

## Even Geniuses Work Hard

Carol S. Dweck

**Let's give students learning tasks that tell them, "You can be as smart as you want to be."**

We can all agree that meaningful schoolwork promotes students' learning of academic content. But why stop there? I believe that meaningful work can also teach students to love challenges, to enjoy effort, to be resilient, and to value their own improvement. In other words, we can design and present learning tasks in a way that helps students develop a *growth mindset*, which leads to not just short-term achievement but also long-term success.

## Why Foster a Growth Mindset?

During the past several decades, my colleagues and I have conducted research identifying two distinct ways in which individuals view intelligence and learning. Individuals with a *fixed mindset* believe that their intelligence is simply an inborn trait—they have a certain amount, and that's that. In contrast, individuals with a *growth mindset* believe that they can develop their intelligence over time (Blackwell, Trzesniewski, & Dweck, 2007; Dweck, 1999, 2007).

These two mindsets lead to different school behaviors. For one thing, when students view intelligence as fixed, they tend to value looking smart above all else. They may sacrifice important opportunities to learn—even those that are important to their future academic success—if those opportunities require them to risk performing poorly or admitting deficiencies. Students with a growth mindset, on the other hand, view challenging work as an opportunity to learn and grow. I have seen students with a growth mindset meet difficult problems, ones they could not solve yet, with great relish. Instead of thinking they were failing (as the students with a fixed mindset did), they said things like "I love a challenge," "Mistakes are our friends," and "I was *hoping* this would be informative!"

Students with a fixed mindset do not like effort. They believe that if you have ability, everything should come naturally. They tell us that when they have to work hard, they feel dumb. Students with a growth mindset, in contrast, value effort; they realize that even geniuses have to work hard to develop their abilities and make their contributions.

Finally, students with a fixed mindset tend not to handle setbacks well. Because they believe that setbacks call their intelligence into question, they become discouraged or defensive when they don't succeed right away. They may quickly withdraw their effort, blame others, lie about their scores, or consider cheating. Students with a growth mindset are more likely to respond to initial obstacles by remaining involved, trying new strategies, and using all the resources at their disposal for learning.

## Creating a Culture of Risk Taking

Teachers who strive to design challenging, meaningful learning tasks may find that their students respond differently depending on the students' assumptions about intelligence. Students with a growth mindset may tackle such work with excitement, whereas students with a fixed mindset may feel threatened by learning tasks that require them to stretch or take risks.

To prepare students to benefit from meaningful work, therefore, teachers need to create a growth-mindset culture in the classroom. One way to create such a culture is by providing the right kinds of praise and encouragement. My research has shown that praising students for the process they have engaged in—the effort they applied, the strategies they used, the choices they made, the persistence they displayed, and so on—yields more long-term benefits than telling them they are "smart" when they succeed.

Teachers should also emphasize that fast learning is not always the deepest and best learning and that students who take longer sometimes understand things at a deeper level. Students can learn about many historical figures who

were not regarded as "fast" learners in childhood. Albert Einstein swore that he was slow to learn and that's why he pondered the same questions year after year—with, as we know, excellent results.

Some teachers teach their students about the different mindsets directly. (To learn about a growth mindset curriculum that my colleagues and I have created, go to [www.brainology.us](http://www.brainology.us).) Teachers may illustrate the concept of the growth mindset by having their students write about, and share with one another, something they used to be poor at and are now very good at.

In one class, for example, the students were astounded to learn that the school's baseball star used to be inept at baseball and only became proficient after much practice. Such discussions encourage students not to be ashamed to struggle with something before they are good at it.

Teachers can also ask their students to choose an area in which they would like to improve and then to establish a personal goal that would be a big reach for them. For example, a student who is typically afraid of criticism might decide to seek critical feedback on her next art project; an algebra student struggling to understand absolute values might commit to watching a YouTube video on how to solve linear absolute value equations, and then teach the process to his classmates; a student who lacks physical confidence might join a sports team; or a shy student might approach other students she would like to befriend. Students can share their plans and even help one another enhance their skills and reach their goal.

Another strategy is to have students write a letter to a struggling student explaining the growth mindset, telling the struggler not to label himself or herself, and giving the student advice on improvement strategies to try.

Through such exercises, teachers are transmitting crucial information—telling students that they view them all as having intelligence that they can choose to develop. The teachers are also communicating that their role is not to judge who is smart and who is not, but to collaborate with students to make everyone smarter.

## Building a Growth Mindset

Within a classroom culture that supports a growth mindset, teachers can design meaningful learning tasks and present them in a way that fosters students' resilience and long-term achievement.

### Emphasize Challenge, Not "Success"

Meaningful learning tasks need to challenge every student in some way. It is crucial that no student be able to coast to success time after time; this experience can create the fixed-mindset belief that you are smart only if you can succeed without effort.

