

Growth Mindset in Context Content and Culture Matter Too

by David Dockterman, Ed.D., and Lisa Blackwell, Ph.D.

With all the media excitement about grit and “non-cognitive” skills, educators might conclude that to ensure students’ success we just need to get them to resist eating marshmallows, as documented in the well-known experiment that revealed that children who managed to refrain from eating a marshmallow while the experimenter stepped out of the room had greater academic and life success (Mischel et al., 2011).

The ability to self-regulate and persist in the face of challenge is indeed a critical factor in student academic and life performance. However, teaching “gritty” behaviors directly may not be successful if students don’t have the mindset, strategies, and supports they need to motivate and sustain their growth (Farrington et al., 2012). Core beliefs, content-specific skills, and

classroom culture are also essential to success.

Fixed vs. Growth Mindsets

Decades of research by psychologist Carol Dweck and colleagues have shown that we all have fixed and growth mindsets about different aspects of our lives (Dweck, 2006). A fixed mindset reflects a belief in natural talent: one is either good at something or is not. A growth mindset, on the other hand, is a belief that one can get good at something through effort and learning. The mindset we hold in any domain has a great influence on how “gritty” we will be in pursuit of accomplishment—whether we will take on challenges in the first place, how much effort we will expend, and whether we will persevere if we stumble. For example, co-author David Dockterman has a growth mindset about cooking:

I look for new recipes, welcome challenges, and see failures—which are frequent—as part of the process of developing the craft of cooking. When it comes to dancing, though, I definitely have a fixed mindset. I see myself as naturally uncoordinated, and a single

misstep on the dance floor confirms my inability. One mistake and I’m done for the night. Actually I’m done until the next time someone forces me to shake my booty. Even then, I lower expectations by affirming to anyone around me that “I’m just not a dancer.” In addition, I purposely “goof around” so that any observers see me as “not trying” as opposed to trying and failing. Getting better at dancing requires more than just furrowing my brow, gritting my teeth, and trying harder. I need to try smarter. What movements should I learn first? What’s the best way to practice? How do I get feedback on my progress? But we tend not to ask these questions if we believe we can’t get better.

Similarly, students (and teachers) have a mix of fixed and growth mindsets, some more rigidly held than others. Some students may believe, as many Americans do, that they’re “just not math people” or “just not good writers.” When they believe this, it becomes a self-fulfilling prophecy: the inevitable struggles encountered during learning confirm their inability to get better, and they give up.

Paradoxically, others may hold a fixed mindset not because of repeated failure, but because of easy success. They may think, “I’ve always done well in math without trying very hard. Everyone thinks I’m good at it. I’m not going to take any chances by putting myself in a position where they might see me fail.” They have invested in their image as a math whiz, and they are afraid to risk it. Or they may fall apart when they finally encounter a challenge after long-term success: “I’ve always been praised for my writing, but now this teacher is criticizing my essay—maybe I’m not really a good writer after all.” Their prior easy success has left them without a repertoire of strategies to overcome difficulty.

In contrast, the growth mindset students, whether high or low achievers, keep looking for the next challenge. Failure is productive, providing information about

what to do differently next time. Their belief that the next try has a chance of success is what fuels their perseverance, and over time, this results in higher achievement (Blackwell et al., 2007).

Developing a Growth Mindset

Importantly, mindset is not a fixed attribute. Like other beliefs, it is learned from experience and instruction. Intervention studies show that students' motivation, perseverance and achievement can be increased by teaching a growth mindset (Aronson et al., 2001; Blackwell et al., 2007; Good et al., 2003).

For example, co-author Lisa Blackwell and her colleague Carol Dweck taught a workshop to a struggling group of middle school math students in New York City. One version of the workshop included lessons about how the brain learns and grows smarter with effort, along with study strategies. A control group received general information about the brain and the same study strategy information. The students who received the growth mindset message improved their grades, and were rated by their teachers as showing more positive motivation to learn, while their peers who did not learn that message continued to show declining grades and low motivation (Blackwell et al., 2007). The study strategies alone weren't enough to improve their performance. Students need to know how to get better, AND they need to believe that exercising those skills will pay off.

However, mindset is not entirely an individual matter. It is continually influenced by peers, teachers, parents, and the wider culture. As educators, what can we do to help our students cultivate a growth mindset in our schools and classrooms?

