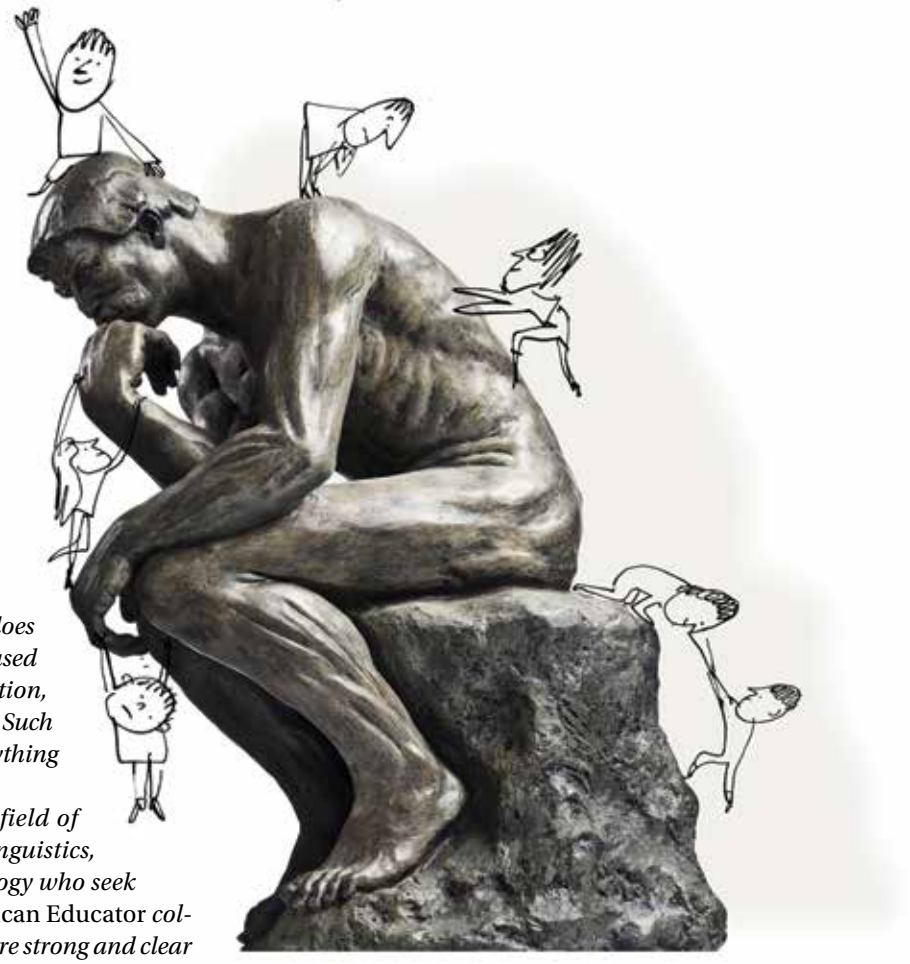
Ask the Cognitive Scientist

"Grit" Is Trendy, but Can It Be Taught?



How does the mind work—and especially how does it learn? Teachers' instructional decisions are based on a mix of theories learned in teacher education, trial and error, craft knowledge, and gut instinct. Such knowledge often serves us well, but is there anything sturdier to rely on?

Cognitive science is an interdisciplinary field of researchers from psychology, neuroscience, linguistics, philosophy, computer science, and anthropology who seek to understand the mind. In this regular American Educator *column, we consider findings from this field that are strong and clear enough to merit classroom application.*

By Daniel T. Willingham

Question: What do you think about grit? It seems to be in the news everywhere, but hasn't everyone always thought that determination and persistence were good? Is all the excitement just because it has a new name? Or has someone figured out how to teach grit?

Answer: Grit is something new. It's a character trait defined as "passion and perseverance for long-term goals."[1] Long-term goals are those that typically take years to attain. Passion in this context means what we might call an overriding concern in your life, something that gives direction and purpose to much of what you do.

Psychologists have studied related personal characteristics in the past (see the box on page 31 for details), such as self-control, for example, and conscientiousness. And now, researchers have found that the concept of grit adds something to our understanding of certain behaviors, especially those that require perseverance in the face of long-term, difficult work, like succeeding at West Point Military Academy, for instance. Whether you can teach someone to be gritty is quite another matter. It's likely you can teach parts of grit, but researchers are just beginning to explore how to do so.

