MOTIVATION MATTERS

HOW NEW RESEARCH CAN HELP TEACHERS BOOST STUDENT ENGAGEMENT

BY SUSAN HEADDEN AND SARAH MCKAY

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for the Advancement of Teaching

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NOT LONG AGO, Douglas Creef, a veteran science teacher at Stuart-Hobson Middle School in the District of Columbia asked his mostly struggling seventh-graders to express in writing their attitudes toward challenging academic work. One student, asked whether he takes on challenges, responded: "When something hard come [sic], if I can't get it, I skip it." Asked how much effort he puts into schoolwork and other tasks, he says: "I only do the work I get. I don't do extra." To the question of whether he learns from mistakes, he writes: "I try to forget and make an excuse. I try not to be blamed." Asked how he feels, he responds: "I want to give up."

Quitting in the face of hard work is never the response a teacher wants to see, but it's one that threatens to become more common as academic pressures rise. The new Common Core State Standards, the latest in a decades-long effort to drive educational improvement, soon will be setting unprecedented expectations for the performance of students, teachers, and schools. Reaching the Common Core bar will require more effective instruction than many students have traditionally received, along with assessments aligned to the standards. But students will also require something else: the motivation to meet the Common Core demands. As the academic requirements rise, so too must students' willingness to take on increasingly difficult tasks and to persist through the failures that often precede success.

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Motivating students, studies show, is already a considerable challenge. According to a 2013 Gallup poll of public school students, the more years students spend in school, the more disengaged they become. In elementary school, fully eight in 10 students are said to be "learning with a positive emotional tone and persevering in the face of challenges"; in middle school, just six in 10 have that perspective; and by high school, according to Gallup, a mere four in 10 students are engaged.[1] The message was the same in a 2006 national survey of high school dropouts by the consulting company Civic Enterprises: 69 percent of respondents said that their schools failed to motivate them.[2]

Substantial racial and socio-economic components contribute to the problem. We know that

we have a wide academic achievement gap between income and racial groups, but surveys have consistently identified an "engagement gap" as well—a divide that the directors of the Indiana University-based High School Survey of Student Engagement call "both more pernicious and potentially more addressable." Student engagement is higher among whites and Asians than among other ethnic groups and higher among wealthier students than among poor ones.[3]

Highly effective teachers have long found ways to engage, thus motivate, their students. But it is increasingly clear that the public education system needs to address student motivation far more systematically, and on a much larger scale, than it does today.

Much of what we know about student motivation exists in a vast reservoir of research covering what's known collectively as "non-cognitive" contributors to student success, an umbrella term for skills, dispositions, and attributes that fall outside of intellectual ability and content knowledge. It is a broad field that incorporates everything from self-regulation, such as being on time for class, to study strategies, to so-called social-emotional skills, which include such capacities as cooperation and respect for others.

Motivation is a central part of this learning landscape. From the Latin *movere*, "to move", it describes students' desire to engage in learning and do well. More precisely, psychologists define it as the directing of energy and passion toward a goal; it is what starts, directs, sustains, and stops behavior. Motivation is shaped by attitudes that influence the level of students' engagement in their learning; that is, it influences how actively involved students are in their work—thus how hard they work—and it determines the extent to which they persevere in the face of obstacles.[4,5]

Researchers have identified a number of ingredients that contribute to student motivation. They differ on how they weigh and categorize them, but among them are a student's belief that he is able to do the work, a sense of control over the work, an understanding of the value of the work, and an appreciation for how he and the work relate to a social group.[6]

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These factors, in turn, can be shaped by many others, including how academic content is taught and how students interact with and practice that content. Motivation is also affected by life experiences both in and out of school. In the classroom, recent research shows that so-called "toxic stress" brought about by such problems as hunger or homelessness can show up in students as distraction, lack of self-control, and distrust of others. All depress motivation.

This report focuses on the psychological and behavioral sides of student motivation—how students respond to incentives to learn, how they see themselves as learners, and what they consider to be their place in the life of their schools. A promising yet largely un-navigated path to higher achievement, the area has attracted considerable research in recent years. Much of it comes from psychology, neurobiology, and other fields that have been largely isolated from the people in front of the classroom. Now, often in collaboration, researchers and practitioners are

A WORD ABOUT TERMS

To talk about "non-cognitive" or "non-academic" learning is to wade into a morass of confusing, conflated, and conflicting language. A brief glossary on page 42 attempts to distinguish among the many terms that characterize this expanding field.

developing a number of strategies for fortifying the non-instructional side of student success: building students' perseverance, improving their confidence, and enhancing their sense of connectedness by fostering closer relationships with teachers and peers.

Our report explores some of these strategies, examining what the research suggests about their strengths and weaknesses. It looks back on previous efforts to improve motivation, reviewing what has worked and what has not. And it considers the challenges that policymakers and practitioners face in deploying these strategies on a larger scale, from inadequate teacher training, to problems with measurement, to potential political opposition.

The Risks of Rewards

Educators have always used incentives—rewards and consequences—to push their students to reach a benchmark or complete a task. Whether it's praising them with gold stars or threatening them with detention, they are strategies that teachers use every day to encourage behaviors they want to see and discourage those they don't. But while few would dispute the value of earned praise, a different type of carrot is more controversial. One of the most prominent strategies for motivating students has been the awarding of money and other compensations in return for certain behavior. Some KIPP charter schools, for instance, offer students a chance to earn KIPP 'dollars', which determine whether they can go on field trips, for such behaviors as coming to school on time and participating in class.

These schemes operate on the distinction between intrinsic and extrinsic motivation. Ideally, all students would intrinsically value learning; they would all be energized by nothing more than the joy of gaining knowledge and skills. But, for a variety of reasons, this is not always the case. One common approach to changing behavior in these reluctant students is to spur them with external incentives. Money is one such enticement, and research shows that dollars can indeed prompt students to work harder, particularly when the incentives reward engagement in the process rather than performance outcomes. On the downside, research shows that when rewards come to be expected, they can have the effect of undermining motivation in general and intrinsic motivation in particular.

For a 2010 working paper, Harvard economist Roland Fryer studied financial incentive programs in four U.S. cities: Dallas, New York, Chicago, and the District of Columbia. Fryer and his colleagues found many positive results, with outcomes in some cities better than in others. With private money that Fryer raised, D.C. paid students up to $1,000 a month for good grades, behavior, and attendance. The result was higher reading scores for boys, Hispanic students, and students with behavioral problems. (The effects for students overall were less significant.) The program in Dallas, which paid second-graders $2 for each book read, saw the largest academic gains in reading comprehension, vocabulary, and language skills, while Chicago and New York saw only modest benefits in these areas, if any. In Chicago, students were paid for good grades ($50 for each "A"); in New York, students earned cash for improving test scores (up to $50 for seventh-graders).[7]

When rewards come to be expected, they can have the effect of undermining motivation in general and intrinsic motivation in particular.

Based on these results, Fryer writes that "providing incentives for inputs [reading books], not outputs [getting good grades, performing well on tests], seems to spur achievement." The former,

he reasons, incentivizes an identifiable behavior—one that is known to correlate with better reading ability, thus higher reading scores—whereas the latter rewards results that require a range of behaviors, such as attendance and study habits, that aren't clearly defined.[8]

Strategies for boosting extrinsic motivation seem to succeed by increasing students' control over their learning, their sense of competence, or both. In the Fryer study, the results may have been more impressive in Dallas because students there were free to choose which books to read. By contrast, the students in New York and Chicago had little choice about which courses or tests to take. Students in Dallas also got instant feedback on their performance, whereas students in New York and Chicago weren't told which actions would lead to which outcomes. As a result, many students saw their scores and grades as random and mysterious markers, not as true reflections of their competence.[9]

Yet if the goal of education is to develop innate curiosity and an intrinsic love of learning, offering students money for performance is a problematic way to reach it. An enduring empirical finding is that rewards can enhance motivation when they are unexpected (the first time a student gets the reward), but when they are expected (every time after the first time) they undermine intrinsic, long-term motivation. In a 1999 meta-analysis of 128 research studies, Edward Deci and Richard Ryan of the University of Rochester and Richard Koestner of McGill University found that when the reward is expected and tangible, intrinsic motivation is significantly undermined.[10] In one oft-cited study from 1973, researchers conducted an experiment in which preschool students were promised, and received, a reward for drawing. The children showed a decline in intrinsic motivation to draw compared to students who got no reward: those who got no reward chose to spend just as much time drawing after the experiment as before. Interestingly, students who received an unexpected reward did not show a decrease in intrinsic motivation. Andstudents who initially showed little inherent interest in drawing, and who received an unexpected reward when they did pick up their crayons, later showed more interest in the activity.[11]

Paying for grades may be a useful strategy under certain conditions, such as with students who have money problems that hamper academic success. The state of Texas, for instance, pays part of students' Advanced Placement exam fees and for passing scores on the exams themselves. A 2010 study by C. Kirabo Jackson of Northwestern University's Institute for Policy Research suggests that the initiative has had positive effects, including improved performance on the SAT and ACT and, especially among African-American and Hispanic students, higher numbers of students opting to take AP and International Baccalaureate exams.[12]

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But some financial incentive programs seemingly owe their success to outside factors. More training for teachers, changes in classroom or school culture, lower student-teacher ratios—all these have been associated with financial incentive programs, and they can't easily be disentangled from the incentives themselves. The Texas incentive program, for instance, provides training to teachers and salary bonuses to certain AP teachers.[13]

In short, research shows that simply dangling dollar bills in front of students is not in itself a solution to the problem of student motivation. Along

with rewarding mastery of skills over performance, incentives are more likely to produce results if they target behaviors that students feel are achievable, if they challenge students enough to maintain their interest but not so much that they undermine confidence, and if the incentive program is voluntary. Further, experts say that any program that offers money to students should be able to identify precisely what behaviors it wants to get from them.[14]

Seeing the Value

One overarching problem with rewards is that they ignore the value of the task. They allow the educator to disregard his role in making learning more meaningful. "They are essentially an 'out'," says Chris Hulleman, an associate professor of psychology at the University of Virginia who has done research on utility value. "If students can't get motivated to learn two-digit multiplication with the teacher having them sit quietly and complete 40 math problems during a 90-minute math class, the teacher can just offer a reward for whoever completes the work the fastest." The problem, Hulleman says, is that the system "doesn't require the teacher to think about the purpose of the lesson and whether it actually promotes the learning objective." A better method, he suggests, might be for the teacher to embed the problems in an interesting exercise, such as having students do measurements on the playground, then asking them to multiply numbers to determine the surface area for wood chips.[15]

Hulleman has conducted studies that demonstrate how an intervention designed to show students the relevance of science to their lives can enhance their interest in the topic and boost classroom performance. In one, Hulleman and colleague Judith Harackiewicz randomly assigned 262 high school students to two groups. One group wrote every few weeks about the usefulness of the course material to their lives. The students in the other group simply wrote a summary of what they were learning. Students who started with high expectations of course success performed the same in both groups, but among students with low expectations of success, those in the "relevance group" reported a higher interest in science and higher grades at the end of the course than did the students who simply wrote the summaries.[16] "Value interventions offer a partial way out, because they help encourage students to find the connection between the material and their lives," Hulleman says. But they still rely on teachers to present material in a way that allows students to see the connection.

