Chapter 26

Self-Theories, Goals, and Meaning

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Goals lie at the heart of motivation, and thus of psychology. From Freud, Jung, and Adler, to the learning theorists like Hull and Tolman, to more and more researchers today, motivation has been recognized as the organizing and energizing force behind all actions.

Many chapters in this book deal with the nature and workings of goals, and so, in large part, does this one. But this chapter also deals with the question of what orients people toward certain goals—and *then* what happens once they are so oriented. More specifically, in this chapter we review research on people's self-theories and the goals they give rise to. We then show how the self-theories and goals together create a system of meaning that shapes interpretations of self-relevant stimuli and events, influencing how people understand their own experience, and guiding their affect, cognition, and behavior. In this way, self-theories and their allied goals determine important outcomes in academic, social, business, and sports settings.

SELF-THEORIES

The self-theories we focus on here are people's beliefs about their personal attributes. Do they believe that their important attributes (such as their intelligence or personality) are fixed traits or malleable qualities—things they can't change or things they can? We measure people's self-theories by asking them to agree or disagree with statements such as "Your intelligence is something basic about you that you can't really change," or "No matter who you are, you can substantially change your level of intelligence." When people predominantly agree with statements like the first, they are said to hold an *entity theory*, or the belief that the quality in question is fixed. However, when they predominantly agree with statements like the second one, they are said to hold an *incremental theory*, or the belief that the quality in question can be increased or cultivated through their efforts.

Frequency of Endorsement

Both types of theories appear to be equally endorsed in North American society, even though members of our culture have the reputation of being mainly entity theorists. Whether we are measuring children's or adults' self-theories, about 40% of our participants favor an entity theory, another 40% favor an incremental theory, and about 20% are more or less undecided (see Dweck, 1999).

Stability and Malleability

How stable are people's self-theories? They have been found to be relatively stable individual differences (see, e.g., Robins & Pals, 2002), but at the same time—like many knowledge structures—they can also be taught or experimentally primed. For example, in the laboratory, participants are often taught an entity or an incremental theory by reading persuasive scientific articles that argue the case for one theory or the other (Bergen, 1991; Levy, Stroessner, & Dweck, 1998; Niiya, Crocker, & Bartmess, 2004). The articles present evidence that intelligence or personality is an inborn trait that resists efforts to change it, or, on the other hand, is an attribute that can be developed through effort and experience. After reading these articles, people in these studies respond in a way that mirrors the responses of chronic entity or incremental theorists.

In other studies, people are given instructions that the task they are about to work on either measures an inherent fixed ability or involves skills that can be learned. This has been done for such different abilities as intellectual skills (e.g., Aronson, 1998; Martocchio, 1994), physical skills (e.g., Jourden, Bandura, & Banfield, 1991), and managerial skills (e.g., Wood & Bandura, 1989).

People's self-theories can also be changed in more permanent ways by means of interventions that teach a particular theory and its applicability (Aronson, Fried, & Good, 2002; Blackwell, Trzesniewski, & Dweck, 2007; Good, Aronson, & Inzlicht, 2003). As we will see, these interventions have succeeded in enhancing students' motivation and achievement.

Generality of Theories

Do people tend to hold the same theory across different attributes? Although there is some correlation of self-theories across attributes, people can hold different theories for different qualities. For example, they can believe that their intelligence is malleable but that their personality is fixed. They can even think that part of their intelligence (say, their verbal ability) is malleable, but that another part (e.g., their mathematical ability) is fixed. The theory they hold for a particular ability or attribute will predict their goals and affect–behavior patterns in that area.

Accuracy of Theories

Is one theory correct? There are few subjects that have been as hotly debated as the fixity versus malleability of intelligence or human nature. As we're always told, it's never an either–or situation; not genes *or* environment, nature *or* nurture. However, evidence increasingly suggests that key aspects of many abilities can be acquired, thus lending credence to an incremental theory (e.g., Brown, 1997; Nickerson, Perkins, & Smith, 1985; Sternberg, 1985, 2005). It might also surprise people to learn that Alfred Binet, the inventor of the first IQ test, was a strong advocate of an incremental theory of intelligence. He did not invent his test to measure a fixed entity, but to identify children who needed different programs to spur their intellectual growth (Binet, 1909/1973; Siegler, 1992).

