

Fostering a Growth Mindset in the Classroom

Growth Mindset

- In a growth mindset, people believe that their most **basic abilities can be developed through dedication and hard work**—brains and talent are just the starting point.
- This view creates a love of learning and a resilience that is essential for great accomplishment.

Fixed Mindset

- In a fixed mindset, people believe their **basic qualities**, like their intelligence or talent, **are simply fixed traits**.
- They spend their time documenting their intelligence or talent instead of developing them. They also believe that talent alone creates success—without effort.

G	F	Scenario
		Layne is taking piano lessons with Mr. Knoll his music instructor. Layne did not get to practice much over the last few weeks, because other activities took priority. Although he is interested in piano, he finds the time to practice difficult because he is involved in many other extracurricular activities. During his weekly lesson, he realizes he is not playing well and is making a lot of mistakes. He turns to Mr. Knoll and says, "I guess I am never going to be the concert pianist I once thought I'd be. I just don't have it in me." Mr. Layne responds by saying, "Justin, it's not about having it in you. It's about the effort and time you are willing to put into your practice."
		When Mr. Hawkin's more enthusiastic colleagues share how they have changed students' lives over the course of a year, he is skeptical. He doesn't see changes in his students. Years ago, he met the mother of one of his kids and observed that "the apple doesn't fall far from the tree." He has noticed how much Jason, one of his current students, behaves like his older brother Kevin, who dropped out in the 11 th grade. In his 14 years of teaching experience, Mr. Hawkins has watched this cycle repeat itself over and over again. He continues to think about retirement, <i>only six years away</i> .
		A teacher says, "Every paper I get from Doug shows that he just isn't capable of thinking critically about text. I've tried everything and nothing works. There's nothing more I can do."
		Mr. Hawkins is feeling hopeful. He has learned that his students' cognitive capacity has improved, and he has been introduced to some schools that have achieved success with the students he used to refer to as "those kids." But now he's feeling a new and different pressure. The focus is turning to the classroom- specifically, his classroom. He asks himself a new question that he has never thought of before: "Do I have what it takes to succeed at working with kids from poverty?" Just asking this question was a breakthrough for him. He is starting to see "those kids" as "our kids" and is embarking on the most important journey of all, reflection. He now thinks, "I wonder if I can get good enough before retirement—it's less than six years away."

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.) 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.

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. Carol Dweck on Praising for Effort, Not Intelligence

(Originally titled “The Perils and Promises of Praise”)

In this *Educational Leadership* article, Stanford psychology professor Carol Dweck continues her lucid explanation of the erroneous beliefs that many Americans hold about intelligence and the ways we need to change them. “Many believe that (1) praising students’ intelligence builds their confidence and motivation to learn, and (2) students’ inherent intelligence is the major cause of their achievement in school. Our research has shown that the first belief is false and the second can be harmful – even for the most competent students.”

Dweck says that the impact of praise is closely linked to how students view intellectual ability, and they tend to hold one of two beliefs:

• *Intelligence is a fixed trait* – “Students with this fixed mind-set become excessively concerned with how smart they are,” says Dweck, “seeking tasks that will prove their intelligence and avoiding ones that might not. The desire to learn takes a back seat.” Students who think this way tend to:

- Care a lot about whether people think they are smart or not smart;
- Avoid learning challenges where they might make mistakes;
- Try to hide mistakes rather than trying to correct them;
- Believe that if they have the ability, they shouldn’t have to try hard;
- Believe that needing to apply a lot of effort means they’re dumb;
- Not deal well with frustration and setbacks, sometimes giving up or cheating.

• *Intelligence can be improved* – “When students believe they can develop their intelligence, they focus on doing just that,” writes Dweck. “Not worrying about how smart they will appear, they take on challenges and stick to them... They don’t necessarily believe that anyone can become an Einstein or a Mozart, but they do understand that even Einstein and Mozart had to put in years of effort to become who they were.” Students with the growth belief system tend to:

- Care about and invest themselves in learning;
- Believe that effort is a positive thing, causing their intelligence to grow;
- Try hard in the face of frustration and failure;
- Look for new learning strategies.

