Motivation Beyond the Lab: The Effect of Motivation Interventions in School Settings

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What is motivation and why does it matter?

Motivation is an important component of success in both the classroom and beyond. When students are motivated they learn more, persist longer, create higher quality work, earn better grades, and score higher on standardized tests.[1,2,3] But research has documented declining levels of motivation among American students as they progress through middle and high school.[4] And 69% of students who dropped out of high school reported that they weren't motivated to work hard in high school. So what exactly is motivation and how can it be enhanced or buffered in educational contexts?

In simple terms, motivation can be defined as the willingness of an individual to do something, or to behave in a specific way. Motivation can appear in many forms—from the creation of broad goals or objectives, to having a drive to accomplish an individual, specific task. Generally, motivation researchers focus on both the energization and direction of behavior. For example, teachers hope that their students are excited to engage in the learning activities (e.g., they are energized) and are focused on the learning task rather than being off task (e.g., they are directed toward a purpose). Because of this range of forms, there can be not one, definitive description or root cause of motivation. This is reflected in the multitude of theories of motivation that have emerged in psychological research.

KEY FINDINGS:

- Interventions based on theories of student motivation have generally been effective at increasing students' motivation in authentic school settings. The authors found a moderate average effect size (*d*) of 0.49 on students' motivation for the interventions included in their meta-analysis.
- The interventions not only improved student motivation but also other educational outcomes, such as grades ($d = 0.52$) and attendance ($d = 0.62$).

For decades, researchers have designed studies that help them identify the drivers of motivation and the mechanisms by which motivation affects achievement. In intervention work, researchers try to influence students' motivation in order to better understand how this human

This research summary highlights findings from the following article:
Lazowski, R. A., & Hulleman, C. S. (2015). Motivation Interventions in Education: A Meta-Analytic Review. *Review of Educational Research.*

phenomenon works. Because motivation comes from many sources, and often varies across individuals, researchers have designed dozens of different interventions to try to enhance student motivation (see Table 1 for descriptions of several motivational theories and examples of the associated interventions).

What are the benefits of a meta-analysis?

While the insights from each of these individual intervention studies is interesting on its own, often more can be learned by looking *across* studies. Rory Lazowski and Mindset Scholar Chris Hulleman recently completed an extensive meta-analysis of motivation studies that did just that. Meta-analysis is a potentially powerful analytical technique that allows researchers to learn from dozens, or even hundreds, of studies in order to gain a deeper understanding of a specific topic. By looking across multiple studies at once, researchers can create a summary of what we know, explain why results may differ between studies, and illuminate gaps in our understanding to inform future research.

Lazowski and Hulleman's review analyzed results from 66 published studies that tested different motivation interventions in authentic school environments, with over 38,000 students spanning kindergarten to college. The researchers only included experimental and quasi-experimental studies (i.e., studies with control groups that did not get the intervention) because they wanted to be confident that it was the interventions themselves that caused any observed effect on students' motivation and other outcomes—not some other aspect of the individual students or the school environment.

Results

Lazowski and Hulleman looked at the average effect of all the motivation interventions as a whole, as well as the effects of different categories of interventions grouped according to the different theory of motivation underlying them.

- Interventions based on theories of student motivation were generally effective at increasing students' motivation. The authors found a moderate average effect size (*d*) of 0.49 on students' motivation for the interventions included in their meta-analysis.
- These interventions also improved other educational outcomes, such as grades ($d = 0.52$) and course attendance ($d = 0.62$).

The main findings suggest two important things. First, motivation isn't an inherent trait of an individual but is malleable and dependent on context and framing. Second, efforts to promote greater motivation among students are an important, but by no means the only piece of the puzzle for improving student outcomes.

The authors' findings also suggest the need for more replications of motivation intervention studies to obtain better estimates of the effects of these interventions across populations and contexts.

- The researchers did not find any significant differences in intervention effects between the different types of motivational theories underlying their designs. In other words, motivational interventions that drew on expectancy-value theory weren't more effective, on average, than those that were based on incremental theories of intelligence. This could be due to the fact that there was a large range of effects within individual theory categories.
- The researchers also found no significant differences in the effect of the interventions based on the age of participants or the type of measure (i.e., self-reported motivation, measures of student behavior, or academic performance), which could be an artifact of the number of studies in each of the age and outcome buckets.
- The researchers found that the majority of studies were conducted in post-secondary settings, suggesting the need for more intervention work in K-12 settings.

What implications do these findings have for research, practice, and policy?

In summarizing the work that has been done so far, Lazowski and Hulleman's analysis reveals important limitations and next steps for the research community, such as conducting additional studies in authentic educational settings and finding ways of sharing implications of this research with practitioners and the broader public.

But most importantly, the authors' meta-analysis suggests that it is possible to improve students' subjective experiences of school and their motivation to learn. There may be certain interventions tested in these studies that could ultimately be translated into off-the-shelf programs, which could be a cost-effective way to help sustain, or even increase student motivation under some circumstances. Researchers could also prioritize work that explores how specific aspects of learning environments can promote or hinder motivation, and how this varies for different students and school contexts.

