CHAPTER 35

Turning Point
Targeted, Tailored, and Timely Psychological Intervention

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In important domains, people create and maintain social systems designed to promote the outcomes they want. Among many of the obvious examples are governments, workplaces, hospitals, and schools. In the last century, Kurt Lewin (1936) pioneered the approach of applying science to social systems. He was convinced that the new discipline of social psychology was the best way to ensure the production of desired social outcomes across a host of human endeavors.

Lewin's conviction was not misplaced. The subsequent decades have provided ample and rigorous evidence that psychologically informed interventions can improve important social outcomes (for reviews, see Cohen & Sherman, 2014; Ross & Gilovich, 2015; Walton, 2014; Wilson, 2011; Yeager & Walton, 2011). In spite of the many seemingly insurmountable obstacles to increasing voter turnout, reducing teenage risky behavior, or closing academic achievement gaps based on race and social class, research shows that it is possible to improve the status quo by changing one key element in a complex system. If, on the night before an election, people are encouraged to label themselves as voters rather than as people who engage in voting, they are more likely to vote (Bryan, Walton, Rogers, & Dweck, 2011). Having the concept of personality presented as something fluid and changeable rather than written in stone led teenagers to be kinder to their peers, earn better grades, and experience less depression (see Yeager, Lee, & Jamieson, 2016). Having a small group of well-connected teenage students generate and then cultivate prosocial norms led to a 30% reduction in disciplinary incidents throughout their school (Paluck, Shepherd, & Aronow, 2016). In a final example, for African American college students, their college grades over four years, participation in extramural activities both before and after graduation, and later career satisfaction increased if as freshmen they had been provided with evidence that difficulty in the transition to college is normal and short-lived (Brady, Walton, Jarvis, & Cohen, 2016; Walton & Cohen, 2007, 2011).

These examples do not speak to the effectiveness of any particular intervention. Rather, they show the power of motivational processes, whether activated intentionally or by chance. The elements of an effective intervention can be characterized as what Jung (1952) termed *synchronicity*. It is a "meaningful coincidence" of two or more

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apparently unconnected events that alters a process in an important way. Many of us have had the experience of having a bit of advice or encouragement produce positive change in us. Advice or encouragement that we had heard before and that once had no impact, now, because of our readiness, energizes us and moves us to take actions that we had formerly rejected. Interventions aimed to improve motivation work in the same way. They occur at a moment when motivational processes are open, susceptible, and influential. It is not merely the occurrence of an intervention that matters but whether it occurs at the right time, at right place, and for the right person. The confluence of message, moment, and person creates a turning point.

We define *intervention* as any purposeful attempt at change. This chapter classes "psychological intervention" among a large set of motivational or influence practices. These include advertisements, marketing, political campaigns, social programs, incentives, praise, and feedback. The chapter thus offers a broad conceptualization of interventions, with a focus on social-psychological interventions. From this perspective, intervention is not merely an exercise in applying knowledge. It is a scientific endeavor. At the heart of this endeavor are two questions. The first, the focus of social psychology, is how to produce a change in the status quo. Social-psychological research shows that people are capable of much more, both good and ill, than our cultural programming would lead many of us to think. Classic studies show that, under certain conditions, ordinary people can be led to kill innocents (Milgram, 1963) or to go to heroic lengths to help (Latane & Darley, 1969). They can sink to the low expectations that others hold for their intelligence and social poise, or they may rise to their high expectations (Rosenthal & Jacobson, 2003; Snyder, Tanke, & Berscheid, 1977). In this respect, social psychology is a science not of human nature but of human potential.

The second question, a new theoretical frontier, is how change is transmitted through time. Although marked change can occur, we do not fully understand when, how, or why it persists. What determines which changes in the status quo are preserved and which decay? In geology, processes such as erosion, deposition, and sedimentation lead to the emergence of complex forms over time. Likewise, the interaction and accumulation of social-psychological processes over time can lead to the emergence of vast inequalities in psychological and material outcomes.

Above all else, our perspective requires going beyond a focus on the behavior one wants to change, the foreground. Rather, it demands a focus on the existing system of forces in the status quo, the background. Though this background regularly operates in plain sight, it often goes unnoticed and may even be invisible. It is where the behavior of interest and our attempts to change it take place. It must inform the timing and placement of any intervention.

OVERVIEW

Our model of intervention is represented in a single formula:

$$B = f(M,C) \times T$$

Behavior (*B*) is a function of a motivational mechanism (*M*) unfolding in a specific context (*C*) through time (*T*). The first two elements in the equation come from Pawson and Tilley's (1997) insightful model of social change. In general, motivational mechanisms produce a psychological state, often in the form of a motive. Psychological states, like all human experience, are situated in a context and take behavioral form within the constraints of that context. A motive such as self-interest can give rise to different behaviors in different contexts. In a context of abundant and equal opportunity, self-interest would permit and encourage behaviors geared to long-term goals and cooperative enterprises. But in a context where opportunity is highly restricted, self-interest would instead encourage behaviors focused on short-term gains and zero-sum strategies. Time, which captures the changing nature of a given context, creates the possibility for a motive and its behavioral manifestations to alter the context, which in turn alters the person, with the cycle potentially repeating. Such feedback loops permit

the impact of any intervention to be spread through time rather than limited to the moment of its introduction.

An intervention's success depends on three factors (see Pawson & Tilley, 1997). First, does it activate the targeted motivational mechanism? Second, is the context structured in a way that permits the activated mechanism to express itself in the desired behavior? Third, if the mechanism is activated and allowed to express itself, will its effect be sustained over time? Whether the benefits of an intervention last depends on whether the context contains structures that reinforce the outputs of the motivational mechanism.

MOTIVATIONAL PROCESSES TRANSFORMING AND TRANSMITTING SOCIAL INFLUENCES THROUGH TIME

The impact of physical mechanisms, at least at the macro level, is fairly direct. It is largely a function of the kinetic and potential energy of one object acting on another. The process is linear and sequential, as when one domino knocks down the next until there are no more dominos standing.

Unlike the more basic laws of physics, psychological processes can act through more dynamic and fluid means. A small influence from the past can come to dominate thought and action in the present. Having homeowners agree to engage in a small act of prosocial behavior, placing a small "Drive Carefully" sign in a window in their home, increased the likelihood that they would agree 2 weeks later to place a large and unsightly sign of the same theme in their front yard (Freedman & Fraser, 1966). Simply asking people about their intentions to buy a new car increased the percentage of those who actually bought a car in the subsequent year (Morwitz, Johnson, & Schmittlein, 1993). People's initial behavior, however fleeting or seemingly trivial, comes to be seen as an indication or telling attribute of their identity, of who they are. The experience then takes on psychological momentum independent of the incident that gave rise to it. A psychological process, in this case the attributional process, transforms a seemingly inconsequential event into an influence that endures.

Because of the dynamic nature of psychological processes, not only can past events influence future thought and action, but present events can alter the influence of past ones. When people write down their deepest thoughts and feelings about a past traumatic experience, they are better able to break free of its influence on them in the present. Having placed it in a meaningful narrative, they experience fewer intrusive thoughts, freeing up working memory and improving health and well-being (Klein & Boales, 2001; Pennebaker & Chung, 2011). Likewise, privately thinking about one's happiest moments, such as a delightful vacation with loved ones, mentally reliving them, pulls their influence into the present, increasing positive emotions for up to a month (Lyubomirsky, Sousa, & Dickerhoof, 2006). Motivational mechanisms can turn even experiences from long ago into powerful causal forces in the present moment.

Insofar as psychological processes stitch past to present, how long a situation lasts may [stet] be far from clear. A basic tenet in social psychology is the power of the situation, much of which emerges from how people perceive it (Ross & Nisbett, 2011). When a Prisoner's Dilemma game, for instance, was presented as the "Community Game" rather than the "Wall Street Game," more than twice the number of players chose to cooperate rather than pursue their self-interest at the expense of their partner (Liberman, Samuels, & Ross, 2004).

Because the power of a situation lies in large part in how it is perceived, if a situation persists in a person's mind, the situation can also be said to persist. That is, a single experience may last minutes, days, years, or a lifetime. One line of studies showed that a single experience of stereotype threat, where women took a math test that they believed would cast their gender group in a negative light, had effects that persisted a week later. Such women performed worse on a subsequent math test and expressed less confidence in their math ability compared to peers in a control group (Manke, 2016). Similarly, college women's likelihood of majoring in a math-intensive discipline, economics, was highly dependent on their grade in the introductory course (Goldin, 2015). Only women who earned an A went onto major

in economics at the same rate as men, who, by contrast, majored in economics virtually without regard to their grade in this gateway course. It was as though, for women, only outstanding performance could refute the stereotype that they did not belong. More generally, the effect of positive or negative feedback on people's view of their competence can survive even after its validity has been discredited (Lepper, Ross, & Lau, 1986; Ross, Lepper, & Hubbard, 1976). Although an objective situation may end, as a subjective experience it may be relived repeatedly. Moreover, the objective consequences that follow from a situation and how it is perceived can persist even when the subjective experience fades. The doors of opportunity opened and closed by a student's choice of major is just such a consequence. So is being placed into a remedial track that constrains educational opportunities for years to come (Cohen, Garcia, Purdie-Vaughns, Apfel, & Brzustoski, 2009). How long an event or situation *lasts* is less obvious than it seems.

MOTIVATIONAL PROCESSES IN CONTEXT

People exist in a web of psychological and environmental forces that envelop them in a given moment, what Lewin (1939) called the "life space." There, psychological processes and the proximal environment give rise to behavior. The environment, or context, affects psychological functioning in at least two ways. First, it determines whether a psychological process is activated or not. Second, the context provides constraints and resources that channel the behavioral expression of a process both in the short and long term.

For example, the demands of an environment might activate the self-affirmation process (Steele, 1988; see also Cohen & Sherman, 2014). A workplace, classroom, or hospital, for instance, can prove stressful and psychologically threatening. These contexts activate a self-affirmation process in which people try to reaffirm the perceived integrity of the self in a difficult circumstance. Because of this motivational process, even seemingly minor insults or ambiguous feedback can trigger strong reactions. People often engage in denial and defensiveness that can prove counterproductive. For example, when people are presented with information that their behavior puts them at risk for a serious medical condition, they tend to respond defensively. They challenge the validity of the information and even forego opportunities for medical screening (see Cohen & Sherman, 2014, for a review). However, if the same environment provides them with seemingly minor self-affirming experiences, people can better rise above a threatening event, their default defensive responses curbed. When patients are provided with the opportunity to affirm the self through the chance to write about values they cherish, they are more open to threatening health information, more empowered in their interactions with their health care provider, more likely to agree to medical screening, and more likely to take positive behavioral steps in the treatment of their condition (see Cohen & Sherman, 2014, for a review). It is not the act of reflecting on a personal value that is powerful, but the process it triggers (Brady, Reeves, et al., 2016). The act gains causal force from the self-affirmation process it sets in motion.

The context also provides psychological states with constraints and resources that channel their behavioral expression. An institutional goal such as encouraging employees to save for their retirement produces a psychological energy, a motive. People come to think that they must at least consider this as important, and, at the very least, weigh the pros and cons of the options available for reaching the goal. While the environment often presents a fairly fixed array of channels to reach the goal, some channels are easier to access than others. The concept of "nudges," in which access to a contextual channel is facilitated and the link between a motive and a particular course of action strengthened, has proved one of social psychology's most influential exports to the social policy domain (Thaler & Sunstein, 2009). For example, employees are much more likely to sign up for a retirement savings account if they are automatically enrolled and can "opt out" than if initially given the opportunity to opt in to the same account. In another study, when parents of poor children received timely texts on their mobile phones reminding them of concrete ways that they could practice literacy skills with their children, the children earned higher year-end performance on a

literary exam (Loeb & York, 2016). Context shapes whether and how people act on their motives.

Another way that such nudges, also referred to as *channel factors* (Lewin, 1939; Ross & Nisbett, 2011), can strengthen the link between a motive and action is by explicitly or implicitly normalizing an action. For example, they may imply that enrollment in a retirement account, or practicing literacy skills with one's child, is a common practice and thus lead people to do what they perceive to be normal and expected in their society (Davidai, Gilovich, & Ross, 2012). Such nudges, however, depend on the existence of a motive. Absent a motive, there is nothing to be channeled. For instance, among poor adults filing their federal income tax return, having some of their tax refund defaulted into a savings bond had no impact on savings behavior (Bronchetti, Dee, Huffman, & Magenheim, 2011). The motivation to save for the long term was trumped, it seems, by more pressing short-term motives that could be met by the immediate use of the refund. Motives interacting with context create behavior.

Because of the psychological forces in the life space, there is a fundamental fact about the social context that is hard to appreciate. What appears to be the same situation can in fact be very different for different actors, or for the same actor at different times (Asch, 1952). The psychological experience, the meaning or construal of an environment, can be qualitatively different. Two children presented with an apparently identical academic challenge, insoluble anagrams, may see it differently. For the child who believes that intelligence is fixed, the experience is more likely to be seen as evidence of low ability and thus lead to disengagement (Dweck, 1986). For a child who believes that intelligence is expandable, the experience is more likely to be seen as an opportunity to learn and lead to continued engagement. Differences in persistence largely reflect differences not in the children's willpower or character but in the nature of the situation as each perceives it. A visual analogy of this notion is provided by Gestalt bistable figures. Although the visual information provided is the same for everyone, the figures that people perceive may differ. In Figure 35.1, whether the middle character appears

FIGURE 35.1. A Gestalt visual shift. The character in the middle appears to be a B or a 13 as a function of the salient context.

to be a B or a 13 depends on whether people perceive the visual information in the context of a line of letters or numbers.