Creating a Growth Mindset Culture

Every day in our classrooms and schools, students' mindsets are being molded by the messages that we give them. It isn't easy to make mistakes, to struggle, and to accept criticism in front of others. Failure often comes with both a personal sting and a social embarrassment. While a natural part of the learning process, it still hurts.

Fortunately, students with a growth mindset and a solid sense of self-efficacy know how to use each failure productively. The personal sting is only temporary, and the next, thoughtful try is quickly underway. The social embarrassment, on the other hand, emerges from the interaction between the student and his or her peers, teachers, and others. No one wants to look dumb or perform poorly—even at non-essential things such as dancing.

The way that teachers, peers, and parents talk to students influences how resilient and persevering they

will be. Most surprisingly, even apparently positive words of praise can subtly undermine students' grittiness.

Pioneering research by Claudia Mueller and Carol Dweck first showed how a simple sentence of feedback, praising students either for intelligence or for effort, could shift their mindset and performance. Students praised for being "smart" after a good performance were less likely to choose a challenging task afterward, and when they did encounter a failure, their performance plummeted. Those praised for effort overwhelmingly chose to try something harder, and their performance improved following a failure (Mueller and Dweck, 1998).

Thus, counterintuitively, praising intelligence—"You must be smart"—actually makes children fragile. (Bad news for grandparents everywhere!) On the other hand, praising effort and hard work focuses students on learning and creates "gritty," resilient learners.

Peer culture and identity are also important factors in students' sense of self-efficacy. Joshua Aronson and others got a bump in performance by making sure students associated themselves with a group of high achievers, avoiding the negative effects of stereotype threat (Aronson, et al, 2002; Good, et al, 2003).

How teachers and peers react to mistakes also influences how well a growth mindset can be sustained in the classroom. Steuer and others have identified characteristics of what they call "error climate," important elements of the classroom environment that can hinder or promote risk-taking and a student's ability to sustain a sense of self-efficacy (Steuer, et al, 2013).

How, for instance, does the teacher treat mistakes? Do students feel that mistakes in a classroom discussion will hurt their grades? How do classmates respond to the mistakes and academic successes of their peers? Maintaining a sense of belonging is a fundamental driver of human motivation. If we want to nurture a growth mindset, we need classroom, school, and community cultures that reflect the language and expectations that come with it.

Teaching a growth mindset, using appropriate praise, providing examples of how genius is the result of hard work, having students write about how their learning connects to their lives, and other techniques have all shown promise in getting students to believe that they can succeed. (For an excellent review of these interventions, see Yeager and Walton, 2011). Without that belief, students have no reason to try.

These interventions, though, did not magically give students knowledge and skills they didn't already

possess. Instilling a growth mindset heading into a course or year of study makes students more open to learning, more tolerant of mistakes, and more willing to try again when they fail. Removing negative associations before a performance, such as a test, reduces anxiety that might restrict working memory and promotes focus and perseverance. Students are able to do more with what they have.

However, some students, particularly ones with a long history of failure, may need additional evidence that their effort will be worthwhile. Here we can take a cue from the way video games purposefully and thoughtfully ramp up the difficulty level. Start hard and players are more likely to quit; provide some early success and players are much more likely to stick with the game, even as it gets more and more challenging. What that ramp up looks like for a topic in math, a writing assignment, or a complex science chapter will be dependent on the specific nature of the content. In all cases, though, ramp up serves two important goals:

1. Build confidence in the domain: “I can learn math,” “I can get better at writing,” “I can come to understand this science”
2. Keep the challenges coming.

With an appropriate level of challenge, students are motivated to persevere and try again. But, like David with his dancing skills, how do students know what to do on that next try?

Providing Smart Strategies for Perseverance

With one challenge following another, all students are bound to hit a wall. Generic study and problem-solving strategies can help, and following the research can make students much more efficient learners. Hal Pashler and others, for instance, have done a good job of identifying techniques that work and those that aren't so successful (Rohrer and Pashler, 2010). Cramming, for instance, may fill short-term memory, but most of what has been crammed is quickly forgotten. Spaced repetition and practice tests, on the other hand, work well in building long-term knowledge. Let's make sure we share and support these approaches with our students.