It's not just academic ability that determines motivation, but also the capacities and character traits like resilience, self-confidence, and tenacity that help students stay the course as the emotional path grows rougher and the learning curve steeper.

Changing Mindsets

Data clearly suggests that it's not just academic ability that determines motivation, but also the capacities and character traits like resilience, self-confidence, and tenacity that help students stay the course as the emotional path grows rougher and the learning curve steeper. An increasingly interdisciplinary group of researchers—from across such fields as psychology, sociology, education research, and neuroscience—have been learning a great deal about the beliefs and attitudes that students have about their abilities and their schools. In particu-

lar, interventions emanating from social psychology have shown real promise in developing skills that increase student motivation.

One potential barrier to students' motivation and success in school is having a "fixed mindset", the belief that one is either innately good at something or bad at it, and that all the hard work in the world won't make a difference. Students with fixed mindsets are apt to say things like "I'm not a math person" or "I've never been good at languages". As a result, in the face of obstacles they often give up. Notably, high-achieving students can also suffer from fixed mindsets—"I always get A's so I must be smart"—which can keep them from taking risks, thus from reaching their potential, for fear of looking less than brilliant.

Students with "growth mindsets", by contrast, believe that with effort, their ability and performance can improve. They are confident that even if the calculus or the French grammar comes slowly to them, by working hard they will be able to achieve. Likewise, accomplished students who adopt growth mindsets take bigger chances and embrace the possibility of failure. The positive attitude prepares them for the realities of later life, helping them recover when their efforts fail to produce the outcomes they have come to expect.[17]

Just as studies indicate that fixed mindsets are a barrier to success, they also demonstrate that with carefully constructed psycho-social interventions mindsets can actually change. Ranging from comprehensive workshops, to messages embedded in curricula, to subtle tweaks in how teachers provide feedback on assignments, these and other interventions can help students turn fixed attitudes into growth-oriented ones.

The Danger of Stereotypes

Mindsets apply not only to academics—to the attitudes that students have about their intellectual abilities—they also apply to what students believe is their rightful place in school. Regardless of their IQs or the quality of their academic instruction, students who doubt their abilities or question whether they belong at a school can easily disengage and fall behind. For first-generation college-goers and African-American students, in particular, stereotypes about academic performance can turn into self-fulfilling prophecies. The same can also happen with girls who receive messages that they aren't as good at math as boys are.[18]

Just as studies indicate that fixed mindsets are a barrier to success, they also demonstrate that with carefully constructed psycho-social interventions mindsets can actually change.

Researchers are learning much about how worries about "belongingness" and the phenomenon of "stereotype threat" depress motivation and achievement. According to research by Claude Steele, now executive vice-chancellor of the University of California at Berkeley, and Joshua Aronson, associate professor of applied psychology at New York University, the simple act of checking a box to indicate race or sex can trigger stereotypes in students' minds, and those attitudes can affect their test scores.[19]

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In District of Columbia middle schools, students are learning how their brains can change with hard work. See page 30 for more on the curriculum and the neuroscience behind it.

"When stereotypes are evoked, they fill people's minds with distracting thoughts—with secret worries about confirming the stereotype," writes Carol Dweck, professor of psychology at Stanford University, in her book *Mindset: The New Psychology of Success.* "People usually aren't even aware of it, but they don't have enough mental power left to do their best on the test."[20]

Even the suggestion of a previously unknown stereotype can affect a student's performance, Steele says. In one experiment, Aronson and colleagues assessed the effect of this sort of stereotype threat on white males with strong math abilities—Stanford students who had scored an average of 712 on the math SAT—who were very confident in those abilities. As the students took a difficult math test, they were told that Asian students typically performed better on it than did white students. The results, Steele reports, were dramatic: The students who were given the message about the Asian students performed, on average, three items worse on the 18-question test than did the white males who were not given the message.[21] In another experiment, Steele, Aronson, and fellow researchers found that African-American students did significantly worse on a test when it was presented to them as an assessment of intellectual ability than when it was presented as simply a test of problem-solving skills. With the latter instruction, Steele writes, "we made the stereotype about black's intelligence irrelevant to interpreting their experience on this particular task…And they responded accordingly."[22]

Another study of stereotype threat arrived at different findings. In a study of math performance and stereotype threat among girls, Conley M. Ganley of Florida State University and colleagues conducted three studies from a sample of 931 students and found no evidence that the math performance of school-age girls was affected by stereotype threat. Explaining the findings, the authors said it was possible that the effects of stereotype threat occur only in specific circumstances or that they occur all the time, depressing performance no matter what the task.[23] Based on most studies, though, it seems safe to conclude that stereotype threat can diminish student achievement, and that educators can counter its potential ill effects with small interventions that can make a big difference.

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A Sense of Belonging

One of the things that strongly predicts on-time college graduation is the accumulation of 12 or more credits by the end of the first term. At the University of Texas, Austin, African-American, poor, and first-generation college students are less likely to complete the credits than are their more advantaged white and Asian-American peers. Despite its reputation as one of the nation's most selective public universities, U.T.'s flagship in 2013 managed to graduate just half of its students in four years. For African-American and Hispanic students, the completion rate was even worse—just 39 percent earned their diplomas in four years.[24] Experts who have studied this issue suspect that one reason for low completion rates is a sense on the part of these students that "people like them" don't belong in college.[25]

Imagine, writes Steele, that you are an African-American student at a competitive college. "The place is saturated with cues that raise questions

about your fit there—a small number of black and other minority students, few minority faculty and administrators, ethnic studies programs that are seen as of value primarily for minority students rather than for the general student body, an organization of social life that is heavily shaped by race, and so on. Accordingly, your narrative about the situation alerts you to the possibility that this school is not the right place for you to succeed and thrive."[26] In a major national study of over 12,000 adolescents, the feeling of "belonging in school emerged as one of the two most consistent and powerful protective factors against every measured form of adolescent risk and distress."[27]

The feeling of "belonging in school" was one of the two factors that most powerfully and consistently protected against risk and distress.

Gregory M. Walton, an assistant professor of psychology at Stanford University, has designed a number of studies that test theories around this idea of "belongingness". In one, Walton and Geoffrey L. Cohen of Stanford randomly assigned freshmen at a selective four-year college to two groups. One group read a report that was ostensibly compiled from a survey of older students. These older students, the report indicated, had also worried about whether they belonged in college, but their worries dissipated over time. (The survey results were said to be consistent across ethnic and gender groups.) Participants were then asked to write an essay and give a speech describing how their own college experiences echoed those in the survey. They were told that their reflections would help future students ease their transition to college. Students in the other group, by contrast, read a survey that addressed topics unrelated to belonging. The results: Over three years, the GPAs of the African-American students in the treatment group rose steadily, cutting the achievement gap between black and white students by 79 percent.[28]

Walton's design was also the basis for a 2012 experiment conducted by Walton and psychologist David Yeager at U.T. The summer before starting college, 7,335 students—91 percent of the freshman class—participated in an online orientation session. Some members of the group received messages about growth mindsets and social belonging in which older students told them that worries about belonging were common but eased over time. Another group of students received mundane information such as where to go for the required meningitis vaccine. Among disadvantaged students—minority and first-generation college-goers—the students who received the message about growth and belongingness completed credits at a rate nearly 5 percent higher than those who got other information.[29] Although the increase may seem small, it halved the gap between the credit-completion rates of more advantaged students, and it was enough to convince administrators to incorporate positive mindset messages in orientation materials for all incoming freshmen.

Questions about their rightful place on campus are also common among the approximately 60 percent of community college students who must enroll in at least one developmental, or remedial, course before going on to credit-bearing work. Often required to repeat math courses they have failed before, fully half of these students quit school within the first few weeks.[30] They disengage for all the reasons mentioned above: they don't think they are smart enough to do the work, they don't see the relevance of the class to their lives, they don't think they even belong in college.

An initiative developed by the Carnegie Foundation for the Advancement of Teaching works to disabuse students of these damaging notions. A network of about 50 colleges, Community College

Pathways gives students two alternative routes—statistics and quantitative reasoning—that integrate developmental courses and college math in ways that help them see how math connects to the real world. But the difference is not just in structure or curriculum. (Whereas some colleges require up to six developmental courses, the Pathways program reduces the course load to a one-year sequence.) Pathways also addresses the social-emotional and psychological barriers that students face by testing strategies to help them persevere. For instance, faculty members ask students to write about the relevance of math; they introduce the idea of growth mindsets through a writing activity; they write students e-mails to improve their attendance; and they establish routines to encourage students to contact peers who are missing class, knowing that students are more successful when they think their absence matters. Overall, students learn the value of "productive struggle".[31]

Combined with the new curriculum and better teaching strategies, the Pathways focus on learning strategies and mindset growth has brought about impressive results: 51 percent of the students who participated in the statistics pathway in 2011-12 earned college credit within one year, compared with just 15 percent who followed the traditional path. In the quantitative reasoning program, 56 percent of students completed their developmental math program in one semester, whereas just 21 percent who took the traditional path completed the developmental math sequence in one *year*.[32] Isolating the mindset interventions, the program's leaders have found clear correlations between growth mindset and a higher number of passing grades and lower rates of course withdrawal. "These beliefs do predict course success," says Rachel Beattie, director of productive persistence for the Carnegie Foundation. "And they can be changed."[33]

51% of the students who participated in the statistics pathway earned college credit within one year, compared with just 15% who followed the traditional path.

These interventions are being conducted in traditional classroom settings, but similar experiments have also shown promise online. In one, Stanford researcher David Paunesku and colleagues studied 265,082 students who took one of the popular Khan Academy math courses. In these courses, students work through a series of problems in which they demonstrate proficiency. In the experiment, the Khan website randomly presented one of several different headings with each math problem. One heading was blank. Another, the standard encouragement, told students, "some of these problems are hard, so just do your best." And a third flashed a growth-mindset message, such as, "remember, the more you practice, the smarter you become." The students who received the growth-mindset message succeeded at a rate 2.9 percent higher than the group that received no message.[34] Although the achievement gains were small, the Khan Academy study was, from a practical standpoint, significant. For the first time, it showed that even the smallest intervention—in this case just a few encouraging words—could be effective and applied easily in many contexts.

