

CHAPTER 20



Legislating Competence

*High-Stakes Testing Policies and Their Relations
with Psychological Theories and Research*

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The development of competence in schools is an increasing focus of national concern in countries across the globe. This concern is fueled by the fact that educational outcomes, broadly considered, are linked with the health and economic well-being of nations. Beyond the obvious economic and health value of schooling to the individual person, the general expansion of education within a nation is associated with a host of outcomes, from reduced mortality and fertility to increased economic productivity and positive social change (Sen, 1999).

Because of the importance of the development of competence, governments are also increasingly attempting to legislate ways to enhance educational opportunities and outcomes. Yet much controversy exists about the appropriate ways governments can stimulate improved schools and greater academic achievement, and what kind of improvements in achievement are actually

meaningful for the health and economic well-being of a nation. This issue is international and occupies headlines from Great Britain to South Korea.

In the United States, state and federal government policies aimed at obtaining greater "accountability" and "higher standards" have especially stimulated controversy. These recent policy initiatives attempt to improve school performance through *high-stakes testing* (HST). Specifically, high-stakes policies represent a two-pronged approach to reform. The first prong entails increased testing to gauge how students, teachers, and schools are performing relative to each other, and relative to the *standards* that government agencies determine all students should meet. The second prong carries the motivational component: This testing has teeth. The attainment of standards is motivated or enforced by *high stakes* in the form of rewards and punishments, such as

financial incentives and job security for educators, and grade retention versus promotion for students. HST reform has become, in short order, the most dominant pressure in America's public schools and is rapidly reshaping teaching practice and curricular contents across the nation.

What is most interesting about this approach to reform, for the purposes of this volume, is that HST policies reflect particular theories of motivation and achievement. Specifically, high-stakes reform approaches represent a view of competence promotion and teaching that reflects an operant theory of motivation (Kellaghan, Madaus, & Raczek, 1996) and a view of educational outcomes that is more closely aligned with those espousing performance goals rather than mastery or learning goals (Deci & Ryan, 2002); that is, the governmental policy is founded on the idea that making rewards and punishments more salient and contingent on test score outcomes is the most appropriate and effective way of ensuring greater student effort and learning, and more effective teaching. As such, this social policy enacts a behavioristic motivational philosophy and represents a natural experiment in the social psychology of competence. It is a policy that suggests that high-quality educational motivation is a function of external incentives, a view that at least some psychologists support (e.g., Eisenberger, Pierce, & Cameron, 1999; Hidi, 2002).

In contrast, several theories in contemporary motivational psychology predict that attempting to enhance achievement in schools through such external controls will yield some highly negative results, based on the properties of the type of motivation it incites. In particular self-determination theory (Deci & Ryan, 1985; Ryan & Deci, 2000) explicitly predicts important costs of implementing such an approach to motivating competence in public schools. Similarly, some tenets of modern goal theories (e.g., Dweck, 1991; Nicholls, 1984; Elliot, 1999) also suggest potential costs of a focus on demonstrating performance outcomes. Thus, what is scientifically engaging about the social policy debate and implementation is that results of reform should be interpretable, in accord with the varying predictions of these psychological models. What is so-

cially engaging about the debate are the relative costs and benefits to children.

In this chapter, we examine HST reforms in the United States precisely because they illustrate the impact that social policy can have on institutional practice, and the relations (or absence of them) between empirically based research in psychology and education, and governmental policies. We highlight the nature of these test-driven reforms, the legislation surrounding them, and both the theoretically predicted impact and the current empirical data on their effectiveness and consequences. We then discuss the seeming divorce between political reforms and current empirical research in the psychology of competence and education.

To presage some conclusions, our review suggests that, to date, HST has not, in general, produced positive outcomes. Nonetheless, both the positive and negative data that have been obtained can be readily interpreted using the principles outlined in extant theories of motivation. In line with operant theory, and the general recognition of the power of contingent rewards to control behavior, high-stakes policies do indeed change behavior. They lead to increased district, school, and teacher activities intended to raise test scores. In fact, some of the behaviors that these contingencies incite are part of the problem, such as "teaching to the tests," elimination of developmentally enriching activities that are not likely to be tested, manipulation of targeted standards, and "push-outs" of potentially low performers from the pool of test takers. In line with self-determination theory (e.g., Deci & Ryan, 2002; Ryan & LaGuardia, 1999) and some perspectives on performance-focused motivation (e.g., Midgley, Kaplan, & Middleton, 2001), these high-stakes reforms are yielding a variety of collateral or unintended negative consequences, especially in areas involving persistence and quality of learning. Among the concerns is that HST is typically "one size fits all," requiring all students, regardless of their backgrounds, learning differences, and rates of development, to jump the same evaluative hurdles simultaneously. This approach potentially lowers the ability of schools to optimally challenge students of different talents and achievement levels, and it is of special concern regarding students with disabilities. An-

other concern is the problem of transfer: Rises in high-stakes test scores do not appear to generalize to other indices of improved achievement (e.g., other achievement measures). This poor generalizability is not necessarily due to the invalidity of the tests, but rather to the criterion contamination caused by their high-stakes implementation. The rewards and punishments that prompt an urgency to raise test scores lead to a narrowing of teaching, and therefore learning, and foster classroom dynamics that tend to decrease student motivation and engagement, as well as teacher morale and creativity. Perhaps more importantly, because HST neither provides a good basis for intrinsic motivation nor offers students optimal challenges (because the standards and methods of demonstrating performance are the same for all), reforms based on HST have been associated with increased school dropouts. These dropouts are especially salient among those already at risk, including the urban poor, students with special needs, and those for whom English is a second language—the very children whom many HST advocates have said they do not want to leave behind.

THE HIGH-STAKES TESTING MOVEMENT

There is little argument that gathering information and providing feedback about performance in educational settings is important for maintaining student and teacher motivation, and for informing educational policy (Linn, 2000; Shepard, 2000). Indeed, feedback regarding outcomes is recognized as a critical feature in improving the function of any organized system (Carver & Scheier, 1998). The function of assessment in gathering information, however, has additional impacts when the outcome data are linked with contingent rewards and punishments, as is the case in HST.