“More and more research in psychology and neuroscience supports the growth mind-set,” says Dweck. “We are discovering that the brain has more plasticity over time than we ever imagined; that fundamental aspects of intelligence can be enhanced through learning; and that dedication and persistence in the face of obstacles are key ingredients in outstanding achievement.”

It turns out that the way adults praise children's successes and failures has a direct impact on the mind-set children develop. Dweck and her colleagues have conducted a series of fascinating experiments in recent years and found the following:

- *Praising for intelligence* – Many educators and parents believe that commending children for being smart will increase their self-confidence and help them enjoy learning. Not true! “Praising students’ intelligence gives them a short burst of pride,” says Dweck, “followed by a long string of negative consequences.” This kind of praise pushes the child into the innate-intelligence mind-set, which makes them more fearful of messing up, less willing to work hard to learn new skills, less adventurous with difficult challenges, more prone to cheat or give up, and less confident in their ability to be successful. “Praising students for their intelligence, then, hands them not motivation and resilience but a fixed mind-set with all its vulnerability,” concludes Dweck.

- *Praising for effort* – By contrast, commending students for the *processes* they use – engagement, perseverance, strategies, improvement – fosters motivation, increased effort, willingness to take on new challenges, greater self-confidence, and a higher level of success. “Process praise keeps students focused, not on something called ability that they may or may not have and that magically creates success or failure, but on processes they can all engage in to learn,” writes Dweck.

Here’s what this kind of adult praise sounds like: “You really studied for your English test, and your improvement shows it. You read the material over several times, outlined it, and tested yourself on it. That really worked!” and “It was a long, hard assignment, but you stuck to it and got it done. You stayed at your desk, kept up your concentration, and kept working. That’s great!”

What about a student who works hard and does poorly? Dweck suggests saying, “I liked the effort you put in. Let’s work together some more and figure out what you don’t understand.” How about a student who gets an A without trying very hard? Dweck suggests saying, “All right, that was too easy for you. Let’s do something more challenging that you can learn from.”

To test this theory, Dweck and her colleagues worked with a group of New York City seventh graders whose math grades had been plummeting in the opening months of school. The researchers gave two groups of students, the intervention group and the control group, a series of workshops on study skills, time management, and memory strategies. In addition, the students in the intervention group were presented with information about how intelligence develops. “They learned that the brain is like a muscle,” says Dweck, “the more they exercise it, the stronger it becomes. They learned that every time they try hard and learn something new, their brain forms new connections that, over time, make them smarter. They learned that intellectual development is not the natural unfolding of intelligence, but rather the formation of new connections brought about through effort and learning.”

The students who heard this information were riveted, says Dweck. “The idea that their intellectual growth was largely in their hands fascinated them.” Even the most disruptive students calmed down and listened. “You mean I don’t have to be dumb?” asked a particularly unruly boy. Teachers noticed a marked improvement in the motivation and effort of the intervention group, despite having been kept in the dark about what the intervention was. In the past, the boy who thought he was dumb had rarely turned in homework and put in minimal effort beforehand; now he worked for hours to finish an assignment early, got feedback from his teacher, revised it, and earned a B+. Overall, the intervention students turned around their math achievement and made dramatic gains. The achievement of the control-group students, despite the workshops on study skills, continued to decline.

Dweck and her colleagues extended the study to 20 New York City schools and got similar results. One student said she could actually “picture the neurons growing bigger as they make more connections.” Another student said, “If you do not give up and you keep studying, you can find your way through.”

“Adolescents often see school as a place where they perform for teachers who then judge them,” concludes Dweck. “The growth mind-set changes that perspective and makes school a place where students vigorously engage in learning for their own benefit. Our research shows that educators cannot hand students confidence on a silver platter by praising their intelligence. Instead, we can help them gain the tools they need to maintain their confidence in learning by keeping them focused on the *process* of achievement.”