Some may draw uneasy connections between these new psychological strategies for strengthening students' resolve and the self-esteem movement of years past, which sought to motivate students

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How did "self-esteem" go from popular buzzword to outdated cliché? See page 34 to learn why the mindset movement has supplanted the every-kid-gets-a-trophy one.

with prizes for participation and copious indiscriminate praise. The important difference is that self-esteem advocates typically praised students regardless of their performance, which meant they didn't distinguish earned praise from unearned praise. As a result, they unintentionally encouraged a belief that effort doesn't matter, leaving students with a sense of "learned helplessness" that diminished their capacity to tackle obstacles and rebound from failure. The new work by Walton, Dweck, and colleagues suggests that students are far more likely to be encouraged by the opposite message: that only with effort comes achievement.

How teachers deliver that message appears to be important—precisely because the message touches on students' effort and their sense of competency and belonging. In another test of one of Cohen's theories, Yeager and fellow researchers wanted to see what kind of feedback would encourage seventh-graders to revise essays they wrote on a personal hero. They knew that it was common for teachers to couch negative feedback in positive language or to preface it with a compliment, such as "you have some good material here", before detailing an assignment's problems. So the teachers marked the initial essays with standard criticism like "unclear" and "wrong word". Then they randomly attached one of two sticky notes on each essay. Half received a bland message saying, "I'm giving you these comments so that you'll have feedback on your paper." The other half received a note intended to signal teachers' investment in their students' success: "I'm giving you these comments because I have high standards and I know you can meet them." Then teachers gave the students the option to revise their essays.[35]

The results were compelling: Among white students, 87 percent of those who received the encouraging teacher message opted to turn in new essays, compared to 62 percent of those who got the bland note. Among African-American students, the effect was even greater, with 72 percent in the "encouraged" group revising the essays, compared to only 17 percent of those who got the bland message. The findings suggested that students were motivated to take the extra academic step when they perceived their teachers' feedback as a genuine desire to help them rather than as an expression of indifference or bias.[36]

Getting "Gritty", Keeping Control

Psychologist Angela Duckworth of the University of Pennsylvania lumps some of these mindsets together in the trait known as "grit"—what she defines as passion and perseverance for long-term goals, the ability to stick with a task day-in and day-out.[37] Such dispositions, her research shows, are significantly more likely than things like income and standardized test scores to predict success in school and beyond.

Penn students with low SAT and ACT scores who scored high on a grit scale had higher GPAs than students with lower measures of grit.

To assess grit, Duckworth developed a scale in which students rate themselves on a series of 12 statements such as "new ideas and projects sometimes distract me from previous ones"; "setbacks don't discourage me"; and "I finish whatever I begin". Although the test relies entirely on the students' own judgments, Duckworth and her colleagues found that it was remarkably predictive of achievement. For instance, Penn students with low SAT and ACT scores who scored high on a grit scale had higher GPAs than students with lower measures of grit. Likewise, grit predicted whether freshmen cadets at the U.S. Military Academy would survive the rigors of the first year. In a 2004 study,

Duckworth and colleagues assessed 1,218 cadets who went through the so-called Beast Barracks, a summer training program that tested the limits of their physical, emotional, and mental capacities. They found that grit was a better predictor of summer retention than self-control or a composite measure of cadet quality used by West Point admissions. It's not talent or IQ that makes a student "gritty", Duckworth says; in fact, she says, grit is usually inversely related to both.[38]

KIPP schools are among the many embracing grit, going so far as to assess the quality in a regular "character growth card".[39] At KIPP schools, one of the inspirational signs on the walls reads: "Don't eat the marshmallow". This is a reference to a classic study of self-control conducted in 1972 by Walter Mischel and researchers at Stanford University that serves as a foundation for some of the research by Duckworth and others. In the test, researchers put 92 children at the university's Bing Nursery School in a room, offered them a marshmallow or other treat and told them that if they didn't eat the treat and waited for the examiner to come back, they could have more treats. Researchers followed a sample of the students for 20 years and found that the children who had waited longest for their treat scored an average of 210 points more on their SATs than the children who had delayed the least. As adults, they exhibited greater self-control, higher levels of educational attainment, and even lower body-mass indexes.[40]

"The findings surprised us from the start," writes Mischel in his book *The Marshmallow Test*, "and they still do."[41] The results suggested that the children who ate the marshmallows right away were less able to regulate themselves than others. Says Maurice Elias, a psychology professor at Rutgers University, about the potential impact of low self-regulation: "It means you pick the first response [on a test] instead of reading all the way to the fourth response. It means you don't read the directions carefully. It means that you're maybe skipping questions. It means a whole lot of things in your academic performance, regardless of how absolutely smart you might happen to be."[42]

Self-control can be taught by equipping children with specific strategies. "It's not by toughing it out or just saying 'No!', but by changing how we think."

What sometimes gets lost in the frequent retelling of the marshmallow story is that the Stanford researchers had wanted to know not *whether* the children would wait for their treats but *how* they were able to wait—what they did to keep themselves from eating the marshmallow. The children who managed to avoid the temptation composed songs, made faces, picked their noses, played with their toes. Some tried to go to sleep. The researchers also tried exposing children to images of the treats, rather than to the treats themselves, learning that those who saw only images waited almost twice as long as children who had the treat right in front of them. All this suggested that self-control can be taught by equipping children with specific strategies. "It's not by toughing it out or just saying 'No!'" writes Mischel, "but by changing how we think."[43]

As more and more schools embrace programs to develop grit, the movement has drawn some backlash from critics who suggest that the priority is misplaced. Some say that an emphasis on grit wrongly

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Today's character education, typified by KIPP, is the latest in a century of shifting approaches to promoting social values and civic behavior in schools. See page 36 for a discussion.

values specialization over wider experiences, as when Duckworth highlights students who single-mindedly pursue victory in a spelling bee to the exclusion of other endeavors. And Magdalena G. Grohman, associate director of the Center for Values, Medicine and Technology at the University of Texas, Dallas, says that while there may be a clear connection between grit and achievement at, say, military school, the correlation is far less apparent in creative work.

In two analyses of college undergraduates, Grohman and fellow researchers compared students' ratings on grit (and other factors such as openness to experience) and compared them to the students' academic and extracurricular records, including their achievements in visual art, writing, performance art, and scientific ingenuity. She found that grit had "no effect whatsoever" on creative achievement.[44] In a recent presentation to the American Psychological Association, Grohman said that grit "taps into highly effective learning in a very structured environment, but not necessarily [in] someone who thrives on different interests."[45] Similar findings come from Zorina Ivcevic Pringer, an associate research scientist with the Yale Center for Emotional Intelligence. She found that neither grit nor perseverance predicted a student's success in a number of creative pursuits.[46]

More broadly, and perhaps most significantly, critics on the left say the emphasis on grit essentially blames students for shortcomings that are more appropriately the responsibility of schools and society: the kids are expected to "get grittier" while their teachers continue to teach the way they always have. "The more effort we devote to getting students to pay attention to the teacher rather than daydreaming despite boredom and frustration," says one of the loudest of these critics, writer-pundit Alfie Kohn, in a commentary for *Education Week,* "the less likely we are to ask whether those assignments are actually worth doing, or to rethink an arrangement where teachers mostly talk and students mostly listen."[47]

"The more effort we devote to getting students to pay attention... the less likely we are to ask whether those assignments are actually worth doing, or to rethink an arrangement where teachers mostly talk and students mostly listen."

At the same time, critics deplore the message they insist grit advocates are sending to students struggling with poverty and other ills. Ira Socol, an education researcher at Michigan State University, argues that that while grit is essential to success, disadvantaged children are already "the grittiest kids on earth." The very fact that they can get themselves to school every day, he says, is itself proof that they possess the essential ingredient.[48] In their book *Scarcity: The New Science of Having Less and How It Defines Our Lives,* economists Sendhil Mullainathan of Harvard University and Eldar Shafir of Princeton University write that while shortages (of food, money, and the like) can lead to solutions (because those suffering from them need to be resourceful), they can also reduce our mental capacities; our preoccupation with what we lack reduces our capacity for everything else.[49] Thus, Socol argues that what deprived children need is not grit but "slack"—allowances enjoyed by the more affluent, "moments when necessity is not the sole driver" of their actions.[50]

A related caveat is suggested by a 2012 update to Mischel's marshmallow study. The study, by Celeste Kidd, Holly Palmeri, and Richard N. Aslin of the University of Rochester, found that children's capacity for self-control—an essential component of grit—is influenced as much by their environment as by innate ability. In the study, researchers once again

put children in front of a tempting marshmallow, but right beforehand they arranged for the children to interact with an adult. In some cases, the adult was reliable: he promised crayons and delivered. In other cases, he did not. Only one out of 14 children who had dealt with the unreliable adult held out for the treat, whereas half the children who had interacted with the reliable adult managed to wait. Based on what they knew, the children who didn't wait made a perfectly sensible choice, the researchers say: If a child lives in an environment in which promises routinely get broken, and where outcomes are unreliable, his most reasonable response is to go with the bird in the hand.[51]

"Many students have legitimate worries about whether they can safely invest themselves in schoolwork. These worries are the result of societal messages that if you struggle, it means you are not 'smart'."

Mindset interventions don't work for everybody, and if they are deployed improperly, or with the wrong students, they could even backfire. Researchers also stress that mindset interventions are not about "fixing" students with inherent deficiencies or insecurities. "Many students have legitimate worries about whether they can safely invest themselves in schoolwork," Yeager writes. "These worries are the result of societal messages that if you struggle, it means you are not 'smart', or of pervasive stereotypes about low-income students or students of color. Our interventions help orient students toward other ways of thinking, or help enhance their feelings of belonging so that they can invest in school and achieve more than society might have expected."[52]

Researchers say we now need to understand more about how to get the most of out of these promising interventions and about which students gain the most from them and in what contexts. Whom should interventions target? How should they do so, and when? How personal, how tailored, should they be? Native American students, for instance, often responded differently to mindset messages than did students from other ethnic groups. They tended to be more community-oriented. So an effective message for these students, Yeager says, might be one that suggests that by developing growth mindsets they could help their communities as well as themselves.[53]

Another question for researchers is about how long interventions should last and how often they should be repeated. The danger is of a message being repeated so frequently that it loses its power and credibility. Some students are still benefiting from the original interventions years later, Yeager says, even when there is no specific reinforcement of the message. This outcome may be the result of positive influences of family and peers, but Yeager says other students may need to hear the message again. Thus researchers are testing the efficacy of occasional "booster shots".[54]

Finally, all these studies have been based on data about student attitudes that, however meticulously collected, remains incomplete. Researchers want to learn more about what students believe in the first place. Focus groups can help them fine-tune or correct the assumptions they are making, helping them learn even more about students' biases, hopes, and fears.