HST has been advocated as a means of motivating students and teachers alike to put in more effort, and thereby raise student achievement (Oakes, 1991; Finn, 1991). Policies instituting HST have taken on varied forms, but the common denominator in such initiatives is that state or federal governments mandate standardized testing of all students and then administer rewards or

sanctions based on the results. Students, teachers, and schools that improve or do well are rewarded, and those that decline or do badly are punished. For students, HST results can be the basis for promotion versus retention, and in some states, failure on a single indicator can result in the denial of a high school diploma. Teachers in schools that perform well may get cash bonuses, while those in other schools are reprimanded or derogated. For the schools, the comparative student performance average can result in increases versus cuts in school budgets, and in some cases, poor student performance may result in administration changes or even school takeovers by the state. When the stakes get high for administrators, local officials can even add to the stakes. For example, schools have offered cash prizes, parties, exemptions from finals, scholarships, candy, and awards to high-scoring students (Keller, 2000). School superintendents have been given personal cash bonuses when scores in their districts improve. However, the principal incentive at the administrative level is the public nature of high-stakes assessments. Schools and districts are publicly compared on their test scores, with the often explicit reasoning that pride or humiliation will be attached to the differences in score attainments. Accordingly, at all levels of educational systems, raising the stakes leads to increased attention to test scores because of the consequences attached to them.

A BRIEF HISTORY OF HIGH-STAKES TESTING

The modern HST movement has roots dating back to 19th-century England. Utilitarian philosophers such as Jeremy Bentham (1748–1832) and James Mill (1733–1836) formulated principles of motivation based upon hedonic principles and associationism that provided the foundations of what would become modern behaviorism (Rachlin, 1976). In applying these principles, they suggested the systematic use of rewards and punishments to establish good learning habits in schools. The English Parliament was perhaps the first government to put HST into practice, passing numerous laws intensifying examination structures to ensure liter-

acy, including the Revised Code of Regulations (1862), which advocated a “payment by results” scheme that linked the funds awarded to schools to students’ performance on the exams. Whereas the Code promoted a wider national school system, it also prompted a rigid narrowing of curricula and an escalation of teacher-centered drill- and repetition-focused instruction. Although the Code was eventually repealed, the ideas of “streaming” or segregation of students according to ability level, evaluation by exams, and the resultant conservative methods instituted by the British system in the 19th century continued into the modern era.

In the United States, the modern instantiation of HST begins with the controversial publication of *A Nation at Risk* in 1983. This document, authored by the National Committee on Excellence in Education, declared that a rising tide of mediocrity was threatening the United States and its ability to compete in the world economy. (Parenthetically, one should note that despite relative stability in achievement standings since 1983, U.S. workers in 2001 were second in the world in global competitiveness according to the World Economic Forum [2002] report). Although one might assume that reform to alleviate “mediocrity” could take any number of directions, the U.S. government’s approach under President Reagan was to step up demands for a core curriculum, more homework, more discipline, and more “accountability” (e.g., performance-based pay for teachers and increased testing), not more resources for schools, in part because lawmakers sought reforms that could be easily understood and rapidly implemented. Within several years following the report, virtually all states adopted more stringent graduation requirements, and many added mandatory homework requirements. School days lengthened and extracurricular amenities shrank. Standardized testing and curricula, matched to what those tests could measure, burgeoned.

Echoing the spirit of these reforms, William Bennett, a politician and popular moralist, proclaimed that “accountability is the linchpin, the keystone, the sine qua non of the reform movement” (Toch, 1991, p. 205). The demand for accountability led quickly to a focus on tests and pressure toward better outcomes on them. Policymakers in

nearly every state implemented policies to assess educational standards, and in many of these states, high-stakes consequences were attached to these outcomes, presumably as an incentive–punishment system to motivate change. High-performing schools were to be rewarded and underperformers penalized. Thus, the implementation of policy followed a behaviorist paradigm in which contingent rewards were applied to motivate (and control) teachers and students.

Although there were disappointing results from this early round of HST and many well-documented negative effects (see review by Toch, 1991), the late 1990s saw a new infusion of investment in HST policies. Politicians and business groups lobbied for still greater accountability in public schools, and states increasingly developed tests by which to rank and reward schools based on standardized test scores. Some states, such as Texas, aggressively pursued HST policies throughout the 1990s, and in so doing showed increased scores on the specific tests that were the targets of rewards and sanctions (Haney, 2000). By the first year of the new millennium, nearly all states were using HST in an attempt to foster school achievement. Nearly all states now publish school or district report cards on targeted tests, with the explicit purpose of motivating schools through public pressure or ridicule. Nearly half of all states also provide financial rewards to schools that improve on tests, and threats of administrative change or takeover for those that decline. Many states are directly paying school administrators bonus cash awards when schools under their watch improve on test scores.

Finally, states have been increasingly creating high stakes for students, as well as administrators. The most common high stake is that grade passage versus retention, and ultimately graduation, is contingent on passing a state-administered test. The high stakes of grade retention on the basis of a single examination have been applied as early as the fourth grade (e.g., in Florida). It is explicitly assumed by HST advocates that this type of contingency leads students to work harder in school (e.g., Cheney, 1991; Shanker, 1993), a point contested by critics (see Kelleghan et al., 1996). At this point in time, more than half of all states have made grad-

uation from high school contingent on a standardized test performance.

A National Initiative: No Child Left Behind

In 2001, President George W. Bush succeeded in passing, with bipartisan support, landmark legislation entitled No Child Left Behind (NCLB). A stated goal of NCLB is to raise levels of achievement and close the performance gap separating middle-class from poor and underperforming minority students. The plan called for even more testing and more salient stakes for schools and students alike. Specifically, NCLB mandates annual testing in grades 3–8 in math and reading. According to the legislation, scores from such tests are to be used to determine improving and declining achievement, such that penalties and rewards can be attached to them at the level of schools and children. Schools must make steady progress every year toward raising achievement levels on these exams in each of five racial and ethnic subgroups, as well as among low-income students and those with limited English skills or learning disabilities. Failure to demonstrate improvement for *any* of these subgroups for 2 consecutive years results in a school being labeled *low performing*. According to NCLB mandates, schools deemed low performing must facilitate the transfer of students to better schools or provide private tutors for students. Schools that continue to be low performing beyond 2 years can have their administrators and staff replaced. Federal funding is made contingent on compliance with these mandates.

NCLB has many critics. Given the expectable, year-to-year deviations that occur in standardized test results, schools may frequently be categorized as low performing for what amounts to statistical issues rather than reasons of educational quality. However, such logistical concerns are not the ones most pertinent to a critique of HST as a strategy of reform. As noted, HST represents a motivational policy. Yet a number of contemporary motivational theories suggest that a host of unintended negative consequences will stem from the pressure and rewards used to externally control teaching and learning. These include narrowing of curricula, teaching to the test, less creative

teaching, more superficial and nontransferable learning, more controlling behavior at all levels of power, more withdrawal of effort from at-risk students, and increased dropout rates. We turn first to these theoretical predictions, and then to a review of the accumulating empirical findings on the use of HST.

