

How students view intelligence affects how they internalize stress

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As students transition into high school, many see their grades drop. And while some students are resilient in the midst of this challenge, others succumb to the pressure. How they think about themselves and their abilities could make the difference, according to adolescent psychology researchers at The University of Texas at Austin and the University of Rochester.

In a paper published in *Child Development*, UT Austin psychology researchers sought to understand why some students were more resilient during the stressful transition into high school than others. They discovered that students' mindsets—their beliefs about whether smartness is a fixed trait or something that can be developed—show an important relation to a student's likelihood of overcoming the stressful transition into high school, particularly if the student's grades begin to drop.

Researchers surveyed 499 ninth-grade students from two public high schools in Texas during their first semester, assessing their perceptions of intelligence and reported academic pressures through daily surveys and measuring levels of cortisol—a "toxic [stress](#)" hormone secreted by the body when stressors are piling up—through daily saliva sampling.

Researchers found that 68 percent of students experienced a decline in grades during the first 12 weeks. Worsening grades, however, did not indicate a higher stress response for everyone.

Instead, worse grades only indicated greater stress responses in students who had more of a fixed mindset—the idea that people's intelligence is fixed and cannot change. On daily surveys, these students also indicated that they could not handle the stress they were facing daily. And even if their grades were fine, they reported feeling "dumb" 31 percent of the days.

"Declining grades may get 'under the skin,' as it were, for first-year [high school](#) students who believe intelligence is a fixed trait," said Hae Yeon Lee, a UT Austin psychology graduate student and the study's lead author. "But believing, instead, that intelligence can be developed—or having what is called a growth mindset— may buffer the effects of academic stress."

Researchers found that students with fixed mindsets continued to show high levels of stress the day after reporting an intense academic stressor, whereas those with growth mindsets showed a strong stress response the day of a reported stressor but returned to normal the following day.

This, researchers suggest, could be because a growth mindset leads students to proactively solve their problems—for instance, by talking with teachers or remediating their skills—thereby allowing them to cope more effectively the next day.

Overall, students' resilience to declining grades and other academic stressors was dependent on their mindsets, demonstrating an important association between how students view intelligence and how they internalize academic stress, researchers said.

"If not addressed, early academic adversity during school transition periods could contribute to lasting educational gaps in school engagement, drop-out rates and college enrollment," said co-author David Yeager, a UT Austin associate professor of psychology and a

member of the Mindset Scholars Network. "More students might thrive if schools carefully selected appropriate challenges, and provided students with growth-oriented belief that, with the right resources, they could continue to develop their abilities to meet reasonable demands."

More information: Hae Yeon Lee et al. An Entity Theory of Intelligence Predicts Higher Cortisol Levels When High School Grades Are Declining, *Child Development* (2018). [DOI: 10.1111/cdev.13116](https://doi.org/10.1111/cdev.13116)

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