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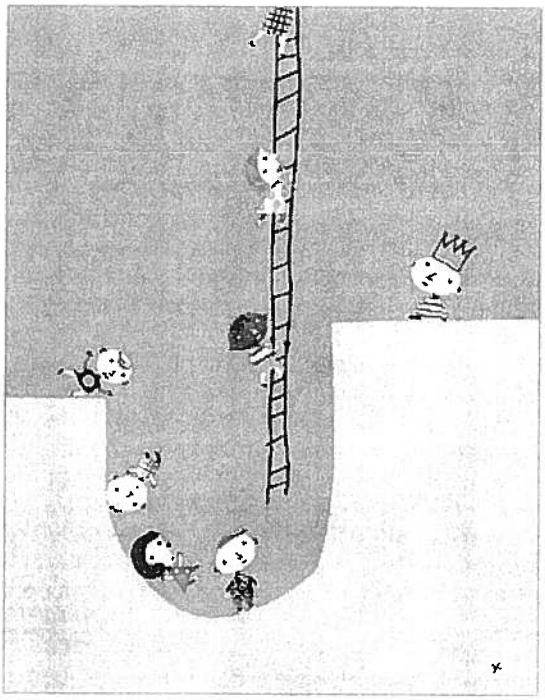
The Effort Effect

According to a Stanford psychologist, you'll reach new heights if you learn to embrace the occasional tumble.

BY MARINA KRAKOVSKY

ONE DAY LAST NOVEMBER, psychology professor Carol Dweck welcomed a pair of visitors from the Blackburn Rovers, a soccer team in the United Kingdom's Premier League. The Rovers' training academy is ranked in England's top three, yet performance director Tony Faulkner had long suspected that many promising players weren't reaching their potential. Ignoring the team's century-old motto—*arte et labore*, or "skill and hard work"—the most talented individuals disdained serious training.



James Yang

On some level, Faulkner knew the source of the trouble: British soccer culture held that star players are born, not made. If you buy into that view, and are told you've got immense talent, what's the point of practice? If anything, training hard would tell you and others that you're merely good, not great. Faulkner had identified the problem; but to fix it, he needed Dweck's help.

A 60-year-old academic psychologist might seem an unlikely sports motivation guru. But Dweck's expertise—and her recent book, *Mindset: The New Psychology of Success*—bear directly on the sort of problem facing the Rovers. Through more than three decades of systematic research, she has been figuring out answers to why some people achieve their potential while equally talented others don't—why some become Muhammad Ali and others Mike Tyson. The key, she found, isn't ability; it's whether you look at ability as something inherent that needs to be demonstrated or as something that can be developed.

What's more, Dweck has shown that people can learn to adopt the latter belief and make dramatic strides in performance. These days, she's sought out wherever motivation and achievement matter, from education and parenting to business management and personal development.

AS A GRADUATE STUDENT AT YALE, Dweck started off studying animal motivation. In the late 1960s, a hot topic in animal research was "learned helplessness": lab animals sometimes didn't do what they were capable of because they'd given up from repeat failures. Dweck wondered how humans coped with that. "I asked, 'What makes a really capable child give up in the face of failure, where

other children may be motivated by the failure?'" she recalls.

At the time, the suggested cure for learned helplessness was a long string of successes. Dweck posited that the difference between the helpless response and its opposite—the determination to master new things and surmount challenges—lay in people's beliefs about why they had failed. People who attributed their failures to lack of ability, Dweck thought, would become discouraged even in areas where they were capable. Those who thought they simply hadn't tried hard enough, on the other hand, would be fueled by setbacks. This became the topic of her PhD dissertation.

Dweck and her assistants ran an experiment on elementary school children whom school personnel had identified as helpless. These kids fit the definition perfectly: if they came across a few math problems they couldn't solve, for example, they no longer could do problems they had solved before—and some didn't recover that ability for days.

Students for whom performance is paramount want to look smart even if it means not learning a thing in the process.