THEORETICAL PERSPECTIVES ON HIGH-STAKES TESTING

High-Stakes Testing as an Operant Approach

HST is based, at least implicitly, on a behaviorist view of student and teacher motivation. By putting contingent reinforcements on outcomes, the policy presumably increases efforts and behaviors associated with improvement; that is, HST advocates reason that whatever behaviors schools adopt to enhance test scores will be reinforced and selected for, whereas those associated with lower scores will be extinguished and, in the case of poor-performing schools, selected out. Not only will the behavior of teachers change, so will that of students. According to Shanker (1993), strong consequences attached to test scores will provide students with “the incentive to work hard and achieve because they know something important . . . is at stake” (p. 7).

The historical link between HST and behaviorism has deep roots. As previously noted, behaviorism emerged from a blend of British associationism and a hedonic view of human motivation, in which learned behaviors were always a function of external controls that punish or reward. It follows from this perspective that educators should utilize these external forces in regulating learning.

This approach to motivation was integral to the work of perhaps the most influential of all behaviorist educators, E. L. Thorndike. The central principle of Thorndike’s theory of learning, which he called *connectionism*, was his *law of effect*, which states that if a behavior is followed by a satisfying consequence, it is more likely to occur in the future under similar conditions. Conversely, if a behavior is followed by an unsatisfying consequence, its probability of recurrence will wane. A second principle was that of

frequency: The more frequently an association is repeated, the more likely it is to recur in similar conditions. Together, these “laws” of learning underwrote educational practices focused on the use of external reinforcements, coupled with practice, drill, and repetition. Although these techniques have characterized conservative approaches to education across history (see Ryan & Lynch, 2003), connectionism gave them a specific theoretical rationale.

Thorndike was also an advocate of testing. As he stated, “Testing the results of teaching and study is . . . the sine qua non of sure progress. It is the chief means to arousing . . . the instinct for achievement” (1962, pp. 65–66). However, interestingly, Thorndike was also cautious about how such tests should be used. As he states: “Great care should be taken in deciding anything about the fate of pupils, the value of methods, the achievement of school systems and the like from scores made in a test” (p. 156).

Thorndike’s behaviorism was influential in education for several decades but eventually gave way to the “radical behaviorism” of B. F. Skinner. Skinner similarly advocated the systematic application by teachers of consequences, principally positive reinforcements, to induce learning. Skinner also promoted the idea of “programmed learning,” which viewed instruction not as based in relationships or interests, but rather in a well-structured and systematic application of contingent reinforcements.

Today conservative educators continue to advocate the use of rewards to control learning, both at the classroom and school system levels. Behaviorists argue that teaching is most effective when based on control through reinforcements. For example, behaviorists Cameron and Pierce (1994), in the context of reporting a now discredited meta-analysis (see Deci, Koestner, & Ryan, 1999), argued that “teachers have no reason to resist implementing incentive systems in the classroom” (p. 397). At a political level, this theme is echoed loudly. Chester Finn has argued that “the problem is that academic success yields such few rewards [*sic*] and indolence brings few penalties” (1991, p. 120). He, and a broad array of conservative spokespersons, have argued that putting rewards and penalties behind the test scores will effectively alter the behavior of both

teachers and their students. This type of thinking has deeply influenced recent educational reforms in several nations focused on HST. In this view, instruction should be driven by measurement, and the outcomes of measurement should be the basis of rewards and sanctions for both teachers and learners (as discussed in Popham, 1983).

Our interpretation of the HST movement as reflecting an operant strategy has one very important caveat. Operant theory has always been focused on making rewards contingent on target *behaviors*. The twist in the HST movement is that its advocates apply contingent rewards and sanctions to *performance outcomes*; that is, rather than rewarding valued behaviors, such as student effort or work habits, contingencies are instead applied to test outcomes, the control over which is often questionable, especially for at-risk students. Similarly, rather than rewarding excellent teaching activities and approaches, schools are rewarded or sanctioned on their test score results. This practice is not in line with the fundamental tenets of the operant viewpoint. Indeed, we believe that the focus on performance outcomes, rather than on behaviors that students and teachers have direct control over, is one of the features of HST that lead to reinforcement of the wrong behaviors.

This focus on outcomes does find affinity from some theorists who focus on goals as motivating forces in behavior. Among those perspectives that could be aligned with HST-based reforms is the goal theory approach of Locke and Latham (1990), who argue for a high-performance model in which demanding goals are linked with both internal and external rewards to maximize organizational efficiency. Although they developed their model in application to industry, they suggest its generalizability to schooling, arguing that the high-performance model of difficult goals associated with rewards for success “should be made part of our schools as well as our work organizations” (p. 268). Advocating this linkage between measurable outcomes and performance-contingent reinforcements would seem to be fully congruent with the HST approach. A similar advocacy of applying contingent rewards to performance outcomes has also been forwarded by Hidi and Harackiewicz (2000), whose perspective on performance goals we

review in discussing theories of mastery and performance goals.

Organismic Perspectives on Learning

A very different view of what motivates learning and competence can be gleaned from what has sometimes been called the "liberal perspective," and sometimes the "organismic perspective," in which learning is seen as an inherent or intrinsic tendency of the person (Ryan & Lynch, 2003). In this tradition, the desire to learn is seen as a natural or basic tendency of humans. Learning is growth. However, like all growth, this inherent initiative or tendency requires support and nutrients. The result is a process (rather than outcome) focus, in which nurturance, mainly in the form of warm relationships, optimal challenges, and supports for autonomy and interest, are the most common elements.

Throughout history, educators embracing this liberal view have argued that students are not optimally motivated by external controls, but rather by support of their inherent tendency to learn. In ancient times, this view was espoused by Quintilian, who recognized that learners of different ages and types have distinct needs and interests, and held that curriculum and methods should be tailored accordingly. He deemphasized the then common use of punishment, instead stressing the importance of making learning interesting and attractive. In the Renaissance, similar views were echoed by Comenius, who focused on the strategic importance of warm student-teacher relationships and enhancing students' interest in learning. Subsequently, Enlightenment philosopher Rousseau laid the groundwork for much modern thinking in the liberal vein, emphasizing children's curiosity and natural inclination to learn under supportive conditions.

Rousseau influenced generations of subsequent educators. Outstanding among them was the Swiss educator, Pestalozzi, who viewed the aims of education not as "imposing on the child fixed doctrines and alien concepts but in helping him to develop his own constructive powers" (Silber, 1973, p. 274). His method of education entailed, first and foremost, an atmosphere of emotional security based in a warm and caring relationship between teacher and child. He

advocated that knowledge be gained, when possible, through direct experience rather than through mere words passed from teacher to child. He also downplayed the utility of punishment and fear of evaluation, suggesting that if provided a secure base, the child's nature would lead to discovery and growth. Pestalozzi's philosophy was widely disseminated during the 19th century in Europe and the United States, and became a major influence on a diverse family of practitioners, including Froebel in Germany, and Montessori in Italy.