The foregoing analysis implies that the effect of any action, including an intervention, depends on the context or life space into which it is introduced. The influence of context is easy to see with interventions that use material rewards or consequences. Although money has no intrinsic causal power, its effectiveness derives from how it interacts with the context. Most obviously, the money must be seen as legitimate and valuable to have purchasing power. More subtly, cash gifts or transfers to the poor in the developing world have proved an effective and efficient intervention, but only under certain contextual conditions. Money permits people to purchase what is available and what they want. People's wants issue out of psychological factors such as goals, desires, and beliefs. What is available to purchase issues out of environmental factors such as what the marketplace offers.

The conditional impact of cash gifts is seen in randomized experiments in developing countries such as Liberia and Uganda. In one study, when cash was given alone, its positive effects decayed after a year. When delivered after therapy that provided instruction in self-regulation skills, longer-term reductions

in crime and violence were achieved (Blatt-man, Jamison, & Sheridan, 2015). The ben-efits of the cash gifts arose from the fact that crime in Liberia is driven by young men with few economic opportunities. The recipients now had the psychological tools, such as self-control and a positive sense of self, to maintain longer-term positive changes, such as refraining from selling drugs and engag-ing in theft. Such cash transfers also permit recipients to increase their economic oppor-tunity through the paths available in the environment, for instance, by enrolling in vocational training (Blattman & Niehaus, 2014). In contexts where people do not want or do not have access to vocational opportu-nities or ways to improve their self-control, cash transfers may prove not ineffective but counterproductive. To paraphrase Pawson and Tilley (1997), the contextual shaping of a mechanism turns its causal potential into a causal outcome.

Although the visible context can shape psychological forces, the life space also con-tains subtle and even invisible elements that can act as a powerful constraint on motiva-tional processes. Psychological states, unlike everyday physical objects, are not directly observable. In a physical context, it is easy to see how subtle factors, such as moisture, could interfere with the firing of an explo-sive mechanism in a rocket. But in a social-psychological context, it can be hard for even a motivated teacher to detect that a stu-dent's mistrust is interfering with the "fir-ing" of a motivational mechanism. A teacher may provide feedback on an essay, with the expectation that it will lead a student to improve it. The teacher may not realize that such feedback may be viewed with suspicion by the student, in a context of negative ste-reotypes, and thus fail to activate the moti-vation to act upon it (Cohen et al., 2009; Yeager et al., 2014). Because of the subtlety of psychological elements in a context, pre-dicting the effects of psychological interven-tions can be much harder than for interven-tions where the key contextual conditions are easily observable. For instance, when jurors deliberate during a legal case, they may appear to be simply discussing the facts of the case as they were presented to them. In reality, however, unseen forces exert a subtle yet powerful influence. Social norms and

pressures tend to lead the members of the jury to more extreme punitive damages than any single member would have endorsed independently (Sunstein, 2002). Many of the most influential forces in the social context are not directly observable.

MOTIVATIONAL MECHANISMS INTERACT WITH THE CONTEXT OVER TIME

How and when does a social experience such as an intervention have effects that persist? What makes experiences "stick" is a topic that has received scholarly attention (see Heath & Heath, 2008). The question dove-tails with both developmental psychology's concern with formative experiences (Worth-man, Plotsky, Schechter, & Cummings, 2010) and social psychology's concern with the formation of enduring psychological structures such as attitudes and identity (Aronson, 1968; Steele, 1988). As Lewin (1936) pointed out, situations by definition have a temporal dimension. But when does a situation begin and end? The comments parents make about their teenage daugh-ters' weight can haunt them into adulthood, increasing their dissatisfaction with their bodies many years later (Wansink, Latimer, & Pope, 2016). A single experience of sex-ual harassment might affect expectations of workplace treatment for an entire career. In short, a situation can be understood at any number of time scales. Contemporary experimental research on motivation uses a time scale of about a half-hour, the time typically required to conduct a laboratory study. Much has been learned using this approach. But the full impact of a process is evident only over a long period of time. An event can have an influence that persists and even grows due to the concatenation of consequences that follows. The line that marks when a situation begins and when it ends depends on the temporal scale of one's analysis.

Widening the temporal lens provides a fuller understanding of psychological pro-cesses. The effect of a social interaction between a mentor and a student could be productively examined during the time it takes the utterance of a mentor to be encoded and processed in the student's

brain, a matter of microseconds. One could stretch the period of examination to the time it takes for the mentor's utterances to evoke a behavioral response from the student, say a minute or two. One could also examine the interaction for days, observing how multiple interactions, by building a sense of trust, affect the student's ability and willingness to learn. Over years, one could observe how the social interaction, initially focused on building the student's skills, develops into a relationship that takes on a broader range of aims. At such longer time scales, certain moments or events, such as the offer of wisdom or an act of encouragement, may be recalled by the student again and again, fortifying motivation in times of difficulty for years to come. For instance, at-risk students who had engaged in a self-affirming writing activity in the early stages of college—identifying and reflecting on their most important personal values—did not just go on to earn higher grades. When prompted to think about stressors in school 2 years later, they were more likely to spontaneously call to mind self-affirming thoughts like the ones they had written at the start of their college career (Brady, Reeves, et al., 2016). At a long time scale, events that seem to have ended may live on in subjective experience.

How a long-range temporal horizon enriches the understanding of a process can be seen in a number of other studies. The young women who entered Bennington College in the 1930s on the whole were from prosperous and politically conservative families (Alwin, Cohen, & Newcomb, 1991). They may have entered Bennington because of any number of deliberate and random factors. But once there, they began a process of transformation, the effects of which were not limited to college but, for many, lasted for the rest of their lives. Most of the students shifted sharply to the left in their political views during their 4 years of being immersed in the liberal college milieu. After graduating, many of these students chose to live in environments that reinforced their political views, befriending and marrying similarly liberal people. Five decades later, the former Bennington students were more likely than women with similar backgrounds to favor Mondale over the conservative candidate in the 1984 U.S. presidential election.

In another study, disadvantaged children randomly assigned to participate in the Perry Preschool enrichment programs were more likely to earn higher scores on cognitive tests. Although these cognitive gains tended to fade over time, these children were more likely than their peers in the control condition to graduate from high school 15 years later (see Heckman, Moon, Pinto, Savelyev, & Yavitz, 2009, 2010). Decades later, they had higher earnings and less severe criminal records. Early enrichment seems to have these far-flung consequences when it improves children's relationship to the social environment (Woodhead, 1988). The children tend to project a more positive image to their teachers. They are less likely to be shunted into special education classes and labeled as deficient at a crucial time, when their identities in the academic system are being defined both by themselves and others. Not only does a wide temporal lens advance an understanding of the process of change, but so does a wide spatial lens. Further data suggest that the mothers of the children who take part in such early enrichment programs also benefit. For instance, they were more likely to be employed when their children were teenagers and more likely to attain education beyond high school (Ramey et al., 2000; see also U.S. Government, 2014).

One can widen the temporal and spatial lens still further. For example, the expansion of educational opportunity to minority students due to the *Brown v. Board of Education* Supreme Court decision benefited the academic outcomes not only of their children but their children's children (Johnson, 2012). An assessment of an outcome at a given time provides only a snapshot of an ongoing process.

Even brief experiences can have effects that ripple through both space and time. An experiment with seventh graders revealed that a values affirmation activity, which guided students to write about important personal values such as relationships and creativity, improved the grades of minority students, the group under the threat of negative stereotypes in school (Cohen, Garcia, Apfel, & Master, 2006). But, in addition, the intervention benefited the classroom as a whole (Powers et al., 2016). Adopting a wide spatial lens revealed that classrooms

that, by chance, contained a larger number of minority students who had completed the affirmation writing exercise were higher performing. Regardless of whether they themselves received the intervention, the students in these classrooms earned higher grades. The improvement in performance for the affirmed minority students seems to have triggered a feedback loop, leading to higher achievement norms for the classroom as a whole. Adopting a wide temporal lens on the same study revealed that minority students who had been affirmed as seventh graders were more likely than their nonaffirmed peers to enroll in college years later (Goyer, Garcia, et al., 2016). Success at one transition promotes success at later transitions through a concatenation of consequences (Elder, 1998). The success need not be great. Simply avoiding the remedial track in middle school was a key step on the path to college (Goyer, Garcia, et al., 2016). As Lewin (1947) asserted, many processes are not simply linear with a discrete beginning and end. Rather, they are circular, repeating again and again, with new consequences accumulating with each cycle.

In our model of how outcomes are generated and propagated through time, the "twin engines" of the psychological system and the social system interacting with one another drive the process (Figure 35.2). Our model draws on Lewin's (1939) field theory (see Cohen & Sherman, 2014). People are enveloped by many contexts making up the social system. These include institutional, cultural, and historical contexts (Bronfenbrenner, 1977). The psychological and social systems each include powerful processes that can transform small inputs into large outputs. It is the constant interaction of these systems that creates and maintains outcomes through time.

Our model suggests that what it means to scale up an intervention needs to be expanded. It has both a *temporal* and a spatial dimension. Effects should be assessed over an appropriately wide breadth of both time and space. This expanded view requires resources, commitment, and patience to assess the effects of an intervention through time. The goal is to come "to explanatory grips with interactions involving time" (Cronbach, 1975, p. 123): to map
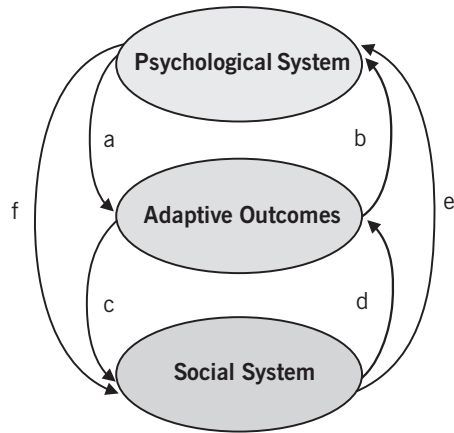

FIGURE 35.2. A field theoretic view of the status quo. Outputs of one system feed back as inputs into the other, producing continuity through time. Adapted from Cohen and Sherman's (2014) cycle of adaptive potential. Examples of paths include Path a: self-affirmed, student performs better; Path b: performing better, student feels more self-affirmed; Path c: because student performs better, teachers and peers treat student differently; Path d: different treatment from teachers and peers elicits higher performance from student; Path e: teachers and peers affirm the student (e.g., through positive feedback, social approval); Path f: the psychology of the student alters the social system through variables other than adaptive outcomes (e.g., by affecting student's mood, speech, nonverbal behavior). From Cohen and Sherman (2014, p. 341). Copyright © 2014 Annual Reviews. Adapted with permission.

the processes that turn early differences in experience and temperament into large differences in life trajectory (Caspi, Elder, & Bem, 1987; Mischel, 2014; Moffitt et al., 2011; Worthman et al., 2010).

Beyond its potential to enrich theory, such a wide-angle lens in the study of motivational processes serves two practical goals. First, it provides a unique vantage point from which to view the connections within systems that produce stable outcomes across time and space. These outcomes can take the form of persistent and wide-ranging inequalities. Second, a wide-angle lens deepens an understanding of how complex systems unfold over time, and through this, permits one to gain a better sense of whether and when to

intervene. This is important because there are times and places that can negate the effects of an intervention, as well as times and places that maximize its impact. When aligned to such leverage points, an intervention can have large and long-lasting effects that seem disproportionate to its size or duration.

Our model departs from a common view that ascribes long-term impacts of an intervention or experience primarily to the assets it generates in the person. This view can tempt consumers of research, particularly policymakers and practitioners, to believe that the causal force behind any long-term effects of an intervention must rest in some internal asset it created, such as cognitive aptitude, self-control, or grit. However, there is no necessary reason to think that causality is driven by a force solely within an actor or within an intervention's content. Causal force emerges from the dance between person and context. A situation presents itself; the person reacts; the situation reacts back; and the cycle repeats (Cohen & Sherman, 2014).

The literature on self-control yields a result that, while paradoxical in relation to this asset view, resonates with ours. Although adult outcomes such as higher socioeconomic status and fewer criminal convictions are predicted by childhood measures of self-control (Moffitt et al., 2011), outcomes on these measures have been found to be malleable rather than fixed. Situational interventions, such as having children take on the role of a favorite superhero, like Superman, can dramatically increase self-control and persistence (Karniol et al., 2011; White & Carlson, 2016; White et al., in press). Moreover, if self-control is acting as a singular causal factor, it should prove highly correlated with itself through time. It appears not to be. Only a modest correlation exists between self-control when measured at age 10 and self-control when measured at age 26 (Moffitt et al., 2011), even though self-control at age 10 correlates at a similar magnitude with larger and more distal criminal outcomes at age 32 (A. Caspi, personal communication, May 18, 2016).

Is it possible for a trait that is both malleable and only modestly stable over time to be the singular cause of an enduring life trajectory? It is unlikely. Causal force issues out of the interactions between the person and the context through time. A brief instance of low self-control, such as an impulsive decision, can be harmless or it can ensnare people in a negative life trajectory, depending on the context in which it occurs (Caspi et al., 1987). A wealthy couple that has an unplanned baby often has sufficient bandwidth and resources to provide for the child, and in many cases can continue on the life trajectory theyhad been pursuing (see Mullainathan & Shafir, 2013). By contrast, a low-income female adolescent, without such supports, who makes the same impulsive decision will face a constriction of career opportunities (Moffitt et al., 2011), which in turn will tend to reduce the opportunities available to her child as well.