Through a series of exercises, the experimenters trained half the students to chalk up their errors to insufficient effort, and encouraged them to keep going. Those children learned to persist in the face of failure—and to succeed. The control group showed no improvement at all, continuing to fall apart quickly and to recover slowly. These findings, says Dweck, "really supported the idea that the attributions were a key ingredient driving the helpless and mastery-oriented patterns." Her 1975 article on the topic has become one of the most widely cited in contemporary psychology.

Attribution theory, concerned with people's judgments about the causes of events and behavior, already was an active area of psychological research. But the focus at the time was on how we make attributions, explains Stanford psychology professor Lee Ross, who coined the term "fundamental attribution error" for our tendency to explain other people's actions by their character traits, overlooking the power of circumstances. Dweck, he says, helped "shift the emphasis from attributional errors and biases to the consequences of attributions—why it matters what attributions people make." Dweck had put attribution theory to practical use.

She continued to do so as an assistant professor at the University of Illinois, collaborating with then-graduate student Carol Diener to have children "think out loud" as they faced problem-solving tasks, some too difficult for them. The big surprise: some of the children who put forth lots of effort didn't make attributions at all. These children didn't think they were failing. Diener puts it this way: "Failure is information—we label it failure, but it's more like, 'This didn't work, I'm a problem solver, and I'll try something else.'" During one unforgettable moment, one boy—something of a poster child for the mastery-oriented type—faced his first stumper by pulling up his chair, rubbing his hands together, smacking his lips and announcing, "I love a challenge."

Such zest for challenge helped explain why other capable students thought they lacked ability just because they'd hit a setback. Common sense suggests that ability inspires self-confidence. And it does for a while—so long as the going is easy. But setbacks change everything. Dweck realized—and, with colleague Elaine Elliott soon demonstrated—that the difference lay in the kids' goals. "The mastery-oriented children are really hell-bent on learning something," Dweck says, and "learning goals" inspire a different chain of thoughts and behaviors than "performance goals."

Students for whom performance is paramount want to look smart even if it means not learning a thing in the process. For them, each task is a challenge to their self-image, and each setback becomes a personal threat. So they pursue only activities at which they're sure to shine—and avoid the sorts of experiences necessary to grow and flourish in any endeavor. Students with learning goals, on the other hand, take necessary risks and don't worry about failure because each mistake becomes a

chance to learn. Dweck's insight launched a new field of educational psychology—achievement goal theory.

Dweck's next question: what makes students focus on different goals in the first place? During a sabbatical at Harvard, she was discussing this with doctoral student Mary Bandura (daughter of legendary Stanford psychologist Albert Bandura), and the answer hit them: if some students want to show off their ability, while others want to increase their ability, "ability" means different things to the two groups. "If you want to demonstrate something over and over, it feels like something static that lives inside of you—whereas if you want to increase your ability, it feels dynamic and malleable," Dweck explains. People with performance goals, she reasoned, think intelligence is fixed from birth. People with learning goals have a growth mind-set about intelligence, believing it can be developed. (Among themselves, psychologists call the growth mind-set an "incremental theory," and use the term "entity theory" for the fixed mind-set.) The model was nearly complete (see diagram).

GROWING UP IN BROOKLYN in the '50s, Dweck did well in elementary school, earning a spot in a sixth-grade class of other high achievers. Not just any spot, it turned out. Their teacher, Mrs. Wilson, seated the students in IQ order and even used IQ scores to dole out classroom responsibilities. Whether Mrs. Wilson meant to or not, she was conveying her belief in fixed intelligence. Dweck, who was in row 1, seat 1, believes Mrs. Wilson's intentions were good. The experience didn't scar her—Dweck says she already had some of the growth mind-set—but she has shown that many students pegged as bright, especially girls, don't fare as well.

Tests, Dweck notes, are notoriously poor at measuring potential. Take a group of adults and ask them to draw a self-portrait. Most Americans think of drawing as a gift they don't have, and their portraits look no better than a child's scribbles. But put them in a well-designed class—as Betty Edwards, the author of *Drawing on the Right Side of the Brain*, has—and the resulting portraits look so skilled it's hard to believe they're the work of the same "talentless" individuals. The belief that you can't improve stunts achievement.