Finally, in the 20th century, Dewey (1938) emphasized the importance of cultivating interest and inquiry in crafting an education, rather than arbitrarily imposed educational tasks and goals. He stood, in this respect, in stark contrast to his behaviorist contemporary, Thorndike. In the realm of psychology, Rogers (1969) developed an influential perspective on teaching, stemming from his *person-centered approach*. He advocated a classroom experience that grows out of the authentic inquiry of the student. Rogers felt that the external locus of evaluation represented by traditional examinations and normative grading stifled the significant learning that grew out of a student-centered, responsive teaching environment. It was Rogers who faced off with B. F. Skinner in the 1950s and 1960s, debating the value of external control versus self-actualization in the enterprise of learning.

In summary, a long tradition of philosophy and psychology has argued against externally controlling techniques as the *via regia* to student learning. Instead, this tradition focuses on nurturing the natural inclination to learn, the diversity of learning abilities and styles, and the importance of students' developing their powers of self-evaluation. Importantly, the last few decades have seen the emergence of several empirically focused motivation theories that supply some support for this perspective.

Self-determination theory (SDT; Deci & Ryan, 1985; Ryan & Deci, 2000) is one such empirically based organismic perspective that views humans as intrinsically motivated to learn and develop competencies. However, the theory is centrally concerned with the conditions that support versus thwart these intrinsic propensities. SDT is thus particularly interested in the impact of events

such as evaluations, praise, and contingent rewards and punishments on behavior and learning.

Specifically, SDT highlights the fact that students' motivation to learn can vary in its relative autonomy, from behaviors motivated by external rewards and punishments (controlled motivations) to those that are energized by interests and values (autonomous motivations). Both evidence and theory based on SDT suggest that, to the extent that one's motivation is based on more autonomous motives, such as intrinsic motivation or well-internalized values, the more quality of learning, persistence, and affective experience are enhanced (Grolnick & Ryan, 1987; Ryan & La Guardia, 1999; Ryan, Stiller, & Lynch, 1994). On the other hand, SDT research has found that motivation based on more controlled motives, such as rewards or punishments (external regulations), or self-esteem-based pressures (e.g., ego involvement) is associated with lower quality learning, lessened persistence, and more negative emotional experience.

Because HST policies are based on the idea that rewards, punishments, and self-esteem-based pressures are effective motivators of learning, the principles of SDT apply (Deci & Ryan, 2002; Ryan & La Guardia, 1999). In what follows, we summarize the theoretical basis for those hypotheses as they relate to teacher and student motivation, and review some of the evidence supporting the validity of these hypotheses.

According to SDT the specific effects of external events such as evaluations or feedback on human motivation depend on the psychological meaning, or *functional significance*, that the events have for the recipient (Deci & Ryan, 1980, 1985, 2000). The theory specifies that the functional significance of an external event, such as a test score, a tangible reward, or praise from a teacher, can be informational, controlling, or amotivating. Events have *informational significance* when they provide effectance-relevant feedback in a noncontrolling way; that is, when an event provides individuals with specific feedback that points the way to being more effective in meeting challenges or becoming more competent, and does so without pressuring or controlling the individuals, it tends to have a positive effect on self-motivation. Events have *controlling sig-*

nificance when they are experienced as pressure toward specified outcomes or as an attempt to control the activity and effort of the individual. According to SDT, when evaluations have controlling significance, they may produce temporary compliance, but they ultimately undermine self-motivation, investment, and commitment in the domain of activity being evaluated. Finally, events have *amotivating significance* when the feedback conveys incompetence to the individuals or supplies no inner or outer rationale for acting. Evaluations or reward structures based on overly challenging standards, or that are perceived to be beyond the reach of the individuals, are thus amotivating: They undermine all motivation and lead to withdrawal of effort. Teaching that does not tap into a student's interests, or that does not supply a basis for the experience of relevance or meaning, can also foster amotivation.

Both experimental and field studies have supported these predictions concerning the impact of events such as feedback and rewards on subsequent motivation. Extensive reviews are available elsewhere, but a few examples are worth detailing. In experiments with rewards, Ryan, Mims, and Koestner (1983) showed that reward structures delivered in an informational manner did not undermine intrinsic motivation, but rewards used to pressure people toward a specified outcome did. In another demonstration, Ryan (1982) showed that students who were pressured to perform by stressing that outcomes reflected ability (an ego-involving induction) were subsequently significantly less likely to engage with the target task than were students who were induced to focus on the task itself rather than task outcomes. In an experiment conducted within an elementary school, Grolnick and Ryan (1987) had students engage in a reading comprehension task under three conditions. In the first, students were told they would not be tested at all. In the second condition, they were told they would be tested, but only to determine what kinds of ideas were learned, so there were no consequences for failure or success. In a third condition, students were told they would be tested and graded, and that the grade would be delivered to their classroom teacher. This third condition represented a controlling use of

evaluations. Results showed that the controlling evaluation condition promoted not only short-term, rote memory but also produced a significantly lower level of conceptual learning and knowledge integration than the two noncontrolling conditions. Evidence from these and related studies (e.g., Benware & Deci, 1984) indicates that when tests, evaluations, and rewards are used in controlling ways, they have negative effects on students' interest, motivation, and higher level cognitive outcomes in school. Classrooms studies have added to these findings by showing that when teachers are oriented toward being controlling (e.g., using evaluations and rewards), students are less intrinsically motivated, less desirous of challenge in school, and also less confident in their skills (e.g., Deci, Schwartz, Sheinman, & Ryan, 1981; Ryan & Grolnick, 1986).

How Performance Standards Affect Teachers

The finding that when teachers use controlling strategies and performance pressure to motivate students, the students become less self-motivated and less engaged in school, raises an interesting issue. What factors lead teachers to be controlling? One answer is that they may become controlling when they themselves are pressured to get children to perform. An experiment performed by Deci, Spiegel, Ryan, Koestner, and Kauffman (1982) addressed this issue. Participants simulated teachers with the task of helping students learn a cognitive-perceptual task. The teachers all had the same set of problems to work with and were given the same preparation. However, before entering the teaching session, one group was explicitly told that it was their job to make sure their students performed "up to high standards," whereas another group received no such pressure. The sessions were recorded and rated for differences in teaching strategies. The results showed that the participants who were explicitly pressured to produce high student achievement were more controlling and less supportive of students' autonomy. Specifically, teachers in the performance standards condition engaged in more lecturing, criticizing, praising, and directing—all techniques that have been shown to have a negative impact on students' interest in learning

and their willingness to undertake greater academic challenges. Flink, Boggiano, and Barrett (1990) followed up on this reasoning by examining a newly introduced school-based curriculum for elementary students across several schools. They showed that, as predicted, teachers pressed toward higher standards were more likely to engage in controlling instructional behaviors. In line with SDT, the more they did so, the more their students actually performed more poorly on objective test-score outcomes. This is consistent with a wide body of literature linking evaluative pressure with poorer performance in schools (Kohn, 1996; Ryan & Stiller, 1991), as well as dropout rates (Hardre & Reeve, 2003).