Each domain and even problem type may require different strategies to tackle difficult tasks. What should a student who can't seem to get started writing a paper do to persevere? What about the pupil stuck on a math word problem or struggling through a reading passage? When would it be helpful to make a list, draw a picture or even take a break? What can the student do to learn from prior attempts and the attempts of others when it

comes to writing, comprehending or calculating?

Students with a growth mindset are primed to seek and learn the strategies and background knowledge that will facilitate their success. Carrying a growth mindset mentality into instruction can help. Modeling and sharing reasoning for why each step is followed or strategy employed fosters reflection and gives students thinking tools that can be used again and again. Encourage each student to think about his or her brain and consider the actions that can assist it to learn and grow. Multitasking is distracting. Working memory is limited. Lack of sleep hampers the ability to focus and consolidate. And remember that it's OK to let students fail, but we need to provide the mechanisms for them to learn from any failures.

The *Brainology*[®] curriculum, developed by Carol Dweck, Lisa Blackwell, and colleagues at Mindset Works, teaches both the foundations of a growth mindset and the learning strategies to support growth. Modeled on the successful mindset workshop tested in Blackwell et al., 2007, *Brainology* teaches students that their brains are like a muscle that gets stronger with exercise, and how to do so. Addressing challenges such as focusing attention, managing stress, learning new content and building memory, it provides students with strategies for helping their brains to get stronger and perform well. The message that intelligence is malleable and learning leads to physical and functional brain change provides a concrete and practical way to understand and practice a growth mindset. Concepts, language, and tools that teachers can use to reinforce a growth mindset in daily lessons help create a classroom culture that supports learning. Scholastic's *MATH 180* curriculum has also embedded growth mindset frames and feedback into print and online activities.

Next Steps

Embedding growth mindset in a school or classroom culture includes embedding it into the curriculum. Instruction should reflect the language, strategies, and expectations of effortful learning, risk-taking, and productive failure. Students need to learn how to persevere in smart and strategic ways, ways that may be different from one content area to another. And teachers and peers need to commit to the culture, as well reinforce and reward resilient behavior. It's a challenge, but those of us with a growth mindset seek them out.

References

- 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*, 113-125.
- Blackwell, L., Trzesniewski, K., & Dweck, C.S. (2007). Implicit theories of intelligence predict achievement across an adolescent transition: A longitudinal study and an intervention. *Child Development, 78*. 246-263.
- Dweck, C. *Mindset: The New Psychology of Success*. New York: Random House, 2006.
- Good, C., Aronson, J., & Inzlicht, M. (2003). Improving adolescents' standardized test performance: An intervention to reduce the effects of stereotype threat. *Applied Developmental Psychology, 24*, 645-662.
- Farrington, C.A., Roderick, M., Allensworth, E., Nagaoka, J., Keyes, T.S., Johnson, D.W., & Beechum, N.O. (2012). Teaching adolescents to become learners. The role of noncognitive factors in shaping school performance: A critical literature review. Chicago: University of Chicago Consortium on Chicago School Research.
- Mischel, W., Ayduk, O., Berman, M., Casey, B. J., Gotlib, I., Jonides, J., Kross, E., Teslovich, T., Wilson, N., Zayas, V., & Shoda, Y. (2011). 'Willpower' over the life span: decomposing self-regulation. *Social Cognitive and Affective Neuroscience, 6* (2): 252-256.
- Mueller, C. & Dweck, C. Praise for intelligence can undermine children's motivation and performance. *Journal of Personality and Social Psychology, 75* (1), Jul 1998, 33-52.
- Rohrer, D. & Pashler, H. (2010). Recent Research on Human Learning Challenges Conventional Instructional Strategies. *Educational Researcher* , 39, 406-412.
- Steuer, G., Rosentritt-Brunn, G., & Dresel, M. Dealing with errors in mathematics classrooms: Structure and relevance of perceived error climate. *Contemporary Educational Psychology, 38* (2013) 196-210.

About the Authors

David Dockterman, Ed.D. is Chief Architect, Learning Sciences at Scholastic Education and an Adjunct Lecturer at the Harvard Graduate School of Education. **Lisa Blackwell, Ph.D.** is co-founder and VP of Design, Implementation, and Evaluation at Mindset Works.