The role of context in modifying the long-range impact of childhood experiences, including interventions, has long been acknowledged in "transactional" models of social development. Among the most compelling articulations comes from Woodhead (1988). Though he is writing about the effects and effectiveness of preschool enrichment programs, his words apply just as aptly to any social intervention.

> The process of long-term effectiveness does not appear to be like a marathon 15-year test of the stamina of a single runner. Rather, it resembles a relay race, in which the burst of superior performance in the first runner (such as cognitive abilities and social adjustment) soon fades but not before the baton has been passed to later runners on the team (such as parent and teacher expectations, avoidance of referral to special classes, and so on), each of which transmits and even increases that initial superiority. (p. 448)

SOCIAL-PSYCHOLOGICAL INTERVENTIONS: THE PRINCIPLE OF TRIGGER AND CHANNEL

Any timely act, in the right time and place, can create a turning point. In our model, an intervention does not have to be a dedicated program, set of activities, or curriculum. It can be any purposeful attempt to change people. It can range from the everyday mini-interventions we all practice, such as offering

advice or feedback, to the large-scale efforts involving many people and resources undertaken by schools, workplaces, and states. Most interventions, regardless of their form, introduce at least one novel element. The new element introduced by social-psychological interventions, if effective, energizes people by triggering a motivational process. The energy is then channeled by the context into new behaviors.

It is because of the intervention's meaning that its initial spark occurs. Like most human behaviors, interventions are symbolic acts. Regardless of their size or duration, their impact depends on the meaning they have. The consequences flowing from a behavior, such as the blink of an eyelid, depend on what it is taken to mean. Is that blink seen as a nervous twitch or a conspiratorial wink (Geertz, 1973; Ryle, 1971/2009)? If the first, it may cause avoidance. If the second, it may kindle a relationship that lasts a lifetime. The same is true of interventions. Their consequences flow from their meaning. For example, the impact of a teacher's constructive criticism depends on how students interpret it. Compliance is more likely if students see the criticism as motivated by the teacher's belief in their ability to reach a higher standard rather than by bias against them (Cohen, Steele, & Ross, 1999; Yeager et al., 2014). Social-psychological interventions often begin by successfully transmitting a meaning. This new meaning, or lens for viewing experiences, is often more important for bringing about change than the intervention's size or duration. Even small acts, when processed by the psychological system, can take on powerful meanings that in turn prompt large change. For example, ethnic-minority teenagers were highly influenced by a one-sentence note from their teacher asserting his belief in their potential to reach a higher standard. Because of it, they not only complied more with their teacher's feedback but also received fewer disciplinary citations in school (Yeager et al., 2014; Yeager, Purdie-Vaughns, Yang, & Cohen, in press).

To return to the notion of synchronicity, it is the confluence of a meaning with an appropriate person, time, and place that is critical: The right message "falls" into a person's life at the moment it matters (Jung,

1952). Because this confluence would seldom occur under the status quo, it can activate assets that were previously hidden. For instance, the status quo view in education is that underperformance reflects deficits in skill or motivation. The status quo policy that follows is to place underperforming students in remedial programs to address their presumed deficits. However, underperformance can also be a by-product of the school situation. Some students, labeled as "limited," are cut off from positive messages and opportunities. This new view has led to interventions that do virtually the opposite of the approach that predominates under the status quo. They place underperforming students in an honors program. Such programs convey the message that students do not lack skill but rather are seen as capable of reaching a higher standard. Interventions using this high-expectation approach have yielded remarkable gains in the academic achievement of at-risk youth (for reviews, see Cohen et al., 1999; Dweck, Walton, & Cohen, 2011; Steele, 1997). Here, the intervention is an inflection of the standard situation, the effect of which is to activate previously hidden potentials.

In the absence of intervention, the status quo repeatedly regenerates itself. The same forces repeatedly converge in functionally similar situations. Test-taking situations in school provide a glimpse into how this process can play out. Standardized tests are implicitly and sometimes explicitly represented as measures of intellectual aptitude. This representation, which gives legitimacy to the test, is an environmental force. Psychological factors also help to perpetuate the status quo. What is being evaluated is *believed* to be competence on a trait deemed to be fixed and critical to success. A host of psychological processes, ranging from downward social comparison to stereotyping, come to play when people interpret scores from such tests. Indeed, historically, the tests have been misused to provide evidence of the alleged inferiority of different groups. This is not merely distant history but part of the present psychological reality for people being tested. European American students appear to perform better on these tests in part because of stereotype lift, an implicit awareness that these tests favor

their racial group (Walton & Cohen, 2003). At the same time, members of negatively stereotyped groups, such as African Americans and Latino Americans, and women in math and science, tend to experience stereotype threat on such tests. Aware that their performance could be seen as confirmation of a negative stereotype about their group, they experience extra stress that impedes their performance on difficult tests (Steele, 2010; Steele, Spencer, & Aronson, 2002). Thus, psychology pulls the larger forces of culture and history into the everyday school ritual of the test-taking situation. This configuration of the situation weakens the influence of positive forces for minority students in general, and for women in math and science. It prevents their true academic aptitude from expressing itself. For when placed in a situation that temporarily frees them from stereotype threat, they perform much better, outperforming European Americans and men with similar records of past accomplishment (Walton & Spencer, 2009).

Achievement gaps are persistent because, like many persistent outcomes, a situation repeatedly regenerates them. The test-taking situation repeatedly recurs in school. But if its situational forces are reconfigured, achievement gaps lessen and sometimes vanish. To paraphrase Sapolsky (2010), the status quo can be persistent yet plastic.

Trigger

By introducing a new element into a situation, many social-psychological interventions trigger a motivational process, with its behavioral manifestation shaped by the context. A series of large-scale studies presented incoming college students with one of a variety of social-psychological interventions delivered through a series of online modules (Yeager et al., 2016). The attributional process affected by the interventions was expected to sustain student resilience by bolstering optimism in the face of difficulty. One intervention conveyed to students that difficulty in school was normal and apt to be short-lived. This permitted them to attribute it to situational factors that were both common to all students and surmountable (see Walton & Cohen, 2011). Another intervention encouraged students to conceptualize

intelligence as expandable with effort and practice (see Dweck, 1999). This prompted them to attribute difficulty to the need to expend more effort or find better strategies. Each intervention triggered an attributional process by leading students to view the inevitable challenges of college as part of a natural adjustment process rather than evidence of a deficit in them. When led to this outlook, academically at-risk students, such as negatively stereotyped ethnic-minority students, as well as economically disadvantaged students, e-mailed their professors and joined study groups more, acts that they may have otherwise shunned as evidence of their inadequacy (see Walton & Cohen, 2007).

The germination of the cognitive seeds introduced by the interventions blossomed into a belief structure (see McGuire, 1960). As students acquire firsthand evidence that they can meet the challenges of college, the belief that they belong strengthens. Indeed, this is what appears to have happened both for at-risk minority students and economically disadvantaged students receiving the interventions (Yeager et al., 2016). The students in one study were more likely to maintain full-enrollment status in their freshman year, an effect driven by the extent to which they used campus resources. Likewise, in an earlier study, at-risk students who had received a brief intervention that bolstered their sense of belonging in their freshman year of college earned higher grade-point averages (GPAs) throughout their 4 years on campus and, in their final year of college, reported stronger certainty about their belonging in college (Walton & Cohen, 2011). The "dance" between the psychological and social systems can alter a trajectory (Figure 35.2). Students' confidence increases as a result of intervention. They seize opportunities for growth in the environment. As they see their capacities grow, their confidence strengthens still more in a cycle of adaptive potential (Cohen & Sherman, 2014). This cycle repeats as long as psychological and environmental assets continue to reinforce one another.

Beyond the attributional process, the self-affirmation process can also be triggered by intervention. This is the process that maintains the perceived integrity or "adequacy" of the self. When that perception is

threatened, people try to reaffirm it. Events that appear small can have surprisingly large effects when they serve as inputs into this process. For instance, the act of writing briefly about an important personal value, such as relationships or religion, is an objectively small action that can nevertheless be subjectively large and have a counterintuitively large impact (Steele, 1988; see also Cohen & Sherman, 2014). Signaling one's fidelity to long-held values, the act can convey that one is "moral" and "good" in a way that transcends a threatening situation. After being affirmed in this way, people no longer showed a rise in the stress hormone cortisol when compelled to give an impromptu speech in front of a judgment audience (Creswell et al., 2005). Those under chronic stress maintained higher performance on a creative problem-solving task when being evaluated under time pressure (Creswell, Dutcher, Klein, Harris, & Devine, 2013). From an outsider's perspective, the intervention seems mysteriously powerful, a small act that triggers a large effect. However, from the insider's perspective, the intervention taps into a psychological need. The intervention is but a trigger for a powerful process. What influence it has is dependent on the fact that it helps people enact the self-affirmation process already present in their minds.

Besides attribution and self-affirmation, many other psychological processes have the capacity to release motivational energy. Interpersonal mechanisms, which involve multiple minds, can also be activated by intervention. An example is the "self-fulfilling prophecy." People's initial beliefs, even if erroneous, can affect their behaviors in ways that turn the belief into a reality. In a classic study, teachers were told that a subset of their students had been identified as "intellectual bloomers" based on testing (Rosenthal & Jacobson, 2003). In fact, however, they had been selected randomly. Teachers created positive expectations for these students, which they then acted on. It appears, for instance, that they invested greater attention and displayed more positive affect toward students labeled as having high potential. The teachers' actions in turn elicited better performance from these students. By year's end, those positively labeled earned higher IQ scores than their peers. The effectiveness of the intervention did not issue out of the causal power of the few sentences given to teachers about the students. Rather, it rested in the psychological and social mechanisms triggered by them.

Channel

Once a motivational mechanism is triggered, the context gives the mechanism its behavioral form and can keep it active through time. Most of the elements in a context exist prior to an intervention's introduction, as in a classroom or workplace. To be effective, an intervention needs to be well placed and well timed in this context. It should be introduced near elements that prevent the interference of inhibiting forces and that channel its effects in the desired direction. Positive behavioral change happens when the mechanism resonates or "gels" with the context (Pawson & Tilley, 1997).

As an analogy, a rocket both triggers and channels the explosive mechanism in liquid hydrogen (Dawson & Bowles, 2004; Pawson & Tilley, 1997). As with many psychological and social systems, liquid hydrogen has many powerful latent assets. For instance, it is both lightweight and burns at extremely high temperatures. Yet for this potential to be actualized as a powerful rocket propellant, it needs to be appropriately channeled and "tamed" by the surrounding context, the rocket. A small change, such as engine exhaust or air friction during flight, could undermine the hydrogen's effectiveness, causing it to evaporate. The rocket is carefully designed to minimize the influence of such external factors on the explosive process. It is insulated from sources of heat, and the explosive effects are effectively channeled by the rocket nozzle. This phenomenon finds an echo in the realm of psychological interventions. Even relatively subtle forces in a situation, if not checked, can determine an intervention's course and effectiveness.

In contrast to the common view of interventions, a social-psychological intervention is not a remedy unto itself, but a trigger, a catalyst for a process that can then be repeatedly refueled by the context. For example, consider the positive impact on learning and performance of brief "growth mindset"

interventions that teach people to see intelligence as an expandable entity rather than a limiting factor (Aronson, Fried, & Good, 2002; Blackwell, Trzesniewski, & Dweck, 2007; Good, Aronson, & Inzlicht, 2003; Yeager et al., 2016). Like all interventions, these do not work in a vacuum but through their interactions with the social context. Examining its impact among first-year college students revealed that it encouraged students to become more involved on campus (Yeager et al., 2016, Study 2). Students who benefited from the intervention most were those who made a relationship with a faculty mentor, joined a campus organization, made friends with students in their building, or availed themselves of services to help them with their studies. A psychological outcome was prompted by the intervention, the belief that one can and will succeed with effort. Students were impelled by this belief to seek out and use the available institutional channels to meet their goals. Using institutional resources and achieving more success can strengthen students' belief in their capacity for further success, leading them to avail themselves of more resources and take on still more challenges. The intervention triggers a psychological process, the effects of which depend on context.

Given this analysis, motivation can be seen less as an internal asset and more as "momentum" (Core, 2014; see also Schwartz, Cheng, Salehi, & Wieman, 2016). Reciprocal interactions between psychology and situation propel the actor forward. The cycle increases its velocity as psychological assets and environmental opportunity fuel one another. A "motivated" student in this sense is "riding a wave." The intervention helps the student get started. Once high velocity is achieved, minor obstacles have less of a disruptive effect, much as a bicyclist is less likely to be derailed by small bumps at high velocities (Schwartz et al., 2016). Momentum relies as much, if not more, on the structure of the institution as on the psychology of the actor. The institution must offer a channel in the form of a series of opportunities in order for a growth mindset or a sense of belonging to assert an enduring influence on behavior. Absent opportunities to take on new challenges and to acquire necessary support, psychological

interventions would act like a flickering flame without kindling. In one study, college students who received an intervention that provided them with a sense of optimism and control over their academic outcomes subsequently performed better on a lecture-based achievement test, but only when the intervention was accompanied with effective teaching (Menec et al., 2006). Similarly, students might revert to a belief that their intelligence is fixed rather than malleable if they exert effort but fail to improve due to inadequate training. To keep up motivation or momentum over time, an institution must provide new opportunities for growth and challenge, as a channel is not a treadmill. The institution must also keep the intervention's message credible. For example, if opportunities for growth are absent, or if teachers repeatedly praise ability instead of effort, the message that "intelligence can grow" will likely ring hollow. In short, psychological preparation is not enough. People must be able to catch a wave of facilitating processes in an environment rather than fight the tide of countervailing ones. A dearth of positive processes for attaining momentum is one of the reasons why the benefits of an intervention can be short-lived.