From the SDT perspective, creating a test-driven evaluative focus not only leads teachers to be more controlling but also leads students to be more externally regulated and/or ego involved in their motivational orientation. According to SDT, ego involvement is potentiated whenever a person's esteem is linked with attainment of specific outcomes (deCharms, 1968; Plant & Ryan, 1985; Ryan, 1982). Accordingly, ego involvement can motivate effort, just as rewards can. However, like most performance-contingent rewards, ego involvement is a controlling form of extrinsic motivation, and it runs the risk of undermining internal motivations based in value or interest. Furthermore, unless one is ensured of success when applying effort, ego involvement can have deleterious immediate effects. The more ego involving a context, the more many students, particularly the less confident ones, withdraw effort in order to reduce the diagnosticity of tests and thus protect their self-esteem (Martin, Marsh, & Debus, 2001). Additionally, even for students who try to do well, such evaluation-based motivations tend to foster more superficial and less integrative learning processes, thus debilitating long-term knowledge retention and growth (Golan & Graham, 1990; Grolnick & Ryan, 1987).

Beyond this, the evidence suggests that focusing parents' concerns on performance outcomes will lead them, like teachers, to use pressuring motivational strategies that will backfire, leading to lower achievement over the long term (Ginsburg & Bronstein, 1993; Grolnick, 2003; Grolnick, Gurland, Decourcey, & Jacob, 2002; Grolnick &

Ryan, 1989). In short, pressure (whether it be through rewards or esteem-related threats) to meet externally dictated or controlled standards usually translates into lower quality teaching and less effective motivational practices, unwittingly undermining high-quality performance, as well as the interest and task involvement that facilitate it.

It should also be mentioned that use of uniform evaluative standards for all students regardless of their starting points or resources, which is a invariant feature of HST policies, violates another tenet of SDT's approach to motivation. According to the theory, people are most intrinsically motivated when they are *optimally challenged*—when the tasks set by or for them are within reach. Tasks that are overly challenging have amotivational significance, and thus undermine motivation altogether, leading to lower effort withdrawal, helplessness, and lower confidence and self-esteem (Deci & Ryan, 1985; Ryan & La Guardia, 1999; Vallerand & Reid, 1984). The evidence is clear: If the bar appears to be too high, many students will experience futility and withdraw their effort. People are simply not motivated by the prospect of failure.

Moreover, test-based reforms seem to ignore the diversity of ways in which students both learn and demonstrate learning. As Gardner (1991) has argued, even a well-constructed test may be a nonoptimal challenge for some children, and may present a distorted picture of how well that student has mastered or understood material. Because the hallmark of HST is a single criterion, it favors those who are most apt within its format.

Together, these tenets of SDT would suggest that HST will have a number of negative effects, many of which are undoubtedly unintended (see Ryan & LaGuardia, 1999). The controlling reward structure behind HST should, according to SDT, externally regulate the behavior of teachers. They are thus predicted to engage in those behaviors instrumentally tied to test scores, regardless of their inherent value or worth. One should thus see a narrowing of curricula, more teaching to the test, more controlling motivational techniques used in classrooms, and less positive experience on the part of students and teachers alike. Because of the mo-

tivational dynamics set in motion in the classroom, SDT also predicts greater dropout rates among students, especially those at risk for failure or alienation, since withdrawal of effort is a common fallout of controlling and nonoptimal pressures, and uninspiring classroom practices. Systems such as state and district administrations will, because of the high stakes, be driven to "fuzzy accounting methods" (e.g., wavering standards), pushing out students who might bring down scores, and using other devices to maximize the target outcome, regardless of other costs of such behaviors. Yet, because there is pressure on narrowly defined test-score outcomes, scores on targeted tests should increase, but such increases will not necessarily generalize to other indices of achievement, because these increases were obtained through methods that do not incite more self-motivation, interest, and value for learning.

Achievement Goal Theories: Divided Views on the Value of Performance Goals and High Stakes

Another family of theories that has relevance to HST initiatives is those that concern performance versus mastery goals in the achievement domain, and the conditions that inspire them (e.g., Dweck & Leggett, 1988; Elliot, 1999; Nicholls, 1984; Pintrich, 2000). Although the theories differ in some details, the critically important distinction is between goals that are focused on increasing or *developing* one's competence or knowledge (called mastery or learning goals) and those focused on proving or *demonstrating* one's competence or ability (often called performance goals). HST, by focusing on the demonstration of specific test scores and using rewards to make that demonstration salient, represents an institutional climate that one might expect to catalyze performance goals; that is, by making the demonstration of competence the most salient issue, students, teachers, and administrators alike would be likely to adopt a performance goal orientation.

A large body of evidence suggests that very different behaviors and quality of learning typically follow from performance versus learning and mastery goals. This evidence suggests that the more students are

focused on learning or mastery goals, the more extensively they enjoy learning, make greater use of higher level cognitive strategies, experience greater efficacy, and show better integration of what is learned (Ames & Archer, 1987; Elliot, McGregor, & Thrash, 2002; Midgley, Anderman, & Hicks, 1995; Midgley et al., 2001). Performance goals, by contrast, appear to foster a more superficial approach to learning, because the motivation is to demonstrate rather than attain competence. For example, a meta-analysis by Utman (1997) suggests that performance-focused goals can produce enhanced performance at rote or algorithmic tasks but tend to undermine performance at more heuristic or complex tasks. Furthermore, students with learning goals are often more willing to tackle challenges and difficult material, whereas those with performance goals are often more interested in demonstrating competencies already attained (Ames, 1992; Thorkildsen & Nicholls, 1991). Finally, performance goals have been linked to greater self-handicapping (Martin et al., 2001; Urdan, Kneisel, & Mason, 1999) and may leave students more vulnerable to helplessness when failure occurs (Dweck, 2002).

However, despite the numerous advantages of mastery goals in learning contexts, Elliot and his colleagues (see Elliot & Thrash, 2002) introduced an important distinction within goal theories between performance-avoidance and performance-approach goals. *Performance-avoidance* goals concern situations in which the student is primarily motivated to avoid failure or negative outcomes in the demonstration of performance. *Performance-approach* goals refer to a more appetitive desire to positively demonstrate high performance. Much empirical literature supports the view that the adoption of performance-avoidance goals has many negative consequences. By contrast, performance-approach goals seem to show fewer detrimental effects and can inspire some positive consequences (Elliot & Moller, in press).

