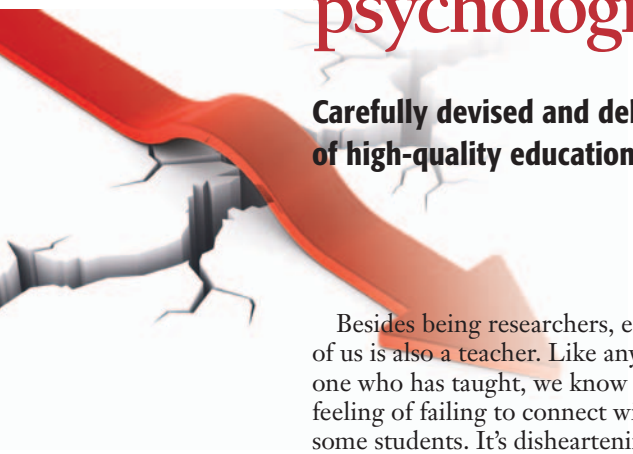
David Yeager, Gregory Walton, and Geoffrey L. Cohen

Addressing achievement gaps with psychological interventions



Carefully devised and delivered psychological interventions catalyze the effects of high-quality educational reforms, but don't replace them.

Teaching students that intelligence can be developed can help them view struggles in school not as a threat but as an opportunity to grow and learn.

Besides being researchers, each of us is also a teacher. Like anyone who has taught, we know the feeling of failing to connect with some students. It's disheartening. Before going into research, one of us (Yeager) taught middle school. He wanted to help kids in tough straits get a good education. Yet, looking at his gradebook at the end of his first year teaching 7th-grade English in Tulsa, Okla., he saw large gains for more advantaged students but much smaller gains for less advantaged students, including racial and ethnic minority students. He thought that he'd given these students just as much attention, if not more, and that he'd held them to equally high standards. He'd given them plenty of helpful critical feedback and cared about their success. What had gone wrong? And what could be done differently?

Many teachers have such experiences. Our research investigates why, sometimes, no matter how hard you work to create a good lesson plan or provide high-quality feedback, some students don't stay as motivated or learn as much as teachers would like. We also look at what can be done to improve their outcomes.

Take the student's perspective

When confronted with a problem in education — students falling behind in math, for example — we tend to focus on what teachers teach and how they teach it. We tend to prescribe solutions that take the perspective of the teacher, like *How can we teach math differently?*

That is an important perspective. But it can also help to adopt the vantage point of a student. How does the classroom look to a student sitting at a desk in the third row? What is he or she concerned about? How does the student feel about his or her potential? Does the student feel accepted by the teacher and fellow classmates? When you begin with questions like these, a different picture emerges — one that focuses on the psychology of students. This approach suggests that teachers should look beyond how they communicate academic content and try to understand and, where appropriate, change how students experience school. Even when a classroom seems to be the same for all students — for instance, when all students are treated similarly — different students can experience the class very differently. Understanding what school feels like for different students can lead to nonobvious but powerful interventions.

A common problem is that students have beliefs and worries in school that prevent them from taking full advantage of learning opportunities. For example, students who struggle in math may think that they are "dumb" or that teachers or peers could see them as such. Or girls in advanced math or minority students in general may wonder if other people will look at them through the lens of a negative stereotype about their group instead of judging them on their merits.

These beliefs and worries don't reflect low self-esteem, insecurity, or flaws in the student. From the students' viewpoint, they're often reasonable. If students are aware that negative stereotypes exist about their group, it makes sense for them to be alert to the possibility that stereotypes are in play (Steele, Spencer, & Aronson, 2002). Likewise, if a student has learned that many people see math ability as something that you either have or don't, it makes sense for that student to worry about being seen as "dumb" in math. Below we look at some of these beliefs in more detail and describe how they can be addressed.

Growth mindset. Carol Dweck has shown that some students think that people's amount of intelligence is fixed and cannot change (2006). Students who have

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this belief — called a *fixed mindset* — who then struggle in math may find it hard to stay motivated. They may think, "I'll never get it" and avoid math. But countering this belief can have powerful effects.

Teaching students that intelligence can be developed — that, like a muscle, it grows with hard work and good strategies — can help students view struggles in school not as a threat ("Am I dumb?") but as an opportunity to grow and learn ("This will make my brain stronger!"). In rigorous randomized experiments, even relatively brief messages and exercises designed to reinforce this *growth mindset* improved student achievement over several months, including the achievement of low-income and minority students (Aronson, Fried, & Good, 2002; Blackwell, Trzesniewski & Dweck, 2007).