Nevertheless, the central point here is that *the self-theory that people adopt* has important consequences for their motivation and achievement.

THE IMPACT OF SELF-THEORIES ON GOALS, SELF-ESTEEM, AND ACHIEVEMENT

We begin our examination of research with four longitudinal studies that monitored students across challenging educational transitions (Blackwell et al., 2007; Cury, Elliot, Da Fonseca, & Moller, 2006; Robins & Pals, 2002; Trzesniewski & Robins, 2003), since it is in the face of challenge that self-theories matter most. It is when people experience difficulty that it matters what they think they are made of—things they can learn and change or things they can't.

These four studies all measured students' theories of intelligence, their goals, and other motivation-relevant factors, and then tracked

their self-esteem and/or their achievement over the next year or more. In every case, students' self-theories significantly predicted changes in their self-esteem or grades (of course, controlling for past self-esteem or grades), and in each case, these changes were significantly mediated by students' goals.

Specifically, students who held an entity theory were often more likely than those with an incremental theory to endorse *performance* goals. Believing that their intelligence was fixed, they were more concerned with documenting their intelligence though their performance. In other words, if they had a fixed amount of intelligence, they believed they had better demonstrate that they had a lot of it. Thus they agreed more with statements that emphasized the goal of getting high grades to validate their ability over the goal of seeking challenges and learning new things.

In contrast, students who held an incremental theory were more likely than those who held an entity theory to endorse *learning* goals. Believing that their intelligence could be cultivated, they were more concerned with gaining skills and knowledge. Thus they agreed more with statements that emphasized the goal of mastering new tasks and acquiring new knowledge (e.g., "The knowledge I gain in school is more important than the grades I receive"; Robins & Pals, 2002).

In the first study, by Robins and Pals (2002), 363 University of California–Berkeley students were followed over their years of college. Self-theories of intelligence (entity vs. incremental theories) significantly predicted the goals students held (learning vs. performance goals) and the changes in their self-esteem (increases vs. decreases). Path models showed that there were significant paths from self-theories through goals to self-esteem change. The more students held an entity theory and the more they endorsed performance goals, the more their self-esteem eroded over their college years. In contrast, the more they held an incremental theory and endorsed learning goals, the more they experienced a growth in self-esteem as they went through college. Moreover, it was the students' self-theories and goals, not differences in their academic success and failure, that accounted for the different trajectories of self-esteem.

With a younger sample, Trzesniewski and Robins (2003) followed students from their last semester of grade school (grade 5) through their first three semesters of middle school.

They measured students' theories of intelligence, along with other motivation-relevant variables, and then tracked students' self-esteem and math grades. Path analyses again showed that an incremental (vs. entity) theory, by orienting students toward learning (vs. performance) goals, led to increasing (vs. decreasing) self-esteem and grades (with the change in self-esteem mediating the change in grades). Interestingly, in spite of the fact that the math grades were decreasing for the sample as a whole (as they often do in these transitional years), the students who held an incremental theory showed increasing grades during this time.

In a study by Blackwell and colleagues (2007), students were tracked over their transition to junior high school (seventh grade) until the end of eighth grade. Although both entity and incremental theorists entered junior high with equivalent grades, the two groups diverged in math grades by the end of their first semester and pulled farther and farther apart as time wore on. Again, the grades of the incremental theorists rose every semester. Moreover, path analysis showed that the change in grades was not predicted at all by past grades, but instead by students' self-theories and goals,

Recent research by Cury and colleagues (2006) lends further support to our analysis. Again, following adolescents through a semester of math, Cury and colleagues showed that theories of intelligence predicted students' math grades, and that this effect was mediated through their achievement goals. In a second study, they *manipulated* adolescents' theories of intelligence and showed that this affected their scores on an IQ test. Students who were taught an incremental theory earned higher IQ scores, and this effect was in large part mediated through their achievement goals.

HOW DOES IT HAPPEN?

How do the self-theories and goals work? That is, what are the processes through which they produce their effects? The studies we have just reviewed, along with other research, shed light on these processes.

