



## Growth Mindset: When Making a Mistake is Good

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*“Ever tried. Ever failed. No matter. Try again. Fail again. Fail better.”*

—Samuel Beckett

**Dr. Carol Dweck’s** research on motivation at Stanford University led her to develop the concept of “growth mindset.” According to Dr. Dweck, individuals with a growth mindset believe that their most basic abilities can be developed through dedication and hard work. She feels that students have a greater chance of succeeding in school if they understand that their brains are malleable and can change when working through, and even failing, at solving challenging problems.



**Dr. Manu Kapur** at the National Institute of Education in Singapore refers to this phenomenon as “productive failure.” His view is that students’ struggles with solving problems (and mistakes) are powerful learning experiences and serve as the core to his concept of “hidden efficacy.” He demonstrated this in a research project that compared two groups of students learning math: one group received considerable instructional support and feedback from teachers, the second group worked independently or with

each other without help from the teacher. In a subsequent assessment of their ability to solve complex math problems based on the earlier simple problem set, the students in the second group “significantly outperformed” the first, regardless of their level of mathematical ability.

In his book, *Outliers: The Story of Success*, **Malcolm Gladwell** describes how the concept of persistence is related to success. He writes, “Success is a function of persistence and doggedness and the willingness to work hard for 22 minutes to make sense of something that most people would give up on after 30 seconds.” Indeed, he adds that practice trumps IQ: “You don’t need to be the smartest, you just need to practice for 10,000 hours.” In other words, commitment to practicing a skill for 10,000 hours differentiates success stories from those less successful.

### Real-World Applications

Silicon Valley is filled with success stories that rose out of failures. Increasingly, teachers are encouraging failure in the classroom to promote more dynamic and powerful learning experiences.

In her blog, New York City physics teacher **Kelly O’Shea** employs a teaching technique she describes as “The Mistake Game,” where students are encouraged to embed a mistake in their solution and others are encouraged to find it. She quickly recognized that her students were much

more engaged in the learning process than when “simply watching perfection” (i.e. watching the correct answer being written on the board).

Similarly, in his “Essay on the Importance of Teaching Failure,” **Dr. Edward Burger**, a mathematician who is currently President of Southwestern University in Texas, invites his students to take risks and to try ideas without fear of failure by emphasizing the link between failure and creativity and the power and benefits of failure. In each of his classes, five percent of students’ final grades are based on their narrative of failure (i.e. how they learned from their failed attempts) written at the end of the semester. At the end of the narrative, each student is asked to provide their own grade on how they evolved through failure and mistakes in his class.

Dr. Burger judges the quality of their failure by the size of their risk and the amount of insight they generated from their mistakes. Surprisingly, he finds most students to be candid and restrained in the grades they give themselves. He writes, “To date, I’ve never had a student complain about their ‘quality of failure’ grade.”

### Real-Life Lessons

In our lives, most if not all of us have likely learned a life lesson from a mistake. These researchers and teachers are encouraging us to transfer this important learning tool to the classroom environment because a growth mindset is a teachable skill. In order to do so, our educational system must create classroom cultures that value effort as well as success and embrace failure as part of the educational process.

In a video developed by the Teaching Channel ([teachingchannel.org](http://teachingchannel.org)) in collaboration with Stanford University titled “Encouraging Students to Persist through Challenges,” the teacher checks in with a group of students who have not been able to solve the first problem assigned to them. When she asks one student how the group feels, he responds, “We are happy because we are growing our brains.”

### Bringing it Home

These are some easy strategies you can employ at home to build your child’s growth mindset:

- Teach your children that brains are malleable (e.g. physical exercise creates new neurons, how a person can learn to speak another language).
- Model learning from mistakes.
- Praise the process and not the outcome (“All that practice helped your team reach the championship!”).
- Build in self-reflection exercises (what worked, what didn’t, what would you do differently).
- Encourage positive self-talk while working.
- Encourage creative activities at home (e.g. building, cooking, art) and help your child figure out how to handle a mistake.