Culture can play a large role in shaping our beliefs, Dweck says. A college physics teacher recently wrote to Dweck that in India, where she was educated, there was no notion that you had to be a genius or even particularly smart to learn physics. "The assumption was that everyone could do it, and, for the most part, they did." But what if you're raised with a fixed mind-set about physics—or foreign languages or music? Not to worry: Dweck has shown that you can change the mind-set itself.

The most dramatic proof comes from a recent study by Dweck and Lisa Sorich Blackwell of low-achieving seventh graders. All students participated in sessions on study skills, the brain and the like; in addition, one group attended a neutral session on memory while the other learned that intelligence, like a muscle, grows stronger through exercise. Training students to adopt a growth mind-set about intelligence had a catalytic effect on motivation and math grades; students in the control group showed no improvement despite all the other interventions.

"Study skills and learning skills are inert until they're powered by an active ingredient," Dweck explains. Students may know how to study, but won't want to if they believe their efforts are futile. "If you target that belief, you can see more benefit than you have any reason to hope for."

'What makes a really capable child give up in the face of failure, where other children may be motivated by the failure?'

The classroom workshop isn't feasible on a large scale; for one thing, it's too costly. So Dweck and Blackwell have designed a computer-based training module to simulate the live intervention. Their hip multimedia software, called Brainology, is still in development, but thanks to early buzz from a Time magazine article and Dweck's recent book, teachers have begun clamoring for it, one even asking to become a distributor.

Unlike much that passes for wisdom about education and performance, Dweck's conclusions are grounded in solid research. She's no rah-rah motivational coach proclaiming the sky's the limit and attitude is everything; that's too facile. But the evidence shows that if we hold a fixed mind-set, we're bound not to reach as high as we might.

ALTHOUGH MUCH OF DWECK'S RESEARCH on mind-sets has taken place in school settings, it's applicable to sports, business, interpersonal relationships and so on. "Lots and lots of people are interested in her work; it touches on so many different areas of psychology and areas outside of psychology," says Stanford psychology professor Mark Lepper, '66, who as department chair in 2004 lured Dweck away from Columbia, where she'd been for 15 years. "The social psychologists like to say she's a social psychologist; the personality psychologists say she's a personality psychologist; and the developmental psychologists say she's a developmental psychologist," Lepper adds.

By all rights, her appeal should transcend academia, says *New Yorker* writer Malcolm Gladwell, who is well known for making psychological research accessible to the general public. "One of the most popular pieces I ever did relied very heavily on work done by Carol Dweck," he said in a December interview in the *Journal of Management Inquiry*. "Carol Dweck deserves a big audience. It is criminal if she does not get that audience." Perhaps *Mindset* will help; it was written for lay readers.

It certainly cemented Tony Faulkner's belief that Dweck could help the Blackburn Rovers soccer team. Unlike the disadvantaged kids in Dweck's middle-school study, the Rovers didn't think they lacked what it took to succeed. Quite the opposite: they thought their talent should take them all the way. Yet both groups' fixed mind-set about ability explains their aversion to effort.

But aren't there plenty of people who believe in innate ability and in the notion that nothing comes without effort? Logically, the two ideas are compatible. But psychologically, explains Dweck, many people who believe in fixed intelligence also think you shouldn't need hard work to do well. This belief isn't entirely irrational, she says. A student who finishes a problem set in 10 minutes is indeed better at math than someone who takes four hours to solve the problems. And a soccer player who scores effortlessly probably is more talented than someone who's always practicing. "The fallacy comes when people generalize it to the belief that effort on any task, even very hard ones, implies low ability," Dweck says.

Her advice for the Rovers rings true for anyone stuck in a fixed mind-set. "Changing mind-sets is not like surgery," she says. "You can't simply remove the fixed mind-set and replace it with the growth mind-set." The Rovers are starting their workshops with recent recruits—their youngest, most malleable players. (Faulkner realizes that players who've already earned millions from being "naturals" have little incentive to reshape their brains.) The team's talent scouts will be asking about new players' views on talent and training—not to screen out those with a fixed mind-set, but to target them for special training.