“The Perils and Promises of Praise” by Carol Dweck in *Educational Leadership*, October 2007 (Vol. 65, #2, p. 34-39), full article available at <http://www.ascd.org>.

For more on this subject, see the summary of Dweck’s classic 1999 *American Educator* article in Marshall Memo 144, which has more detail of a study of fifth graders, and a recent *Education Week* online chat with Dweck in Memo 152.

How Not to Talk to Your Kids

The inverse power of praise.

By Po Bronson Published Feb 11, 2007



(Photo: Phillip Toledano; styling by Marie Blomquist for I Group; prop styling by Anne Koch; hair by Kristan Serafino for L'Oreal Professionnel; makeup by Viktorija Bowers for City Artists; clothing by Petit Bateau [shirt and pants])

What do we make of a boy like Thomas?

Thomas (his middle name) is a fifth-grader at the highly competitive P.S. 334, the Anderson School on West 84th. Slim as they get, Thomas recently had his long sandy-blond hair cut short to look like the new James Bond (he took a photo of Daniel Craig to the barber). Unlike Bond, he prefers a uniform of cargo pants and a T-shirt emblazoned with a photo of one of his heroes: Frank Zappa. Thomas hangs out with five friends from the Anderson School. They are “the smart kids.” Thomas’s one of them, and he likes belonging.

Since Thomas could walk, he has heard constantly that he’s smart. Not just from his parents but from any adult who has come in contact with this precocious child. When he applied to Anderson for kindergarten, his intelligence was statistically confirmed. The school is reserved for the top one percent of all applicants, and an IQ test is required. Thomas didn’t just score in the top one percent. He scored in the top one percent of the top one percent.

But as Thomas has progressed through school, this self-awareness that he’s smart hasn’t always translated into fearless confidence when attacking his schoolwork. In fact, Thomas’s father noticed just the opposite. “Thomas didn’t want to try things he wouldn’t be successful at,” his father says. “Some things came very quickly to him, but when they didn’t, he gave up almost immediately, concluding, ‘I’m not good at this.’ ”

With no more than a glance, Thomas was dividing the world into two—things he was naturally good at and things he wasn't.

For instance, in the early grades, Thomas wasn't very good at spelling, so he simply demurred from spelling out loud. When Thomas took his first look at fractions, he balked. The biggest hurdle came in third grade. He was supposed to learn cursive penmanship, but he wouldn't even try for weeks. By then, his teacher was demanding homework be completed in cursive. Rather than play catch-up on his penmanship, Thomas refused outright. Thomas's father tried to reason with him. "Look, just because you're smart doesn't mean you don't have to put out some effort." (Eventually, he mastered cursive, but not without a lot of cajoling from his father.)

Why does this child, who is measurably at the very top of the charts, lack confidence about his ability to tackle routine school challenges?

Thomas is not alone. For a few decades, it's been noted that a large percentage of all gifted students (those who score in the top 10 percent on aptitude tests) severely underestimate their own abilities. Those afflicted with this lack of perceived competence adopt lower standards for success and expect less of themselves. They underrate the importance of effort, and they overrate how much help they need from a parent.

When parents praise their children's intelligence, they believe they are providing the solution to this problem. According to a survey conducted by Columbia University, 85 percent of American parents think it's important to tell their kids that they're smart. In and around the New York area, according to my own (admittedly nonscientific) poll, the number is more like 100 percent. *Everyone* does it, habitually. The constant praise is meant to be an angel on the shoulder, ensuring that children do not sell their talents short.

But a growing body of research—and a new study from the trenches of the New York public-school system—strongly suggests it might be the other way around. Giving kids the label of "smart" does not prevent them from underperforming. It might actually be causing it.

For the past ten years, psychologist Carol Dweck and her team at Columbia (she's now at Stanford) studied the effect of praise on students in a dozen New York schools. Her seminal work—a series of experiments on 400 fifth-graders—paints the picture most clearly.