Situating an intervention at the right time and place in a given context is critical to the principle of channeling. Seemingly small variations in when or where an intervention is situated can have big effects. For example, in the earlier example of self-affirmation interventions, timing matters. If a value affirmation activity is completed before threatening information is given, it can lessen defensiveness and increase openness. But if the same activity occurs after the threatening information, it may instead strengthen people's confidence in the defensive rationalization they generated to dismiss the information (see Critcher, Dunning, & Armor, 2010). Likewise, in the research on the self-fulfilling prophecy, information about students' academic potential had little effect when given to teachers several weeks into the school year rather than at its beginning (Raudenbusch, 1984). Presumably, teachers' impressions of students, once formed, are hard to change. In each case, a seemingly small variation, like a leak of hydrogen into small holes in the rocket's

seams, introduces a factor that negates the intervention's impact.

The trigger and channel approach is illustrated by an experiment in which a random group of seniors in an urban high school received a values affirmation near the time of the deadline to apply for financial aid for college (Fotuhi, Garcia, & Cohen, 2016). This is a threatening and stressful time. The intervention was intended to trigger the self-affirmation mechanism so that feelings of threat would be lessened. Additionally, a treatment designed to open a channel for the desired behavioral response was crossed with the values affirmation. Some of the students received a few reminders, delivered via a mobile application (app), about specific steps they could take to obtain financial aid. Thus, the context was engineered so that the psychological effects of the affirmation—less stress and more bandwidth to focus on long-term goals (Mullainathan & Shafir, 2013)—could be directed to an appropriate behavior. Indeed, it was the combination of affirmation and reminders that produced the highest rate of financial aid awarded, doubling the percentage of those receiving financial aid (from 39 to 78%, a significant increase). Those receiving only the affirmation or only the reminders did not show as strong a benefit.

THE THREE *T*'S OF INTERVENTION: TARGETED, TAILORED, AND TIMELY

The trigger and channel perspective on interventions depends on three necessary actions. An intervention must be targeted, tailored, and timely, so that the right person receives the right support at the right time. When this occurs, what would otherwise have been a transient or trivial experience becomes a turning point. An intervention, far from being a product to pack up and scale up to all classrooms, workplaces, or hospitals, has a power that derives from the instant in which it occurs.

Targeted: The Right Person

When an effective intervention is discovered, there is a temptation to "mass vaccinate" and disseminate it as widely as possible. But as with most medical treatments, a psychological treatment should be given to those who need it rather than delivered indiscriminately. A key lesson of research on social-psychological interventions is that their benefits are often moderated, concentrated among a subgroup rather than spread across a population. This is unsurprising given that most of the interventions were designed to meet specific kinds of needs. The benefits of values affirmation interventions, for instance, are confined to people experiencing psychological threat. Those likely to benefit from it include people working in a stressful situation, patients dealing with a medical condition, students contending with threatening negative stereotypes about them, and students with a history of poor performance (Cohen & Sherman, 2014). Moreover, affirmations not only are ineffective in the absence of threat (Hanselman, Bruch, Gamoran, & Borman, 2014) but, like a wrongly prescribed medicine, may also prove counterproductive for some. The act of reflecting on alternative values might lead people to disengage from a task if they feel that their efforts might be better invested elsewhere (see Critcher et al., 2010; Vohs, Park, & Schmeichel, 2013). Online modules that teach a growth mindset, a belief in the malleable nature of intelligence, are another example of moderated interventions. Their benefits tend to be concentrated among the lowest-performing students (Paunesku et al., 2015). Likewise, it is primarily teenagers with low expectations for academic success who benefit from interventions that help them to connect their schoolwork to important issues in their lives (Hulleman, Godes, Hendricks, & Harackiewicz, 2010; Hulleman & Harackiewicz, 2009). In the pioneering research of Timothy Wilson and colleagues (Wilson, Damiani, & Shelton, 2002; Wilson & Linville, 1982) the benefits of directing attributions for poor performance to unstable rather than stable causes tend to be confined to students who worry about doing well in school. Adding to this complexity, the effect of a moderator can itself be moderated (Cronbach, 1975). In one large-scale study, the positive impact of a values affirmation intervention on middle schoolers' GPA was, consistent with past research, concentrated among stereotyped

minority students (Hanselman et al., 2014). However, this was especially true in schools where threatening stereotypes were more salient, that is, schools with fewer minority students and larger performance disparities among ethnic groups.

Given the complexity of the effects that interventions can have, the best way to maximize their effectiveness and efficiency is to target those people who will most benefit from them. Most of the time, they should be administered not as mass vaccinations but as thoughtfully prescribed treatments. This is for two reasons. First, as a matter of efficiency, it is a waste of time and resources to administer treatments to those who do not benefit from them. Second, as a matter of ethics, the potential benefits of an intervention need to be greater than its potential costs. Because interventions may have foreseeable and unforeseeable side effects, their indiscriminant use should be discouraged.

Tailored: The Right Support

In order for a suit to be comfortable and look good, it should be the right size, style, and color, that is, tailored to the individual wearing it. Like a well-fitting suit, an intervention must be tailored to "fit" in order to be most effective; that is, it must address the motivational mechanism that matters in a given situation. Given that research and lay wisdom suggest that rewards can spark motivation, it is easy to see how they can come to be overused (Skinner, 1969). In fact, people's motivations can be undermined when they are rewarded for doing an activity they already want to do. For instance, when children who enjoyed drawing with magic markers were offered a "Good Player Certificate" to use them, the amount of time they devoted to that activity 2 weeks later was cut in half (Lepper et al., 1973). A "one-size-fits-all" assumption is evident in the large and popular scaling up of incentive programs to boost academic achievement (e.g., Fryer, 2011). They assume that what causes underperformance is the same for most students. Perhaps the mixed results of such programs arise from the insistence on widespread dissemination issuing from this assumption. Their effectiveness might be increased if the target were more specific:

students lacking intrinsic interest. Our success would be increased, moreover, if we tailored interventions to the diverse array of motivational barriers actually affecting students. In general, poor tailoring of interventions comes from an inaccurate or overgeneralized theory of the underlying psychology at work.

Research on the minority achievement gap in college provides another example of the importance of tailoring interventions. Basic research showed that compared to European American students, African American students have a tendency to see social adversity in school, such as difficulty finding friends, as a sign that others do not want to include them in constructive social relationships due to their race (Walton & Cohen, 2007). For these students, social adversity raises the possibility that they do not belong. When, for instance, African American and European American college students were asked to name eight of their friends in an academic discipline like computer science, most of them had difficulty doing so (Walton & Cohen, 2007). However, the difficulty caused only the African Americans to feel that they lacked belonging and had little potential to succeed there. In another study, college students were asked to record in a daily diary the events that happened to them (Walton & Cohen, 2007). Roughly equal numbers of bad things happened to African American and European American students, such as not being invited to dinner or getting negative feedback in a class. For European American students there was no relationship between these bad events and their sense of social belonging in school. For African Americans, on the other hand, these bad events correlated with a lack of social belonging. They appeared to be more likely than European American students to see adversity not as an isolated event but as a global judgment of their fit on campus. They experienced a process of "belonging uncertainty" based on their awareness of prejudice against their racial group.

An intervention that emerged out of this line of basic research was tailored to address the "question of belonging" that African Americans were experiencing in college (Walton & Cohen, 2007, 2011). In a brief laboratory session, students in their

freshman year learned that most upper-classmen at their school had also wondered about whether they belonged in college as freshmen. Students read survey statistics and testimonials that conveyed how such concerns were normal and common across racial and gender lines. They also learned that, with time, such concerns tend to fade as students make friends and find their niche on campus. Procedural steps helped students to internalize the message. They were told to make the message "their own" by putting the key themes they learned into their own words (Aronson et al., 2002). They then used their version of the key themes as the basis of a video they made to help future students adjust to college. This procedure permitted these students to see themselves as agents of change rather than merely as candidates for remediation. The results were striking. Relative to a randomized control condition, the intervention improved the GPA of African American students. It reduced the achievement gap over 4 years by more than half. African American students also showed better subjective health at the end of college, and years after graduation they reported being happier and more engaged in their work (Brady, Fotuhi, Gomez, Cohen, & Walton, 2016).

In directly addressing a psychological question shown by previous research to be a concern for minority students, the intervention blocked a mechanism that would have undermined their motivation in school. The appropriateness of the message delivered by the intervention was critical, as even an apparently similar message would have failed. For instance, conveying to students that it was normal and transitory to have doubts about one's *ability,* as did another intervention, had no effect at all on African Americans (Walton & Cohen, 2011). A teacher, parent, or seasoned tutor (Lepper & Woolverton, 2002) providing just the right word of encouragement to a child captures the essence of tailored interventions: Knowledge informs action to maximize effectiveness.

Timely: The Right Time and Place

The timeliness of an intervention can matter as much as its content. A word of encouragement before an important game or a bit of advice before a critical health decision can mark a turning point. But that same encouragement or advice given days earlier might recede in memory to a mere whisper when the behavioral channel opens, or, if given after, prove to be too little too late. A parent pushing a child on a swing must exert force at the appropriate place, in the appropriate direction, and at the appropriate time. Even a minimal push applied by a parent at the apogee of the child's backward arc when on a swing will keep the child happily aloft. However, a push applied at the peak of forward motion may not only interfere with the swing but result in injury to the child (and the parent).

Likewise, a small act of encouragement can have large effects when timed to a moment of need. People regularly ask themselves questions such as "Do I belong?," "Why did this happen?," "Can I do it?," and "Am I valued?" Answering such questions in the affirmative takes on added urgency at moments of high potentiality or stakes, such as during the transition to college or at the start of a new job. At such gateways are many forces that could propel a person in either a positive or a negative direction (Lewin, 1939). But once one passes through a gateway, often with some timely support, many of the forces in the system serve to propel people forward.

When are the opportune moments to intervene in the social world? One answer is at the time when key cognitions and behaviors arise. Behaviorism, in spite of its flaws, provided a key insight when it asserted that timeliness matters. To produce an effective reinforcement contingency, a reinforcement must occur shortly after the production of the desired behavior. Similarly, to support people through a difficult time, an intervention must occur near the moment when a psychological vulnerability occurs. "Do I belong?," "Why did this happen?," or "Can I do it?" are questions that require a supportive answer the moment that they arise. The importance of timeliness is illustrated in research testing a growth mindset intervention in the context of an educational video (O'Rourke, Haimovitz, Ballwebber, Dweck, & Popović, 2014). A growth mindset message given to children before they played the

game had, if anything, a negative impact on their persistence and performance. On the other hand, when the message that intelligence can grow was built into the fabric of the game, timed to the mindset-related actions and cognitions of the learners, persistence and performance improved. The game incentivized new strategies and extra effort, so that children could interpret their entire experience with the game as being "about" growth. Likewise, expert tutors, who consistently produce gains in the learning of at-risk youth in excess of two standard deviations, provide a model of appropriately timed intervention (Bloom, 1984; Lepper & Woolverton, 2002). These tutors use not one strategy but many strategies, each targeted to their students' needs and enacted at the moment it is needed. At the start of a session, a tutor might spend a lot of time getting to know the child through questions about his or her hobbies, thus creating rapport. Then, before a child confronts a challenging problem, the tutor might say, "This next one will be hard." This utterance helps to structure the child's expectations so that he or she attributes the difficulty to the rigor of the work rather than a personal failing. As these examples illustrate, the ultimate aim is for messages of growth, belonging, and affirmation to be as water is to a fish, something taken for granted in the classroom or workplace culture, rather than simply "shots in the arm" (Lewin, 1939).

Beginnings often mark an opportune time to intervene. Transitions into a new environment or role, such as the transition to middle school, college, a new job, and parenthood, mark an important beginning. The outcomes of such a transition, as life-course theorists have suggested, can shape the outcome of later transitions by giving rise to an accumulation of consequences (Elder, 1998). This is especially true when the transition is characterized by a rise in stress and psychological threat, as many transitions throughout the life course are (Crosnoe & Johnson, 2011; Johnson, Crosnoe, & Elder, 2011; Pattwell, Casey, & Lee, 2013). Helping people to cope adaptively with such transitions can yield benefits that compound with time.

In a study touched on earlier, a psychological intervention, a values affirmation writing activity, was given in one study at the beginning of the transition to seventh grade (Cohen et al., 2006, 2009). This is a turbulent time, when many students take a negative turn. Academic motivation and performance tends to decline, while risk behavior rises, especially for negatively stereotyped minority students (Cohen et al., 2006, 2009; Eccles, Lord, & Midgley, 1991; Simmons, Black, & Zhou, 1991). For these students, the intervention led to higher GPAs compared to a control condition. It also bolstered their sense of belonging in school, such that it remained high even when they received a low grade (Cook, Purdie-Vaughns, Garcia, & Cohen, 2012). The benefits persisted through the remaining 2 years of middle school. Moreover, 7 years later, official college enrollment records revealed that affirmation-treated minority students were both more likely to enroll in college and, if they enrolled in a 4-year college, more likely to go to a selective one (Goyer, Garcia, et al., 2016). Interventions that promote college enrollment and persistence deserve special consideration (see also Yeager et al., 2016) because college attendance and graduation are powerful drivers of economic mobility (Douglass, 2009; Haskins, 2008; Reardon, Baker, & Klasik, 2012) and health (Braveman, Egerter, & Williams, 2011; Egerter, Braveman, Sadegh-Nobari, Grossman-Kahn, & Dekker, 2011). Indeed, earning a bachelor's degree is worth $2.8 million in lifetime earnings, 84% more than is earned when one holds only a high school diploma (Carnevale, Rose, & Cheah, 2011).