Suddenly talk of grit—being passionate about long-term goals, and showing the stamina to pursue them—seems to be everywhere. In 2007, Angela Duckworth published an article, which has since been cited hundreds of times in the scientific literature, on the role grit plays in success.[2] The notion of grit (and its possible importance in education) was thrust into the public sphere a few years later in two ways: Paul Tough introduced grit to a broad audience in his 2013 book *How Children Succeed: Grit, Curiosity, and the Hidden Power of Character*, which went on to spend a year on the *New York Times* best-

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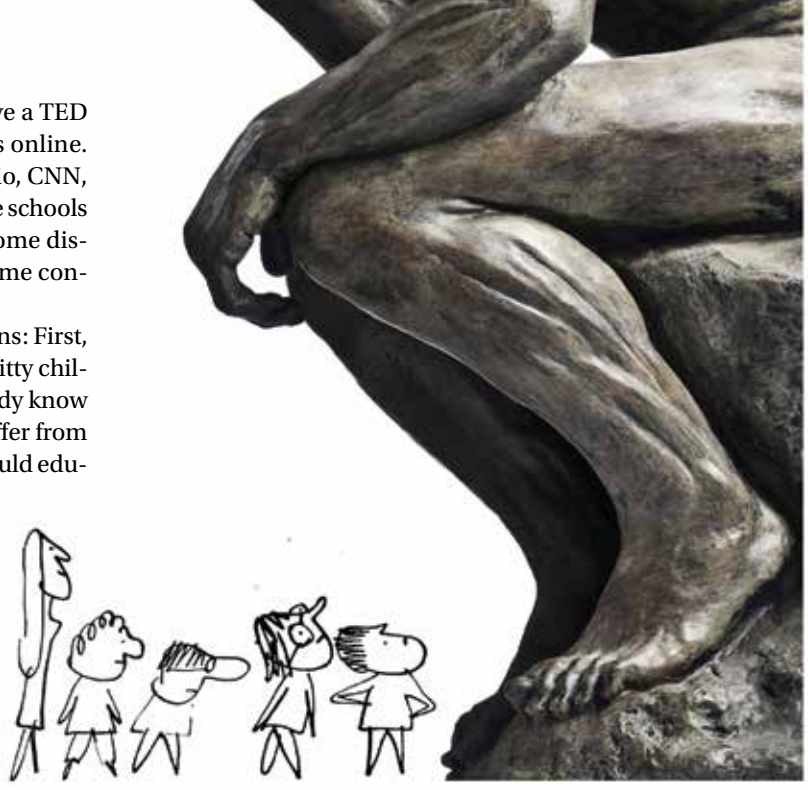
seller list.[3] And in the same year, Duckworth herself gave a TED talk, which has been viewed more than 8 million times online. Stories followed on the topic from National Public Radio, CNN, National Geographic, and many other news outlets. Some schools are seeking to teach grit, and (somewhat ominously) some districts propose to measure children's grit, with the outcome contributing to judgments of school effectiveness.[4]

This enthusiasm for grit invites the following questions: First, what is the scientific status of grit? Is it really true that gritty children do better in school? Second, didn't scientists already know that motivation matters to what gets done? Does grit differ from motivation, and if so, how? Finally, what, if anything, should educators do about grit?



Does Grit Matter?

Psychologists seek to explain how and why people do what they do. Why do some children graduate from high school, while others drop out? Why would someone spend hundreds of hours memorizing words to compete in a spelling bee? Some explanations focus on circumstances in the environment and how people react to them, and others focus on characteristics of the person that are thought to be relatively enduring.

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Grit is an example of the latter. Being gritty means being deeply committed to a long-term goal and following through on that commitment by pursuing it over the course of years. That goal might be to graduate at the top of your high school class, or to have a successful career in the military, or to be an internationally competitive gymnast.