Dweck sent four female research assistants into New York fifth-grade classrooms. The researchers would take a single child out of the classroom for a nonverbal IQ test consisting of a series of puzzles—puzzles easy enough that all the children would do fairly well. Once the child finished the test, the researchers told each student his score, then gave him a single line of praise. Randomly divided into groups, some were praised for their *intelligence*. They were told, "You must be smart at this." Other students were praised for their *effort*: "You must have worked really hard."

Why just a single line of praise? "We wanted to see how sensitive children were," Dweck explained. "We had a hunch that one line might be enough to see an effect."

Then the students were given a choice of test for the second round. One choice was a test that would be more difficult than the first, but the researchers told the kids that they'd learn a lot from attempting the

puzzles. The other choice, Dweck's team explained, was an easy test, just like the first. Of those praised for their effort, 90 percent chose the *harder* set of puzzles. Of those praised for their intelligence, a majority chose the *easy* test. The "smart" kids took the cop-out.



(Photo: Phillip Toledano; styling by Marie Blomquist for I Group; prop styling by Anne Koch; hair by Kristan Serafino for L'Oreal Professionnel; makeup by Viktorija Bowers for City Artists; clothing by Petit Bateau [dress])

Why did this happen? "When we praise children for their intelligence," Dweck wrote in her study summary, "we tell them that this is the name of the game: Look smart, don't risk making mistakes." And that's what the fifth-graders had done: They'd chosen to look smart and avoid the risk of being embarrassed.

In a subsequent round, none of the fifth-graders had a choice. The test was difficult, designed for kids two years ahead of their grade level. Predictably, everyone failed. But again, the two groups of children, divided at random at the study's start, responded differently. Those praised for their effort on the first test assumed they simply hadn't focused hard enough on this test. "They got very involved, willing to try every solution to the puzzles," Dweck recalled. "Many of them remarked, unprovoked, 'This is my favorite test.'" Not so for those praised for their smarts. They assumed their failure was evidence that they weren't really smart at all. "Just watching them, you could see the strain. They were sweating and miserable."

Having artificially induced a round of failure, Dweck's researchers then gave all the fifth-graders a final round of tests that were engineered to be as easy as the first round. Those who had been praised for their effort significantly improved on their first score—by about 30 percent. Those who'd been told they were smart did worse than they had at the very beginning—by about 20 percent.

Dweck had suspected that praise could backfire, but even she was surprised by the magnitude of the effect. "Emphasizing effort gives a child a variable that they can control," she explains. "They come to see themselves as in control of their success. Emphasizing natural intelligence takes it out of the child's control, and it provides no good recipe for responding to a failure."

In follow-up interviews, Dweck discovered that those who think that innate intelligence is the key to success begin to discount the importance of effort. *I am smart*, the kids' reasoning goes; *I don't need to put out effort*. Expending effort becomes stigmatized—it's public proof that you can't cut it on your natural gifts.

Repeating her experiments, Dweck found this effect of praise on performance held true for students of every socioeconomic class. It hit both boys and girls—the very brightest girls especially (they collapsed the most following failure). Even preschoolers weren't immune to the inverse power of praise.

Jill Abraham is a mother of three in Scarsdale, and her view is typical of those in my straw poll. I told her about Dweck's research on praise, and she flatly wasn't interested in brief tests without long-term follow-up. Abraham is one of the 85 percent who think praising her children's intelligence is important. Her kids are thriving, so she's proved that praise works in the real world. "I don't care what the experts say," Jill says defiantly. "I'm living it."

Even those who've accepted the new research on praise have trouble putting it into practice. Sue Needleman is both a mother of two and an elementary-school teacher with eleven years' experience. Last year, she was a fourth-grade teacher at Ridge Ranch Elementary in Paramus, New Jersey. She has never heard of Carol Dweck, but the gist of Dweck's research has trickled down to her school, and Needleman has learned to say, "I like how you keep trying." She tries to keep her praise specific, rather than general, so that a child knows exactly what she did to earn the praise (and thus can get more). She will occasionally tell a child, "You're good at math," but she'll never tell a child he's bad at math.