Longitudinal analysis of how the intervention propagated its influence revealed that it did so through the consequences it set in motion for students at the transition to seventh grade. By earning higher grades at the beginning of middle school, minority students were less likely to be assigned to the remedial track (Cohen et al., 2009) and more likely to be assigned to advanced courses on the college track (Goyer, Garcia, et al., 2016). Indeed, the intervention occurred at a moment when institutional tracking commenced and carried students into increasingly divergent streams of opportunity and validation. As a consequence, affirmed minority students were more likely both to build up a strong academic record and to experience a high sense of belonging

in school, especially relative to minority students who had been placed in the remedial track (Goyer, Garcia, et al., 2016). That affirmed minority students had a higher likelihood of entering college was driven, in part, by their strong academic record and sense of belonging in school. Because the consequences of the middle school transition accumulated, its influence stretched into the college transition. Although the start of seventh grade seems to be a brief situation, it can also be seen as the beginning of an institutional situation that lasts for a long time.

Transitions introduce new social systems. Their intricacies can be hard to understand, their consequences still harder to appreciate. The output of psychological processes can act as inputs into these powerful social systems. The transition to middle school often marks the beginning of academic tracking, a social reality that is key to understanding the affirmation intervention's long-term effects. Even narrowly avoiding the cutoff for entry into the remedial track can bring about a different academic fate for students, as remediation appears to be among the strongest drivers of unequal opportunity among minority youth (Grubb, 2009; Steele, 1997). The potential for small performance differences to have dramatic and lasting consequences can be seen in research on institutional cutoffs (Dee, Dobbie, Jacob, & Rockoff, 2016). Students in the state of New York must pass the five core Regents exams in order to graduate from high school, by earning at least a score of 65 on each. Until recently, teachers in the students' school could grade their exams. For roughly 40% of students with scores just below the cutoff (scores of 60–64), teachers changed their scores to a passing grade. A series of recent reforms to prohibit both local scoring and the rescoring of scores just below the cutoff appears to have eliminated such flexibility entirely. A quasi-experimental "difference in differences" analysis indicates that once these reforms were in place, for students with scores in the changeable range, high school graduation rates fell by 3–5%. This happened in spite of the fact that students could retake the exam several times. The strict enforcement of the institutional cutoff turned small variations in test performance into a turning point. Whether a student received a high school diploma, and entered the life channel of opportunities that follow from it, turned on a few points. In the context of powerful institutional systems, even minor differences in performance at key junctures can have life-shaping effects.

Because small initial differences can magnify in a system with feedback loops, even subtle variations in timing can have powerful effects at the beginning of key transitions. In another study, a seemingly minor difference in the timing of the affirmation was experimentally manipulated again with middle schoolers (Cook et al., 2012). A random subset of students received the intervention in the first week of school in seventh grade rather than 4 weeks later, as had been standard. Strikingly, the positive effect of timing on first-quarter classroom grades was as great as the effect documented in prior research of providing the intervention or not. These findings underscore the importance of the timeliness of an intervention, and how it can matter as much as its occurrence.

Endings, transitioning *out* of an environment, also mark opportune times for intervention. Retirement from a career and graduation from high school or college tend to trigger cognitive consolidation as people focus on life's larger meanings. People focus on larger meanings and prepare for what comes next by thinking about the lessons learned from what occurred before (see Carstensen, Isaacowitz, & Charles, 1999; Hackman, 1998). One study focused on disadvantaged students transitioning out of a high-expectation charter high school. These senior students, on the verge of graduation and about to embark on the path to college, were given a social belonging intervention. It reassured them that it was normal to worry about whether they belonged in college, and that such worries were likely to be short-lived (Yeager et al., 2016). Compared to a randomized control condition, these students proved significantly more likely to stay enrolled in college full-time throughout their freshman year. This study demonstrates that not only are the beginnings of transitions opportune times to intervene, but so are their endings.

Choicepoints are moments when the decisions that people make can launch them onto

a new course. The decision to take the next course in an introductory physics sequence, for example, increases the likelihood that people enter a track toward a physical science degree (Goyer, Stout, et al., 2016). Many factors may be involved in such a choice. In fact, at least for those experiencing a certain amount of ambivalence about the decision, seemingly irrelevant issues, such as whether a friend will also be taking the course, or the posters on the wall, can drive their choice (Cheryan, Plaut, Davies, & Steele, 2009). One study reinforced gender stereotypes of women being bad at math by exposing them to a commercial that depicted them stereotypically. Women seeing such a commercial expressed much lower interest in a career in math or science than women who had not viewed it. Although a choice may seem an act of free will, it can be controlled by gender stereotypes and socialization (Bem & Bem, 1973). This idea gained additional support in a field experiment involving female students enrolled in an introductory physics course at a large state university (Goyer, Stout, et al., 2016; see also Miyake et al., 2010). Students were randomly assigned to complete a values affirmation in their introductory physics class. Women completing the affirmation, relative to their female peers in a control condition, earned better exam scores in the class. Moreover, the intervention was most beneficial over the long term for women with strong preparation, as assessed by their math standardized test scores, and those who expressed relatively more concern with negative gender stereotypes. If affirmed, these women were more likely to take the next physics course in the sequence for physical science majors, and to still be enrolled in engineering and physical sciences majors 2 years later. Affirmation had similar effects on continued enrollment in a biology track for first-generation college students (Harackiewicz et al., 2014). The long-term effects of many events, experiences, and character traits occur because they launch people onto divergent trajectories through the choices they make.

To target, tailor, and time an intervention appropriately requires that one understand the key elements in the context. In educational and work contexts, these include environmental elements such as institutional tracking systems, and psychological elements such as hope and optimism. These can add momentum to a small win or early success. Because of the complexity of social systems, it is impossible to understand all the key elements in a context that help an intervention to "catch fire." Still, the crucial ones, the fuel, can be identified. Among the most important of these are the gateways and pathways to success (Chugh & Brief, 2008).

IMPLICATIONS

Look beneath Behavior

One key lesson gained from the research reviewed here is the importance of observation. Other people's psychology is not directly accessible, so we must be especially attuned to the first-person perspective of the people we are trying to serve, the actor's perspective (Ross & Nisbett, 2011). We can do this by any number of observational methods such as ethnography and interviews.

The importance of observation was demonstrated in one set of studies conducted in middle school (Yeager et al., in press). Students' level of trust in school was observed for 3 years. Sixth graders reported high levels of trust, and minority and nonminority students did not differ. The seventh grade, however, marked a turning point. In the spring of that year, trust declined sharply. This was especially true for African American students, the predominant minority group at the school. Around this time, students begin to generate general theories about the trustworthiness of institutions based on the events that happen to them (Goyer, Cohen, et al., 2016; Yeager et al., in press). Discipline rates also jumped at this point, again especially for African Americans. This pattern was replicated in a different school with a significant Latino American student population (Yeager et al., in press). It appears that the spring of seventh grade marked the beginning of a process that eroded trust for minority students. Moreover, correlational evidence suggests that once mistrust began, a feedback loop began. Students who initially felt greater mistrust were later more likely to perceive bias at their school, and those who perceived greater bias at this time felt, still

later, more mistrust (Yeager et al., in press). By the time students at both schools graduated middle school, a large race gap in trust had emerged. It had grown out of a slow but steady accumulation of experiences. The striking changes during this time in adolescents' physical maturation are obvious to the eye. The psychological changes can be just as dramatic yet hidden from view.

Because the process depends on a continuous feedback loop, interrupting it early could produce benefits that would be carried forward in time. Such an interruption took the form of a reassuring note from their teacher, called *wise feedback* (Yeager et al., 2014, in press; see also Cohen et al., 1999). It was given to students at the point when mistrust had been found to rise, the spring of seventh grade. The note was handwritten by the teachers and accompanied critical feedback that the teacher gave to students on the first draft of an essay they had written. Students were randomly assigned to receive either the wise feedback note or a neutral note appended to their essay draft (Yeager et al., 2014). The wise feedback note stated, "I'm giving you these comments because I have very high expectations and I know that you can reach them." The note was carefully worded and grounded in previous research (Cohen et al., 1999). It was aimed to reassure negatively stereotyped students that the teacher's feedback reflected the application of high standards rather than bias against them.

The intervention increased the percentage of African American students who revised their essay from 17% in the neutral feedback condition to 71% in the wise feedback condition, on par with the revision rate of European American students. It also prevented African Americans who had initially expressed low levels of trust in teachers from feeling even less trusting at year's end. Contrary to the easy explanations of lay psychology, African American students in the control condition were not being recalcitrant. Rather, they saw a situation that they could not fully trust and therefore one in which they could not fully invest their efforts. The intervention reassured them that they could trust, releasing their motivation. Consistent with this explanation, in a follow-up study that required all students to submit a

revision, minority students who expressed higher levels of mistrust in the control condition wrote weaker revisions, as they used their past experience to make sense of the feedback (Yeager et al., 2014). By contrast, in the wise feedback condition, there was no such correlation between mistrust and the quality of revised essays. The interaction, in other words, helped students to evade the effects of their past experience on their present opportunity. A feedback loop appeared to carry the benefits forward through time. Seven years later, those minority students receiving the wise feedback note in seventh grade were more likely to attend a 4-year college than those who had not (Yeager et al., in press). If the researchers had not taken the time to listen to students' psychology, or to identify the "natural history" of students' trust, they could only have guessed at the message to deliver and the time of delivery required to make a positive difference.

Go with the Flow

Where systemic change is not possible, at least in the short term, attempts to change the status quo should use existing processes rather than attempt to override them. By way of analogy, the Wright brothers realized that they could attain controlled flight by taking advantage of air currents rather than compensating for them through weight-shifting systems. They understood that a wing that could be continually warped when interacting with the wind currents would produce both lift and permit control of a plane.

Some of the processes in a social system are not "noise" to be overcome but currents to exploit (see also Paluck, 2009). For example, the effects of an affirmation on later college accomplishment occurred partly because of the institutional tracking system, not in spite of it. In line with the mantra, "The best way to understand something is to try to change it" (Bronfenbrenner, 1977), research on "small" psychological interventions has advanced understanding of the power of "large" structural processes.

Wait for It

Because other people's psychology is difficult to see, large psychological change

can take place in the absence of discernible behavioral change. Someone may be in the midst of a turning point, but because the initial shift is psychological, it may go unnoticed. Furthermore, as the effects of many interventions are slow moving rather than abrupt, it may take time for their consequences to become visible.

In one study, even if they earned relatively low grades, minority students who felt that they belonged in middle school as a result of an intervention proved more likely to go to college (Goyer, Garcia, et al., 2016). An invisible state of mind, not just a visible indicator of success, predicted long-term change. Indeed, the teachers who exert the most positive impact on students' psychological development may go unrecognized. This occurs because the predominant metric used to evaluate students' progress, the standardized test, fails to fully capture teachers' effect on students' growth along psychological factors such as belonging and grit (Jackson, 2016). This is especially troubling given that such factors seem to predict long-term outcomes, such as college attendance, adult wages, and criminal records, better than standardized tests (Jackson, 2016).

At best, the early returns from the Move to Opportunity program, which provided a random group of poor families with the opportunity to move to somewhat wealthier neighborhoods and schools, were disappointing (Sanbonmatsu, Kling, Duncan, & Brooks-Gunn, 2006). Contrary to expectations, students did not attain higher academic performance. However, in spite of these negative indicators, the seeds of positive change had been laid. Later analyses revealed that the students were, many years later, more likely to attend college and earn higher salaries, especially if they had moved to the wealthier neighborhoods before the teenage years (Chetty, Hendren, & Katz, 2015).

If we judge efficacy only by short-term impacts, we are at risk of abandoning policies and programs with slow-to-emerge or difficult-to-see benefits. Governments and schools may end programs prematurely, either before enough time has elapsed to observe their full impact or before their influence on subtle signs of thriving has a chance to manifest. Indeed, this is what appears to have happened with the small high school movement. It was ended before research revealed, years later, its sizable benefits on high school graduation for disadvantaged students and on college enrollment and persistence for all students (Unterman, 2014). Sometimes change can be vast yet go unnoticed, obscured by the subtlety and gradualness of its unfolding.

Change can also be large and sudden, yet short-lived. This is especially likely if little or no thought is given to how to sustain benefits. In such cases, benefits may decay or even be reversed. For example, a program provided elderly adult residents of a nursing home with a sense of control over a seemingly minor event in their lives by allowing them to schedule visits from a college student (Schulz & Hanusa, 1978). Although residents saw their well-being and health rise in the short term as a result, once the program ended they suffered precipitous declines. To minimize outcomes like this, interventions and the processes they initiate must be viewed through the lens of an "experimental natural history" perspective. This requires that processes be studied over a long time to determine the range of their consequences, as in research on developmental cascades (Masten & Cicchetti, 2010). Moreover, it demands that the trajectory of these processes be compared under natural conditions and under conditions that subject them to experimental alteration. A commitment to studying processes over a long period of time needs to be a higher priority among social scientists, funders, and policymakers.