Self-Theories Foster Goals

First, as we have noted, self-theories create a framework in which certain goals become

more important than others. A dramatic demonstration of how an entity theory makes validating intelligence more important than learning comes from a study by Hong, Chiu, Dweck, Lin, and Wan (1999). The study was conducted at the University of Hong Kong, perhaps the premier institution of higher learning in Hong Kong, where everything takes place in English—all classes, reading, papers, and exams. In other words, proficiency in English is a necessity for success. Unfortunately, not all the students who enter the university come prepared to conduct their academic lives in English. Thus, for many of them, some language instruction would be highly advantageous.

As entering students registered for their classes, their theories of intelligence were assessed; their English proficiency scores were obtained; and they were asked the following: "If the faculty offered a remedial English class, how likely would you be to take it?" Among students with low proficiency in English, the incremental theorists indicated that they were highly likely to take such a course. However, the entity theorists, in spite of their low proficiency, were not particularly interested. It seems that rather than reveal a deficiency and remedy it, they would prefer to put their academic careers at risk.

Self-Theories and Goals Foster Helpless versus Mastery-Oriented Reactions

Next, self-theories and goals together set up a framework in which people interpret and respond to setbacks. Within an entity theory and performance goal framework (where people believe in fixed ability and have the goal of validating their ability), setbacks reveal permanent inadequacies. Within an incremental theory and learning goal framework (where people believe in expandable ability and have the goal of augmenting their ability), however, setbacks simply provide information about which strategies work and which do not.

In each of the four longitudinal studies described above, self-theories and goals set up helpless versus mastery-oriented attributions and reactions to difficulty. In all cases, there were significant paths from self-theories though goals to the helpless versus mastery-oriented reactions, although there were typically some direct paths from self-theories to these reactions as well.

The helpless response, which followed from an entity theory and performance goals, included both low-ability attributions for failure (Blackwell et al., 2007; Robins & Pals, 2002; Trzesniewski & Robins, 2003) and ineffective (or no) strategies in the face of setbacks (Blackwell et al., 2007; Cury et al., 2006; Robins & Pals, 2002; Trzesniewski & Robins, 2003). Within this framework, responses to failure or the threat of failure have also been found to include *self-handicapping* (Rhodewalt, 1994), a defensive strategy in which people fail to prepare properly for an upcoming task in an effort to ward off low-ability attributions; the intent to cheat (Blackwell et al., 2007); and the tendency to lie about a poor score (Mueller & Dweck, 1998). Thus, when inadequacies are revealed or are likely to be revealed, this framework provides no good recipe for future success. Instead, it often prompts people to give up or to engage in defensive strategies intended to hide their inadequacies—often at cost to their future learning. La Rochefoucauld, the French master of the epigram, once noted that almost all of our faults are preferable to the methods we devise to hide them.

In contrast, the mastery-oriented reactions (which followed from an incremental theory and learning goals) included effort or strategy attributions for failure (Blackwell et al., 2007; Robins & Pals, 2002; Trzesniewski & Robins, 2003), as well as more vigorous and effective strategies in the face of setbacks (Blackwell et al., 2007; Cury et al., 2006; Robins & Pals, 2002; Trzesniewski & Robins, 2003). Robins and Pals (2002) also measured affective responses to setbacks, and here a helpless response included distress and shame, whereas a mastery-oriented response included feeling determined and enthusiastic.

Helpless versus Mastery-Oriented Reactions Predict Self-Esteem and Grades

In all of the longitudinal studies discussed above, the helpless versus mastery-oriented reactions were key components of the path models that led from self-theories to changes in self-esteem or grades. These reactions typically constituted the final path to self-esteem or grades. Thus self-theories, both directly and indirectly (i.e., by encouraging certain goals), set up students' reactions to difficulty, which went on to predict the course of their self-esteem and achievement.

A study of ours (Grant & Dweck, 2003) sheds further light on the mastery-oriented re-

actions that lead to higher grades. In this study, students were followed in their college chemistry course, a highly difficult course that is the gateway to the premedical curriculum. Their goals were assessed at the outset, and periodically throughout the semester, they were asked about the study strategies they used to confront the difficult material. The more students had learning goals, the more they used deeper study strategies (e.g., searching for underlying principles that ran through the material), and this mediated the higher course grades that students with learning goals earned.