But that's at school, as a teacher. At home, old habits die hard. Her 8-year-old daughter and her 5-year-old son are indeed smart, and sometimes she hears herself saying, "You're great. You did it. You're smart." When I press her on this, Needleman says that what comes out of academia often feels artificial. "When I read the mock dialogues, my first thought is, *Oh, please. How corny.*"

No such qualms exist for teachers at the Life Sciences Secondary School in East Harlem, because they've seen Dweck's theories applied to their junior-high students. Last week, Dweck and her protégée, Lisa Blackwell, published a report in the academic journal *Child Development* about the effect of a semester-long intervention conducted to improve students' math scores.

Life Sciences is a health-science magnet school with high aspirations but 700 students whose main attributes are being predominantly minority and low achieving. Blackwell split her kids into two groups for an eight-session workshop. The control group was taught study skills, and the others got study skills and a special module on how intelligence is not innate. These students took turns reading aloud an essay on how the brain grows new neurons when challenged. They saw slides of the brain and acted out skits. "Even as I was teaching these ideas," Blackwell noted, "I would hear the students joking, calling one another 'dummy' or 'stupid.'" After the module was concluded, Blackwell tracked her students' grades to see if it had any effect.



(Photo: Phillip Toledano)

It didn't take long. The teachers—who hadn't known which students had been assigned to which workshop—could pick out the students who had been taught that intelligence can be developed. They improved their study habits and grades. In a single semester, Blackwell reversed the students' longtime trend of decreasing math grades.

The only difference between the control group and the test group were two lessons, a total of 50 minutes spent teaching not math but a single idea: that the brain is a muscle. Giving it a harder workout makes you smarter. That alone improved their math scores.

"These are very persuasive findings," says Columbia's Dr. Geraldine Downey, a specialist in children's sensitivity to rejection. "They show how you can take a specific theory and develop a curriculum that works." Downey's comment is typical of what other scholars in the field are saying. Dr. Mahzarin Banaji, a Harvard social psychologist who is an expert in stereotyping, told me, "Carol Dweck is a flat-out genius. I hope the work is taken seriously. It scares people when they see these results."

Since the 1969 publication of *The Psychology of Self-Esteem*, in which Nathaniel Branden opined that self-esteem was the single most important facet of a person, the belief that one must do whatever he can to achieve positive self-esteem has become a movement with broad societal effects. Anything potentially damaging to kids' self-esteem was axed. Competitions were frowned upon. Soccer coaches stopped counting goals and handed out trophies to everyone. Teachers threw out their red pencils. Criticism was replaced with ubiquitous, even undeserved, praise.

Dweck and Blackwell's work is part of a larger academic challenge to one of the self-esteem movement's key tenets: that praise, self-esteem, and performance rise and fall together. From 1970 to 2000, there were over 15,000 scholarly articles written on self-esteem and its relationship to everything—from sex to career advancement. But results were often contradictory or inconclusive. So in 2003 the Association for Psychological Science asked Dr. Roy Baumeister, then a leading proponent of self-esteem, to review this literature. His team concluded that self-esteem was polluted with flawed science. Only 200 of those 15,000 studies met their rigorous standards.

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it on your natural gifts.

After reviewing those 200 studies, Baumeister concluded that having high self-esteem didn't improve grades or career achievement. It didn't even reduce alcohol usage. And it especially did not lower violence of any sort. (Highly aggressive, violent people happen to think very highly of themselves, debunking the theory that people are aggressive to make up for low self-esteem.) At the time, Baumeister was quoted as saying that his findings were "the biggest disappointment of my career."