Building Relationships

Another promoter of student motivation, according to research, is an educational environment that helps students develop and maintain positive, meaningful relationships with adults and peers at school. In other words, students care when they feel cared about.

Connecting with Adults

Many students, especially those in distressed families, lack a consistent, caring adult to support them through school; others aren't able to connect with adults who do care. Numerous studies have shown that having the reliable support of a "pro-social" adult strongly protects students against the consequences of even the worst psychological trauma. All else being equal, students achieve at higher rates, and are less likely to drop out and feel more positively about school, when they have ongoing connections with teachers.[55]

A program known as Check & Connect is one initiative that addresses this need by providing trained mentors for K-12 students at risk of academic failure. Chicago Public Schools is using Check & Connect to attack a devastating truancy problem in the city's elementary schools. A report found that 32,000 students in kindergarten through eighth grade—one in every eight Chicago students—had missed more than four weeks of school in 2010-11.[57] Students are referred to Check & Connect when they first show signs of disengaging—by skipping school, for instance. The "check" in the name means the school carefully monitors grades, attendance, and other performance data. "Connect" means the school partners students with trained adult mentors.[57] The program, writes Jonathan Guryan of the Northwestern University's Institute of Policy Research, "thinks of dropping out not as something that happens when kids are 15 to 17, but as the endpoint of a developmental process that starts earlier."[58]

The program's success with elementary and middle school students in Chicago gained it recognition by the U.S. Department of Education's What Works Clearinghouse. In one study cited by the department, 94 students in special education who had received Check & Connect interventions for two years in middle school were randomly assigned to treatment and control groups upon entering the ninth grade. By the end of that year, the treatment group students who continued to participate in Check & Connect were significantly more likely than those who didn't participate to be enrolled in school, to have had absences of no more than 15 days, and to be on track to graduate within five years. In another study, 147 elementary students who were absent from or late for school 12 percent or more of the time participated in Check & Connect for two years. At the end of that time, about 40 percent were engaged in and regularly attending school—a 135 percent improvement over baseline behavior. Incidence of tardiness also declined dramatically.[59]

Students achieve at higher rates, and are less likely to drop out and feel more positively about school, when they have ongoing connections with teachers.

A program that expands on these encouraging findings is Building Assets, Reducing Risks (BARR), an initiative that was established 15 years ago by teacher-counselor Angela Jerabek at Minnesota's St. Louis Park High School, then a low-performing school in suburban Minneapolis. BARR reaches students by first helping teachers: It trains educators specifically on how to enhance their relationships with students in a way that improves students' connections to school, thus their motivation to learn.[60]

BARR directs its efforts exclusively at ninth-graders because more students are likely to fail in that year than at any other time in their schooling.[61] Teams of teachers, counselors, and social workers are assigned to groups of freshmen, and three teachers are responsible for each student. They meet once a week to rate "the whole student", giving each a number from one to four based on what level of

intervention the student seems to need. Later, the team meets with an administrator and a counselor to conduct an overall risk review, after which the school may connect the student with a social worker or other community resources.

For 30 minutes each week, teachers also instruct students in non-academic skills like stress management. During this so-called "I-Time", students are encouraged to share their problems and thoughts.[62] "It used to be that you were rewarded for not causing problems," says Justin Barbeau, a spokesman for BARR. "Now we want you to open up. Like why are you not coming to my class but you are coming to Justin's class?" But he stresses that the content of the initiative is not the primary piece; what matters most, he says, and what is most apparent to the student, is that the teacher cares.[63]

"It used to be that you were rewarded for not causing problems. Now we want you to open up. Like why are you not coming to my class but you are going to Justin's class?"

Some teachers at BARR schools have made the predictable and rational protests: the initiative felt "soft"; it was another program that added more time to their day. But signs of success, says Jerabek, have brought the teachers around. Since the program started, St. Louis Park went from being one of the lowest-performing high schools in Minnesota to being one of the highest.[64] According to the U.S. Department of Education, several independent studies of BARR have shown statistically significant positive outcomes in students earning course credits, getting more engaged, and earning higher test scores. Students in a randomized control trial at St. Louis Park High School produced two years of academic growth in math (the equivalent of going from the eighth to the tenth grade) compared to peers in a control group, who actually lost a year of growth, going from the equivalent of eighth grade to the equivalent of seventh grade.[65]

Connecting with Peers

Students are, to some degree, products of their social groups. Peer pressure, a phenomenon usually associated with negative influences, can also serve as a positive force. Children who associate with other students who are highly engaged, research shows, become more engaged themselves. These positive relationships are characterized by trust, good communication, and a willingness to help—all factors that can make students feel they belong in a school group, which in turn cause them to more fully connect. With these relationships also come favorable views of learning, along with better skills for communicating and solving problems. All, again, are attitudes and competencies associated with motivation and engagement.

Given the importance of these connections, educators are finding ways to actively help students build them. They hold morning meetings to set the tone for the day, encourage students to work in groups, and schedule advisory periods. What all these strategies have in common is that they give students a chance to share their feelings in a safe and supportive environment. The better students know each other, say Helen McGrath of Deakin University and Toni Noble of Australian Catholic University, "the more likely they are to… focus on similarities between themselves and other students and become more accepting of differences."[66] This understanding in turn encourages a sense of community and belonging. The Carnegie Foundation's Community College Pathways program considers peer relationships to be so important to academic success that four of the 10 standard activities in its "Starting Strong" package are dedicated to building relationships and setting group norms.[67]

One initiative that has the development of these relationships at its core is Tribes Learning Communities, a non-profit organization that posits that students achieve best when they feel included and respected, are actively involved in their learning, and are held to high expectations. Originally conceived as a program to prevent substance abuse, Tribes evolved into a broader model when teachers realized that the strategies they were using to keep kids away from drugs could help students learn core academic content as well. Students are grouped into "tribes" for as long as the entire school year, participating daily in "community circles" through which they learn how to help each other, set goals, assess progress, and celebrate achievements. They abide by four simple agreements: to listen attentively, to show appreciation and refrain from insulting or dismissing each other, to practice mutual respect, and to exercise the right to participate or "pass".[68]

The better students know each other, the more likely they are to focus on similarities between themselves and others and become more accepting of differences.

At Franklin Elementary School in Burlingame, Calif., third-grade teacher Catherine Gambertoglio uses the Tribes process to get her students working and talking with each other to encourage these positive relationships. In one lesson, she has the students building paper towers. Their materials are limited to a few pieces of paper, a pair of scissors, some tape, and a whiteboard on which to sketch a design. They must work under a tight deadline—10 minutes—with students they have only just teamed with. And as the ultimate challenge, they are not allowed to talk; they must design and build a complete tower using only hand signals to communicate. The result is visible frustration, a flurry of industry, and, just under the wire, six finished towers.

"Tribes is providing students with repeated opportunities to collaborate, problem-solve, reflect, and build a repertoire of skills that will transfer to the schoolyard and, ultimately, to their life outside of elementary school," Gambertoglio says. "Students aren't afraid to try, and try again."[69] Gambertoglio's thoughts are echoed by J.C. Harville, who has served as principal of two elementary schools in and around Houston and saw discipline problems drop and academic achievement rise after the schools implemented Tribes. "More students [were] actively involved," Harville says. "Tribes was the glue that held the school together."[70]

The research firm WestEd conducted an evaluation of Tribes in 2004, surveying over 300 teachers and almost 2,000 students at 17 schools, and found that over 90 percent of the teachers agreed or strongly agreed that their students participated in inclusive peer groups that foster belonging and equal opportunity, and that their students showed respect for students of various cultural backgrounds.[71] Student responses also reflected the Tribes emphasis on relationships: 81 percent said it was "very much" or "pretty much" true that a teacher or other adult in the school really cared about them, and 83 percent gave the same responses about having a peer in that role.[72] In a 2000 study of the School District of Beloit, Wisc., nearly 60 percent of teachers said they spent less time managing classroom behavior after they adopted Tribes, and students who had participated in the program scored significantly higher on achievement tests than did those who did not participate. Another 2000 study of 18 teachers and 495 students found that students who participated in classrooms where Tribes was

faithfully implemented scored significantly higher on reading comprehension tests than did students in classrooms where the program was implemented less well or not used at all.

Challenges to Scaling Up

While many strategies for increasing student motivation show great promise, putting them into widespread practice presents several significant obstacles. Foremost among them are measurement, teacher training, and translating research into practice.

Problems with Measurement

Proponents of enhancing motivation generally agree that we need to measure motivation before we can judge the effectiveness of interventions to increase it. Accurate gauges of motivation and other non-cognitive skills would help educators diagnose students, target remediation and enrichment, improve programs, and assess the effectiveness of entire systems. Several assessment models are in now in place to do this. Along with Duckworth's Grit Scale and the KIPP character growth card, there are ETS's Personal Potential Index, Joshua J. Jackson et al.'s Behavioral Indicators of Conscientiousness, and others.

But as advocates of non-cognitive education readily concede, measuring skills like grit and conscientiousness is difficult to do reliably. Students' assessments of themselves, while easy to administer, are not always accurate or timely. Reports made by teachers and parents may be more revealing, but they cost more money and take more time. Attendance records and discipline referrals can speak to skills like persistence and self-control, but they don't capture the nuances of the learning environment. Behavioral (or performance) tasks that record students' responses to simulated scenarios more closely approximate real-life situations, but they require development and standardization.

