malleability of personal characteristics (e.g., personality, aggressive behavior) in addition to intelligence can improve students' motivation and academic achievement.[10]

Examining individual teachers' performance is important. But this study provides evidence of the value of also examining how a school's culture and climate may be affecting student and teacher outcomes. While every school is different and has a unique set of needs, improving a school's environment offers one tool to better meet the diverse needs of both teachers and students.

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