

## Introduction to Growth Mindset

### Overview

Students with a **fixed mindset** believe that their own intelligence and talent are innate traits that don't change ("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 ("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.<sup>i</sup> High-performing students and low-performing students may have either mindset. 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.<sup>ii</sup>

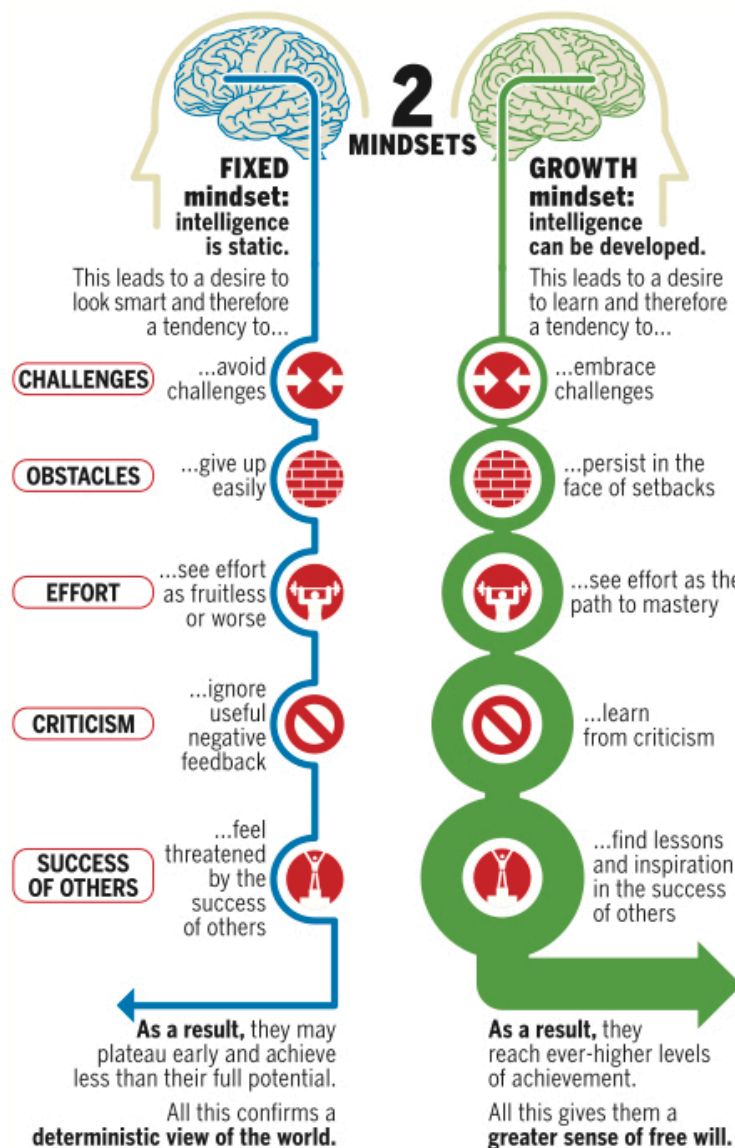
**Why This Matters:** A growth mindset may contribute to better outcomes in school and beyond.

**Lower Failure Rates:** Low-achieving students at 13 California high schools failed 7% fewer courses and improved their GPAs by .18 grade points after a one-period class designed to boost growth mindset.<sup>iii</sup>

**Improved Scores:** When a group of struggling 7<sup>th</sup> grade students in New York City learned to 1) think of their brains as muscles that grow with exercise and 2) visualize new connections developing within their brains, their motivation and math scores improved at a time when math achievement typically declines.<sup>iv</sup>

**Increased Effort:** Seventh-grade students receiving growth-mindset feedback ("I'm giving you these comments because I have high standards and know that you can meet them.") were twice as likely to revise and resubmit an assignment.<sup>v</sup>

**More Problems Solved:** Students who saw a growth mindset-related message (e.g., "When you learn a new kind of math problem, you grow your math brain!") correctly solved 3% to 5% more online math problems compared to those who didn't see growth mindset-related messages. The change carried over to the next math topic the students tackled.<sup>vi</sup>