In a follow-up study, we (Grant & Dweck, 2004) found that the students with strong learning goals also used other strategies that predicted higher grades. They engaged in active self-regulation of their course-relevant motivation and emotions. For example, they did things to maintain their interest in the material and their motivation to study. They also did things to manage their level of stress. In short, these students took charge of the processes that brought about success in the face of challenge. It is not surprising that they were also the ones who were able to recover from an initially poor exam grade in the course, whereas students with strong performance goals generally did not.

Implications

These findings have a number of practical and theoretical implications. First, they show that the self-theories (and the allied goals) that students favor as they confront a challenging school environment are important determinants of how they feel about themselves and how well they perform. This raises the question of whether altering students' self-theories might enhance their academic attitudes and performance. We return to this later.

But the findings also show that attributions and coping reactions—as important as they are in this process—*arise* from the self-theories and goals that students hold. Not only has this been shown in the path analyses in the studies described above; it has also been shown in experimental studies in which self-theories have been manipulated (Hong et al., 1999) or goals have been fostered (Mueller & Dweck, 1998). This means that attributions and coping reactions should not be studied in isolation, but rather should be examined as part of the *meaning system* in which they arise. A system that encourages an emphasis on fixed traits and the validation of those traits will lead to different attributions and coping reactions than will one that encourages an emphasis on expandable qualities and the growth of those qualities.

IMPACT ON INTRINSIC INTEREST

Self-theories can affect performance not only through their impact on helpless versus mastery-oriented reactions to difficulty, but also through their impact on intrinsic interest. Put simply, people working within an entity theory framework do not enjoy learning, if by *learning* we mean working on something they're not (yet) good at. In contrast, those working within an incremental framework do enjoy learning hard things, since this is the way to increase their ability.

In a study by Butler (2000), students worked on a set of problems and were then given results showing that their performance had either decreased or increased over time. Following this feedback, they were asked how interesting they had found the problems to be, how interested they would be in receiving more of these problems to work on, and how interested they would be in working on more problems in their spare time. Those students with an incremental theory indicated higher interest when they believed that their performance had improved rather than declined over time. This is consistent with an emphasis on learning, since an ascending level of performance on the problems would indicate learning over time. In contrast, entity theorists showed a trend toward reporting greater interest when their performance had *decreased* over time. This is consistent with the idea that initially high performance indicates high inherent ability. (This trend was obtained even though decreasing performance could be taken to reflect slackening interest.)

In the Grant and Dweck (2003) study described above, students with learning goals who fared poorly on their initial exams nonetheless maintained their high level of interest in the course. However, students with performance goals who fared poorly initially, showed a marked loss in their interest and enjoyment in the course.

Finally, in a study by Mueller and Dweck (1998), students were given either intelligence-related feedback that induced an entity theory and performance goals, or process-related feedback that induced an incremental theory and learning goals. After a set of hard problems,

those in the incremental theory framework retained their zest for the problems, whereas those in the entity theory framework showed a sharp decline. If it isn't easy, it isn't fun.

Dweck, Mangels, and Good (2004; see also Mangels, Butterfield, Lamb, Good, & Dweck, 2006) examined this zest (or lack of zest) for learning at a neural level. Using event-related potentials (ERPs), they tracked people's attentional strategies as they worked on a difficult general information task. College students wore caps outfitted with electrodes as they attempted to answer difficult questions relating to such subjects as history, geography, or popular culture. Shortly after they typed an answer into the computer, they were given information about whether their answer had been right or wrong (ability-related feedback). And shortly after that, they were given information about the correct answer (learning-relevant feedback). Analysis of the ERPs revealed what information the students were most interested in—that is, what kind of information they harnessed their attention for.

Incremental theorists harnessed their attention for both the ability-relevant and learning-relevant feedback, since in fact both types of feedback (in this case, knowing whether they were right or wrong, and determining what the right answer is) are important for learning. In contrast, entity theorists harnessed their attention for the ability-relevant feedback, but once they found out whether they were right or wrong, that was it. They showed little sign of interest in learning the right answer. Not surprisingly, incremental theorists' pattern of attention led to greater learning, as reflected in the number of previously missed questions they got correct on a retest.