Now he's on Dweck's side of the argument, and his work is going in a similar direction: He will soon publish an article showing that for college students on the verge of failing in class, esteem-building praise causes their grades to sink further. Baumeister has come to believe the continued appeal of self-esteem is largely tied to parents' pride in their children's achievements: It's so strong that "when they praise their kids, it's not that far from praising themselves."

By and large, the literature on praise shows that it can be effective—a positive, motivating force. In one study, University of Notre Dame researchers tested praise's efficacy on a losing college hockey team. The experiment worked: The team got into the playoffs. But all praise is not equal—and, as Dweck demonstrated, the effects of praise can vary significantly depending on the praise given. To be effective, researchers have found, praise needs to be specific. (The hockey players were specifically complimented on the number of times they checked an opponent.)

Sincerity of praise is also crucial. Just as we can sniff out the true meaning of a backhanded compliment or a disingenuous apology, children, too, scrutinize praise for hidden agendas. Only young children—under the age of 7—take praise at face value: Older children are just as suspicious of it as adults.

Psychologist Wulf-Uwe Meyer, a pioneer in the field, conducted a series of studies where children watched other students receive praise. According to Meyer's findings, by the age of 12, children believe that earning

praise from a teacher is not a sign you did well—it's actually a sign you lack ability and the teacher thinks you need extra encouragement. And teens, Meyer found, discounted praise to such an extent that they believed it's a teacher's criticism—not praise at all—that really conveys a positive belief in a student's aptitude.

In the opinion of cognitive scientist Daniel T. Willingham, a teacher who praises a child may be unwittingly sending the message that the student reached the limit of his innate ability, while a teacher who criticizes a pupil conveys the message that he can improve his performance even further.

New York University professor of psychiatry Judith Brook explains that the issue for parents is one of credibility. "Praise is important, but not vacuous praise," she says. "It has to be based on a real thing—some skill or talent they have." Once children hear praise they interpret as meritless, they discount not just the insincere praise, but sincere praise as well.

Scholars from Reed College and Stanford reviewed over 150 praise studies. Their meta-analysis determined that praised students become risk-averse and lack perceived autonomy. The scholars found consistent correlations between a liberal use of praise and students' "shorter task persistence, more eye-checking with the teacher, and inflected speech such that answers have the intonation of questions."

Dweck's research on overpraised kids strongly suggests that image maintenance becomes their primary concern—they are more competitive and more interested in tearing others down. A raft of very alarming studies illustrate this.

In one, students are given two puzzle tests. Between the first and the second, they are offered a choice between learning a new puzzle strategy for the second test or finding out how they did compared with other students on the first test: They have only enough time to do one or the other. Students praised for intelligence choose to find out their class rank, rather than use the time to prepare.

In another, students get a do-it-yourself report card and are told these forms will be mailed to students at another school—they'll never meet these students and don't know their names. Of the kids praised for their intelligence, 40 percent lie, inflating their scores. Of the kids praised for effort, few lie.

When students transition into junior high, some who'd done well in elementary school inevitably struggle in the larger and more demanding environment. Those who equated their earlier success with their innate ability surmise they've been dumb all along. Their grades never recover because the likely key to their recovery—increasing effort—they view as just further proof of their failure. In interviews many confess they would "seriously consider cheating."

Students turn to cheating because they haven't developed a strategy for handling failure. The problem is compounded when a parent ignores a child's failures and insists he'll do better next time. Michigan scholar Jennifer Crocker studies this exact scenario and explains that the child may come to believe failure is something so terrible, the family can't acknowledge its existence. A child deprived of the opportunity to discuss mistakes can't learn from them.

My son, Luke, is in kindergarten. He seems supersensitive to the potential judgment of his peers. Luke

justifies it by saying, "I'm shy," but he's not really shy. He has no fear of strange cities or talking to strangers, and at his school, he has sung in front of large audiences. Rather, I'd say he's proud and self-conscious. His school has simple uniforms (navy T-shirt, navy pants), and he loves that his choice of clothes can't be ridiculed, "because then they'd be teasing themselves too."

