New Directions in Social Psychological Interventions to Improve Academic Achievement

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Attempts to improve student achievement typically focus on changing the educational environment (e.g., better schools, better teachers) or on personal characteristics of students (e.g., intelligence, self-control). The 6 articles in this special issue showcase an additional approach, emanating from social psychology, which focuses on students' beliefs and understandings of themselves and their environments. Previous studies have shown that small interventions designed to change student beliefs (e.g., attributions, mindsets, self-stories) can result in long-term academic improvement, and the 6 articles in this special issue build on and extend the social psychological approach in significant ways, demonstrating at scales both small and large, how these beliefs come to be, how to change them, and how they actually work to create academic improvement. We discuss the both the promise and limits of this approach.

Keywords: social psychological interventions, academic achievement, attributions, construals, mindsets

There is clear room for improvement in American education. On the 2012 Program for International Student Assessment (PISA) math test, for example, American students scored significantly worse than did students in 29 other countries, including Germany, Ireland, Canada, France, Estonia, Slovenia, and Vietnam (Organisation for Economic Co-operation and Development, 2014). Within the United States, academic achievement gaps between Black and Hispanic students on the one hand, and White students on the other, stubbornly persist (Kena et al., 2015).

What can we do to improve educational outcomes? The predominant approach has been to improve education services. There have been many laudable attempts, for example, to provide enhanced access to schools (e.g., expanded preschool education, longer school days) and to improve the quality of those schools (e.g., better curricular practices, better teachers). But as every educator knows, students are not passive recipients of knowledge imparted to them. Successful learning depends not only on the quality of the services but also on what students bring to the classroom. No matter how good the school, students will not succeed if they are ill prepared, poorly behaved, or unmotivated. Consequently, other interventions have focused on student variables, such as programs designed to increase self-control and intelligence (e.g., Diamond, Barnett, Thomas, & Munro, 2007; Jaeggi, Buschkuehl, Jonides, & Perrig, 2008).

As important as both of these approaches are, an alternative developed by social psychologists has been gaining momentum.

This approach shares with student-centered interventions the idea that we need to focus on students, but it takes a more nuanced approach. Rather than considering student variables (such as self-control or intelligence) as objective qualities that can be improved, like filling up a tank with gas, social psychologists focus on students' beliefs about themselves and their social environment. The assumption is that a key determinant of people's behavior is neither the objective situation nor objective qualities of the person, but rather people's interpretation of themselves and their environment (called "construals" by social psychologists; e.g., Ross & Nisbett, 1991). This approach has roots dating back to the very beginnings of social psychology (Lewin, 1951), with branches in attribution theory (e.g., Weiner, 1986) and so-called attribution therapy (Valins & Nisbett, 1972). More recently, it has blossomed into widespread educational interventions (Dweck, 2006; Wilson, 2011; Wilson, Damiani, & Shelton, 2002; Yeager, Paunesku, Walton, & Dweck, 2013; Yeager & Walton, 2011).

Consider, hypothetically, two ninth graders who start the year in the same math class taught by a skilled teacher. Let us say that both students are equally intelligent and "gifted" in math (whatever that might mean) and further, that both students are motivated; they both very much want to do well in the class. They have, however, quite different beliefs about their abilities and whether they belong in the class. One believes that some people are math people and some are not, and she has doubts about whether she is in the former category. She also doubts whether she belongs in the class; perhaps she comes from an immigrant family and does not feel as though she has much in common with the teacher. The other student views math problems as puzzles that are fun to solve, and he feels at home and welcome in the classroom. He and the teacher share an interest in science fiction and often chat about their favorite books after class.

At the end of the school year, which student will have learned the most and achieved the better grades? In particular, which one will persevere when confronted with difficult material, instead of giving up? Clearly, the second student, because he feels that he

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belongs in the class and that math is something that can be learned with hard work and help from the teacher. Providing the first student with more services (e.g., tutoring) or targeting personal qualities (e.g., her self-control skills) might help some but will not address the underlying issue of how she interprets her own abilities and place in the classroom (her construals). The social psychological approach is uniquely designed to help in cases such as this one, by targeting students' construals. Situations and person variables matter, of course; no matter what students believe about themselves, they are unlikely to thrive in a harsh, unwelcoming environment. For most students in most environments, however, there is considerable latitude in their beliefs, and these beliefs are fertile ground for interventions.