**Neuroscience and Mindset:** Recent findings in cognitive neuroscience support the ideas underlying growth mindset. Intelligence is not fixed, but rather, learning occurs through rich interactions between students, teachers, and their environments. We can see these changes in the brain, where learning leads to new neural connections forming and strengthening. This brain plasticity and development continues across the lifespan. Research has shown that learning about brain plasticity can help students develop a growth mindset.<sup>vii</sup>

Growth Mindset Can Be Taught <sup>viii</sup>	<p><b>Praising Effort and Process Over Results</b></p> <ul style="list-style-type: none"> <li>○ <i>“Wow, you did great on that. You must have worked really hard.”</i></li> <li>○ <i>“Tell me about the different strategies you used to get to that answer.”</i></li> </ul>
	<p><b>Nurturing a Culture That Tolerates Risk</b></p> <ul style="list-style-type: none"> <li>○ <i>“We value taking on tough challenges more than we value easy success.”</i></li> </ul>
	<p><b>Emphasizing Process and Perseverance</b></p> <ul style="list-style-type: none"> <li>○ <i>Instead of displaying only finished student work, post work in progress or drafts so students can see how work evolves with effort and feedback.</i></li> </ul>
	<p><b>Thinking of the Brain as Something That Grows</b></p> <ul style="list-style-type: none"> <li>○ <i>Work with your students to create posters or other reminders that the brain, like a muscle, grows and gets stronger with effort.</i></li> </ul>
	<p><b>Encouraging Students to Share Advice</b></p> <ul style="list-style-type: none"> <li>○ <i>Have students write tweets, blog posts, or letters giving advice to a struggling student who doesn’t think he is smart enough to succeed.</i></li> </ul>
	<p><b>Framing Mistakes as Part of the Learning Process</b></p> <ul style="list-style-type: none"> <li>○ <i>When introducing new material, say something like: “After you do this lesson, I’m going to ask each of you to share a mistake you made while doing your work, because mistakes help us learn.”</i></li> </ul>
	<p><b>Specifically Rewarding Effort and Process:</b></p> <ul style="list-style-type: none"> <li>○ <i>Create a grading rubric focusing on effort or process in addition to one focusing on outcomes.</i></li> </ul>
	<p><b>Communicating High Expectations:</b></p> <ul style="list-style-type: none"> <li>○ <i>As part of written feedback to students (especially those who are underperforming) explicitly communicate high expectations: “I’m giving you these comments because I have high standards and I know that you can meet them.”</i></li> </ul>

**Want to Know More?** We have provided lots of resources on growth mindset and social-emotional learning! You can access them by:

- Asking your facilitator to share an electronic version of the workshop presentation. Hyperlinks are embedded in the “Want to Know More” slide.
- Visiting <http://www.transformingeducation.org>.

<sup>i</sup> Blackwell, L. S., Trzesniewski, K. H., & Dweck, C. S. (2007). Implicit theories of intelligence predict achievement across an adolescent transition: A longitudinal study and an intervention. *Child development, 78*(1), 246-263.

<sup>ii</sup> Aronson, J., Fried, C. B., & Good, C. (2002). Reducing the effects of stereotype threat on African American college students by shaping theories of intelligence. *Journal of Experimental Social Psychology, 38*(2), 113-125; Blackwell, L. S., Trzesniewski, K. H., & Dweck, C. S. (2007). Implicit theories of intelligence predict achievement across an adolescent transition: A longitudinal study and an intervention. *Child development, 78*(1), 246-263; Dweck, C. S., Walton, G. M., & Cohen, G. (2011). Academic tenacity. White paper prepared for the Gates Foundation. Seattle, WA.; Yeager, D. S., Walton, G., & Cohen, G. L. (2013). Addressing achievement gaps with psychological interventions. *Phi Delta Kappan, 94*, 62-65.

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<sup>vii</sup> Ibid.

<sup>viii</sup> Blackwell, L. S., Trzesniewski, K. H., & Dweck, C. S. (2007). Implicit theories of intelligence predict achievement across an adolescent transition: A longitudinal study and an intervention. *Child development, 78*(1), 246-263.

<sup>ix</sup> Dweck, C.S., (2010). Even geniuses work hard. *Educational Leadership, v. 68* (1). Pp. 16-20. Carol Dweck, *Mindset: The New Technology of Success* (2006).