Buttressing belonging and reducing stress. Worrying about belonging — "Do I belong? Will other students and teachers value me?" — is a chronic stressor. Students from historically marginalized groups, like black and Latino students or women in quantitative fields, may worry more about belonging. When students worry about belonging and something goes wrong — for instance, when a student feels left out, criticized, or disrespected — it can seem like proof that they don't belong. This can increase stress and undermine students' motivation and engagement over time.

Two types of interventions can remedy these worries. First, social-belonging interventions convey the positive message that almost all students worry about belonging at some point ("your concerns are not unique to you") and that these worries fade with time ("things will get better"). Such interventions can require as little as an hour to administer, and, by using persuasive delivery mechanisms that quickly change students' beliefs, they can be successful. One such intervention improved minority college students' grades for three years with no reinforcement from researchers, halving the achievement gap (Walton & Cohen, 2011).

Stealthy approaches don't feel controlling and don't stigmatize students as in need of help, factors that could do more harm than good.

Second, values affirmation interventions give students opportunities to reflect on personal values that bring them a sense of belonging and identity, such as relationships with friends and family, religion, or artistic pursuits. Students reflect on these values through structured in-class writing assignments timed to coincide with stressors throughout the year. These interventions shore up belonging in school and boost the GPAs of students contending with negative stereotypes in both adolescence and college.

High standards and assurance. Many students, but especially students who face negative stereotypes, worry that a teacher could be biased or unfair. They may wonder if critical feedback is a genuine attempt to help them or reflects bias against their group — something understandable given the historical marginalization of their group. Even a little mistrust can harm a student's learning. But when minority students were encouraged to see critical feedback as a sign of their teacher's high standards and his or her belief in their potential to reach those standards, they no longer perceived bias (Cohen, Steele, & Ross, 1999). In rigorous field studies, interventions of this sort boosted urban black youths' GPAs and reduced the black-white achievement gap several months after the intervention (Yeager et al., 2012).

Psychological interventions aren't "magic"

Understanding what students worry about in school can help us develop targeted interventions. These interventions can require only one or several class periods and modest resources. Sometimes they can even be delivered over the Internet (see www.perts.net). Yet all of these interventions have been experimentally evaluated and can have powerful effects on students' grades and test scores. But they are not "magic." They are not worksheets or phrases that will universally or automatically raise grades. Psychological interventions will help students only when they are delivered in ways that change how students think and feel in school, and when student performance suffers in part from psychological factors rather than entirely from other problems like poverty or neighborhood trauma. That means interventions depend critically on the school context, as we elaborate below.

How psychological interventions work

Psychological interventions raise student achievement by:

- Changing students' subjective experience in school — what school feels like for them, their *construals* of themselves and the classroom;
- Leveraging powerful but *psychologically wise* tactics that deliver the treatment message effectively without generating problematic side effects like stigmatizing recipients; and
- Tapping into self-reinforcing or *recursive processes* that sustain the effects of early interventions (Garcia & Cohen, 2012; Yeager & Walton, 2011).

DAVID YEAGER (yeager@psy.utexas.edu) is an assistant professor of developmental psychology at University of Texas, Austin, Texas. **GREGORY WALTON** (gwalton@stanford.edu) is an assistant professor of psychology and **GEOFFREY L. COHEN** (glc@stanford.edu) is a professor of education and psychology at Stanford University, Stanford, Calif.

Construal. Each psychological intervention began by understanding what school feels like to students. These interventions may seem small to outside observers, and often they are in terms of time and cost relative to other school reforms. But to a student who worries that a poor test score means that she is stupid or could be seen as stupid, learning that the brain can grow and form new connections when challenged, or being told that a teacher believes that she can meet a higher standard, can be powerful. Despite its subtlety — or perhaps *because* of it — the message assuages fears that might stifle learning.

Psychologically wise delivery. Psychological interventions change how students think or feel about school or about themselves in school. If they don't deliver their message in a way that leads to these changes, they won't be effective. Each intervention used a delivery mechanism that drew on research into how to make messages stick. Rather than simply presenting an appeal to a student, each intervention enlisted students to actively generate the intervention itself. For instance, one delivery mechanism involves asking students to write letters to younger students advocating for the intervention message (e.g., "Tell a younger student why the brain can grow"). As research on the "saying-is-believing" effect shows, generating and advocating a persuasive message to a receptive audience is a powerful means of persuasion (Aronson, 1999). Similarly, rather than telling students that they are successfully meeting important values in their lives, values affirmations have students self-generate ways in which this is the case.

Although such delivery mechanisms are psychologically powerful, they are also stealthy, which may increase their effectiveness. None of the interventions expose students to a persuasive appeal (e.g., "You should know that your teachers are not biased") or tell them they are receiving "an intervention" to help them. Stealthy approaches don't feel controlling and don't stigmatize students as in need of help, factors that could do more harm than good (Ross & Nisbett, 1991).