It is not simply on intellectual or academic tasks that this effect occurs. A number of researchers have measured or induced self-theories and then tracked people's affect or enjoyment as they learned other kinds of difficult skills. These have included perceptual–motor skills (Jourden et al., 1991), computer skills (Martocchio, 1994), and managerial skills (Tabernero & Wood, 1999).

In the study by Jourden and colleagues (1991), for example, people learned a difficult perceptual–motor skill, but before they did, they were given an entity or incremental orientation toward the task. People in the entity condition were told that performance was determined by inherent aptitude, whereas people in

the incremental condition learned that their performance reflected an acquirable skill. As they proceeded on this difficult learning task, entity theorists showed low interest in the activity—and, interestingly, showed no growth in confidence over the learning trials, even though they were getting better. Those in the incremental condition, on the other hand, showed strong interest in the activity, a growth in confidence, and a higher level of skill attainment. For entity theorists, the continued difficulty of the task was a source of distress, whereas for incremental theorists, the progress was a source of growing confidence and of enjoyment.

INTERVENTIONS

If self-theories underlie important patterns of motivation and behavior, then changing people's self-theories should bring about changes in these patterns. To date, several interventions have demonstrated just this (Aronson et al., 2002; Blackwell et al., 2007; Good et al., 2003). In each case, a relatively modest intervention resulted in appreciable changes in academic motivation and achievement.

In one intervention study, Blackwell and colleagues (2007) designed and administered an eight-session workshop to seventh-grade students. All of the students in the study were given sessions on study skills and learned a host of useful things that could aid them in their schoolwork. However, half of the students were also taught an incremental theory of intelligence and ways to use this concept in their studies. Specifically, students were taught (à la Aronson et al., 2002) that their brains form new connections every time they learn, and that in this sense, learning changes their brains and over time makes them smarter. Thus they were taught that they were in charge of their brains and could choose to make new neural connections if they applied themselves.

Before the intervention, students' math grades had been sharply declining. After the intervention, the math grades of the students in the control group continued to decline, even though they had received study skill training and other potentially useful information. In contrast, the students who had been given the incremental intervention showed a marked recovery in their grades and were now earning significantly higher grades than

their peers in the control group. Just as striking was the fact that teachers (who were unaware of students' experimental conditions) singled out significantly more students in the incremental intervention as having shown positive motivational change. The teachers described in detail changes in these students' orientation toward learning and their valuing of improvement—the precise things that one would expect to be fostered by an incremental framework. Interestingly, the gains in achievement were shown mostly for students who entered the intervention holding an entity theory about their intelligence. This underscores the idea that it was a change in self-theory that brought about the beneficial changes, and not some other secret ingredient in the incremental intervention.

Good and colleagues (2003) conducted an impressive intervention, also with junior high school students. In this study, students were taught an incremental self-theory as part of a course on computer skills. The students in the incremental intervention group had college students as mentors, who taught them the incremental theory, helped them design a web page about the incremental theory, and had e-mail exchanges with them on the incremental theme. At the end of the year, statewide achievement tests were administered, and these students were compared to students in the control group, who had engaged in similar activities (having mentors, web page building, e-mailing with mentors) but organized around an anti-drug message. The group that had received the incremental intervention showed substantially and significantly higher achievement test scores in both reading and math.

As noted above, both of these interventions were relatively modest, compared with many lengthy and costly educational interventions. This fact brings home the idea that when one pinpoints a belief that is at the core of a motivational pattern, simply altering that belief (and demonstrating how the new belief can be put into practice) can have a cascade of beneficial effects.

STEREOTYPE THREAT

Within an entity theory framework, every challenge or difficulty can be a threat to the self. Is this doubly true when an individual is a member of a negatively stereotyped group?

Virtually everyone is now familiar with the phenomenon of *stereotype threat*. Stereotype threat occurs when a member of a negatively stereotyped group feels in danger of confirming the negative stereotype, as when a woman feels in danger of confirming the stereotype of low math ability, or an African American student feels in danger of confirming the stereotype of poor academic ability. This concern has been found to result in seriously impaired performance on difficult tests of ability (Steele & Aronson, 1995).