Of these assessments, surveys answered by students themselves are the most common method of capturing non-cognitive skills, and research clearly points to their limitations. In a recent paper published by the Brown Center on Education Policy, Senior Fellow Martin R. West, an associate professor at the Harvard Graduate School of Education, observes that student questionnaires are subject to faking because of the phenomenon known as "social desirability bias", the inclination students have to make themselves appear better to themselves and others. When presented with the statement "I am a hard worker", for instance, a student might choose the response option "very much like me". Even more troubling, according to West, is the problem of "reference bias", in which survey responses are influenced by different standards of comparison. For instance, West explains, "a child with high standards might consider a hard worker to be someone who does all of her homework well before bedtime and, in addition, organizes and reviews all of her notes from the day's classes. Another child might consider a hard worker to be someone who brings home her assignments and attempts to complete them, even if most of them remain unfinished the next morning." Reference

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bias seems to have affected Duckworth's West Point study, in which cadets' self-reported levels of grit declined over four years—a seemingly unlikely result given that the students were overcoming considerable physical and mental challenges. Duckworth's explanation is that the cadets' judgments of themselves changed because they were comparing themselves to increasingly gritty peers.[73]

Educators can use existing data to try to measure non-cognitive skills. Duckworth and her University of Pennsylvania colleague Claire Robertson-Kraft, for instance, have measured the degree to which students participate in outside work and extra-curricular activities and used the results to try to make inferences about grit and other capacities.[74] Results on achievement tests, according to a recent RAND Corporation report, can also reveal behavioral characteristics; some of the more sophisticated new assessments, for instance, can show how many attempts a student makes to answer a question or how often he moves the computer mouse. But the authors of report, Brian Stecher and Laura Hamilton, say we need far more research on how to make sense of this behavior and how to convert it into useful information.[75]

Because of their multiple drawbacks, West, Stecher, Hamilton and others have concluded that current measures of non-cognitive skills are neither accurate enough nor reliable enough to be used in high-stakes accountability systems. West says that survey-based measures, in particular, while they may help us compare students within the same educational environment, "are inadequate to gauge the effectiveness of schools, teachers, or interventions in cultivating the development of those skills."

Others, however, while acknowledging the problems, contend that incorporating non-cognitive measures into accountability measures is the best way to direct attention to this area of learning. And they are working on ways to do so. A prominent experiment is underway in California, where a consortium of large school systems known as the CORE districts, won a waiver from certain provisions of the federal No Child Left Behind law by proposing a more holistic approach to student achievement. In the 2015-16 school year, fully 40 percent of CORE's accountability and improvement model for schools will be comprised of students' social and emotional outcomes and factors having to do with school culture.[76]

Many conclude that current measures of non-cognitive skills are neither accurate enough nor reliable enough to be used in high-stakes accountability systems.

The CORE districts received the federal waiver based on their School Quality Improvement System, which calls for districts to collaborate "to eliminate disparity and disproportionality in all subjects and across the academic, social/emotional, and culture/climate domains". Performance in these domains is captured in an index whose indicators include such competencies as growth mindset, self-management, and social awareness as measured through students' self-reports. School culture and climate are also assessed with surveys of students, parents, and staff.[77]

Incorporating non-academic factors in an accountability model is an "audacious goal", admits Noah Bookman, chief accountability officer for CORE. But Bookman said the districts moved ahead because of evidence showing that social and emotional skills are as predictive of success as academic capacities, if not more so. The district deliberately uses the word "competencies" to describe these skills to put them on a par with academic ones. And by measuring them, they have committed to teaching them.[78]

To create the measures, CORE partnered with the non-profit Transforming Education, which cu-

rated existing survey scales from researchers like Duckworth and Camille Farrington, research associate at the University of Chicago, as well as organizations like the Collaborative for Academic, Social, and Emotional Learning and the American Institutes for Research. About 20 CORE schools piloted a set of student self-reports and teacher reports in the 2013-14 school year in order to assess the validity and reliability of the measures. They found that, on average, both student self-reports and teacher reports were positively correlated with external variables like GPA and standardized test scores. During the 2014-15 school year, CORE tested a refined set of survey-based measures with all 1,500 schools. With this dataset—the largest of its kind—CORE will examine the relationships between student and teacher responses, as well as correlations among social-emotional competencies, academic outcomes, behavioral outcomes, and school culture and climate. In 2015-16, the full index will be tied to actual stakes. Based on the results, CORE will pair low-performing schools with higher-performing ones, with the latter serving as mentors. Other schools will participate in communities of practice, implementing cycles of improvement.[79]

According to Sara Bartolino of Transforming Education, teachers want to be able to use the resulting information to assess students' social and emotional skills and tailor interventions.[80] That is Bookman's goal, too: an accountability system that has improvement and support, rather than labeling and punishment, at its heart. "We're changing the conversation about what accountability should be," he says. "[Our approach is] more about a way to articulate priorities and a way for schools to identify areas of strength and challenge."[81]

"We're changing the conversation about what accountability should be. [Our approach is] more about a way to articulate priorities and a way for schools to identify areas of strength and challenge."

Separate from the school accountability index, CORE districts have also incorporated social and emotional learning into their frameworks for educator effectiveness. At Oakland Unified School District, for instance, a designated department works to build understanding of this kind of learning among adults, making the case for systematically including it in curricula. Oakland holds its teachers and principals to social and emotional standards by tying them to effectiveness ratings.[82]

But concerns, and criticisms, remain. While CORE has found that teacher reports on students were more highly correlated with standardized test scores, GPAs, absences, and suspensions than were students' self-reports alone, Bookman says that "teacher reports are not as feasible to do at scale."[83] And he concedes that student self-reports pose substantial limitations. "It's an experiment," he says.[84]

Training Teachers

A considerable challenge to implementing motivation-enhancing strategies is the need to train teachers to do it well. Traditional teacher education programs provide novices little help in this regard. In a 2014 study, the National Council on Teacher Quality found that among 105 such programs, 51 percent did not address student engagement, and 57 percent did not address motivation. The findings are perhaps not surprising since the certification standards in only 29 states mention student engagement as a required area of training, and standards in just 24 states mention motivation. Teachers also have few good ways to acquire such skills on the job. Many

resources for in-service and online professional development touch on student motivation, but most classes last only a couple of hours or a single day.

Turnaround for Children, a non-profit organization that partners with high-need public schools, is one initiative that helps teachers boost motivation in a targeted, sustained, school-wide way. The organization was founded by child psychiatrist Pamela Cantor after she helped lead a study on the impact of the September 11 terrorist attacks on the city's schoolchildren. Interestingly, the study found trauma to be most prevalent not in the schools near Ground Zero but in those serving the poorest children. Turnaround now aims to create what it calls "fortified environments" for teaching and learning—addressing the unique needs of high-poverty schools by reducing students' stress, building relationships, and teaching non-academic skills.

Turnaround is based on the idea that while schools may not be able to fix poverty itself, they can mitigate the effects of stress that poverty can cause.

Turnaround's intervention model is based on the idea that while schools may not be able to fix poverty itself, they can mitigate the effects of stress that poverty can cause. The Adverse Childhood Experiences study, a large longitudinal study conducted by the Centers for Disease Control and Kaiser Permanente, has dramatically demonstrated the association between early adversity such as abuse and neglect and health problems such as mental illness, heart disease, and asthma. Typically, Turnaround says, 10 to 15 percent of students in their partner schools are stressed to the point where they can disrupt learning for everyone; the schools are so chaotic that teachers and students can barely function in them, let alone thrive.

So Turnaround works with schools for several years in three areas: student support, school culture, and teacher practice. Under the teacher practice domain, an instructional coach spends up to an hour each week with all teachers in small groups and the rest of the week modeling lessons and advising teachers one-on-one. The coaches tackle issues common to high-poverty schools: helping teachers de-escalate bad behaviors and giving students the skills to make wise decisions and forge stronger connections with peers. Although the professional development sessions are optional, 85 percent of teachers attend them. "Turnaround meets teachers where they are," says Michael Lamb, executive director of the Turnaround program in Washington, D.C. "[It] gives them the skills they need to deal with the challenging issues they see every day."

Operating also in Newark, N.J., Turnaround costs about $750 per student or about $350,000 per school per year. Although it's hard to separate the influence of other factors, districts have seen some encouraging results. In the two Washington, D.C. schools, for example, from school years 2012-13 to 2013-14, the district recorded a 36 percent reduction in both student suspensions and severe behavioral incidents. In the first year that teachers are trained in Turnaround methods, classroom observations show steady increases in the number of teachers rated "high" in student engagement, emotional support, and classroom management.

The BARR program likewise puts a premium on training and support. Along with guaranteeing that students have effective teachers, the program ensures that fellow teachers have access to those educators, too. Highly effective teachers coach their peers in the classroom and mentor them in many other ways. In particular, they train teachers to look for and develop students' strengths—a deliberate departure from the deficit model that relies heavily on

control. "Performance pressures and longstanding tradition in secondary schools can create responses to failing students that are reactive, disciplinary and deficit-oriented," says a BARR report. "Emphasis on tightening controls is stressful for teachers. And they often have adverse effects on student motivation. BARR draws out teachers' natural beliefs in a positive future for students by training them to look intentionally for student assets."[85]

Putting Research into Practice

Every day teachers learn new things about motivating their students, and researchers regularly uncover insights by collecting and analyzing data. But too rarely do these practitioners and researchers work in concert. At the same time, each school, classroom, and student may need something very different to realize its goals. These challenges demand a new approach to implementing reforms, one that requires researchers and practitioners to more carefully define problems and to learn faster, together, how to solve them.

Networks of researchers and practitioners at the Carnegie Foundation are confronting the student motivation problem in precisely this way. Through the discipline known as improvement science, they conduct rapid cycles of change—whittling down big problems into representative smaller ones, coming up with ideas for solutions, and testing them quickly, often within a matter of days. Learning from failures as well as successes, the members of the network then refine their ideas and test them again. It is only when results are clearly positive that an idea is implemented on a broader scale.

A nationwide network of school districts, organizations, and colleges is using this method of continuous improvement to test interventions for enhancing student motivation. The network, known as the Student Agency Improvement Community (SAIC), is made up of six groups: New York City Department of Education, Harrisonburg City Schools in Virginia, Summit Public [Charter] Schools in California, Schools That Lead of Delaware, High Tech in San Diego, and the Community College Pathways network mentioned above. Researchers are helping to translate the network's findings into practices to prototype, and educators are testing the strategies in the classroom and providing data on the results.[86]

The New York City members of the network, for instance, are trying to improve achievement in algebra. They have narrowed this goal to a more specific one of having 75 percent of students in target classrooms passing the Algebra I course. To do this, the network aims to change student behavior, such as getting students to participate more frequently in class. That behavior, in turn, is driven by student mindsets, which in turn are affected by how students see (or don't see) the value of math in their lives. So members of the network are testing some ideas that they hope will help students understand that value. Among them are having students write about the connections of math to their own interests and having them suggest topics for word problems.

These challenges demand a new approach to implementing reforms, one that requires researchers and practitioners to more carefully define problems and to learn faster, together, how to solve them.

The research shows that many interventions can improve student motivation, but until the chal-

lenges to implementation are addressed, they will be limited to individual classrooms. It is only with better teacher training, more reliable measurement, and a stronger connection between research and practice that this work can scale, promising sizeable benefits for public schools.