It is important to realize that current HST systems do not, at least strategically, aim differentially to foster performance-approach rather than performance-avoidance goals. Indeed, the rhetoric of HST suggests that advocates expect that both desire to attain suc-

cess and fear of failing at these demonstrations are engendered. Indeed, they may activate both to different degrees, both across and within individuals (Elliot & Moller, in press; Midgley et al., 2001).

Nonetheless, among the achievement motivation theorists focused on the performance versus the mastery goal distinction, opinions are divided as to the implications of the findings. Some theorists seem quite positive about having performance goals coupled with rewards be a central focus in classrooms. For example, Harackiewicz, Barron, Carter, Lehto, and Elliot (1997) argued that performance-approach goals are "adaptive" in settings where achievement is competitively defined or based on normative comparisons, because those whose adopted goal is to demonstrate high performance are more likely to do so. Hidi and Harackiewicz (2000) further advocate linking performance goals with extrinsic rewards. They speculated that performance goals linked with reward contingencies may be effective in promoting long-term interest and intrinsic motivation, especially among unmotivated and at-risk students. As Hidi (2002, p. 332) puts it: "Why should we assume that our children will produce high level schoolwork without expecting and receiving rewards?" Such thinking clearly mirrors the philosophy of HST advocates such as Bennett and Finn.

In contrast, other researchers in this domain hold that a focus on promoting performance demonstrations rather than mastery development in real-world classrooms will yield few positive and many negative motivational outcomes. Midgley et al. (2001), for example, highlight the fact that an emphasis on performance goals at best supports and rewards only highly achievement-oriented students who are certain about their abilities, and even for many of them, it leads to an extrinsic and superficial focus, and to vulnerability, if academic setbacks occur. In a context that emphasizes performance goals, they further suggest that many students, especially those with lower or uncertain abilities, will show increased self-protective strategies such as self-handicapping and withdrawal of effort. Thus, performance-focused classrooms may lead some students to be more extrinsically motivated to perform well, but, at the same time, it will lead to lessened intrinsic motivation and

withdrawal of effort among those at risk for failure, a prediction in opposition to the view of Hidi and Harackiewicz (2000).

Between these views, Elliot and Moller (in press), even while highlighting the clear benefits of students adopting performance-approach goals, suggest that institutional policies should still be directed toward a mastery focus. For them, performance-approach goals, when they arise, are a natural expression of competence urges (Elliot et al., 2002). However, in their view, policies aimed at performance put many students at risk for undermining effects, because many will adopt an avoidance focus under such a circumstance.

Thus, performance-mastery goal theories lack consensus regarding the effects of establishing performance goals as a *modus operandi* in schools and, by implication, on the effects of HST reforms. Some in this tradition suggest a positive influence of performance goals linked with contingent rewards on promoting interest and achievement efforts, whereas others suggest that a performance goal focus backed by high stakes will lead to numerous deleterious results, especially for at-risk students. Still others suggest the need to develop strategies that could foster performance-approach orientations, without simultaneously generating performance-avoidance concerns in the same setting, although ways to do that have not been explicated.

THE RESULTS OF HIGH-STAKES TESTING

Given the clear, yet opposing predictions from theories of motivation on the impact of HST, it is interesting to look at what the accumulating evidence actually shows. It is important to note that full-fledged HST programs are still being phased in within most states; thus, the full impact of HST has not yet been felt. In addition, although anecdotes abound, only a few credible empirical studies are available. Nonetheless, there is a growing body of evidence associated with these initiatives, and we review the most extensive studies to date.

Moon, Callahan, and Tomlinson (2003) surveyed a nationally stratified random sample of teachers on the effects of state HST

programs on their classroom practices. Results indicated that classroom practices were strongly affected, especially in schools serving students in the lowest socioeconomic strata. Teacher reports suggested that HST was indeed salient, and that increases in test scores are not necessarily a result of student academic attainment, but are more due to test preparation. Test preparation associated with HST was reported to drive out other instructional activities, because much time was taken in the classroom to review and practice for state testing. Test preparation was especially intense in poorer districts. The authors speculated that one result of HST is a narrowing of the curriculum and the implementation of practices that may actually run counter to effective instruction, student self-direction and autonomy, and opportunities for interaction between students. Indeed, the authors suggested that the very salience of HST in the minds of teachers may be restricting educational opportunities, particularly among those from the most impoverished areas. Moon et al. further suggested that when teachers specifically teach to the test, the scores may no longer represent the broader domain of knowledge for which they are supposed to be an indicator, especially in schools serving disadvantaged students, where the test preparation was reported to be more intensive.

A study by McNeil and Valenzuela (2000) of Texas teachers arrived at similar conclusions. They found that teachers were encouraged or required to reallocate time away from core subjects not tested on the state examinations, and to eliminate or curtail special projects, experiments, library research, extensive writing, or oral assignments. This was especially true in schools that might be lower in absolute performance levels (i.e., those serving less affluent students). Much time was also reported being spent specifically on test-taking strategies rather than substantive issues.

Evidence that HST leads to "teaching to the test," which in turn crowds out the teaching of skills not on the tests and the provision of enriched experiences that might better engage students' interest in additional knowledge seeking, may underlie the concern with the generalizability of score gains. This issue can be partly addressed by examining *transfer*, or the extent to which gains

on HST are reflected in evidence of improved achievement on other, nontargeted measures. Little research exists on the validity of test-score increases on HST, despite the fact that it is a crucial bone of contention between HST advocates and their opponents.

Perhaps the most comprehensive look at this issue was an 18-state study by Amrein and Berliner (2002). To test the transfer of score increases on high-stakes examinations, they obtained scores on non-HST that overlap with HST in their assessment of achievement domains. These were the ACT (established by the American College Testing Program), Scholastic Aptitude Test (SAT), National Assessment of Educational Progress (NAEP), and Advanced Placement (AP) tests. Their evidence suggested, contrary to that of HST advocates, that when transfer is considered, level of learning in those states with salient HST policies remains level or falls below previous levels once HST is implemented. In contrast, states without high-stakes graduation tests were more likely than states that had imposed them to show improvements on these outside tests. Indeed more than two-thirds of states posted decreases on ACT performance after high-stakes graduation exams were implemented.

Neil and Gaylor (2001), using the NAEP as a metric, similarly showed that states without HST were more likely to show score improvements than states with them; that is, NAEP scores were not improved by HST initiatives, and they also had many other potentially negative consequences. They specifically suggested that HST may widen educational outcome inequities between the rich and the poor rather than ameliorate them.