It is plausible to assume that holding an entity theory of ability may exaggerate the impact of stereotype threat. The entity theory conveys that the ability in question is fixed—"You have it or you don't." And the stereotype is saying, "You don't." Thus entity theorists may be highly concerned about their ability in situations in which stereotypes are evoked. In contrast, an incremental theory conveys the idea that the ability in questions is acquirable or improvable. Thus the stereotype may have less sting. First, an incremental theory makes it less credible that your group has permanently low ability; second, it implies that even if you have less ability now, you can make gains if you apply yourself (i.e., if you pursue learning goals).

Aronson (1998) tested this idea. He gave African American college students a test of intellectual ability that was presented in an entity theory or an incremental theory context. In the entity theory condition, a very strong stereotype threat effect was obtained. However, when an incremental theory of ability was highlighted, the African American students did not fall prey to stereotype threat—even though the negative stereotype was made salient.

Good, Rattan, and Dweck (2004) went on to explore these effects for women and math, in a study of several hundred college women pursuing their first calculus course. In this study, they assessed (1) the degree to which the women in these courses perceived a high degree of negative stereotyping about women and math; and (2) the degree to which the women perceived an entity theory or an incremental theory of math ability in their class environment. They followed these women over the semester, monitoring what happened to their sense of belonging and their intention to take math in the future.

Good and colleagues (2004) found that when women perceived a high degree of stereotyping (stereotype threat) *and* an entity theory

environment, their sense of belonging dwindled over the course of the semester. In other words, they felt less and less accepted and comfortable in their math environment as time went on. They also felt decreasing confidence in their math abilities, even though they entered with SAT scores that were at least the equals of those of the other groups. Finally, their lowered sense of belonging led to a decreased intention to take math again in the future—even among women who had performed well. This means that even when stereotype threat does not undermine performance per se, it can still undermine individuals' comfort in an area and their desire to continue in that area. In contrast, when women felt a high degree of stereotype threat but perceived that they were in an incremental math environment, they were able to maintain a strong sense of belonging and retain a commitment to take math in the future. Thus an incremental theory appeared to protect women against the negative effects of the stereotype.

Would an incremental intervention decrease the impact of stereotype threat?

STEREOTYPE THREAT: AN INCREMENTAL INTERVENTION

Aronson and colleagues (2002) addressed this question in a study of African American (and European American) college students. One-third of students received an incremental intervention, which taught them about the way in which the brain forms new connections each time something new is learned. This lesson was emphasized by having them teach the incremental theory to younger students they were tutoring. There were two control groups: one that received no treatment, and one that learned about *multiple intelligences*—the idea that people have many forms of intelligence (so that a failure in one domain does not mean a lack of intelligence in all domains).

At the end of the semester, the African American students in the three groups did not differ in the degree to which they perceived stereotype threat in their school environment. But they did differ in their ability to enjoy school and perform well in the face of the threat. Compared to the two control groups (which did not differ from each other), the students in the incremental intervention group (1) valued academic work significantly more, (2) enjoyed

their academic work significantly more, and (3) earned significantly higher grade point averages for the semester. Once again, a relatively modest self-theory intervention yielded widespread benefits: An incremental theory allowed students to retain pleasure and efficacy in their work, despite stereotypes that might surround them.

SELF-THEORIES IN OTHER DOMAINS

Self-theories can influence motivation in any domain in which people believe their attributes can be judged or improved. So far we have concentrated on intellectual ability, but self-theories have also been shown to be important to motivation across many other areas, including interpersonal or relationship skills (Beer, 2002; Kammrath & Dweck, 2006; Knee, 1998; Knee, Nanayakkara, Vietor, Neighbors, & Patrick, 2001; Knee, Patrick, Vietor, & Neighbors, 2004; Ruvolo & Rotondo, 1998), sports (Biddle, Wang, Chatzisaray, & Spray, 2003; Ommundsen, 2001, 2003; Sarrazin et al., 1996), and business or managerial skills (Heslin, Vandewalle, & Latham, 2005; Maurer, Wrenn, Pierce, Tross, & Collins, 2003; Tabernero & Wood, 1999; Wood & Bandura, 1989; Wood, Philips, & Tabernero, 2002). In each case, self-theories have been linked to analogous patterns of motivation and behavior.