After reading Carol Dweck's research, I began to alter how I praised him, but not completely. I suppose my hesitation was that the mind-set Dweck wants students to have—a firm belief that the way to bounce back from failure is to work harder—sounds awfully clichéd: Try, try again.

But it turns out that the ability to repeatedly respond to failure by exerting more effort—instead of simply giving up—is a trait well studied in psychology. People with this trait, persistence, rebound well and can sustain their motivation through long periods of delayed gratification. Delving into this research, I learned that persistence turns out to be more than a conscious act of will; it's also an unconscious response, governed by a circuit in the brain. Dr. Robert Cloninger at Washington University in St. Louis located the circuit in a part of the brain called the orbital and medial prefrontal cortex. It monitors the reward center of the brain, and like a switch, it intervenes when there's a lack of immediate reward. When it switches on, it's telling the rest of the brain, "Don't stop trying. There's dopa [the brain's chemical reward for success] on the horizon." While putting people through MRI scans, Cloninger could see this switch lighting up regularly in some. In others, barely at all.

What makes some people wired to have an active circuit?

Cloninger has trained rats and mice in mazes to have persistence by carefully *not* rewarding them when they get to the finish. "The key is intermittent reinforcement," says Cloninger. The brain has to learn that frustrating spells can be worked through. "A person who grows up getting too frequent rewards will not have persistence, because they'll quit when the rewards disappear."

That sold me. I'd thought "praise junkie" was just an expression—but suddenly, it seemed as if I could be setting up my son's brain for an actual chemical need for constant reward.

What would it mean, to give up praising our children so often? Well, if I am one example, there are stages of withdrawal, each of them subtle. In the first stage, I fell off the wagon around other parents when they were busy praising their kids. I didn't want Luke to feel left out. I felt like a former alcoholic who continues to drink socially. I became a Social Praiser.

Then I tried to use the specific-type praise that Dweck recommends. I praised Luke, but I attempted to praise his "process." This was easier said than done. What are the processes that go on in a 5-year-old's mind? In my impression, 80 percent of his brain processes lengthy scenarios for his action figures.

But every night he has math homework and is supposed to read a phonics book aloud. Each takes about five minutes if he concentrates, but he's easily distracted. So I praised him for concentrating without asking to take a break. If he listened to instructions carefully, I praised him for that. After soccer games, I praised him for looking to pass, rather than just saying, "You played great." And if he worked hard to get to the ball, I praised the effort he applied.

Just as the research promised, this focused praise helped him see strategies he could apply the next day. It was remarkable how noticeably effective this new form of praise was.

Truth be told, while my son was getting along fine under the new praise regime, it was I who was suffering. It turns out that I was the real praise junkie in the family. Praising him for just a particular skill or task felt like I left other parts of him ignored and unappreciated. I recognized that praising him with the universal “You’re great—I’m proud of you” was a way I expressed unconditional love.

Offering praise has become a sort of panacea for the anxieties of modern parenting. Out of our children’s lives from breakfast to dinner, we turn it up a notch when we get home. In those few hours together, we want them to hear the things we can’t say during the day—*We are in your corner, we are here for you, we believe in you.*

In a similar way, we put our children in high-pressure environments, seeking out the best schools we can find, then we use the constant praise to soften the intensity of those environments. We expect so much of them, but we hide our expectations behind constant glowing praise. The duplicity became glaring to me.

Eventually, in my final stage of praise withdrawal, I realized that not telling my son he was smart meant I was leaving it up to him to make his own conclusion about his intelligence. Jumping in with praise is like jumping in too soon with the answer to a homework problem—it robs him of the chance to make the deduction himself.

But what if he makes the wrong conclusion?

Can I really leave this up to him, at his age?

I’m still an anxious parent. This morning, I tested him on the way to school: “What happens to your brain, again, when it gets to think about something hard?”

“It gets bigger, like a muscle,” he responded, having aced this one before.