The Status Quo Is Not Neutral

On the face of it, the fact that a brief affirmation, belonging, or mindset intervention can have large and lasting effects seems a promising and positive message. However, by inverting the lens through which we look at these findings, we can see the background—the context in which the intervention is introduced—as foreground. Doing this reveals a troubling aspect of the status quo in many institutional settings. It is not neutral. If psychological interventions can have large and lasting effects, this implies that students are being underserved

psychologically by the current status quo. If, for example, more minority students reach college because, as middle schoolers, they received a series of values affirmation activities (Goyer, Garcia, et al., 2016), a note reassuring them of their potential to reach a high standard (Yeager et al., 2014), or evidence that intelligence is expandable rather than fixed (Blackwell et al., 2007), this suggests that the status quo is failing to communicate these important psychological messages to these students. If merely suggesting to teachers that some of their students are "intellectual bloomers" leads them to draw out higher achievement from them (Rosenthal & Jacobson, 2003), this suggests that, under normal circumstances, many teachers fail to expect as much of their students as they could or should. As a corollary to this logic, a failure to replicate the effects of an intervention in a new context may be a sign that the context is already addressing the psychological need in question (see Yeager et al., 2016, Study 1).

Inequality of opportunity, these data suggest, has not only a material dimension but also [stet] a psychological one. Under the status quo, there must be many missed opportunities to encourage at-risk students. These include sins of omission. Because of stereotypes, people may fail to see potential where it exists. In one experiment, the same job résumés were less likely to receive a callback when the applicant had an African American name rather than a European Amercian name (Bertrand & Mullainathan, 2003). Strikingly, the strength of the résumé mattered little in the decision to call back African Americans. It was as if employers could not see merit where they did not expect it. In another disturbing example, on the exam required for high school graduation, African American and Latino American students were less likely than European American and Asian American students to be bumped above the passing cutoff by their teachers (43% vs. 48%) (Dee et al., 2016). In still another study, when teachers determined assignment to gifted and talented programs, high-achieving African Americans were less likely than members of ethnic-majority groups to be assigned to them (Grissom & Redding, 2016). This was true even with socioeconomic status, health, and demographic variables controlled for.

This bias was reduced in one school district when more a more objective test was introduced to identify candidates for such programs (Card & Giuliano, 2015). The missed opportunities of the status quo to increase equality of opportunity also include sins of commission. These include the documented tendencies of teachers to overpraise and underchallenge their minority students (Harber et al., 2012), and their readiness to label misbehaving minority children as troublemakers and subject them to harsher disciplinary sentences (Okonofua & Eberhardt, 2015). Each of these biases has not only a material consequence but also a psychological one. They can withhold from many students the message that they belong, have potential, and are valued. One of the purposes of intervention research is to illuminate the nature of the social system—to shine a light on its inefficiency and injustice.

Consider Subtracting a Force

When we think of sparking change, we often think about adding forces. This is done by crafting new messages, providing new incentives, delivering new information, and so on. However, it is also possible to subtract forces (Lewin, 1939). There may be elements in the status quo that inhibit desired motivational mechanisms. Deficiencies that appear to be solely in the actor may actually reside in the environment. For example, one study looked at college students who were put on academic "probation" because of their unsatisfactory academic progress (Brady, Fotuhi, et al., 2016). For this student population, conveying that their problems are "normal," as done in previous interventions (Walton & Cohen, 2007; Wilson & Linville, 1982), would miss the mark. Because these students had fallen short of the norms of success in their community, they needed to be alerted to this fact and at the same time assured that they were still respected as capable members of their college. Analyses of the letter notifying these students of their probationary status found it to be based largely on a motivational theory that what students needed was a "wake-up call." In it, "probation" was capitalized and there were dire warnings of the consequences of failing to improve. There was little appreciation of students' need to believe that they

belonged in school, that they were members of the college community who could succeed in spite of their poor performance. In response to this, a new letter was devised. It provided the same key information to students but removed the threatening language. Testimonials from previous students who had served on probation reinforced the message that being on academic probation was not an academic death sentence, and that they belonged in spite of this setback. In a laboratory experiment, this letter produced less shame than the original letter (Brady, Fotuhi, et al., 2016). In a field experiment, it significantly increased the percentage of students who successfully exited probation and remained enrolled at the college. By removing a threatening cue and replacing it with a positive one, the institution better achieved its goals, sending the right message at the right time to the people who needed it.

Be Subtle but Sufficient

Social psychological interventions tend to be subtle but psychologically impactful. One of the barriers to change is that change attempts are often viewed negatively. They can be fragile moments, full of potential and vulnerability, an unsettling encounter with an opportunity for change (Russell, 2017). A health tip, constructive criticism, a new job, or the start of college can all be experienced in this way. Although such encounters can lead to growth, they can also prove threatening. Acts of persuasion can be seen as high-pressure salesmanship (Lewin, 1939). Reassurances can be seen as insincere, condescending, or as an insinuation that one needs help (Ross & Nisbett, 2011; Steele, 1997). Constructive criticism can be viewed as untrustworthy. Indeed, it is for this reason that agents of change—teachers, managers, doctors, parents—are often viewed with suspicion (see Tyler & Lind, 1996). Many social-psychological interventions strive to convey their message tactfully, helping people to break free of psychological limits with decorum (Russell, 2017). Often a message is conveyed as an invitation to adopt a different outlook, in a manner that respects the diverse circumstances and subjectivities of individuals in order to preserve their dignity. Defenses assuaged, people can prompt a change in themselves. This tact

can be achieved, for example, by having the message conveyed by someone outside of the context of action, such as a scientist rather than a teacher (Walton & Cohen, 2011). Or the message may be conveyed indirectly rather than directly. Expert tutors reassure struggling students less through direct praise than through subtle words and actions that encourage children to generate their own positive meanings (Lepper & Woolverton, 2002). The source of the message can also be what for many is the most credible of sources, the self. In research on self-affirmation, evidence for one's self-integrity is not provided by a teacher, boss, or parent (Steele, 1988; see also Cohen & Sherman, 2014). Rather, it is provided by the threatened student, employee, or child.

Find the Gatekeepers

The "right people" include those individuals whose influence matters most, or as Lewin (1939) called them, "gatekeepers." These are people who channel influence and communication in a social system, for example, teachers, managers, and leaders. Understanding the psychology of the gatekeeper is important because it can affect multitudes. One recent study targeted a small group of middle school teachers, roughly 15 in number (Okonofua, Paunesku, & Walton, 2016). Combined, the teachers taught hundreds of students across three school districts. The intervention attempted to change the paradigm or lens through which teachers viewed their children. It taught them to have empathy: to see how students sometimes misbehave and act unreasonably when they feel that they do not belong. Rather than label a misbehaving child as a troublemaker, thus attributing causality to a fixed essence within the child, teachers were encouraged to see misbehavior as a product of a larger web of situational processes that could be altered. In short, the intervention helped teachers to unlearn the fundamental attribution error, the tendency to underemphasize the situation, both in its objective and subjective forms, and to overemphasize personality (Ross, 1977). Behind misbehavior, teachers learned, there may be a backstory. The intervention focused teachers on dealing with these situational factors by cultivating positive and respectful relationships

with their students. Although the intervention consisted of only two brief online modules with a handful of teachers, the suspension rate among hundreds of students was halved. Viewed from the perspective of the disappointing research on teacher training programs (Harris & Sass, 2007; Jacob & Lefgren, 2002), these results are striking. They show how a leveraged psychological intervention can have large effects when transmitted through key gatekeepers. They also show how the best interventions act not as "shots in the arm" (Lewin, 1939) but as invitations to see the world in a different way.

Aim for Internalization, Not Compliance

When we focus on the temporal extension of motivational processes, other priorities begin to assert themselves. In the present moment, managers, parents, and teachers often try to achieve compliance. A worker should follow orders, a student complete his or her homework, a child behave. However, the acts that produce short-term compliance may in the long run produce hidden costs. In one study, children severely reprimanded not to play with an attractive toy complied (Freedman, 1965). However, weeks later, they were more likely to play with the toy during free time than were children who complied under mild discouragement, and more likely to cheat on an unrelated game (Freedman, 1965; Lepper, 1973). It was as though children had internalized the self-concept, "I do what's right because of external pressures, not inner scruples." In another study on police arrests, some officers arrested domestic assault suspects in a procedurally unfair way (Paternoster, Brame, Bachman, & Sherman, 1997). They acted in a way that was perceived as disrespectful and coercive. They appeared to have done their job as they arrested the perpetrator. But there were unforeseen costs that emerged only later and that would have gone unseen had they not been measured and correlated with police treatment. The arrestees who were treated in a procedurally unfair manner were more likely to commit assault again when compared to those whose officers had treated them in a more respectful way. Much of the time the impact of our actions on short-term compliance are obvious. However, their

psychological and accumulative impacts are not. A single action may create a turning point but we may never know it.

CONCLUSION

Like any attempt at change, a psychological intervention can seem small yet play a decisive role in a larger system. It enters a person's life space and interacts with the forces already there. Its consequences interact with the unfolding historical, psychological, social, and cultural processes. Interventions gain their power, when they have any, from the moment when they happen. If there is a synchronicity between the act, actor, and stage—the right support happens to the right person at the right time and place—it can change a destiny. Events that do not happen under the status quo begin to emerge (Cohen & Sherman, 2014; Walton, 2014). More minority teenagers make it to college; fewer disadvantaged children are bullied; and fewer are suspended from school. More patients begin to take their medication, and more citizens go out to vote. Social-psychological research shows how a moment can hold more potential for change than we realize. A timely and resonant act of support can give rise to more thoughts and changes than prolonged yet poorly aimed intervention.

Interventions can reveal and create turning points in institutions, in relationships, and in other life trajectories. These are points of latent potential, the importance of which can be hard to grasp without the wide lens of longitudinal research. An intervention's impact on a person, like certain natural phenomena, may be so subtle and gradual as to escape notice if viewed from a short-term perspective. As the research reviewed in this chapter shows, the potential in a person or situation can be tapped and channeled by an everyday practice. In all cases, the full effects of an attempt at change or, indeed, of any act become evident only with both a microscopic perspective that zeroes in on the moment of change and a telescopic perspective that assesses its temporal reach. In summary, this chapter has argued for the adoption of a new wide-angle lens for viewing science-driven attempts at fostering motivation and thriving.

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REFERENCES

Alwin, D. F., Cohen, R. L., & Newcomb, T. M. (1991). *Political attitudes over the life-span: The Bennington women after 50 years.* Madison: University of Wisconsin Press.

Aronson, E. (1968). Dissonance theory: Progress and problems. In R. P. Abelson, E. Aronson, W. J. McGuire, T. M. Newcomb, M. J. Rosenberg, & P. Tannenbaum, II (Eds.), *Theories of cognitive consistency: A sourcebook.* Skokie, IL: Rand McNally.

Aronson, J., Fried, C. B., & Good, C. (2002). Reducing the effects of stereotype threat on African American college students by shaping theories of intelligence. *Journal of Experimental Social Psychology, 38*(2), 113–126.

Asch, S. E. (1952). *Social psychology.* Englewood Cliffs, NJ: Prentice Hall.

Bem, S. L., & Bem, D. J. (1973). *Training the woman to know her place: The social antecedents of women in the world of work.* Harrisburg: Pennsylvania State Department of Education.

Bertrand, M., & Mullainathan, S. (2003). *Are Emily and Greg more employable than Lakisha and Jamal?: A field experiment on labor market discrimination* (NBER Working Paper Series 9873). Cambridge, MA: National Bureau of Economic Research.

Blackwell, L. S., Trzesniewski, K. H., & Dweck, C. S. (2007). Implicit theories of intelligence predict achievement across an adolescent transition: A longitudinal study and an intervention. *Child Development, 78*(1), 246–263.

Blattman, C., Jamison, J. C., & Sheridan, M. (2015). *Reducing crime and violence: Experimental evidence on adult noncognitive investments in Liberia* (NBER Working Paper Series 21204). Cambridge, MA: Bureau of Economic Research.

Blattman, C., & Niehaus, P. (2014). Show them the money: Why giving cash helps alleviate poverty. *Foreign Affairs, 93,* 117–126.

Bloom, B. S. (1984). The 2-sigma problem: The search for methods of instruction as effective as one-to-one tutoring. *Educational Researcher, 13*(6), 4–16.

Brady, S. T., Fotuhi, O., Gomez, E., Cohen, G. L., & Walton, G. M. (2016). *Reducing stigma and facilitating student success by reframing institutional messages.* Manuscript in preparation.

Brady, S. T., Reeves, S. L., Garcia, J., Purdie-Vaughns, V., Cook, J. E., Taborsky-Barba, S., et al. (2016). The psychology of the affirmed learner: Spontaneous self-affirmation in the face of stress. *Journal of Educational Psychology, 108*(3), 353–373.

Brady, S. T., Walton, G. M., Jarvis, S. N., & Cohen, G. L. (2016). *Bending the river: Downstream consequences of a social-belonging intervention in the transition to college.* Manuscript in preparation.

Braveman, P., Egerter, S., & Williams, D. R. (2011). The social determinants of health: Coming of age. *Annual Review of Public Health, 32,* 381–398.

Bronchetti, E. T., Dee, T. S., Huffman, D. B., & Magenheim, E. (2011). *When a nudge isn't enough: Defaults and saving among low-income tax filers* (NBER Working Paper Series 16887). Cambridge, MA: National Bureau of Economic Research.