The Path Ahead

A certain dichotomy characterizes public education reform today. Proponents of strict accountability hold teachers and schools rigidly to student outcomes, insisting that every child can achieve, no matter what. Others counter that strict accountability fails to sufficiently account for factors like homelessness, hunger, and other social problems that children bring to the classroom. Until we relieve these problems, these advocates say, we cannot possibly expect children to reach their potential.

It's increasingly clear that both the "no-excuses" camp and the "poverty-fighters" are right. Continued lagging achievement indicates that schools and educators must be held to higher standards. But it now seems equally apparent, and increasingly so, that schools must not only provide rigorous academic instruction, but must also develop in their students the habits of mind required to embrace that instruction.

Some educators worry that the push to enhance these dispositions—to build traits like "grit" in particular—amounts to blaming students for perceived deficits of character or for the effects of poverty and other externally imposed handicaps to engagement and learning. Concentrating too much on student motivation, still others contend, threatens to divert policymakers' attention from the pressing business of improving schools.

Schools do need to improve. And educators and society cannot ignore the underlying problems of poverty and other toxic stresses in the hope that by simply working hard and getting "gritty" disadvantaged students will be able to surmount the serious hurdles that such problems present. But these missions are not mutually exclusive. Properly executed, they can be mutually reinforcing.

Author Paul Tough, in his bestseller *How Children Succeed*, brought to public audiences compelling new research showing how toxic stress undermines academic achievement. These findings, along with the research by Dweck and others, suggest that educators should no longer leave it to chance that students will come to school with the capacity to fight impediments to motivation. The neurological research shows that the effects of toxic stress can be reversed, and the work of Dweck and colleagues suggests that mindsets are not immutable. More and more studies point to the benefits of actively instilling in students these inclinations and of structuring schools in ways that encourage their development.

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Promoting non-academic engagement does not mean reducing emphasis on academic learning. On the contrary, when students are conscientious, persistent, and open to new ideas, they are far more likely to succeed academically. And the research has demonstrated that with thoughtful, integrated curricula these capacities can be taught, as well as enhanced with simple interventions. The responsibility for instilling these characteristics lies properly with adults.

Boosting student motivation, the research also shows, cannot be done piecemeal; it's not a matter of adding 45 minutes every other Tuesday to talk about "optimism" or "grit" or of building relationships between students and staff in once-a-week advisory periods. Whether they fall under the label of character education, social-emotional learning, or mindset interventions, activities best promote motivation and engagement when they are embedded in the structure and culture of the school and reinforced, in math class or on the basketball court, throughout the day.

The wider adoption of strategies to boost student engagement has been handicapped in part by a confusing lexicon and overlapping and conflicting programs. It is time that these find common ground. At the same time, the research points to the need for teacher preparation programs to better educate recruits in the psychological, emotional, and social aspects of learning, and for professional development to provide teachers with continued support. Finally, it will be difficult for many initiatives to scale until we develop better measures than we currently have for assessing motivation.

As encouraging as these initiatives are, the challenges caution us to resist the temptation to adopt them without a complete understanding of the many different contexts in which they occur and without further testing within those contexts. Measurement difficulties also suggest that it is too soon for institutions to hold educators accountable for how well their students are, or are not, developing the nonacademic capacities they need to engage. But as jobs become more complex, and as college degrees become virtually essential, the demand for these "21st Century" mindsets and skills is greater than ever. Fortunately, researchers and educators have much promising work to build on. ■

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Bigger Brains, Better Mindsets: From a Simple Intervention, Promising Results

WHEN DAWN CLEMENS took over as principal of Stuart-Hobson Middle School in Washington, D.C., she held a funeral. Into a mock coffin she dumped a batch of excuses—slips of paper conveying all the reasons people gave for why students weren't learning. The ritual was Clemens's way of saying that she would accept no rationalizations for the school failing to reach its academic goals. Poverty and racism were barriers, to be sure, but she wanted to focus far more on what made achievement possible rather than on all the factors that conspired to hold it back.

So Clemens boosted the academic rigor of enrichment courses, replaced a large number of teachers, and initiated other reforms. But she knew that none of these changes would matter if the school did not also improve student motivation. If students were being asked to up their games, they needed to believe that their efforts had value and would pay off. So Clemens also introduced a new learning program that seeks to boost motivation by improving students' confidence about their intelligence.

If students were being asked to up their games, they needed to believe that their efforts had value and would pay off.

Brainology, the program she chose, is a curriculum developed by Stanford Psychology Professor Carol Dweck who popularized the concept of academic mindsets. Dweck's research shows that students can turn fixed mindsets—the belief that intelligence is finite—into growth mindsets—the conviction that the harder they work, the more their intelligence will grow. The program, marketed by Mindset Works, is based on research showing that certain tasks actually lead to increases in the number of neural connections in the brain.

In the District of Columbia Public Schools (DCPS), Brainology is offered at 15 middle schools to nearly 400 students. (It's in place in about 500 schools nationwide.)[1] The program, which in small schools costs about $20 per student and $60 per teacher for instructional materials, includes about 2.5 hours of online instruction, divided into an introduction and four instructional units, and up to 10 hours of additional classroom activities.[2] Students work online, keep journals, and do classroom exercises and team projects. The courses are usually taught in an advisory period or science class, over a period of five to 16 weeks, but at Stuart-Hobson, science teacher Douglas Creef teaches Brainology as a free-standing class full-time.

"D.C. exemplifies a lot of challenges in urban schools, both in academic and personal settings," says psychologist Lisa Blackwell, Mindset Works's vice president of design, evaluation, and implementation.[3] Eighty-six percent of DCPS's 43,866 students are minorities, two-thirds of the overall school population meet the federal government's threshold for poverty, and only 56 percent graduate from high school.[4] Many students bring substantial social and behavioral problems to the classroom.

Although these factors stifle academic achievement at DCPS, Clemens and other school leaders believe that another big problem is the fixed mindset. It's the attitude that makes students say things like "I can't write." Or "I'm not good at science." And this sort of defeatism is not just a problem with students. Too many teachers in urban education, she says, lack confidence in their students' abilities. "It is critical," says Clemens, "for teachers to believe that their students can succeed."[5]

Creef, who has taught science for 13 years, professes to hold this conviction, which is a good thing, because among his several dozen sixth-, seventh-, and eighth-graders, a high percentage are working at the lower-elementary level. On this particular afternoon, Creef's students are analyzing a complex

text (the lessons are aligned with the new Common Core standards) that explains the difference between talent and achievement—a distinction crucial to the development of a growth mindset. The room is papered with inspirational messages and maps of the brain. Folders are packed with student reflections on their frustrations, successes, and perceived limitations. As the weeks go on, the students demonstrate a growing confidence in their abilities and an increased willingness to work harder to reach their goals. In one written exercise, a student responds to several prompts. *"At first I couldn't:* Multiply two-digit numbers." "*In order to get better I:* worked hard and practiced." *"Finally I was able to:* multiply two-digit numbers." "*How did you feel when you succeeded?* I felt I could overcome a lot now." *"Was it worth the effort?* Yes, because I can almost do it in my head in 40 seconds."

Brainology students learn a lot about neuroscience, through accessible readings, interactive games, and a couple of cartoon characters who lead them through the online content. Much of the information comes to them as a myth-busting surprise. The students learn that the brain contains billions of tiny nerve cells, which are connected to each other in a complicated network. It's the communication between these neurons, they learn, that allows them to solve problems. "When you learn new things, these tiny connections actually multiply and get stronger," a chapter says. "Things you might have thought impossible—like algebra or foreign language—seem to be easy." Using a familiar analogy, the narrator says, "Everyone knows that when you lift weights, your muscles get bigger and you get stronger. But most people don't know that when they practice and learn new things, parts of their brain change and get larger, a lot like the muscles do."

But students don't have to take the workbook's word for it. A growing body of research backs the claims up.

It wasn't very long ago that scientists didn't believe that brains could grow; they thought that the brain held a finite number of neural connections. But on both humans and animals, over the last 20 years confirms that adult brains can create new neuronal connections. And while scientists can't yet prove cause and effect, certain behaviors are associated with making that growth happen.

Brain-imaging studies have shown, for instance, that London cab drivers, who must memorize the city's labyrinthine street patterns before becoming licensed, have hippocampuses (a part of the brain involved with spatial navigation and storing long-term memories) that are larger than those of non-cabbies, and that their brains continue to grow the more they study the streets.[6] Studies have also shown that rats who run around on hamster wheels have heavier brains, with more neural connections, than those who lounge inside the cage.[7] And research has shown that adults who perform special mental exercises to learn a new language had brain cells that became more active as they did so.[8]

But, as Brainology students learn, increasing brain capacity is not just a matter of exerting effort. "It's not about pounding your head against the wall," says Eduardo Briceño, co-founder and CEO of Mindset Works. "It's not about staring at the same piece of paper over and over again."[9] Rather, building a growth mindset demands that students take on more challenging tasks, open themselves to new ideas, and adopt different learning strategies.

Building a growth mindset demands that students take on more challenging tasks, open themselves to new ideas, and adopt different learning strategies.

Mindset Works skirts what is a contentious debate over whether intelligence can be increased. There are two forms of general intelligence—crystallized intelligence, which is the accumulated knowledge and skills built up over a lifetime, and fluid intelligence, which is the capacity to reason analytically, think critically, and solve problems. The latter is thought to peak in early adulthood and to decline with age. But recent studies have shown that some exercises can increase fluid intelligence by improving working memory—the ability to manipulate the information we hold in our heads. A 2008 study by Susanne Jaeggi and Martin Buschkuehl, now of the

University of Maryland, found that young adults who practiced a challenging concentration game not only got better at the game the more they practiced, which was no surprise, but actually showed improvement in fluid intelligence, which was a surprise.[10] Since the study was published, other researchers have found that brain-training tasks have produced similar results.