As with most interventions, broader efforts to foster motivation have the potential to be ineffective without proper implementation. It is crucial for translators of research and practitioners to work together to determine how schools and programs can be designed to promote greater motivation, especially when implemented at greater scale. Two examples of collaborative groups aimed at building these bridges in the realm of student motivation and "productive persistence" are Carnegie Foundation for the Advancement of Teaching and PERTS Lab at Stanford University. Such partnerships allow both sides to leverage their respective expertise, and ultimately, produce more motivating, rewarding experiences of school for both students *and* educators.

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TABLE 1: THEORIES OF MOTIVATION AND INTERVENTIONS IN THE META-ANALYSIS

There is no single theory of motivation. The interventions included in Lazowski and Hulleman's meta-analysis are based on a variety of different theories about what motivates students in academic contexts. The table below outlines some of the theories of motivation that informed the design of the interventions used in the studies featured in this meta-analysis.

THEORY	DESCRIPTION	INTERVENTION EXAMPLE
Achievement Emotions	Students' emotions in school are affected by their feelings of control and the extent to which they value academic achievement	Students completed an expressive writing task before a test in order to reduce anxiety RAMIREZ & BEILOCK, 2011
Attribution	Students' explanations for success or failure influence subsequent achievement behavior	First-year students watched taped statements by senior students and were shown statistics indicating that students typically struggled academically during their first year but improved afterward; students were then asked to relate these lessons to their own life and create a statement for future students WILSON & LINVILLE, 1982
Expectancy-Value	Students will be motivated to act if they see the outcome as valuable and they believe they have a reasonable chance of success	Students wrote journal entries over the course of a semester about how what they were studying in science related to their lives HULLEMAN & HARACKIEWICZ, 2009
Goal Setting	Specific, difficult task goals produce higher commitment and performance than vague goals that are easy to attain	Students were asked to identify important future goals, elaborate in detail their goals and implementation plans, and indicate how committed they were to achieve the goal(s) MORISANO, HIRSCH, PETERSON, PIHL, & SHORE, 2010
Implicit Theories of Intelligence	Students' beliefs about whether intelligence is fixed (entity mindset) or malleable (incremental, or 'growth' mindset) influence goal striving, persistence, and performance	Students received lessons about the malleability of the brain and how the brain can become stronger through effort and working through new challenges as part of a series of lessons on study skills BLACKWELL, TRZESNIEWSKI, & DWECK, 2007
Interest	Engaging and exciting students about a given topic will make them more motivated to engage in learning	Students in different classrooms were given instruction and tasks of varying level of interest to the students to test how their level of interest would affect performance on a reading comprehension test and measures of intrinsic motivation GUTHRIE, WIGFIELD, HUMENICK, PERENCEVICH, TABOADA, & BARBOSA, 2006
Need for Achievement	Students who understand the importance of high achievement and have clear strategies to reach these goals will be more motivated to learn and achieve	Students participated in 12 one-hour sessions in small groups as part of the counseling and guidance program, which introduced them to achievement thoughts and emotions, and action strategies that can be used to accomplish personal goals CUEVA, 2006

TABLE 1, CONTINUED

THEORY	DESCRIPTION	INTERVENTION EXAMPLE
Possible Selves	Students' conceptions of what they might become (both desired and feared) serve as incentives for future behavior	A nine-week after school program was designed to have students connect their current selves and involvement with school to their ideal future self OYSERMAN, BYBEE, & TERRY, 2006
Self-Affirmation	Students who worry they may confirm a negative stereotype about their group experience increased anxiety and reduced performance; affirming other personal values outside the context of the threatening environment may reduce such stereotype threat in certain circumstances	Students were presented with a list of values, instructed to choose their most important value, and write about it COHEN, GARCIA, & MASTER, 2006
Self-Confrontation	Students' perception that their behaviors and values differ from their ideas about themselves motivates change	Student teachers completed a questionnaire in which they ranked values that they felt were important to their teaching, and then observed how other teachers—labeled as either 'good' or 'mediocre'—ranked the same values GREENSTEIN, 1976
Self-Determination	Meeting individuals' three core psychological needs—for autonomy, relatedness, and competence—is essential to their motivation and well-being	Students received different styles of instruction from their teachers (priming for intrinsic vs. extrinsic goals, autonomy supportive vs. controlling) in order see how these varying instructional styles affected learning VANSTEENKISTE, SIMONS, LENS, SOENENS, & MATOS, 2005
Self-Efficacy	Students' perception that they can successfully complete the specific tasks and activities required for learning enhances their motivation to learn	Elementary school students that possessed deficits in math ability took part in self-directed math lessons. Students that were randomly assigned to create proximal subgoals were better able to achieve mastery than their peers BANDURA & SCHUNK, 1981
Social Belongingness	The degree to which students perceive they are connected to and accepted by others can affect their motivation and learning outcomes	Students were provided information suggesting that most college students experience some sense of worry or doubt about belonging on campus but that these feelings diminish over time; students then developed and video-taped a presentation for future students with their own hopeful message about belonging WALTON & COHEN, 2011
Transformative Experience	This method uses specific teaching strategies in order to reframe learning so that it appears more relevant to students' daily lives	The Teaching for Transformative Experience in Science model focuses on "reanimating" content to show its connection to the real world, along with the promotion of an "apprenticeship-like" approach to teaching and learning PUGH, 2002