Bronfenbrenner, U. (1977). Toward an experimental ecology of human development. *American Psychologist, 32*(7), 513–531.

Bryan, C. J., Walton, G. M., Rogers, T., & Dweck, C. S. (2011). Motivating voter turnout by invoking the self. *Proceedings of the National Academy of Sciences USA, 108*(31), 12653–12656.

Card, D., & Giuliano, L. (2015). *Can universal screening increase the representation of low income and minority students in gifted education?* (NBER Working Paper Series 21519). Cambridge, MA: National Bureau of Economic Research.

Carnevale, A. P., Rose, S. J., & Cheah, B. (2011). The college payoff: Education, occupations, lifetime earnings. Retrieved from *https://cew.georgetown.edu/wp-content/uploads/2014/11/collegepayoff-complete.pdf.*

Carstensen, L. L., Isaacowitz, D. M., & Charles, S. T. (1999). Taking time seriously: A theory of socioemotional selectivity. *American Psychologist, 54,* 165–181.

Caspi, A., Elder, G. H., Jr., & Bem, D. J. (1987). Moving against the world: Life-course patterns of explosive children. *Developmental Psychology, 23*(2), 308–313.

Cheryan, S., Plaut, V. C., Davies, P., & Steele, C. M. (2009). Ambient belonging: How stereotypical environments impact gender participation in computer science. *Journal of Personality and Social Psychology, 97*(6), 1045–1060.

Chetty, R., Hendren, N., & Katz, L. F. (2015). *The effects of exposure to better neighborhoods on children: New evidence from the Moving to Opportunity experiment* (NBER Working Paper Series 21156). Cambridge, MA: National Bureau of Economic Research.

Chugh, D., & Brief, A. P. (2008). 1964 was not

that long ago: A story of gateways and pathways. In A. P. Brief (Ed.), *Diversity at work* (pp. 318–340). Cambridge, UK: Cambridge University Press.

Cohen, G. L., Garcia, J., Apfel, N., & Master, A. (2006). Reducing the racial achievement gap: A social-psychological intervention. *Science, 313*(5791), 1307–1310.

Cohen, G. L., Garcia, J., Purdie-Vaughns, V., Apfel, N., & Brzustoski, P. (2009). Recursive processes in self-affirmation: Intervening to close the minority achievement gap. *Science, 324*(5925), 400–403.

Cohen, G. L., & Sherman, D. K. (2014). The psychology of change: Self-affirmation and social psychological intervention. *Annual Review of Psychology, 65*(1), 333–371.

Cohen, G. L., Steele, C. M., & Ross, L. D. (1999). The mentor's dilemma: Providing critical feedback across the racial divide. *Personality and Social Psychology Bulletin, 25*(10), 1302–1318.

Cook, J. E., Purdie-Vaughns, V., Garcia, J., & Cohen, G. L. (2012). Chronic threat and contingency belonging: Protective benefits of values affirmation on identity development. *Journal of Personality and Social Psychology, 102*(3), 479–496.

Core, A. (2014). *Change your day, not your life: A realistic guide to sustained motivation, more productivity, and the art of working well.* Hoboken, NJ: Wiley.

Creswell, J. D., Dutcher, J. M., Klein, W. M. P., Harris, P. R., & Levine, J. M. (2013). Self-affirmation improves problem-solving under stress. *PLoS ONE, 8*(5), e62593.

Creswell, J. D., Welch, W. T., Taylor, S. E., Sherman, D. K., Gruenewald, T. L., & Mann, T. (2005). Affirmation of personal values buffers neuroendocrine and psychological stress responses. *Psychological Science, 16*(11), 846–851.

Critcher, C. R., Dunning, D., & Armor, D. A. (2010). When self-affirmations reduce defensiveness: Timing is key. *Personality and Social Psychology Bulletin, 36*(7), 947–959.

Cronbach, L. (1975). Beyond the two disciplines of scientific psychology. *American Psychologist, 30*(2), 116–127.

Crosnoe, R. J., & Johnson, M. K. (2011). Research on adolescence in the twenty-first century. *Annual Review of Sociology, 37,* 439–460.

Davidai, S., Gilovich, T., & Ross, L. D. (2012). The meaning of default options for potential organ donors. *Proceedings of the National Academy of Sciences USA, 109*(38), 15201–15205.

Dawson, V. P., & Bowles, M. D. (2004). Taming liquid hydrogen: The Centaur upper stage rocket, 1958–2002. Retrieved from *http://history.nasa.gov/sp-4230.pdf.*

Dee, T. S., Dobbie, W., Jacob, B. A., & Rockoff, J. (2016). *The causes and consequences of test score manipulation: Evidence from the New York Regents Examinations* (NBER Working Paper Series 22165). Cambridge, MA: National Bureau of Economic Research.

Douglass, J. A. (2009). The race for human capital. In J. A. Douglass, C. J. King, & I. Feller (Eds.), *Globalization's muse: Universities and higher education systems in a changing world* (pp. 45–66). Berkeley, CA: Berkeley Public Policy Press.

Dweck, C. S. (1986). Motivational processes affecting learning. *American Psychologist, 41*(10), 1040–1048.

Dweck, C. S. (1999). *Self-theories: Their role in motivation, personality, and development.* Philadelphia: Psychology Press.

Dweck, C. S., Walton, G. M., & Cohen, G. L. (2011). Academic tenacity: Mindsets and skills that promote long-term learning. Retrieved from *https://ed.stanford.edu/sites/default/files/manual/dweck-walton-cohen-2014.pdf.*

Eccles, J. S., Lord, S., & Midgley, C. (1991). What are we doing to early adolescents?: The impact of educational contexts on early adolescents. *American Journal of Education, 99*(4), 521–542.

Egerter, S., Braveman, P., Sadegh-Nobari, T., Grossman-Kahn, R., & Dekker, M. (2011). *Education and health: Exploring the social determinants of health* (Issue Brief No. 5). Princeton, NJ: Robert Wood Johnson Foundation.

Elder, G. H. (1998). The life course as developmental theory. *Child Development, 69*(1), 1–12.

Fotuhi, O., Garcia, J., & Cohen, G. L. (2016). *Affirmation plus nudges enhance financial aid uptake.* Manuscript in preparation.

Freedman, J. L. (1965). Long-term behavioral effects of cognitive dissonance. *Journal of Experimental Social Psychology, 1,* 145–155.

Freedman, J. L., & Fraser, S. C. (1966). Compliance without pressure: The foot-in-the-door technique. *Journal of Personality and Social Psychology, 4*(2), 195–202.

Fryer, R., Jr. (2011). Financial incentives and student achievement: Evidence from randomized trials. *Quarterly Journal of Economics, 126*(4), 1755–1798.

Geertz, C. (1973). Thick description: Toward an interpretive theory of culture. In *The interpretation of cultures* (pp. 3–32). New York: Basic Books.

Goldin, C. (2015). Gender and the undergraduate

economics major: Notes on the undergraduate economics major at a highly selective liberal arts college. Retrieved from *http://scholar.harvard.edu/files/goldin/files/claudia_gender_paper.pdf?m=1429198526*.

Good, C., Aronson, J., & Inzlicht, M. (2003). Improving adolescents' standardized test performance: An intervention to reduce the effects of stereotype threat. *Journal of Applied Developmental Psychology, 24*(6), 645–662.

Goyer, J. P., Cohen, G. L., Cook, J. E., Master, A., Okonofua, J. A., Apfel, N., et al. (2016). *A brief social-belonging intervention reduces disciplinary incidents among minority boys over 7 years*. Manuscript submitted for publication.

Goyer, J. P., Garcia, J., Purdie-Vaughns, V., Binning, K. R., Cook, J. E., Reeves, S. L., et al. (2016). *Into swifter currents: Self-affirmation nudges minority middle schoolers onto a college trajectory*. Manuscript submitted for publication.

Goyer, J. P., Stout, J. G., Miyake, A., Finkelstein, N. D., Ito, T. A., & Cohen, G. L. (2016). *Nudging high-potential women to stay in the STEM pipeline: Closing the gender gap in physical sciences with values affirmation*. Manuscript in preparation.

Grissom, J. A., & Redding, C. (2016). Discretion and disproportionality: Explaining the under-representation of high-achieving students of color in gifted programs. *AERA Open, 2,* 1–25.

Grubb, W. N. (2009). *The money myth: School resources, outcomes, and equity*. New York: Russell Sage Foundation.

Hackman, J. R. (1998). Why teams don't work. In R. S. Tindale, L. Heath, J. Edwards, E. J. Posavac, F. B. Bryant, Y. Suarez-Balcazar, et al. (Eds.), *Theory and research on small groups* (pp. 245–267). New York: Plenum Press.

Hanselman, P., Bruch, S. K., Gamoran, A., & Borman, G. D. (2014). Threat in context: School moderation of the impact of social identity threat on racial/ethnic achievement gaps. *Sociology of Education, 87*(2), 106–124.

Harackiewicz, J. M., Canning, E. A., Tibbetts, Y., Giffen, C. J., Blair, S. S., Rouse, D. I., et al. (2014). Closing the social class achievement gap for first-generation students in undergraduate biology. *Journal of Educational Psychology, 102*(2), 375–389.

Harber, K. D., Gorman, J. L., Gengaro, F. P., Butisingh, S., Tsang, W., & Ouellette, R. (2012). Students' race and teachers' social support affect the positive feedback bias in public schools. *Journal of Educational Psychology, 104*(4), 1149–1161.

Harris, D. N., & Sass, T. R. (2007). Teacher training, teacher quality and student achievement. Retrieved from *http://files.eric.ed.gov/fulltext/ed509656.pdf*.

Haskins, R. (2008). Education and economic mobility. Retrieved from *www.brookings.edu/~/media/research/files/reports/2008/2/economic-mobility-sawhill/02_economic_mobility_sawhill_ch8.pdf*.

Heath, C., & Heath, D. (2008). *Made to stick: Why some ideas survive and others die*. New York: Random House.

Heckman, J. J., Moon, S. H., Pinto, R., Savelyev, P., & Yavitz, A. (2009). *The rate of return to the High/Scope Perry Preschool Program* (NBER Working Paper Series 15471). Cambridge, MA: National Bureau of Economic Research.

Heckman, J. J., Moon, S. H., Pinto, R., Savelyev, P., & Yavitz, A. (2010). Analyzing social experiments as implemented: A reexamination of the evidence from the HighScope Perry Preschool Program. *Quantitative Economics, 1,* 1–46.

Hulleman, C. S., Godes, O., Hendricks, B. L., & Harackiewicz, J. M. (2010). Enhancing interest and performance with a utility value intervention. *Journal of Educational Psychology, 102*(4), 880–895.

Hulleman, C. S., & Harackiewicz, J. M. (2009). Promoting interest and performance in high school science classes. *Science, 326,* 1410–1412.

Jackson, K. C. (2016). *What do test scores miss?: The importance of teacher effects on non-test score outcomes* (NBER Working Paper Series 22226). Cambridge, MA: National Bureau of Economic Research.

Jacob, B. A., & Lefgren, L. (2002). *The impact of teacher training on student achievement: Quasi-experimental evidence from school reform efforts in Chicago* (NBER Working Paper Series 8916). Cambridge, MA: National Bureau of Economic Research.

Johnson, M. K., Crosnoe, R. J., & Elder, G. H., Jr. (2011). Insights on adolescence from a life course perspective. *Journal of Research on Adolescence, 21*(1), 273–280.

Johnson, R. C. (2012). The grandchildren of Brown: The long legacy of school desegregation (Goldman School of Public Policy Working Paper Series). Retrieved from *http://socrates.berkeley.edu/~ruckerj/rjabstract_browndeseg_grandkids.pdf*.

Jung, C. G. (1952). *Synchronicity: An acausal connecting principle* (2nd ed.). Princeton, NJ: Princeton University Press.

Karniol, R., Galili, L., Shtilerman, D., Naim, R., Stern, K., Manjoch, H., et al. (2011). Why Superman can wait: Cognitive

self-transformation in the delay of gratifica-
tion paradigm. *Journal of Clinical Child and
Adolescent Psychology, 40,* 307–317.

Klein, K., & Boals, A. (2001). Expressive writing
can increase working memory capacity. *Jour-
nal of Experimental Psychology: General,
130*(3), 520–533.

Latane, B., & Darley, J. M. (1969). Bystander
"apathy." *American Scientist, 57*(2), 244–268.

Lepper, M. R. (1973). Dissonance, self-
perception, and honesty in children. *Journal
of Personality and Social Psychology, 25,*
65–74.

Lepper, M. R., Ross, L., & Lau, R. R. (1986).
Persistence of inaccurate beliefs about the self:
Perseverance effects in the classroom. *Journal
of Personality and Social Psychology, 50*(3),
482–491.

Lepper, M. R., & Woolverton, M. (2002). The
wisdom of practice: Lessons learned from the
study of highly effective tutors. In J. Aron-
son (Ed.), *Improving academic achievement:
Impact of psychological factors on educa-
tion* (pp. 135–158). San Diego, CA: Academic
Press.

Lewin, K. (1936). *Principles of topological psy-
chology.* New York: McGraw Hill.

Lewin, K. (1939). Field theory and experiment
in social psychology: Concepts and methods.
American Journal of Sociology, 44(6), 868–
896.

Lewin, K. (1947). Frontiers in group dynamics:
Concept, method and reality in social science;
social equilibria and social change. *Human
Relations, 1*(1), 5–41.