Because fluid intelligence has long been thought to resist attempts to change it, it is not surprising that the Jaeggi-Buschkuehl research also has its doubters. Among them are researchers Thomas Redick of Georgia Tech and colleagues who conducted a randomized placebo-controlled study and found no evidence of improved intelligence after working-memory training.[11] Co-author Randall Engle, now of the University of Edinburgh, has said he believes that fluid intelligence is biologically driven and cannot be influenced by cultural factors. "Do I think you can change fluid intelligence?" he recently told *The New York Times*. "No I don't think that you can. There have been hundreds of other attempts to increase intelligence over the years with little or no—just no—success."[12]

Brainology, though, is about changing mindsets. Research shows that when students know that their abilities can be developed, they seek out tougher challenges, they make greater effort, and they persist longer at tasks and achieve at higher levels. In a 2007 study, Blackwell and colleagues followed hundreds of students going into seventh grade, each of whom had achieved at similar levels, and tracked their progress in math. They found that students with growth mindsets were more motivated to learn and outperformed those with fixed mindsets. The gap continued to grow over the following two years.[13]

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In another study, Blackwell divided students into groups for a workshop on the brain and study skills. One group was taught about states of memory. The other group was taught how the brain grows with learning and how they could apply the idea to their schoolwork. The students who showed an increase in effort and engagement were three times as numerous in the growth mindset group as in the control group. The grades of the control group continued to decline, while the grades of the Brainology group significantly improved.[14]

In a study in Scotland, according to Dweck, students who received Brainology training showed marked increases in reading ability and greater resilience in the face of setbacks.[15] And in a study of California middle-schoolers, Brainology was correlated with significantly higher grade-point averages among Latino students, as well as better conduct among students who had been poorly behaved.[16]

Still, measuring results is a challenge. Teachers now give students surveys before and after the Brainology courses, and Mindset Works is planning to collect a wider range of information to gauge the program's impact, including grades, test scores, and behavior and attendance patterns.

DCPS is still collecting data on its Brainology work and plans to release a complete analysis soon. Meanwhile, at Stuart-Hobson, students in the course write reflective essays every Friday, and teachers have already noticed some interesting trends. First, homework started getting done. The seventh-graders, Creef said, had been the worst behaved of the school. "With middle-schoolers there are always excuses," Clemens says. "But Brainology shifts the language to be about payoff from effort, rather than 'the test was too hard' or 'the teacher doesn't like me'."

Second, the teachers noticed big changes in reading test scores. Reading growth at Stuart-Hobson, as measured by standardized tests, had been averaging about 100 points a year, out of a total of 820.

In the eighth grade last year, the jump was 110; in the sixth grade, the increase was nearly 200 points; and in seventh grade, reading scores rose by a remarkable 400 points.[17] What had caused the dramatic difference? Creef and Clemens believe it was in large part Brainology.

Brainology is targeted only at seventh- and eighth-graders at DCPS, to better prepare students for the first year of high school, when they are most likely to disengage. But that leaves several grades without the benefit of the intervention, as well as the risk that students will backslide once Brainology ends or when they move to schools that don't offer it. To address that problem, Mindset Works is developing a curriculum, called GEM, or Growing Early Mindsets, that extends before and after middle school.

For growth mindsets to really take hold, they must be embedded in all classes and ingrained in the culture of the whole school.

But for growth mindsets to really take hold, says Briceño, they must be embedded in all classes and ingrained in the culture of the whole school. "It can't be just a packaged program," he says. ■

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The Fall of the Self-Esteem Movement: The Problem With Unearned Praise

ATTITUDES ABOUT TEACHING non-cognitive skills have shifted over the years. Historically, teachers have not worked specifically to develop capacities for motivation and engagement, and schools have generally not incorporated such strategies into their curricula. A focus on reading, writing, and arithmetic assumed that the non-academic needs of students were essentially the responsibility of parents.

This hands-off philosophy arguably worked well enough in an era of neighborhood schools, healthy economies, and intact families—and when a high school education could lead to a middle-class job. But in the late 1960s and early 1970s, the cultural landscape was changing. Women started working full-time, schools were being desegregated and re-segregated, academic achievement began to drop, poverty was on the rise, and social problems loomed large. At the same time, more and more students were seeing the need for a college degree.

These and other developments gave birth to a nationwide movement to boost students' self-esteem. If only young people could think better of themselves, the logic went, they would have the confidence they needed to overcome obstacles and succeed. And so teachers adopted all sorts of strategies to support their students in this goal: They had children write essays about why they were special, scrapped honor roles in early grades, and handed out awards for attendance. They put up affirming Post-it notes and gave every child a trophy for participating on a youth sports team.

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One of the early proponents of the self-esteem movement was the psychotherapist Nathaniel Branden, a devotee of the libertarian philosopher Ayn Rand who believed that stresses like poverty and racism stifled academic motivation.[1] In the 1980s, the movement took hold in California when Assemblyman John Vasconcellos, himself plagued by self-doubt, blamed low self-esteem for a range of problems, including teen pregnancy, drug abuse, and low academic achievement.[2] As California schools started programs to build self-esteem, a governor's task force published a report that did not entirely support Vasconcellos's views. Yet the response of supporters, writes Carol Craig, CEO of the Glasgow-based Centre for Confidence and Well-Being, "was not to question the importance they were attaching to self-esteem but to try and find more evidence" to support it.[3]

Such evidence was not forthcoming. In a groundbreaking study, Florida State University Psychology Professor Roy Baumeister, originally a champion of the self-esteem movement, found the links between self-esteem and academic performance to be at best weak and at worst non-existent.[4] He further concluded that self-esteem could not be boosted merely with positive encouragement; it had to be earned. Baumeister called his findings "one of the greatest disappointments of my career."[5]

University of Pennsylvania Psychologist Martin Seligman, author of the bestselling book *Learned Optimism,* also challenged the idea that self-esteem could be boosted artificially. Self-esteem, he argued, could come only from doing something well. In a 1998 speech to the National Press Club, Seligman said, "I think self-esteem is just a meter that reads out the state of the system. Generally, when you're doing well with the people you love, with your friends, when you're doing well at school, when you're doing well on the playing field, the meter registers high." But, he said, "We now think we should inject self-esteem directly."[6]

Taking a position that might resonate with today's school accountability advocates, Seligman attacked

what he called "victimology", the habit of routinely blaming other people, circumstances, or events for one's own shortcomings. In the minds of these apologists, he told the press club, "When you can shuck off failings, blame them on other people or the establishment or racism, your self-esteem goes up."[7]

Decades after its beginnings, at least one study found that the self-esteem movement did raise students' opinions of themselves: A 2001 analysis by psychologists Jean Twenge and W. Keith Campbell, authors of *The Narcissism Epidemic,* found that the median male college student in 1995 reported higher self-esteem than did 86 percent of his peers in 1968. But self-esteem initiatives had done nothing to help the very problem they were meant to address. Not only had the self-esteem movement failed to improve academic achievement, several studies showed that it had actually lowered it.[8]

Today it is widely acknowledged that the "everybody-gets-a-trophy" movement has badly backfired. Critics say it has led to expectations of rewards, an overreliance on praise, and rampant grade inflation. Lately Twenge has suggested that it has even sparked an increase in youth depression.[9] Depression, says Seligman, is a disorder of individual failure. So, he says, "If you believe that [you] are the only important thing in the world, [your] successes and failures are monumental. It sets you up for depression."[10]

English teacher David McCollough Jr.'s much-publicized remarks to the 2012 graduating class of Wellesley High School in Massachusetts serves as an epitaph of sorts to the self-esteem movement: "You are nothing special," he told the audience in the affluent Boston suburb. "Yes, you've been pampered, cosseted, doted-upon, helmeted, bubble-wrapped. Yes, capable adults with other things to do have held you, kissed you, fed you, wiped your mouth, wiped your bottom, trained you, coached you, listened to you, counseled you, encouraged you, consoled you. But do not get the idea you're anything special," he said. "Because you're not."[11]

> "If you believe that you are the only important thing in the world, your successes and failures are monumental. It sets you up for depression."

In fact, McCollough went on to tell the graduates, they were all special. Now, he said, it was up to each one of them to put energy and effort into creating the productive lives that would truly earn them the distinction. ■

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10 Seligman, "Depression & Violence."

11 Bob Brown, "Wellesley High grads told: 'You're not special'," The Swellesley Report, June 5, 2012, http://theswellesleyreport.com/2012/06/wellesley-high-grads-told-youre-not-special/.

Character Education: Changing Approaches to Teaching Social and Emotional Learning

AT THE KIPP WASHINGTON Heights Middle School, in a heavily Dominican neighborhood of upper Manhattan, the signs of character-building are everywhere. Hallways are splashed with oversized labels like "grit", "generosity", and "optimism." A paper tree grows "leaves of gratitude." An equation reminds students that practice + practice + practice = perfect. And special t-shirts are worn proudly by students who have reached the goal of reading 1 million words.

But character education at KIPP, a high-performing charter network, and in other schools where it has taken hold, is more than just slogans on t-shirts or the lighthearted, inspirational raps performed by teacher Ian Willey, who heads the character program here. It aims to be a way of academic life, embedded in the curriculum and culture of the school.

This aspect of learning gained traction when KIPP founders Dave Levin and Mike Feinberg realized that the students who did well in college were not necessarily those who had excelled academically in the lower grades at KIPP. Rather, they were the ones who were optimistic, resilient, and socially adept. They bounced back from bad grades, they showed determination to improve. Along with grit, the character strengths KIPP stresses are gratitude, self-control, optimism, curiosity, social intelligence, and zest—all attributes that Levin says promote students' social and intellectual engagement in school.[1]

The students who did well in college were not necessarily those who had excelled academically. Rather, they were the ones who were optimistic, resilient, and socially adept.

On this particular day, Willey is teaching a roomful of attentive fifth-graders about social intelligence; they are learning how to interact with others in ways that promote trust and understanding. The children engage in a role-playing exercise in which they are reacting to a friend who abandons their pick-up basketball game to go play with others (a realistic scenario, the children report). They respond in ways that are either passive, aggressive, or assertive, learning why the third is the preferred option.

Levin breaks down character education into "macro structures and micro moments." The macro structures, he says, are something teachers schedule, like Willey's class. The micro moments might take place spontaneously in the middle of a math lesson.[2] Whichever the case, KIPP has tried to take research connecting character with higher achievement and make it concrete. "We needed the vocabulary," says Danny Swersky, principal at Washington Heights. "Optimism, for instance, becomes more quantifiable if you can ask: 'Do you believe you can do better?' We name it, we shout it out, we reward it."[3]

KIPP's approach to character education has also evolved. Since the organization's founding two decades ago, Swersky says, "the biggest change we made was in understanding that these behaviors are not a-contextual. Without applying them to the real world, they don't have as much meaning." So character is also taught in the context of news events like the Ferguson, Mo. shooting and as a free-standing class.[4]

Many other schools imitate KIPP's character curriculum, and thousands use programs like Character Counts, a national initiative run by the non-profit Josephson Institute that provides instructional materials and trains educators to teach students its own six "pillars of character": trustworthiness, respect, responsibility, fairness, caring, and citizenship.[5]

But character education has long meant, and still means, different things to different people. Although KIPP stresses traits related to personal motivation, the term can refer to virtually any program that promotes social values and civic behavior, and even that broad definition may not go far enough. Education researchers Marvin Berkowitz and Melinda Bier of the University of Missouri-St. Louis argue that "service learning, social-emotional learning, and prevention programs all share significant features with character education and could be considered forms of character education."[6] That covers a lot of ground.