With so much attention paid to test scores, an equally important gauge of school performance is high school dropout rate. Although dropouts are hard to track and are often systematically misreported (Orfield, Iosen, Wald, & Swanson, 2004), available data show that both dropouts and students leaving high schools for equivalency diplomas are on the rise, with notable escalation in the past few years as HST policies have intensified. Indeed, Reardon and Galindo (2002), for example, studying students between 8th- and 10th-grade in districts with and without HST policies, estimated that the

imposition of HST increased the odds of dropout by 39%.

Although accounts differ, one possibility is that as states required students to pass tests for promotion, more pupils were held back. In turn, convincing data suggests that the mere fact of retention dramatically increases the probability of dropout (Natriello, 1998). In addition, if one assumes that HST imposes even modestly more difficult standards, that, too, could lead to a motivation and discouragement among students already at risk for failure.

A related issue is the concern that HST may lead many students to seek a general equivalency diplomas (GED). Studies comparing high school graduates to young people who received equivalency diplomas show that even among those with similar academic scores, those who complete high school have higher earnings, secure better employment, and commit fewer crimes. One reasonable account of this is that the confidence, self-esteem, and work habits of young adults is greater if they graduate from high school than if they drop out to earn a GED, and that confidence translates into better adult outcomes. In other words, if HST drives students out of school, this has costs, most of which will be borne by children from lower income families.

Jacob (2001) examined the effects of high-stakes high school examinations on student retention, especially among low achievers, who, some have argued, would most benefit from a performance-based focus (e.g., Hidi & Harackiewicz, 2000). His findings, based on analysis of data from 15 states, showed that students in the bottom 20th percentile of achievement who faced such requirements were 25% more likely to drop out in states with tests. He also found, however, that use of the tests had no significant effect on subsequent academic achievement for the population considered as a whole.

Another way to examine the impact of HST policies is to examine the results in Texas, where the most widely cited and lauded HST program has been in place since the early 1990s. HST policies in Texas have been described in the press as the "Texas Miracle," and have become a model for other reform efforts, including the federal NCLB program. This enthusiasm was partially based on the fact that scores on the

Texas State Achievement Tests (the TAAS) had shown large gains under the high-stakes regimen; TAAS scores provided evidence of a decreasing gap between minority and white students. An independent report by Grissmer, Flanagan, Kawata, and Williamson (2000) of the RAND Corporation initially suggested that the high-stakes policies themselves might have facilitated this positive trend. However a subsequent report by RAND investigators (Klein, Hamilton, McCaffrey, & Stecher, 2000) found that such gains in TAAS scores did not match trends on other measures, raising serious questions about the meaning of these achievement gains, or their transfer, and about the validity of the score gains. With regard to the achievement gap, results from other tests besides the TAAS also suggested that the gap might have slightly widened in Texas, over the same period that TAAS scores suggested it was closing.

At the same time, evidence of higher grade retention and dropout rates in Texas has accumulated (Haney, 2000), and outright cheating on results has been documented (Hoff, 2000; Johnston, 1999). Haney (2000) found that increased dropout rates in Texas were especially high among Latino and African American students. Haney linked these dropouts with aggregate score gains, arguing that Texas students' gains in NAEP scores were directly related to exclusion rates. Haney concluded that the apparent rise in scores was illusory. Tracking these dropouts, Haney found that approximately one-third of students leave school before graduation, often as a direct result of being retained in grade 9 by schools focused on obtaining good HST scores.

Moreover, evidence from Texas points to considerable teaching to the test, again, especially intensively in low-performing schools serving pockets of poverty and minority students. Such teaching to the test can give the appearance of "closing the gap" when that is not occurring, because of the criterion contamination this behavior causes (Carnoy, Loeb, & Smith, 2000; McNeil & Valenzuela, 2000). For such reasons, Popham (1999) concludes that judgments about school quality based on changes in HST scores are not likely to be valid.

Despite the limitations of the empirical studies thus far conducted, it is not unrea-

sonable to suggest that the evidence points to the very kinds of changes predicted by some of the motivational theories we reviewed. Under HST, outcome-focused behavior change does indeed occur, no doubt due to the power of rewards and sanctions. Yet these changes are often a "monkey's paw," representing deleterious classroom and institutional processes that hurt especially the most vulnerable populations. This in turn suggests that the HST policies may be exacerbating the problem they are designed to correct. Nonetheless, these negative results should not be taken as a definitive summary or as the final chapter. We reiterate that the results of HST policies are still unfolding. At the same time, there are clearly problems with the impact of HST, which predictably motivates counterproductive processes in both classroom and school administration arenas. It is ultimately the economically disadvantaged students, as well as the frontline teachers who serve them, that appear to suffer the most serious costs.

MOTIVATION THEORIES AND EDUCATIONAL REFORM

One conclusion we reach from reviewing this material concerns the relevance of debates between theories of motivation to policies attempting to legislate competence in schools. We have underscored how policymakers have, at both state and federal levels, enacted policies driven by a naive behaviorism in their attempts to motivate improvements in school performance. Unlike behaviorists, however, they have applied rewards and sanctions contingently upon performance outcomes (test scores) rather than desired behaviors, and they have also not appreciated the well-documented deleterious effects that even a well-structured contingency management approach can yield in domains such as learning and education. At the same time, results bespeak the power of such contingencies to change behavior, if not necessarily for the better.

The specific deleterious effects of such high-stakes policies have been predictable, and sometimes explicitly predicted by some motivational perspectives, whereas others have not addressed these "collateral" conse-

quences. Most notably, self-determination theory has specifically argued that these reforms would foster teaching to the test, narrowing of the learning experience, relatively poor transfer of knowledge, and increased dropouts among those most disadvantaged (Ryan & LaGuardia, 1999; Ryan & Stiller, 1991). All of these predictions have come home to roost in states that have used HST. Similar deleterious effects may have been predictable from some goal theories as well, particularly the perspectives of Dweck (2002) and Midgeley et al. (2001). These views stand in contrast to the views of those who have advocated greater emphasis on performance goals in classrooms linked with high stakes. Rather than facilitating achievement in at-risk students, such motivational interventions seem especially harmful to vulnerable groups. If nothing else, one lesson we should learn from this is that our theoretical and empirical differences are far from merely "academic."

SOME POLICY IMPLICATIONS

Empirical research is critical to informed policy in education, yet the gulf between the types of reforms suggested by educational research and those being implemented by policymakers appears vast. In part, this stems from the fact that policymakers want clear-cut actions, an urge that the implementation of high-stakes and standardized tests appears to satisfy. At the same time, as the effects of this "natural experiment" unfold, we should make sense of the results and outcomes, learning from the implementation (Hamilton, Stecher, & Klien, 2002). To do so we use the lens of SDT, which has specifically predicted many of these effects.