How do we know how gritty someone is? Duckworth and her colleagues developed a paper-and-pencil measure of grit that they called the Grit Scale.[5] It comprises just eight questions, and for each, you are asked to rate whether a statement describes you. Four statements concern perseverance—for example, "I finish whatever I begin." And four concern whether your interests stay consistent over time—for example, "I often set a goal but later choose to pursue a different one" (reverse scored). The eight answers are combined into an overall grit score, but in some experiments, the two factors—perseverance and consistency of interests—are considered separately.

Remarkably, what people say about themselves in this very brief survey relates to what they do over the course of *years*. Scores on the grit scale are related to college GPA.[6] Grit predicts whether or not you'll drop out of West Point[7] and your likelihood of finishing the grueling Army Special Operations Forces selection course.[8] Grit is also associated with success at the National Spelling Bee.[9]

The common thread among these diverse tasks seems intuitive. Each requires a great deal of hard work that carries little short-term reward. Grit seems to measure one's willingness to keep going even when the task becomes arduous, and there is some experimental evidence supporting that hypothesis. For example, grit is associated with how much musicians practice[10] and how much people exercise.[11] In a more detailed follow-up study of spelling bee competitors, Duckworth and her colleagues examined what gritty competitors did that their less gritty counterparts did not do.[12] Three types of preparation for spelling bees are common: reading for pleasure, being quizzed by others, and studying alone. Researchers found that contestants liked reading for pleasure the most and studying the least, but it's studying that really contributes to spelling performance. The grittier contestants were willing to do this unpleasant work in service of their long-term goal of spelling excellence.

It's too early to be certain about how or why people stick with difficult tasks, but one suggestion is that they think about them differently than others do. In one study, researchers asked 1,364 high school seniors who planned to attend college why they wanted to do so.[13] Most of the students were from low-income homes and would be the first in their families to attend college, populations in which college attrition has typically been high. In this group, grittier students were more likely to say they wanted to attend college for reasons that transcended personal success (e.g., they wanted to make an impact on the world or help others) and were less likely to offer reasons related to self-development (e.g., they wanted to develop their interests or learn about the world). These students also said that they found schoolwork more meaningful than did less gritty students. When the researchers followed up months later, they found that the students who had offered transcendent reasons for attending

college were more likely to still be enrolled. The researchers explained that the fortitude to continue with difficult tasks can come from seeing them as contributing to a transcendent goal, something larger than oneself.

Is This Really New?

Your reaction to the previous section may well have been, "Yeah, so?" Can it really be big news to psychologists that some people, for whatever reason, are highly motivated when they take on certain tasks and will work very hard at them? Psychologists have long recognized that what people do is determined not just by their ability and their environment, but by their personality traits, their proclivity to behave in certain ways over time.[14] The contribution of personality traits to academic achievement may be as great as or greater than that of intelligence.[15]

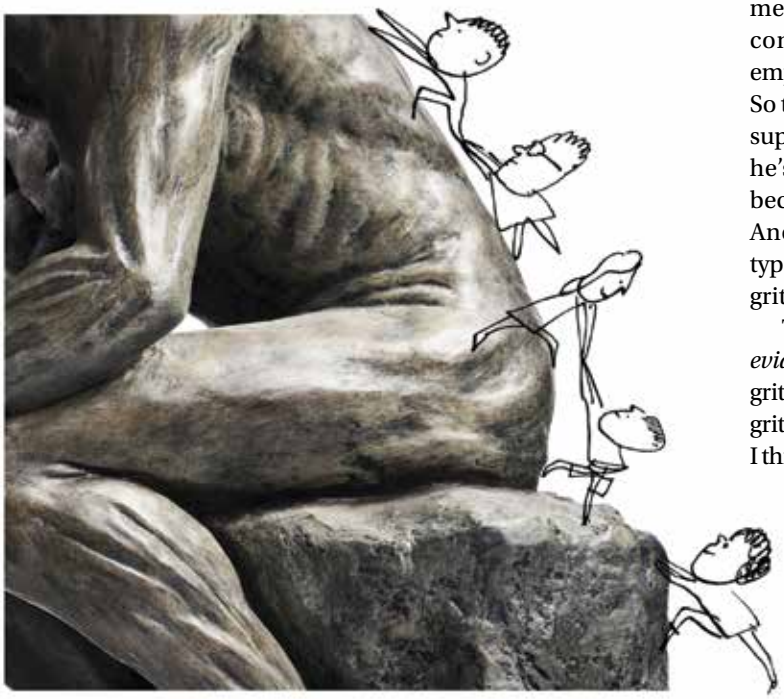
Some personal characteristics that psychologists have studied are, in fact, rather similar to grit. One is conscientiousness. The most successful theories of personality posit that it can be characterized by five dimensions: neuroticism, openness to experience, agreeableness, extraversion, and conscientiousness.[16] This last dimension bears a strong similarity to grit. Conscientious people tend to be orderly in their habits, are industrious and like to get things done, take responsibilities seriously, and are dependable.[17] Those characteristics sound kind of gritty, and indeed researchers have reported that grit highly correlates with conscientiousness.[18] So it's no surprise that the kind of life outcomes we'd expect to be associated with grit are associated with conscientiousness: things like academic and professional success, staying out of prison, staying married longer, and even living longer.[19]