Social Relationships

Self-theories influence intimate relationships (Kammrath & Dweck, 2006; Knee, 1998; Knee et al., 2001, 2002; Ruvolo & Rotondo, 1998), as well as peer relationships in both children (Erdley, Cain, Loomis, Dumas-Hines, & Dweck, 1997) and adults (Beer, 2002). Entity and incremental theories predict many of the same patterns of goals, attributions, affective responses, and coping strategies in relationships that have been found in the domain of intelligence. Studies by Beer (2002) nicely illustrate the impact that self-theories have in moderating individuals' reactions to interpersonal threat, as well as their role in determining social competence. Beer measured people's self-theories of shyness, with items such as "My shyness is something about me that I can't change very much" (entity theory) and "I can change aspects of my shyness if I want to" (incremental theory). People also reported on

their level of shyness by rating the extent to which they exhibited the physiological (e.g., racing pulse), observable (e.g., reduced eye contact), and cognitive–emotional (feelings of anxiety) components of shyness.

In one study, participants were given a choice: to pursue a learning goal (an opportunity to learn some social skills that might help them overcome their shyness, at the cost of possibly appearing awkward on the videotape), or to pursue a performance goal (an opportunity to be paired with people of lesser social ability, so that the shy participants' social skills would compare favorably to those of the others). As expected, shy incremental theorists were more likely than shy entity theorists to opt for the learning goals. In addition, shy incremental theorists also exhibited more approach tendencies than shy entity theorists (agreeing more that "If the chance comes to meet new people, I often take it") and fewer avoidance tendencies (such as avoiding social situations, avoiding eye contact, or preventing the conversation from focusing on them).

Subsequently, participants engaged in an actual dyadic interaction. During the interaction, they rated themselves over three 5-minute time periods and were also rated by observers. In the first 5-minute period, entity and incremental theorists reported engaging in similar levels of avoidant strategies, and observers rated both groups as exhibiting equally high levels of avoidant behavior. In the second and third periods, however, clear differences emerged. Shy entity theorists reported (and were judged by observers to engage in) significantly higher levels of avoidant behavior than shy incremental theorists. Importantly, whereas all shy people were perceived by observers as shy and nervous throughout the interaction, observers rated shy incremental theorists as having fewer undesirable social consequences of their shyness. Specifically, in the second and third periods they were perceived to be more socially skilled, likeable, and enjoyable to be with than their entity counterparts.

Thus, in this arena as well, people's self-theories are linked to other motivational variables, such as goals (Beer, 2002; Erdley et al., 1997; Knee, 1998), attributions (Erdley et al., 1997), and mastery-oriented versus helpless responses to threat (Beer, 2002; Kammrath & Dweck, 2007; Knee et al., 2002), and lead to more or less favorable outcomes.

Sports

Entity and incremental theories of athletic ability have been studied by Biddle and his colleagues (Biddle et al., 2003; Sarrazin et al., 1996), who examined the impact of self- theories on young people's motivation for sports and physical activity. To do so, they devised a questionnaire to assess theories of sports ability, containing items such as "You have a certain level of ability in sport and you cannot really do much to change that level" (entity belief), and "How good you are at sport will *always* improve if you work harder at it" (incremental belief). The incremental theory predicted feeling successful when learning goals were achieved ("when I improve and master new things") and overall greater enjoyment of sports. In contrast, the entity theory predicted feeling successful when performance goals were achieved ("when I beat out others") and *amotivation* (the belief that sports are a waste of time).

Complementing these findings, Ommundsen (2001, 2003) showed that an incremental theory predicted better use of self-regulatory strategies in sports (e.g., being willing to ask for help when necessary). Entity beliefs predicted failure to take an analytic stance toward one's learning strategies, not asking for help, and abandoning activities when they became difficult. They also predicted higher anxiety and less enjoyment of physical activity. In addition, entity beliefs predicted use of self-handicapping strategies, as they did in the academic domain.

Thus, in the domain of sports and athleticism, self-theories predict many of the same variables as in the academic domain: learning versus performance goals, mastery-oriented versus helpless learning strategies, and intrinsic motivation versus amotivation or anxiety.