One power of the social psychological approach lies in its ability to create self-reinforcing change. Relatively modest, small-scale interventions that target students' beliefs can trigger long-term compounding effects. For example, convincing students that their academic difficulties are not due to a lack of intelligence, but instead to adjustment difficulties that often improve over time, can lead to increased effort, which then pays off with better grades, thereby reinforcing and strengthening the change in beliefs about oneself, resulting in a virtuous cycle of academic improvement (e.g., Wilson & Linville, 1982).

The six articles in this special issue showcase this new wave of social psychological interventions. Collectively, they demonstrate how construals can form in the first place (Park et al., 2015); how construals can be changed with relatively small interventions (Cohen et al., 2015; Duckworth et al., 2015; Gehlbach et al., 2015; Lin-Siegler et al., 2015); and how social psychological interventions can be scaled up to large populations of students (Yeager et al., 2015).

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Park, Gunderson, Tsukayama, Levine, and Beilock (2015) showed how young students come to develop narratives about academic success, and the effects that those narratives have on academic performance. Drawing on Dweck's (2006) seminal work on mindsets, the researchers looked at the formation of beliefs in first and second graders about where intelligence comes from: whether it is something you are born with and cannot be changed (a "fixed" mindset), or whether it is something that can improve with practice and developing better learning strategies (a "growth" mindset). Park et al. found a very interesting pattern of relationships among teachers' instructional practices, their students' mindsets about intelligence, and student grades. The more that teachers emphasized performance outcomes (e.g., by pointing out the best students to the class), the more likely their students were to develop mindsets that intelligence is a fixed entity. And the more that students endorsed that belief, the worse they did on a standardized math exam. Curiously, the direct link between teachers' instructional practices and students' math achievement did not reach statistical significance, suggesting that more work is needed to understand the links among teacher practices, students' mindsets, and academic performance. Nonetheless, the results suggest that children's mindsets about intelligence develop at an early age and are molded, at least in part, by their teachers' instructional practices.

Lin-Siegler, Ahn, Chen, Fang, and Luna-Lucero (2015) attempted to change 9th and 10th graders' mindsets about scientific achievement in a novel way, namely, by reading stories about famous scientists' intellectual and personal struggles, to convey the idea that even people like Albert Einstein and Marie Curie had to work hard to accomplish what they did and were not just "smart people." Participants in the control condition read about the scientists' accomplishments with no mention of the effort that went into these accomplishments. As predicted, students who read about the scientists' struggles got better grades in their science classes than did students in the control condition. The effects were small—roughly .15 standard deviation overall. Given how easy the intervention was to administer, however, any gain is encouraging. And it should be noted that the effects of the intervention was especially strong among students who were achieving poor grades to begin with.

Gehlbach et al. (2015) targeted a different kind of construal, namely, students' and teachers' beliefs about how similar they are to each other. It is well known that students do better when they have a positive relationship with their teacher, but few if any studies have attempted to improve such relationships with an experimental intervention. Gehlbach et al. (2015) did so in a simple but elegant way, namely, by telling some students (randomly assigned) about things they had in common with their teachers, and telling teachers about things they had in common with about half of their students (also randomly assigned). The intervention was based on social psychological research indicating that perceived similarity to others increases liking. Interestingly, the results showed that the intervention was most successful in changing teachers' views of their students, especially of their African-American and Latino students. That is, when teachers learned about the ways they were similar to these African-American and Latino students, they felt more similar to them and felt that they had a somewhat more positive relationship with them. And there was a trend for African-American and Latino students to get better grades if their teachers had learned about ways in which they were similar to these students. Telling students about the ways in which they were similar to their teachers had no reliable effect on their grades or their perceptions of their relationships with their teachers.