Another related personality trait is self-control. That's the ability to regulate emotions, behavior, or thoughts, especially when a person inhibits an impulse to do one thing in favor of another that he or she views as more beneficial in the long run.[20] An example is the famous marshmallow test, where a child is promised two marshmallows if she can resist the temptation of eating one marshmallow for 15 minutes. The child must resist the impulse to eat the marshmallow in order to reach her long-term goal—two marshmallows.

Self-control also applies to emotion, as when a student frustrated by a difficult math problem wants to say something sarcastic to his teacher but inhibits that impulse to ask for help politely. High levels of self-control are associated with a broad array of positive life outcomes: better academic achievement, greater likelihood of showing age-appropriate behavior, better relationships with peers, and, in the teen years, lower incidences of delinquency, unwanted pregnancy, and drug and alcohol abuse.[21] Self-control is also associated with conscientiousness[22] and with grit.[23]

If we're trying to describe aspects of personality that predict school success (among other things), and conscientiousness and self-control do a pretty good job, what does grit add? Certainly, there's a distinction to be made conceptually. Conscientiousness means doing what you're supposed to do right now, and self-control means avoiding impulses to do something else. Grit emphasizes passion for one goal that you stick with for a long time. So the conscientious teen practices piano because he knows he's supposed to. The teen with good self-control practices even when he's tempted to play Xbox instead. But the gritty teen practices because he's passionate about his dream of playing in a jazz trio. Another distinction is that conscientiousness and self-control typically apply to a broad array of situations, whereas people are gritty about just one thing or, at most, a few.

Being gritty means being deeply committed to a long-term goal, and following through on that commitment by pursuing it over the course of years.



These conceptual distinctions are all very nice, but is there any *evidence* that characterizing people as gritty is useful? As I've noted, grit predicts academic success, but so does conscientiousness, and grit and conscientiousness are themselves related. So maybe when I think I'm predicting academic success with grit, all I've really done is measure something close to conscientiousness and given it a different name. It's as though you had discovered that height and weight are correlated, and then I come along and say "Hey, I've made quite a discovery. The length of a person's pants is correlated with their weight!" My measure (pants length) is closely related to yours (height) and isn't really adding anything new.

"Grit" and Other Commonly Used Terms

Psychologists commonly use several terms that are close to grit. Here's how they differ:

- **Grit**, as described in this article, refers to persistence and passion for a very long-term goal (that is, something that will take years of work).
- **Self-regulation** refers to the ability to inhibit an automatic impulse because resisting that impulse will better serve a goal that's not immediate (but will not take years to reach). That impulse may be emotional (e.g., shouting at someone in frustration) or behavioral (e.g., playing a video game instead of doing homework). Self-regulation differs from grit because it refers to conduct in the short term, and it's not necessarily motivated by a passion. A student who always does her homework is exercising self-control, but she's not necessarily showing grit because it's probably not in service of a long-term goal.
- For most researchers, **self-control** is a synonym for self-regulation.
- **Executive control** refers to a function of working memory. Working memory holds information in the short term but also manages other aspects of thought. Executive control handles this management of thought, so here "control" means command, rather than resisting temptation.
- **Executive function** most often refers to how effectively all of the pieces of working memory operate, including self-regulation, executive control, and others.