Liberman, V., Samuels, S. M., & Ross, L. (2004).
The name of the game: Predictive power of
reputations versus situational labels in deter-
mining prisoner's dilemma game moves.
*Personality and Social Psychology Bulletin,
30*(9), 1175–1185.

Loeb, S., & York, B. (2016). Helping parents
help their children. Retrieved from *www.
brookings.edu/research/papers/2016/02/18-
helping-parents-help-children-loeb-york*.

Lyubomirsky, S., Sousa, L., & Dickerhoof, R.
(2006). The costs and benefits of writing,
talking, and thinking about life's triumphs
and defeats. *Journal of Personality and Social
Psychology, 90*(4), 692–708.

Manke, K. J. (2016). *Stereotype threat persever-
ance.* Unpublished doctoral dissertation, Stan-
ford University, Palo Alto, CA.

Masten, A. S., & Cicchetti, D. (2010). Develop-
mental cascades [Special issue]. *Development
and Psychopathology, 22*(3), 491–495.

McGuire, W. J. (1960). A syllogistic analysis of
cognitive relationships. In M. J. Rosenberg &
C. I. Hoyland (Eds.), *Attitude organization*

and change (pp. 140–162). New Haven, CT:
Yale University Press.

Menec, V. H., Perry, R. P., Struthers, C. W.,
Schonwetter, D. J., Hechter, F. J., & Eichholz,
B. L. (2006). Assisting at-risk college students
with attributional retraining and effective
teaching. *Journal of Applied Social Psychol-
ogy, 24*(8), 675–701.

Milgram, S. (1963). Behavioral study of obedi-
ence. *Journal of Abnormal and Social Psy-
chology, 67*(4), 371–378.

Mischel, W. (2014). *The marshmallow test: Why
self-control is the engine of success.* New
York: Little, Brown.

Miyake, A., Smith-Kost, L., Finkelstein, N. D.,
Pollock, S., Cohen, G. L., & Ito, T. A. (2010).
Reducing the gender achievement gap in col-
lege science: A classroom study of values affir-
mation. *Science, 330,* 1234–1237.

Moffitt, T. E., Arseneault, L., Belsky, D., Dick-
son, N., Hancox, R. J., Harrington, H., et al.
(2011). A gradient of childhood self-control
predicts health, wealth, and public safety. *Pro-
ceedings of the National Academy of Sciences
USA, 108*(7), 2693–2698.

Morwitz, V. M., Johnson, E., & Schmittlein, D.
(1993). Does measuring intent change behav-
ior? *Journal of Consumer Research, 20*(1),
46–61.

Mullainathan, S., & Shafir, E. (2013). *Scarcity:
Why having too little means so much.* New
York: Times Books.

O'Rourke, E., Haimovitz, K., Ballwebber, C.,
Dweck, C. S., & Popović, Z. (2014). *Brain
points: A growth mindset incentive structure
boosts persistence in an educational game.*
Paper presented at the ACM Conference
on Human Factors in Computing Systems,
Toronto, Ontario, Canada.

Okonofua, J. A., & Eberhardt, J. L. (2015). Two
strikes: Race and the disciplining of young stu-
dents. *Psychological Science, 26*(5), 617–624.

Okonofua, J. A., Paunesku, D., & Walton, G.
M. (2016). Brief intervention to encourage
empathic discipline cuts suspension rates in
half among adolescents. *Proceedings of the
National Academy of Sciences USA, 113*(19),
5221–5226.

Paluck, E. L. (2009). Reducing intergroup prej-
udice and conflict using the media: A field
experiment in Rwanda. *Journal of Personality
and Social Psychology, 96*(3), 574–587.

Paluck, E. L., Shepherd, H., & Aronow, P.
(2016). Changing climates of conflict: A social
network driven experiment in 56 schools. *Pro-
ceedings of the National Academy of Sciences
USA, 113*(3), 566–571.

Paternoster, R., Brame, R., Bachman, R., &
Sherman, L. W. (1997). Do fair procedures

AU:
Month of
meeting?

matter?: The effect of procedural justice on spousal assault. *Law and Society Review, 31*(1), 163–204.

Pattwell, S. S., Casey, B. J., & Lee, F. S. (2013). Altered fear in mice and humans. *Current Directions in Psychological Science, 22*(2), 146–151.

Paunesku, D., Walton, G. M., Romero, C., Smith, E. N., Yeager, D. S., & Dweck, C. S. (2015). Mind-set interventions are a scalable treatment for academic underachievement. *Psychological Science, 26*(6), 784–793.

Pawson, R., & Tilley, N. (1997). *Realistic evaluation*. London: Sage.

Pennebaker, J. W., & Chung, C. K. (2011). Expressive writing: Connections to physical and mental health. In H. S. Friedman (Ed.), *The Oxford handbook of health psychology* (pp. 417–437). New York: Oxford University Press.

Powers, J. T., Cook, J. E., Purdie-Vaughns, V., Garcia, J., Apfel, N., & Cohen, G. L. (2016). Changing environments by changing individuals: The emergent effects of psychological intervention. *Psychological Science, 27*(2), 150–160.

Ramey, C. T., Campbell, F. A., Burchinal, M., Skinner, M. L., Gardner, D. M., & Ramey, S. L. (2000). Persistent effects of early childhood education on high-risk children and their mothers. *Applied Developmental Science, 4*(1), 2–14.

Raudenbush, S. W. (1984). Magnitude of teacher expectancy effects on pupil IQ as a function of the credibility of expectancy induction: A synthesis of findings from 18 experiments. *Journal of Educational Psychology, 76,* 85–97.

Reardon, S. F., Baker, R., & Klasik, D. (2012). Race, income, and enrollment patterns in highly selective colleges, 1982–2004. Retrieved from *http://inequality.stanford.edu/sites/default/files/reardon-baker-klasik_race_income_select_college.pdf.*

Rosenthal, R., & Jacobson, L. F. (2003). *Pygmalion in the classroom: Teacher expectation and pupils' intellectual development* (3rd ed.). Norwalk, CT: Crown House.

Ross, L. (1977). The intuitive psychologist and his shortcomings: Distortions in the attribution process. In L. Berkowitz (Ed.), *Advances in experimental social psychology* (Vol. 10, pp. 173–220). New York: Academic Press.

Ross, L., & Gilovich, T. (2015). *The wisest one in the room: How you can benefit from social psychology's most powerful insights*. New York: Simon & Schuster.

Ross, L., Lepper, M. L., & Hubbard, M. (1975). Perseverance in self-perception and social perception: Biased attributional processes in the debriefing paradigm. *Journal of Personality and Social Psychology, 32*(5), 880–892.

Ross, L., & Nisbett, R. (2011). *The person and the situation: Perspectives of social psychology* (2nd ed.). New York: McGraw-Hill.

Russell, D. (2017). *A literary history of tact: Aesthetic liberalism and the essay form*. Princeton, NJ: Princeton University Press. Manuscript in preparation.

Ryle, G. (2009). *Collected essays 1929–1968: Collected papers* (Vol. 2). Oxford, UK: Routledge. (Original work published 1971)

Sanbonmatsu, L., Kling, J. R., Duncan, G. J., & Brooks-Gunn, J. (2006). Neighborhoods and academic achievement: Results from the Moving to Opportunity experiment. *Journal of Human Resources, 41*(4), 649–691.

Sapolsky, R. (2010). Foreword. In C. M. Worthman, P. M. Plotsky, D. S. Schechter, & C. A. Cummings (Eds.), *Formative experiences: The interaction of caregiving, culture, and developmental psychobiology* (pp. xxiii–xxvi). New York: Cambridge University Press.

Schulz, R., & Hanusa, B. H. (1978). Long-term effects of control and predictability-enhancing interventions: Findings and ethical issues. *Journal of Personality and Social Psychology, 36*(11), 1194–1201.

Schwartz, D. L., Cheng, K. M., Salehi, S., & Wieman, C. (2016). The half empty question for socio-cognitive interventions. *Journal of Educational Psychology, 108*(3), 397–404.

Simmons, R. G., Black, A., & Zhou, Y. (1991). African-American versus white children and the transition into junior high school. *American Journal of Education, 99,* 481–520.

Skinner, B. F. (1969). *Contingencies of reinforcement: A theoretical analysis*. New York: Meredith Corporation.

Snyder, M., Tanke, E. D., & Berscheid, E. (1977). Social perception and interpersonal behavior: On the self-fulfilling nature of social stereotypes. *Journal of Personality and Social Psychology, 35*(9), 656–666.

Steele, C. M. (1988). The psychology of self-affirmation: Sustaining the integrity of the self. In L. Berkowitz (Ed.), *Advances in experimental social psychology* (Vol. 21, pp. 261–302). New York: Academic Press.

Steele, C. M. (1997). A threat in the air: How stereotypes shape intellectual identity and performance. *American Psychologist, 52*(6), 613–629.

Steele, C. M. (2010). *Whistling Vivaldi and other clues to how stereotypes affect us*. New York: Norton.

Steele, C. M., Spencer, S. J., & Aronson, J. (2002). Contending with group image: The psychology of stereotype and social identity threat. In

M. P. Zanna (Ed.), *Advances in experimental social psychology* (Vol. 34, pp. 379–440). San Diego, CA: Academic Press.

Sunstein, C. R. (2002). The law of group polarization. *Journal of Political Philosophy, 10,* 175–195.

Thaler, R. H., & Sunstein, C. R. (2009). *Nudge: Improving decisions about health, wealth, and happiness.* New York: Penguin Books.

Tyler, T. R., & Lind, E. A. (1996). A relational model of authority in groups. *Advances in Experimental Social Psychology, 25,* 115–191.

Unterman, R. (2014). Headed to college: The effects of New York City's small high schools of choice on postsecondary enrollment. Retrieved from *www.mdrc.org/sites/default/files/headed_to_college_pb.pdf.*

U.S. Government. (2014). The economics of early childhood investments. Retrieved from *www.whitehouse.gov/sites/default/files/docs/early_childhood_report1.pdf.*

Vohs, K. D., Park, J. K., & Schmeichel, B. J. (2013). Self-affirmation can enable goal disengagement. *Journal of Personality and Social Psychology, 104*(1), 14–27.

Walton, G. M. (2014). The new science of wise psychological interventions. *Current Directions in Psychological Science, 23,* 73–82.

Walton, G. M., & Cohen, G. L. (2003). Stereotype lift. *Journal of Experimental Social Psychology, 39,* 456–467.

Walton, G. M., & Cohen, G. L. (2007). A question of belonging: Race, social fit, and achievement. *Journal of Personality and Social Psychology, 92*(1), 82–96.

Walton, G. M., & Cohen, G. L. (2011). A brief social-belonging intervention improves academic and health outcomes of minority students. *Science, 311,* 1447–1451.

Walton, G. M., & Spencer, S. J. (2009). Latent ability: Grades and test scores systematically underestimate the intellectual ability of negatively stereotyped students. *Psychological Science, 20*(9), 1132–1139.

Wansink, B., Latimer, L. A., & Pope, L. (2016). "Don't eat so much": How parent comments relate to female weight satisfaction. *Eating and Weight Disorders.* [Epub ahead of print]

White, R. E., & Carlson, S. M. (2016). What would Batman do?: Self-distancing improves executive function in young children. *Developmental Science, 19*(3), 419–426.

White, R. E., Prager, E. O., Schaefer, C., Kross, E., Duckworth, A. L., & Carlson, S. M. (in press). The "Batman effect": Self-distancing improves perseverance in young children. *Child Development.*

Wilson, T. D. (2011). *Redirect: The surprising new science of psychological change.* New York: Little, Brown.

Wilson, T. D., Damiani, M., & Shelton, N. (2002). Improving the academic performance of college students with brief attributional retraining interventions. In J. Aronson (Ed.), *Improving academic achievement: Impact of psychological factors on education* (pp. 88–108). San Diego, CA: Academic Press.

Wilson, T. D., & Linville, P. W. (1982). Improving the academic performance of college freshmen: Attribution therapy revisited. *Journal of Personality and Social Psychology, 42*(2), 367–376.

Woodhead, M. (1988). When psychology informs public policy: The case of early childhood intervention. *American Psychologist, 43*(6), 443–454.

Worthman, C. M., Plotsky, P. M., Schechter, D. S., & Cummings, C. A. (Eds.). (2010). *Formative experiences: The interaction of caregiving, culture, and developmental psychobiology.* New York: Cambridge University Press.

Yeager, D. S., Lee, H. Y., & Jamieson, J. P. (2016). How to improve adolescent stress responses: Insights from integrating implicit theories of personality and biopsychosocial models. *Psychological Science.* [Epub ahead of print]

Yeager, D. S., Purdie-Vaughns, V., Garcia, J., Apfel, N., Brzustoski, P., Master, A., et al. (2014). Breaking the cycle of mistrust: Wise interventions to provide critical feedback across the racial divide. *Journal of Experimental Psychology: General, 143*(2), 804–824.

Yeager, D. S., Purdie-Vaughns, V., Yang, S., & Cohen, G. L. (in press). Declining institutional trust among racial and ethnic minority adolescents: Consequence of procedural injustice, cause of behavioral disengagement. *Child Development.*

Yeager, D. S., & Walton, G. M. (2011). They're not magic: Social-psychological interventions in education. *Review of Educational Research, 81,* 267–301.

Yeager, D. S., Walton, G. M., Brady, S. T., Akcinarb, E. N., Paunesku, D., Keane, L., et al. (2016). Teaching a lay theory before college narrows achievement gaps at scale. *Proceedings of the National Academy of Sciences USA, 113*(24), E3341–E3348.