Assessing these skills is difficult. Character can't really be seen directly, which may help explain the recent trend of defining it by outward behaviors.

During its first wave of popularity in the United States, in the early 1900s, character education worked to actively influence students' values and beliefs; simply getting students to behave in a certain way was not enough. Wrote researcher Vernon Jones in 1937: "Character education should be directed not at the removal of symptoms of moral maladjustment but at the conditions and urges [underlying] such symptoms."[7] The programs, however, had mixed results (in part because there is no way to measure students' inner thoughts and feelings), and these outcomes, along with fears of children being indoctrinated by their teachers, kept more programs from being implemented. Interest in the subject dropped off sharply until the 1960s.

The character education of the 1960s and 1970s was very different from its earlier iteration. The emphasis now was on "values clarification", an approach that avoided the explicit teaching of discrete traits and instead encouraged students to think critically and self-consciously so they would come to understand their own values. This approach was widely attacked from the right because of its extreme relativism and because it gave little direction to teachers. Even Howard Kirschenbaum, the co-author of the 1972 book *Values Clarification: A Handbook of Practical Strategies for Teachers and Students*, now concedes that "it was a very optimistic view that, given enough discussion, students would come to realize on their own" why, for example, cheating is bad.[8]

The 1980s and 1990s saw a return to a more explicit method of teaching character, using programs and curricula (such as Character Counts) that prioritized certain values over others. But unlike the early-century character education, this version focused on eliciting external behaviors—doing what is right—rather than instilling internal values—knowing what is right. Instruction also seemed to shift from lectures and discussion to practice-based learning. The idea was that if students consistently repeated good behaviors (or just went through the motions even if they doubted the value of the behavior), good character would become ingrained. Today's version of character education, typified by KIPP, skews even more towards demonstrable behaviors over internally-held beliefs.

No matter what form character education takes, it has always attracted critics. And the criticism today is much the same as it was at the beginning of the century. Foremost, detractors argue that character is impossible to define. Is it the sum total of a person's traits? Is it an entire personality? A behavior pattern? And if we are going to teach students values, which values should those be, anyway?

It remains debatable, moreover, that character traits can be changed. Studies show that conscientiousness, for instance, has a strongly hereditary component and is resistant to intervention.[9] Levin concedes that every one of the KIPP-desired traits has a genetic component. But, he points out, they are not like hair or eye color, both of which are entirely pre-determined. They all cluster around 50 percent genetic, Levin says. "That means that there is a 50 percent chance that you can actually do something about it," he says. "And it means we have a lot of room to make positive changes with real effort."[10]

KIPP has sought to measure character with a report card, an assessment of student growth in the seven character strengths done by teachers and the

students themselves. But assessing these skills is difficult. Character can't really be seen directly, which may help explain the recent trend of defining it by outward behaviors. Observing students is imprecise because it doesn't capture the internal values or motivations a student has for acting a certain way. And students' own reports are often unreliable. In part because of these challenges, Levin and Feinberg scrapped their early idea of giving graduates a "CPA"—a character point average—along with a GPA. The character report card as it is conceived now is not a summative assessment, but a springboard for discussion.

There are also political and religious implications to the teaching of character. Character education enjoys broad popularity in the United States: a 2014 Gallup poll shows that 87 percent of public school parents believe that learning skills like dependability, persistence, and teamwork is "very important" in helping high school students eventually get good jobs, whereas only 22 percent of parents rated performing well on standardized tests to be very important.[11] But some parents may be uneasy with the idea of teachers conveying morals to their children, even such widely-accepted values as respect and kindness.

Jeffrey Aaron Snyder, an assistant professor of education studies at Carleton College, suggests that these parents needn't worry. Never before, he says, has character education been "so untethered from morals, values, and ethics." In the mid-1800s character education revolved around religious and civic virtues like piety, industry, kindness, and thrift; later it concentrated on citizenship and the common good. But today's KIPP-style character education, Snyder argues in *The New Republic,* promotes "an amoral, careerist, looking-out-for-Number-One point of view." It may take grit and self-control to be a successful heart surgeon, he says, "but the same could be said about a suicide bomber." No character education program, he maintains, "has been so relentlessly focused on individual achievement."[12]

Yet KIPP's avoidance of value judgment is quite deliberate. "The problem is: whose values?" says Levin. "Whose ethics? On the one hand, you have folks saying that teaching is devoid of [values] but then you have people who are concerned about having any kind of moral discussion in schools. If you actually look at what we are trying to teach, if you look at the full array of character skills, then I think you will find that we are very much focused on research-based skills and strengths that are not just beneficial to you but beneficial to others as well."[13]

Levin and Swersky will be among the first to agree that educators don't yet know how best to teach character. "There is no 'here is a curriculum, here are the standards, here, take this or take that,'" says Swersky. But KIPP's philosophy, says Swersky, "is that if you say it can't be taught it will never be taught." Imperfect as the approach may be, demand for KIPP's method is high. Levin teaches character training through the Relay School of Education in a five-week online course that aims to bridge the gap between research and K-12 practice. Along with Angela Duckworth of the University of Pennsylvania, Levin also founded Character Lab, an initiative that aims to "develop, disseminate, and support research-based approaches to character."[14]

"Our best teachers have always done this, our coaches always have. It was always about more than the academics, more than the basketball."

Meanwhile, Levin says his organization is "getting much more strategic and scientific" about how character is taught. Referring to KIPP's efforts to blend academic and non-academic instruction, he says, "I think that this is the natural way that people want to teach. But it's not the way that we were taught. So character education is [about] stripping away some of the things we've become overly accustomed to and getting back to our instincts about how to respond to kids. Our best teachers have always done this, our coaches always have. It was always about more than the academics, more than the basketball."

If there is a hurdle to successfully scaling effective character education, Levin says, "it is clarity on 'if you want to teach this stuff how do you do it?'" The clearer that answer gets over the next five to ten years, he says, the quicker the progress will be. ■

[1] Dave Levin, interview with the authors, November 2014.
[2] Ibid.
[3] Danny Swersky, interview with the authors, December 2014.
[4] Ibid.
[5] "The Six Pillars of Character," Josephson Institute Center for Youth Ethics, https://charactercounts.org/sixpillars.html.
[6] Marvin W. Berkowitz and Melinda C. Bier, "Research-Based Character Education," *The Annals of the American Academy of Political and Social Science* 591, no. 1 (2004): 72-85.
[7] Vernon Jones, "Character Education," *Review of Educational Research* 7, no. 5 (1937): 471.
[8] Sarah Glazer, "Teaching Values: Do school-based programs violate parents' beliefs?" in *Issues for Debate in Sociology: Selections from CQ Researcher* (SAGE Publications, Inc., 2010), 34.
[9] Daniel E. Gustavson et al., "Genetic Relations Among Procrastination, Impulsivity, and Goal-Management Ability: Implications for the Evolutionary Origin of Procrastination," *Psychological Science* 25, no. 6 (2014).
[10] Dave Levin.
[11] William J. Bushaw and Valerie J. Calderon, "Americans put teacher quality on center stage: The 46th Annual PDK/Gallup Poll of the Public's Attitudes Toward the Public Schools, Part II," *Phi Delta Kappan* 96, no. 2 (2014): 56-57.
[12] Jeffrey Aaron Snyder, "Teaching Kids 'Grit' is All the Rage. Here's What's Wrong with It." *The New Republic,* May 6, 2014, http://www.newrepublic.com/article/117615/problem-grit-kipp-and-character-based-education.
[13] Dave Levin.
[14] "What We Do," Character Lab, https://characterlab.org/what-we-do.

Glossary

"I can't think of too many things that are 'non-cognitive', except maybe death."

THE FIELD that addresses the social, psychological, and emotional aspects of schooling holds many meanings for many people—one reason, perhaps, why it is not incorporated into more curricula. Even when initiatives have much in common, they may be compelled to use unique language to attract funding.

The term "non-cognitive skills" is itself a misnomer. It is often used to describe capacities seen as separate from academic knowledge, such as emotional regulation and persistence. But as many critics observe, any such learning—developing mindsets, strengthening dispositions—by its very nature involves cognition. It requires that students actively think about what they are doing. "I can't think of too many things that are 'non-cognitive'," says psychologist Maurice Elias, director of the Social-Emotional Learning Lab at Rutgers University, "except maybe death."

The following brief glossary attempts to distinguish among the potentially confusing terms that characterize this expanding field:

Student motivation: The drive of students to learn, through internal or external factors that start, sustain, intensify, or discourage behavior. A student who is internally motivated does things for his own interest, preference, or satisfaction; a student who is externally motivated acts to obtain a reward or avoid a punishment. Students are motivated by a host of factors at any one time, some internal and some external.

Student engagement: Often defined quite broadly, engagement at its core describes the level of involvement with a learning activity or a larger group.

Student agency: A combination of academic mindsets and learning strategies that are related to higher achievement. Academic mindsets predict students' sense of belonging and their belief that learning has value. Learning strategies cover a wide range of tools and techniques, including goal-setting, self-monitoring for comprehension, and mnemonic devices.

Non-cognitive skills: As originally defined in the research literature, the term refers to essentially all skills and capacities not measured by a test score. Sometimes used interchangeably with "soft skills" or "metacognitive" skills, the term is considered by researchers and educators to be too broad to be helpful.

Character education: The teaching of students in ways designed to help them become ethical, virtuous, honest, civic-minded individuals.

Social and emotional learning (SEL): A discipline that posits that students can learn only when their emotional, physical, and social needs have been met. SEL programs teach children to be aware of themselves and others, to make responsible decisions, to act ethically and respect others, and to work effectively with others to solve problems. Armed with these skills—social awareness, self-awareness, responsible decision-making, self-management, and relationship management—students feel motivated to set academic goals and to organize themselves to achieve them.

Self-esteem movement: A philosophy that submitted that students would achieve more if they had higher opinions of themselves. Numerous studies have debunked the movement's touted benefits. Instead, research has shown that positive feelings about oneself seem to emanate from, rather than lead to, successful engagement with school, work, and other activities.

Academic mindsets: Students with academic mindsets believe, among other things, that they can change with effort (they have a growth mindset), that they can succeed, and that the work they are doing has value and purpose.

Grit: The capacity to sustain passions and work hard over long periods of time and despite obstacles. Angela Duckworth of the University of Pennsylvania defines it as "perseverance and passion for long-term goals."

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