Often psychological interventions are brief — not extensive or repeated. Excessive repetition risks sending the message that students are seen as needing help or may undermine the credibility of a reassuring message (as in "thou doth protest too much"). In this way, delivering psychological interventions differs markedly from teaching academic content. Academic content is complex and taught layer on layer: The more math students are taught, the more math they learn. Changing students' psychology, by contrast, can call for a light touch.

One mistake is to encourage students to give "more effort" when they really need not only to apply more effort but also change strategy.

Recursive processes. What can seem especially mysterious is how a brief or one-shot psychological intervention can generate effects that persist over long periods. For instance, people may assume that an intervention must remain on students' minds to retain its effects. But, like many experiences, a psychological intervention will become less salient as it recedes in time. A key to understanding the long-lasting effects of psychological interventions is to understand how they tap into self-reinforcing processes in schools — like how students make friends and then feel more confident they belong, how they build relationships with teachers who give them more support and encouragement, and how they simply feel more confident in their ability to learn and succeed.

In education, early success begets more success. As students study, learn, and build academic skills, they're better prepared to learn and perform in the future. As students form better relationships in school, these become sources of support and learning that promote feelings of belonging and academic success. When students achieve success beyond what they thought possible, their beliefs about their own agency often improve, leading them to become more invested in school, further improving performance, and reinforcing their belief in their potential for growth. As students perform well, they're placed in higher-level classes — gateways that raise expectations, expose them to high-achieving peers, and put them on a trajectory of success. A well-timed, well-targeted psychological intervention can improve students' relationships, experiences, and performance at a critical stage and thus improve their trajectory through their school careers (Yeager & Walton, 2011). It is thus essential to intervene early, before a negative recursive process has gained momentum, if we are to improve students' outcomes over long periods (Garcia & Cohen, 2012).

Education occurs in a complex system. If students are to succeed, they need both learning opportunities and openness to these opportunities. As a result, it would be absurd to replace traditional educational reforms, like improving curricula, pedagogy, or teacher quality, with psychological interventions. Indeed, making students optimistic about school without actually giving them opportunities to learn could not only be ineffective but counterproductive. Psychological interventions work only because they catalyze the student's potential and the classroom resources for growth.

Use psychological interventions thoughtfully

Excellent teachers already use versions of the techniques discussed here. But, when trying to improve those techniques by applying psychological interventions, practitioners will want to be thoughtful. Psychology is subtle, and you can make many mistakes when trying to change it (believe us — we've made them).

One mistake is to encourage students to give "more effort" when they really need not only apply more effort but also change strategy. Effort is necessary but it is not the sole ingredient for success. When confronted with continued failures despite heightened effort, students might conclude that they can't succeed, sapping

Psychological interventions complement – and do not replace – traditional educational reforms.

their motivation. Effective growth mindset interventions challenge the myth that raw ability matters most by teaching the fuller formula for success: effort + strategies + help from others.

Second, any psychological intervention can be implemented poorly. The devil is in the details: An intervention to instill belonging, a growth mindset, or a sense of affirmation hinges on subtle and not-so-subtle procedural craft. Classroom activities that promote a rah-rah ethos or that express platitudes ("everyone belongs here") but don't make students feel personally valued and respected will fail. Bolstering a sense of belonging for poor-performing students requires establishing credible norms that worry about belonging are common and tend to fade with time — not rah-rah boosterism. Similarly, values affirmation exercises might backfire if they're delivered in a cursory way or seen as something that the teacher cares little about.

A third example of well-intended but unwise strategies for changing student psychology involves teacher feedback. Many teachers are tempted to overpraise students for mediocre performance, especially students who face negative stereotypes, so as to appear unbiased and boost student self-esteem (Harber, Gorman, Gengaro, & Butisingh, in press). Sometimes, teachers go out of their way to praise student ability on classroom tasks. But such overpraising risks worsening student psychology by conveying low expectations or by sending the message that ability rather than effort and strategy matter the most.

Good teachers often know the importance of belonging, growth, and positive affirmation. But they may not know the best ways to bring these about. Well-intended practices can sometimes even do more harm than good. At the same time, researchers may not always know the best way to make their interventions speak to students in a given class. And many of the interventions developed here were borne of observations of real-world success stories — educators who boosted the performance and life chances of their at-risk youth. This is why, going forward, we believe it is critical for educators and practitioners to work together to develop ways to change students' psychology in school for the better.

Conclusion

Psychological interventions complement — and do not replace — traditional educational reforms. They don't teach students academic content or skills, restructure schools, or improve teaching. A psychological intervention will never teach a student to spell or do fractions. Instead, it will allow students to seize opportunities to learn. Psychological and structural interventions when combined could go a long way toward solving the nation's educational problems.

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