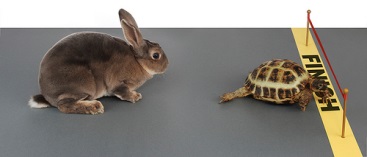
******Brainology**

**Transforming Students’ Motivation to Learn**

**Carol S. Dweck**

**Mindsets and Achievement**   
Many students believe that intelligence is fixed, that each person has a certain amount and that's that. We call this a *fixed mindset*, and, as you will see, students with this mindset worry about how much of this fixed intelligence they possess. A fixed mindset makes challenges threatening for students (because they believe that their fixed ability may not be up to the task) and it makes mistakes and failures demoralizing (because they believe that such setbacks reflect badly on their level of fixed intelligence).

 Other students believe that intelligence is something that can be cultivated through effort and education. They don't necessarily believe that everyone has the same abilities or that anyone can be as smart as Einstein, but they do believe that everyone can improve their abilities. And they understand that even Einstein wasn't Einstein until he put in years of focused hard work. In short, students with this *growth mindset* believe that intelligence is a potential that can be realized through learning. As a result, confronting challenges, profiting from mistakes, and persevering in the face of setbacks become ways of getting smarter.

Students with different mindsets also had very different reactions to setbacks. Those with growth mindsets reported that, after a setback in school, they would simply study more or study differently the next time. But those with fixed mindsets were more likely to say that they would feel dumb, study *less* the next time, and seriously consider cheating. If you feel dumb — permanently dumb — in an academic area, there is no good way to bounce back and be successful in the future. In a growth mindset, however, you can make a plan of positive action that can remedy a deficiency. (Hong. *et al*., 1999; Nussbaum and Dweck, 2008; Heyman, *et al*., 1992)

Finally, when we looked at the math grades they went on to earn, we found that the students with a growth mindset had pulled ahead. Although both groups had started seventh grade with equivalent achievement test scores, a growth mindset quickly propelled students ahead of their fixed-mindset peers, and this gap only increased over the two years of the study.

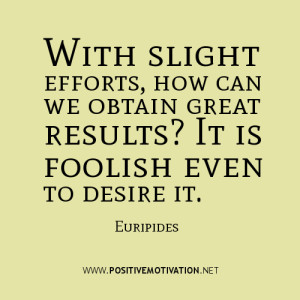
****In short, the belief that intelligence is fixed dampened students' motivation to learn, made them afraid of effort, and made them want to quit after a setback. This is why so many bright students stop working when school becomes hard. Many bright students find grade school easy and coast to success early on. But later on, when they are challenged, they struggle. They don't want to make mistakes and feel dumb — and, most of all, they don't want to work hard and feel dumb. So they simply retire.

**An Experiment**  
We gave two groups of children problems from an IQ test, and we praised them. We praised the children in one group for their intelligence, telling them, "Wow, that's a really good score. You must be smart at this." We praised the children in another group for their effort: "Wow, that's a really good score. You must have worked really hard." That's all we did, but the results were dramatic. We did studies like this with children of different ages and ethnicities from around the country, and the results were the same.

Here is what happened with fifth graders. The children praised for their intelligence did not want to learn. When we offered them a challenging task that they could learn from, the majority opted for an easier one, one on which they could avoid making mistakes. The children praised for their effort wanted the task they could learn from.

 The children praised for their intelligence lost their confidence as soon as the problems got more difficult. Now, as a group, they thought they *weren't* smart. They also lost their enjoyment, and, as a result, their performance plummeted. On the other hand, those praised for effort maintained their confidence, their motivation, and their performance. Actually, their performance improved over time such that, by the end, they were performing substantially better than the intelligence-praised children on this IQ test.

Finally, the children who were praised for their intelligence lied about their scores more often than the children who were praised for their effort. We asked children to write something (anonymously) about their experience to a child in another school and we left a little space for them to report their scores. Almost 40 percent of the intelligence-praised children elevated their scores, whereas only 12 or 13 percent of children in the other group did so. To me this suggests that, after students are praised for their intelligence, it's too humiliating for them to admit mistakes.

**What Do We Value?**   
In our society, we seem to worship talent — and we often portray it as a gift. Now we can see that this is not motivating to our students. Those who think they have this gift expect to sit there with it and be successful. When they aren't successful, they get defensive and demoralized, and often opt out. Those who don't think they have the gift also become defensive and demoralized, and often opt out as well.

We need to correct the harmful idea that people simply have gifts that transport them to success, and to teach our students that no matter how smart or talented someone is — be it Einstein, Mozart, or Michael Jordan — no one succeeds in a big way without enormous amounts of dedication and effort. It is through effort that people build their abilities and realize their potential. More and more research is showing there is one thing that sets the great successes apart from their equally talented peers — how hard they've worked (Ericsson, et al., 2006).