These results show that teachers' construals can be as important as students' construals in creating a positive academic environment. In this regard the findings are reminiscent of the classic Rosenthal and Jacobson (1968) Pygmalion effects, in which students did better academically when their teachers expected them to do well (because they had supposedly performed well on a test of "academic blooming"). Apparently, students will also do better if their teachers discover ways in which they share their students' interests, especially if they are surprised by those similarities because their students are of a different race. A question raised by the Gehlbach et al. (2015) study is whether the intervention could be extended to all students in a classroom. In their study, the teachers learned about the ways they were similar to half of their students, and it is possible that they allocated more attention (presumably without realizing it) to those students. It would be interesting to see whether the intervention would work if teachers learned about the ways in which they were similar to all of the students in their class.

Duckworth, White, Matteucci, Schearer, and Gross (2015) targeted self-control strategies in high school and college students, namely, the ways in which students are able to avoid distracting activities when they are studying. In one sense this work is the least social psychological, in that it is concerned with a specific

personal trait (self-control) rather than students' construals of themselves or their situation. That is, the research is similar to studies that attempt to strengthen a character trait in order to help students succeed. In another sense, however, the study is very much in the spirit of the social psychological approach, because it examines students' theories about self-control, with the idea that correcting students' knowledge of which self-control strategies work the best should make them more likely to implement these strategies. These results suggest that one way to increase self-control in academic settings is to correct people's theories about the strategies that work the best (or remind them of effective strategies), rather than treating self-control as a personal trait that can be strengthened with practice.

The study by Cohen et al. (2015) extends an important discovery by this research team, namely, the power of having students complete a values affirmation exercise, in which they select a value from a list provided by the researchers (e.g., relationships with families and friends) and write about why that value is important to them. This simple writing exercise has been shown to increase the long-term academic performance of students who feel threatened in the academic domain because of negative stereotypes about their groups, such as African-American middle school students (Cohen, Garcia, Apfel, & Master, 2006; Cohen, Garcia, Purdie-Vaughns, Apfel, & Brzustoski, 2009), Latino middle school students (Sherman et al., 2013), female college students in science classes (Miyake et al., 2010), and first-generation college students (Harackiewicz et al., 2014). Values affirmation interventions are thought to work by reducing the stress that at-risk groups experience in academic domains, by reminding them of important values in other domains of their lives (e.g., their family and friends). That is, consistent with the social psychological approach, the interventions target students' construals—in this case, their perspective of how academic pursuits fit in to the broader context of their lives (Cohen & Sherman, 2014).

To some, the long-term effects of such small interventions seem magical. Can a brief writing exercise really lead to improved academic performance a year or two later? It is thus important to understand better how these interventions work, in order to demystify them and learn more about how to scale them up. Cohen et al. (2015) took an important step in that direction by showing that a values affirmation exercise, performed once in the laboratory, increased the likelihood that Latino college students would spontaneously self-affirm when they encountered new stressors.

The remarkable thing about this result is that the measure of spontaneous self-affirmation came 2 years after the laboratory session. At Time 1, Latino and White first-year college students were randomly assigned to complete a values affirmation exercise or to a control condition. Two years later, participants returned to the lab, completed a task designed to increase their level of stress about academics (listing all assignments, projects, and tests they had to complete by the end of the term), and then wrote an open-ended essay about anything that was on their minds. Coders read the essays and judged the extent to which the students spontaneously engaged in self-affirmation by, for example, writing about valued parts of their lives such as their families.

As predicted—and replicating previous studies—the Latino students who completed the values affirmation exercise at Time 1 had higher grades 2 years later. As in previous studies, White students did not benefit from the values affirmation exercise, presumably because they were not experiencing as much stress about college. (In fact, there was a disconcerting trend for White students in the values affirmation condition to do worse than White students in the control condition.) To understand why the affirmation had such long-lasting effects, the researchers showed that the Latino students who had been assigned to the values affirmation condition 2 years earlier were significantly more likely, when academically threatened 2 years later, to spontaneously write about affirming topics. And there was evidence that these spontaneous affirmations mediated the effects of the values affirmation on improved grades. Although more work is certainly needed to understand precisely how values affirmation interventions work, the Cohen et al. (2015) study sheds significant light on this question, and should reduce qualms about the "magical" nature of such findings.