To prevent this, teachers can identify students who have easily mastered the material and design in-class assignments that include some problems or exercises that require these students to stretch. This way, the teacher will be close at hand to guide students if necessary and get them used to (and ultimately excited about) the challenging work. Some teachers have told me that after a while, students begin to select or create challenging tasks for themselves.

When presenting learning tasks to students, the teacher should portray challenges as fun and exciting, while portraying easy tasks as boring and less useful for the brain. When students initially struggle or make mistakes, the teacher should view this as an opportunity to teach students how to try different strategies if the first ones don't work—how to step back and think about what to try next, like a detective solving a mystery.

Suppose that a student has attempted a math problem but is now stuck. The teacher can say, "OK, let's solve this mystery!" and ask the student to show the strategies he or she has tried so far. As the student explains a strategy, the teacher can say, "That's an interesting strategy. Let's think about why it didn't work and whether it gives us some clues for a new path. What should we try next?"

When, perhaps with the teacher's guidance, the student finds a fruitful strategy, the teacher can say "Great! You tried different ways, you followed the clues, and you found a strategy that worked. You're just like Sherlock Holmes, the great detective. Are you ready to try another one?" In this way, the teacher can simultaneously gain insight into what the student does and does not understand and teach the student to struggle through knotty problems.

### Give a Sense of Progress

Meaningful learning tasks give students a clear sense of progress leading to mastery. This means that students can see themselves doing tasks they couldn't do before and understanding concepts they couldn't understand before. Work that gives students a sense of improvement as a result of effort gives teachers an opportunity to praise students for their process. That is, teachers can point out that the students' efforts were what led to the progress and improvement over time.

Some teachers make students' progress explicit by giving pre-tests at the beginning of a unit that purposely cover material students do not know. When students compare their inevitably poor performance on these pre-tests with their improved performance on unit post-tests, they get used to the idea that, with application, they can become smarter.

Homework is an especially important component of an instructional program that enhances students' sense of learning and progress. Homework assignments should not feel like mindless, repetitive exercises; rather, they should present novel problems for students to solve, require them to apply what they've learned in new ways, or ask them to stretch to the next level.

For example, suppose that students are learning about the rise and fall of civilizations. Their homework assignment might be to apply their learning by designing a civilization that would either thrive (by building in positive factors) or implode (by building in risk factors). They can write the story of their civilization and what happened to it. Or suppose students were studying Shakespeare's sonnets. For homework, they could write a sonnet to the person or animal of their choice in the style of Shakespeare.

### Grade for Growth

The way teachers evaluate their students' work can also help students develop a growth mindset. At one high school in Chicago, when students don't master a particular unit of study, they don't receive a failing grade—instead, they get a grade of *Not Yet*. Students are not ashamed of that grade because they know that they're expected to master the material, if not the first time, then the next time, or the next.

The word "yet" is valuable and should be used frequently in every classroom. Whenever students say they can't do something or are not good at something, the teacher should add, "yet." Whenever students say they don't like a certain subject, the teacher should say, "yet." This simple habit conveys the idea that ability and motivation are fluid.

Some teachers my colleagues and I work with tell us that they've shifted their grading system to consider more growth-mindset criteria, so that no student can coast to an A and students who struggle and improve get credit for their effort. One school bases one-fourth of each student's grade on growth-mindset factors, thus rewarding students who challenge themselves, are resilient in the face of difficulty, and show clear improvement over time. Other schools give a separate grade for challenge-seeking, effort, and resilience. Of course, for that grade to be effective (and not just a consolation prize), teachers need to have reinforced the value of these qualities daily throughout the school year.

What if a student puts in great effort but does not improve? The teacher needs to factor in the effort but then work with the student to figure out what the impasse was and how the student can break through that impasse.

## Long-Term Success

Meaningful work not only promotes learning in the immediate situation, but also promotes a love of learning and resilience in the face of obstacles. This kind of meaningful work takes place in classrooms in which teachers praise the learning process rather than the students' ability, convey the joy of tackling challenging learning tasks, and highlight progress and effort. Students who are nurtured in such classrooms will have the values and tools that breed lifelong success.

## References

- 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*(1), 246–263.
- Dweck, C. S. (1999). *Self-theories: Their role in motivation, personality, and development*. Philadelphia: Psychology Press.
- Dweck, C. S. (2007). The perils and promises of praise. *Educational Leadership, 65*(2), 34–39.

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**Carol S. Dweck** is the Lewis and Virginia Eaton Professor of Psychology at Stanford University and the author of *Mindset: The New Psychology of Success* (Random House, 2006); [dweck@stanford.edu](mailto:dweck@stanford.edu).

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