–D.T.W.

Statisticians have ways of dealing with this kind of problem. Conceptually, first you use people's height to predict their weight, and then you *add* the pants-length information to see if that makes your predictions any better than when you used height information alone. This sort of analysis has been conducted with conscientiousness and grit, and there is evidence that the latter is not simply the former with a different name.[24]

There are also instances where grit *doesn't* add much, or any, predictive value for grades over and above conscientiousness. One large study showed that grit added only a very small boost in the ability to predict standardized test scores in the United Kingdom,[25] and another smaller study examined grade point average and a few other measures of high school academic success.[26]

Given the nature of grit, it seems sensible that conscientiousness, not grit, would be decisive for grades. Many students earn high grades not because they are passionately working toward a goal, but because they do what's expected of them. Or if they are passionate and gritty, it's about just one subject. But sometimes, being the sort of person who does what's expected, putting one foot in front of the other, just won't cut it—the task requires long-term commitment. That's when it may be most useful to look at grit; grit seems to capture something important about people who can weather the trials of West Point, for example, or study years for a spelling bee.

Should We Measure Grit?

If grit predicts some aspects of life success, it seems that it would make sense to measure how gritty people are. Maybe colleges would like to admit a student who didn't score very well on typical academic ability measures but scored well on a measure of grit. Perhaps employers would like to hire gritty employees. Perhaps, but the measurement of grit is still in its infancy.[27]

The Grit Scale developed by Duckworth and her colleagues seems to have the properties that one wants: reliability, meaning that individuals' scores stay the same over time, and validity, meaning they predict the kinds of behaviors we expect (that is, people who score high do the types of things we expect gritty people to do, and people who score low do not).[28] But measurements are developed with a particular purpose in mind; it's hazardous to use them for other purposes. The Grit Scale was designed as a research instrument, not for college admissions. One obvious problem is that it would be really easy to answer the questions so as to appear gritty. A less obvious problem is reference bias: when people complete a survey evaluating themselves, they compare themselves to people they know.[29] When I am deciding whether the statement "I finish what I begin" fits me well, I'm inevitably influenced by whether I think I finish what I begin more often than people around me. That's an issue when I want to compare the absolute levels of grit of many people from many different settings.

We can avoid those problems by using a performance measure rather than a self-evaluation measure; that is, instead of asking "How gritty are you?," we have people do something, and we see whether they exhibit grit when they do it. For example, the marshmallow test mentioned earlier is a performance measure of self-control. But performance measures have their own set of problems. For example, they may be influenced by factors other than grit (e.g., I'm more likely to eat the marshmallow if I'm hungry), and they are frequently artificial, so students may behave differently, knowing they are being measured. And in the case of grit, we're interested in behavior over the course of years, so a performance measure may not be workable.

One way around these problems might be to examine a person's record of achievements for signs of grit. For example, a high school student who had committed to an activity—the school newspaper, say—for four years, and was made an editor in her final year, has shown grit.[30] That's probably as close as we are right now to a measure of grit that can be used in real-life contexts for decisions in schooling and employment. It's well to bear in mind that the wisdom or foolishness of weighing grit in these decisions is still unknown.

Another perspective is that we might want to measure grit not for evaluation but as a way of communicating to students that this characteristic matters. If the ethos of a school includes the ideal of intellectual passion, that individuals ought to find an idea or project or skill they want to pursue for years, despite difficulties or setbacks, because it fascinates them—well, isn't that grit? And if that's an intellectual ideal at the school, doesn't it make sense to check in with students periodically to see if they have found their passion? Note that this is a different role for grit. Now, grit is not a means to an end (such as academic achievement or success in the military) but an end in itself; the hope is that students will

find something they love enough to be gritty about. That changes the measurement problem; we're evaluating grit in the formative sense: "What needs to change so that your passion can be fulfilled, and how can I help?" And of course, measuring something is not enough—other aspects of the school experience ought to support the finding of a grit-worthy passion.[31]

Should We Teach Grit?

