

# Exploring Teachers' Growth Mindsets and the Differential Treatment of High- and Low-Ability Students

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RESEARCH SNAPSHOT | FALL 2019

Teachers' instructional practices can vary greatly and have very different effects on students' motivation and performance. Research has identified a number of *supportive practices* that promote students' sense of autonomy and encourage them to master class content, and can thereby enhance students' motivation and performance.<sup>1</sup> By contrast, teachers may also use *restrictive practices* that make students feel controlled and concerned with outperforming their peers, which can undermine these outcomes.<sup>2</sup> Critically, prior research has shown that teachers are more likely to use supportive practices and less likely to use restrictive practices in their classes, but are especially likely to do so when working with students who they feel are smarter.<sup>3</sup>

This project examined whether the differential treatment of lower- and higher-performing students might be more likely among teachers who believe that intellectual ability is largely fixed and cannot be improved than among those who believe that ability is malleable and can improve with effort.

## STUDY DESIGN

Participating schools' 9<sup>th</sup> grade mathematics teachers were identified and invited to complete a roughly 30-minute online survey designed to help understand teachers' attitudes, practices, and pedagogical content knowledge. The overall 9<sup>th</sup> grade mathematics teacher survey response rate was 86.8%, with over half of the schools obtaining a 100% response rate, and three schools obtaining no mathematics teacher respondents.

Teachers were presented with two scenarios in which they were asked to imagine a student in their class. The student in one scenario was presented as struggling in their mathematics course—specifically, “Imagine that one of your 9<sup>th</sup> grade math students was very discouraged in math class. The student kept getting low grades on assignments. The student didn't always try, but when he or she did try hard, the student would still get things wrong, even after practicing.” The other student was presented as excelling—specifically, “Imagine one of your math students was doing very well in math class. The student is getting really high grades on assignments, often without trying or putting in much time. The student doesn't ask questions because he or she isn't confused by very much.”

## KEY FINDINGS

- Teachers who believed that intellectual ability can improve with effort were more likely to favor using supportive instructional messages (those that can contribute to better student outcomes) over restrictive instructional messages (those that can undermine student outcomes), compared with teachers who believed that ability is fixed and cannot improve.
- Consistent with prior research, teachers favored using supportive instructional messages over restrictive instructional messages, but did so to a greater degree when working with students with stronger (versus weaker) perceived academic abilities

## SAMPLE

This study leverages data from the National Study of Learning Mindsets (NSLM), the largest- ever randomized controlled trial of a growth mindset program in the U.S. in K-12 settings, in which a brief online growth mindset program was administered to 9<sup>th</sup> grade students during the 2015-2016 academic year. The NSLM features a nationally representative probability sample of regular U.S. public high schools. This study specifically examined responses from the approximately 300 teachers (from 73 schools) who completed the relevant NSLM measures (62.8% female, 83.9% white, average teaching experience: 12 years). Additional information about the NSLM sample of schools and students can be accessed [here](#).

This snapshot was published at the close of the National Study of Learning Mindsets Early Career Fellowship and captures in-progress work.

**MINDSET  
SCHOLARS  
NETWORK**

The National Study of Learning Mindsets Early Career Fellowship is a project of the Mindset Scholars Network and the University of Texas at Austin Population Research Center. The Mindset Scholars Network is a group of leading social scientists dedicated to improving student outcomes and expanding educational opportunity by advancing our scientific understanding of students' mindsets about learning and school. The University of Texas at Austin Population Research Center aims to provide outstanding infrastructure resources and sustain a dynamic interdisciplinary culture geared toward facilitating the highest level of population-related research among its faculty members and graduate and undergraduate trainees.

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## RESEARCH TEAM

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For each scenario, the teachers were asked how likely they would be to use a number of messages that are indicative of supportive and restrictive instructional practices with the student in question. The restrictive messages included “Don’t worry—it’s okay to not be a math person” in the struggling student scenario, and “You’re lucky that you’re a math person” in the excelling student scenario. The supportive messages for the struggling student scenario included “Let’s see what you don’t understand and I’ll explain it differently.” Based on prior research,<sup>4</sup> one message was characterized as supportive in the excelling student scenario (“Great job, you must be working hard”); however, the researchers note that this kind of message can also be experienced as restrictive by some students.<sup>5</sup> Teachers also indicated their growth mindsets (i.e., their degree of agreement or disagreement with the statement “People have a certain amount of intelligence, and they really can’t do much to change it”).

## KEY FINDINGS

***Teachers who believed that intellectual ability can improve with effort were more likely to favor using supportive instructional messages (those that can contribute to better student outcomes) over restrictive instructional messages (those that can undermine student outcomes), compared with teachers who believed that ability is fixed and cannot improve.***

In other words, a preference for supportive over restrictive messages was more pronounced among teachers with growth mindsets than it was among those with fixed mindsets.

***Consistent with prior research, teachers favored using supportive instructional messages over restrictive instructional messages, but did so to a greater degree when working with students with stronger (versus weaker) perceived academic abilities.***

More specifically, across both scenarios, teachers were more likely to endorse using supportive versus restrictive instructional messages. However, this preference for supportive over restrictive messages was more pronounced

when responding to the student who was excelling, and less pronounced when responding to the student who was struggling. This was true regardless of teachers’ own mindsets about the malleability of intelligence.

## INSIGHTS AND FUTURE DIRECTIONS

Because teachers’ instructional practices have important implications for student outcomes,<sup>1,2</sup> it is important to identify factors that help explain teachers’ use of supportive or restrictive practices with their students. The results of this project suggest that teachers’ perceptions of their students’ academic abilities, as well as their general beliefs about whether students’ academic abilities can improve or not, may both independently help predict teachers’ differential use of these practices. These findings, and future related lines of research, may have implications for teacher training, professional development, and other school-level practices that influence beliefs and perceptions related to students’ intellectual abilities.

In the next steps of the project, the researchers plan to examine the implications of teacher-level mindsets and instructional practices for student-level outcomes, in two ways. First, prior research has found that teachers’ growth mindsets predict their students’ academic performance, especially for students who are stereotyped as being lower in intellectual ability.<sup>6</sup> Thus, the researchers are testing whether teachers’ self-reported differential use of supportive and restrictive messages can drive these differences in achievement for students believed to be higher versus lower in academic ability.

Second, they will examine whether an intervention designed to strengthen students’ growth mindsets can minimize the effects of differential treatment on student outcomes, especially for lower-performing students whose teachers hold weaker growth mindsets.

Finally, given that teachers’ growth mindsets were found to contribute to their endorsement of supportive and restrictive instructional messages (and to long-term student outcomes, in prior work<sup>6</sup>), future research should also explore the implications of teacher-level growth mindset interventions on teacher practices and student outcomes.

## References

- <sup>1</sup> Niemiec & Ryan, 2009
- <sup>2</sup> Boggiano, Flink, Shields, Seelbach & Barrett, 1993
- <sup>3</sup> Babad, 1993
- <sup>4</sup> Mueller & Dweck, 1998
- <sup>5</sup> Amemiya & Wang, 2008
- <sup>6</sup> Canning, Muenks, Green, & Murphy, 2019

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