The final article in this special issue, by Yeager et al. (2015), also adopted the social psychological approach of targeting students' construals, in their case, beliefs about intelligence from a fixed to a growth mindset. Unlike previous authors, however, Yeager et al. took mindset interventions to the next level by systematically testing whether they can be scaled up to high schools across the United States. (Full disclosure: One of us—Timothy D. Wilson—is an adviser to this group, but was not directly involved in the research reported by Yeager et al.) What we find especially impressive about this effort is how systematic and data driven it is. First, the researchers developed and honed an improved mindset intervention through an iterative process of testing, revision, and retesting. In the first study they reported, this revised intervention was shown to outperform the original mindset intervention on which it was based, in a sample of over 7,000 ninth graders in 69 high schools in the United States and Canada. The primary dependent variable was a behavioral measure of challenge seeking (the extent to which students challenged themselves by choosing to work on difficult math problems). Then, in a second study that looked at actual grades in cores subjects, Yeager et al. tested the effectiveness of the revised mindset intervention against a no-treatment control condition in a sample of over 3,000 ninth graders in nine schools throughout the United States. The results showed that the mindset intervention led to improved grades among those students who had been low achievers when the study began. This research team is in the process of scaling up their intervention even further in a large-scale study of 100 randomly selected public high schools in the United States.

As the articles in this special issue demonstrate, targeting students' construals about themselves, their teachers, and their educational environment, with simple, inexpensive techniques, can lead to lasting improvements in academic performance—as can targeting teachers' construals of their students. Another strength of this approach, we should mention, is that it adopts the gold standard of scientific inquiry, namely, randomized controlled trials, whereby some students or teachers are randomly assigned to receive the intervention and others are randomly assigned to control conditions that do not. The advantage of this approach has been widely discussed elsewhere (e.g., Cook, 2003; Wilson, 2011; Wilson & Juarez, 2015). A potential disadvantage of this approach is worth noting, however, namely, that it typically means that researchers start small, testing their intervention in a single setting with relatively small samples, as opposed to implementing an intervention in an

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entire school district or city or state. Even if the intervention is found to work in the specific setting in which it is tested, researchers cannot be certain that it will be equally effective when scaled up and applied in other settings that may differ significantly from the first one. There are good reasons to start small, such as making sure that an intervention actually works (and does no harm) before implementing it widely (Wilson, 2011).

Nonetheless, questions about the generalizability of an intervention are real, and that is why attempts to scale them up, as by Yeager et al. (2015), are so exciting. This work represents a new generation of research that will allow researchers to address a wide range of more granular questions. That is, because of the increased power and broader scale of these investigations, researchers can test the extent to which the interventions are moderated by such important variables as student motivation, teacher attitudes and practices, school climate, and so on. Such work will help researchers better understand the psychological mechanisms underlying the effects and help policymakers target their interventions more precisely. Future efforts should also track how the effects of interventions persist and change over time. As noted earlier, several researchers have hypothesized that small, initial interventions can trigger a pattern of self-reinforcing change that builds over time, but direct evidence for this iterative process is sparse. Now that research into the social psychological approach is maturing, these steps into the messiness of the real world, where people are part of richer networks than we have been able to capture, with histories and trajectories that we have not yet fully taken into account, and who often get multiple mixed messages about their selves and their abilities, are the vital next step for advancing the field.

In closing, the social psychological approach is not a panacea that will solve all problems with American education. The magnitude of academic gains that result from these interventions is sometimes modest, and certainly do not, by themselves, close the achievement gap. Nor will they singlehandedly vault the United States to the top of the PISA rankings. Furthermore, if the environment is not set up to allow changes in construal to take hold and prosper, then their impact will be limited. It does not help children to believe that they can intellectually grow if there is no route for them to get there (Cohen et al., 2009). We need to continue to find ways to improve instructional practices and attract and train excellent teachers and expand educational opportunities for all students. But the academic gains resulting from the social psychological approach are real, particularly among students who are currently underachieving, and as we learn more about how students understand the world and how those construals shape their educational experience, we expect that the power of the approach will only grow.

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