Organizational Behavior

In the arena of organizational behavior, Wood and his colleagues (Tabernero & Wood, 1999; Wood & Bandura, 1989; Wood et al., 2003) tracked individuals and monitored their development of managerial skills as they worked on a complex task (see also Maurer et al., 2003), both as individuals and in groups. Entity and incremental theories of managerial ability were either measured (in some studies) or experimentally induced (in others). The managerial decision-making task involved matching em-

ployees' attributes to the different jobs in the organization, and learning over trials how best to facilitate the attainment of the production quota for each employee. In order to determine the best solutions, participants had to engage in continual hypothesis testing, and had to revise their strategies as a function of the feedback.

In one study (Wood & Bandura, 1989), participants, working as individuals, had self-theories induced by being told either that the required skills were a function of their underlying cognitive capacities (entity induction) or that the skills were developed through practice (incremental induction). Although both groups began the task with confidence, those in the entity group showed a progressive decrease in self-efficacy across trials as they struggled to meet the demanding production quotas of the task. In addition, they set less challenging goals across trials; they became less efficient in their use of strategies; and their performance steadily declined. In contrast, those in the incremental group maintained their sense of efficacy, became more systematic in use of strategies, and sustained a high level of performance.

In another study (Wood et al., 2003, Study 2), people's theories of managerial ability were measured, and work groups were formed; each group was composed of either three incremental theorists or three entity theorists. The groups worked together for several weeks, and were then given the same managerial decision-making task described above. The two groups started out with similar attributions, group efficacy, and group goals, but began to diverge over the course of the task. Whereas the entity groups tended to blame uncontrollable factors (i.e., the task, their ability, luck) for their difficulty, incremental groups chose strategy attributions instead. Compared to the entity groups, the incremental groups also increased in efficacy over trials and set higher goals for themselves on the later trials.

Finally, the processes occurring in the two types of groups differed in important ways. Members of the incremental groups openly stated their opinions and expressed disagreements. They were also, as groups, more focused on the task and more effective in their use of time. This greater focus on the task, the more challenging group goals, and the strategy attributions mediated the effects of people's entity or incremental theories on group performance: Incremental groups' superior performance emerged early and became even more pronounced over time. Entity theorists, more concerned about their fixed managerial ability, appeared to fall prey to a *groupthink* process (Janis, 1972), in which frank discussions were not held and disagreements were not aired.

Kray and Haselhuhn (in press), in new research, looked at the impact of self-theories on success in negotiations. In one study, they manipulated people's entity versus incremental theories about negotiation skills by having them read either an article entitled "Negotiation Ability, like Plaster, Is Pretty Stable over Time," or one entitled "Negotiation Ability Is Changeable and Can Be Developed." Following the manipulation, participants were asked to select goals for the upcoming negotiation task. The performance goal task was described as one in which people could show off their negotiation skills, although they would not learn anything new. In the learning goal task, people were told that they might make mistakes and get confused, but they would learn some useful negotiation skills. Eighty-eight percent of the people who received the incremental theory induction chose the learning goal, whereas only 53% of those in the entity theory condition made this choice. Moreover, the more people adopted an incremental theory, the more likely they were to opt for learning over performance goals. In two subsequent studies, Kray and Haselhuhn went on to demonstrate the causal role of self-theories in negotiation performance. On all measures of negotiation performance, those with an incremental theory outperformed those with an entity theory, due in large part to their mastery-oriented responses to the challenging negotiation tasks.

In summary, many of the same factors that mediate the effects of self-theories on performance in other settings—goals, attributions, and mastery-oriented versus helpless learning strategies—appear to be at play in organizational decision making and negotiation as well.

CONCLUSION

Psychologists agree that human behavior is largely purposeful, and motivation researchers are documenting the precise ways in which individuals' purposes (or goals) energize and shape their behavior. To this, we bring the ideas (1) that self-theories play an important role in determining the goals that people pursue; and (2) that, together, self-theories and goals create

systems of meaning that lend particular significance to events in people's lives, directing their responses to those events. We have presented evidence from a wide variety of domains (the academic, social, business, and sports arenas) to show the influence of people's self-theories and goals on their preferences, actions, feelings, and (ultimately) their success.

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