

Beliefs Come First: Untangling the Knot of Student Motivation

By Daniel Greene, Program Associate for the Project for Education Research That Scales (PERTS) at Stanford University

Part one

Student motivation is a big and messy topic. Imagine trying to create a causal model for why students do what they do. You will quickly end up with a complex system made up of goals, beliefs, behaviors, emotions, and the environment — all interconnected in a giant knot of feedback loops.

What strand do we pull first to untangle the knot and unlock student motivation?

Researchers and educators tend to pull on different parts of the knot depending on their background. For example, work, sports, and industrial psychologists typically focus on the performance benefits of goals. Their rationale is that the right goals orient students' efforts in productive directions (Locke & Latham, 2002). In contrast, many teachers, coaches, and trainers focus on changing behavior first, often through practice and feedback; their rationale being that it is easier to maintain confidence and set goals after mastering basic skills (Clark, Kirschner, & Sweller, 2012).

These approaches can certainly get results, but there are many ways to untangle this particular knot. When it comes to building student motivation to improve long-term success for as many people as possible, we need to find the fastest, easiest, most effective approaches, and we need them to work in the real world.

I chose to focus my career as a social psychologist primarily on students' beliefs about learning because I believe that they are a particularly high-leverage point for improving student motivation. Beliefs about learning, also frequently referred to as "learning mindsets" or "academic mindsets" (Yeager et al., 2013), are those beliefs that influence, 1) which academic *behaviors* students choose to engage in, and 2) how they *interpret* academic experiences.

Our analogy of the "knot of student motivation" shows up in InsideTrack's own visual model of what shapes student success. Their "KSABs" model (figure 1) illustrates the knowledge, skills, attitudes and beliefs necessary to navigate higher education. These elements are all interconnected, but beliefs are positioned in the center to reflect their critical role as the foundation for everything else.

Figure 1: InsideTrack's Knowledge, Skills, Attitudes and Beliefs model of the elements necessary for student success



What is it that makes beliefs about learning so powerful in influencing student motivation compared to other strands in the knot?

First, beliefs exist relatively “upstream” of other variables such as emotions, goals, and behaviors. They get set through past experience but then travel across contexts, coloring our interpretation of future experience. They determine which goals we think are valuable and achievable, and they influence our perception of experiences in ways that reinforce our beliefs (Nickerson, 1998). For this reason, beliefs can stick around once they are set — once established, they tend to influence other variables more than they are themselves influenced.

Second, beliefs have the unique property of being true or false. And the beliefs that tend to be maladaptive for academic motivation (e.g., “I can’t possibly do this,” “I don’t fit in here,” or “This is useless for me to learn”) are frequently false. As educators, correcting false beliefs is a core part of our job description. My students may have goals, behaviors, or emotions that I believe are maladaptive, like the goal of avoiding work (Dowson & McInerney, 2001). But I feel an extra obligation to correct student beliefs that are both maladaptive and *factually incorrect*. For example, the belief that “I’m not a math person” is simply wrong for almost everyone. It is founded on two false beliefs: that math ability is a fixed quantity that is bestowed at birth (Boaler, 2015; Dweck, 2006), and that learning is easy if you’re smart.

Take another look at the KSABs in figure 1. In most cases, it is both true and good for a student to believe that they belong in their academic community, that college is worthwhile, that their efforts to learn and improve will pay off, and people like them — from their background, with their particular demographic profile and personal experiences — can achieve a given goal with proper planning, support and effort.

Finally, beliefs are nicely amenable to scaled research and intervention. Beliefs about learning can often be measured in relatively straightforward self-report survey questions, which are demonstrably powerful predictors of academic success (Paunesku et al., 2015; Yeager et al., 2014). And importantly, the right experiences can shift students' beliefs in ways that are both more true and more academically positive.

Beliefs about learning are a powerful place to start in untangling the knot of student motivation. We must start by recognizing and believing that beliefs about learning:

- Are measurable
- Are changeable
- Have more or less correct answers
- Are durable
- Heavily influence other traits that impact student success

I like to think of beliefs about learning like mental contact lenses for seeing the academic environment. With the right prescription, goals come into focus, obstacles can be identified, and threatening shapes are revealed to be illusions.

In part 2 of “Beliefs Come First,” I'll provide guidance for educators serious about unlocking student motivation by influencing beliefs with examples of effective interventions and strategies to scale them affordably.



Daniel Greene

Program Associate for the Project for Education Research That Scales (PERTS) at Stanford University

Daniel Greene is a doctoral candidate at the Stanford University Graduate School of Education, and a Program Associate at the Project for Education Research that Scales, where he develops and tests social-psychological interventions that improve student motivation and learning outcomes at scale. Daniel is currently investigating how teachers and mentors can convey a growth mindset to their students.