The surging visibility of grit has prompted questions from some observers.[32] A valid concern is that a focus on grit will prompt educators and policymakers to forget structural factors that impede student success—factors like poverty and underfunded schools. Is there not a danger that we might slip into a mindset where any problem the student faces is brushed off with the advice to "be gritty" about it? We must keep that danger in mind if we set out to teach grit.

But "Should we teach grit?" is actually the second question to ask. The first is "Do we know how to teach grit?," and the answer to this question is "no."

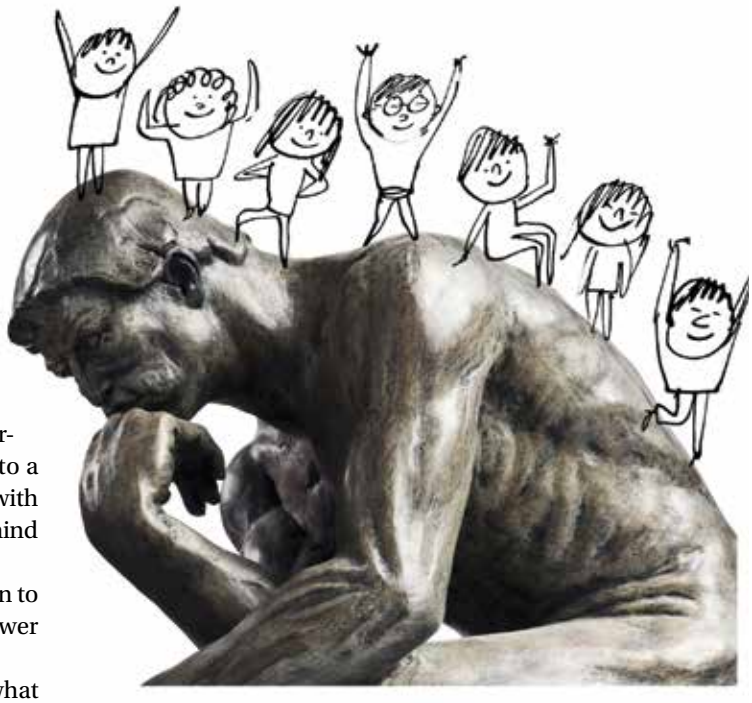
A number of people have taken educated guesses about what might make kids more gritty,[33] and the advice seems sensible: tell kids that failure is a normal part of learning, tell them that success is not a matter of inborn talent but of hard work, and teach them strategies for organizing their time and setting goals. In truth, much of the advice seems only indirectly applicable to grit, and more directly applicable to growth mindset and self-control. The teaching of each has been the subject of intense curriculum and program development work, with some successes.[34]

Grit is complicated enough that it's probably not productive to frame the question as "Can you teach grit?" If I asked you "How would you teach someone to be a good student?," you wouldn't have a simple answer. You'd say something like, "A student needs to know how to listen carefully, how to take notes, how to be a productive member of a group, how to study, how to write well, and so on." The same goes for grit. If we think about the lower-level behaviors that go into it, teaching it seems more tractable. Some parts of teaching grit might be: helping students identify what they are passionate about, encouraging them to pursue their passion, teaching them how to find resources to help them pursue their passion, teaching them to learn from failure, teaching them the importance of practice, teaching them when to persist and when to seek a different path if they encounter an obstacle, and so on.

When it comes to teaching and measuring grit, we should leave the last word to the key researcher of grit. As Duckworth said in a recent interview, "The enthusiasm is getting ahead of the science."[35]

So is grit a fad or a potentially powerful aid to teaching your students? Predictably, the truth lies somewhere in the middle. Grit is definitely real, scientifically, meaning researchers are finding it a useful construct for understanding human behavior. There's scientific heft behind the popular chatter.

But it's far from clear that it ought to have an exalted status in schools. There are many personality characteristics you probably try to cultivate in your students: conscientiousness, self-control, kindness, honesty, optimism, courage, and empathy, among others. Some are related to academic success, some contribute to good relationships with others, some contribute to a positive classroom atmosphere, and most do more than one of these.



Grit is another personality characteristic that you may want to nurture in your students. Grit is not necessary for a successful, happy life, and it's not sufficient for one either. However, understanding what grit is may serve you in helping along its nascent development when you spot grit in a student. ☐

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What Is "Grit"?

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