In his 2002 essay that relied on Dweck's work, Gladwell cited one of her best-known experiments to argue that Enron may have collapsed precisely because of the company's talent-obsessed culture, not despite it. Dweck's study showed that praising children for intelligence, rather than for effort, sapped their motivation (see sidebar). But more disturbingly, 40 percent of those whose intelligence was praised overstated their scores to peers. "We took ordinary children and made them into liars," Dweck says. Similarly, Enron executives who'd been celebrated for their innate talent would sooner lie than fess up to problems and work to fix them.

Business School professor Jeffrey Pfeffer says Dweck's research has implications for the more workaday problem of performance management. He faults businesses for spending too much time in rank-and-yank mode, grading and evaluating people instead of developing their skills. "It's like the Santa Claus theory of management: who's naughty and who's nice."

Leaders, too, can benefit from Dweck's work, says Robert Sternberg, PhD '75, Tufts University's dean of the School of Arts and Sciences. Sternberg, a past president of the American Psychological Association, says that excessive concern with looking smart keeps you from making bold, visionary moves. "If you're afraid of making mistakes, you'll never learn on the job, and your whole approach becomes defensive: 'I have to make sure I don't screw up.'"

Social psychologist Peter Salovey, '80, MA '80, dean of Yale College and a pioneer in the field of emotional intelligence, says Dweck's ideas have helped him think through a controversy in his field. Echoing an older debate about the malleability of general intelligence, some scholars say emotional intelligence is largely inborn, while others, like Salovey, see it as a set of skills that can be taught and learned. "People say to me all the time, 'I'm not a people person,' or 'I'm not good at managing my emotions,'" unaware that they're expressing a fixed mind-set, Salovey says.

Courtesy Carol Dweck

Stanford psychology professor James Gross has begun extending Dweck's work to emotions. In a recent study, Gross and his colleagues followed a group of Stanford undergrads as they made the transition to college life. Those with a fixed mind-set about emotions were less able to manage theirs, and by the end of freshman year, they'd shown poorer social and emotional adjustment than their growth-minded counterparts.

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AS SHE APPROACHES THE END of her third year at Stanford, Dweck has embraced the challenge of cross-country culture shock in a manner consistent with the growth mind-set. Nearby San Francisco provides her with the benefits of a great city, she says, including a dining scene that rivals New York's; and the University supplies a more cozy sense of community. She's also brought a bit of the New York theater scene with her in the form of her husband, critic and director David Goldman. He founded and directs the National Center for New Plays at Stanford.

At the Association for Psychological Science convention in May, Dweck will give the keynote address. The topic: "Can Personality Be Changed?" Her short answer, of course, is yes. Moreover, holding a growth mind-set bodes well for one's relationships. In a recent study, Dweck found that people who believe personality can change were more likely than others to bring up concerns and deal with problems in a constructive way. Dweck thinks a fixed mind-set fosters a categorical, all-or-nothing view of people's qualities; this view tends to make you ignore festering problems or, at the other extreme, give up on a relationship at the first sign of trouble. (The growth mind-set, though, can be taken too far if someone stays in an abusive relationship hoping her partner will change; as always, the person has to *want* to change.)

These days, Dweck is applying her model to kids' moral development. Young children may not always have beliefs about ability, but they do have ideas about goodness. Many kids believe they're invariably good or bad; other kids think they can get better at being good. Dweck has already found that preschoolers with this growth mind-set feel okay about themselves after they've messed up and are less judgmental of others; they're also more likely than kids with a fixed view of goodness to try to set things right and to learn from their mistakes. They understand that spilling juice or throwing toys, for example, doesn't damn a kid as bad, so long as the child cleans up and resolves to do better next time. Now Dweck and graduate student Allison Master are running experiments at Bing Nursery School to see if teaching kids the growth mind-set improves their coping skills. They've designed a storybook with the message that preschoolers can go from "bad" one year to better the next. Can hearing such stories help a 4-year-old handle a sandbox setback?

Dweck's students from over the years describe her as a generous, nurturing mentor. She'd surely attribute these traits not to an innate gift, but to a highly developed mind-set. "Just being aware of the growth mind-set, and studying it and writing about it, I feel compelled to live it and to benefit from it," says Dweck, who took up piano as an adult and learned to speak Italian in her 50s. "These are things that adults are not supposed to be good at learning."

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