The SDT perspective suggests that tests can have both informational and controlling effects, and the high-stakes approach has largely undermined the informational value of standardized testing. Policymakers might first remember the purpose of testing: To gain information that can be used to advocate for those assessed. The informational use of tests would be represented by using tests to help identify students who may be most disadvantaged and in need of resources, and perhaps to identify curricular issues or problems with teaching methods.

Informational use of tests would also require that they be useful to teachers—that they would not simply be a scorecard at the end of a year, but a useful indicator of gaps in knowledge, while there is still time to redress the situation. The current practice in most HST states is year-end testing, with individual score reports often not going to the teacher who taught the subject matter until the following year, which is of little educational benefit to the participating students.

More importantly, the positive effects that can come from the informational function of tests are undermined when policymakers place high stakes behind test outcomes. The implementation of high-stakes contingencies based upon test performance, which are intended as "motivators," actually do have a strong impact. They lead to practices that distort the validity of the outcomes, and that instigate deleterious institutional behaviors. They narrow curricula, decrease individualized approaches, and make even more vulnerable those students who are at risk for retention and dropout. Taking the stakes out of the heart of testing policies would make the testing more informationally valuable. Whereas high stakes contaminate the criterion, removing the stakes might make standardized testing all the more useful, and less engendering of damaging processes.

A further important issue concerns the fact that any standardized paper-and-pencil measure may be a poor fit with the learning and performance styles of some learners, making it inappropriate as a sole criterion for attaining credentials. "One size fits all" as a model of outcomes is a regressive step in schools, where for years educators have been developing approaches to address more effectively diversity in learning styles, interests, and skills. Moreover, basing high-stakes decisions on a single indicator is unfair to students, and even unethical, given the lack of validity of most of the tests for this purpose (American Educational Research Association, 2000). Accountability does not need to be actualized by only a single, uniform test. Instead, schools that use alternative approaches and curricula could develop and justify alternative assessments. This would in fact lead toward greater innovation rather than drying up choice and diversity, which has been the trend under HST.

In a context where testing was used for in-

formational rather than controlling purposes, educational experiments might actually permit better judgement on their effectiveness, and indeed catalyze more innovation and progress. For instance, there appears to be growing evidence that high schools organized into small schools or learning communities, where personalized attention is available, are effective in promoting achievement (e.g., Howley & Bickel, 2000; Meier, 1998; National Research Council, 2004). Effective non-high-stakes testing could both verify and extend such data, and be a basis for justifying such structural reforms to policymakers and taxpayers. Similarly, an innovative and highly successful experiment in redesigning urban high schools was the creation of the New York Performance Standards Consortium (NYPSC) schools. These schools had served as models and were recognized for their high educational standards, high attendance, and low dropout and college success rates (Darling-Hammond, Aness, & Ort, 2002). However, NYPSC schools were built around a portfolio-based assessment system that was deemed integral to the form of instruction, which itself was highly individualized rather than standardized. These successful schools are being forced under New York's rigidly enacted high-stakes regimen to change their practices and teach to the tests. In a non-high-stakes atmosphere, standardized tests might have been one among several useful indices affirming their efficacy, but in a high-stakes atmosphere, the curriculum will be bent to the shape of tests, and a successful innovation stifled.

An important take-home point is that the introduction of high stakes behind test scores distorts the validity of tests as an indicator of true excellence in the classroom, or of school quality. Amrein and Berliner (2002) described this distortion effect by evoking the *Heisenberg Uncertainty Principle*. According to the principle, the more important any quantitative indicator becomes in decision making, the more likely it will distort and corrupt the process it is intended to monitor. Because high-stakes policies attach reward and punishment contingent on test scores, they especially have such distorting and corrupting consequences. They make the meaning of test score changes questionable, and they make inferences from

score changes problematic. Combined with the fact that most states use percentage-passing rates on tests that are not equivalent from year to year, many of the inferences concerning the outcomes of reform are without a sound scientific basis.

While the massive educational experiment called HST is still in progress, it is clear that what is driving national and state education policy is not sound educational theory or research, but a blend of political expediency and naive faith in the efficacy of rewards and punishments. Research that has accumulated points to complex, and often negative, effects that may not be willingly received by politicians who, in many instances, may "have already decided" that HST is an effective approach (Hamilton et al., 2002). On a more positive note, we suggest that current work in the field of motivational psychology is highly relevant to, and capable of, meaningfully informing the process of education reform. The question is, who might be listening?

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PART V



Demographics and Culture

CHAPTER 21



Gender, Competence, and Motivation

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The second half of the 20th century witnessed remarkable changes in women's achievements in the realms of education and occupations. For example, in 1970, 8% of MD degrees went to women, compared with 41% in 1996 (Costello & Stone, 2001; Rix, 1988). In 1975, 31% of all college and university professors were women, compared with 42% in 1998 (Costello & Stone, 2001). Yet many occupations have not seen these dramatic shifts and remain highly gender-segregated. For example, women were 0.5% of auto mechanics in 1975 and 0.8% of auto mechanics in 1998 (Costello & Stone, 2001).

Both theory and research in psychology place strong emphasis on the role of motivation and personal competence beliefs in determining achievements and, in particular, in determining gendered patterns of achievement behaviors. In this chapter, we focus first on gender and competence beliefs, reviewing Eccles's expectancy-value theory, Bussey and Bandura's social cognitive theory, empirical data on and developmental approaches to understanding gender and competence beliefs, and the role of stereo-

type threat in creating gender differences in competence beliefs. We then turn to research and theory on gender and achievement motivation, first considering McClelland's classic theory and research, and critiques of it, followed by motive to avoid success, and most recently, achievement goal theory. Finally, we consider the role of ethnicity and culture in determining patterns of gender differences in competence beliefs. First, however, we highlight three overarching issues: the importance of a balanced consideration of gender differences and gender similarities, the importance of adopting a developmental approach, and the distinction between gender as a person variable and gender as a stimulus variable.

GENDER DIFFERENCES
AND GENDER SIMILARITIES

Scholars approaching topics in gender and psychology tend to be drawn to findings of gender differences, as the moth is to the flame. Nonetheless, numerous meta-analyses have found evidence of psychological gender

similarities in areas as diverse as mathematical performance (Hyde, Fennema, & Lamon, 1990), verbal ability (Hyde & Linn, 1988), and self-esteem (Kling, Hyde, Showers, & Buswell, 1999; see Hyde & Plant, 1995, for a review). At the same time, moderate to large gender differences have been found in areas such as aggression (Eagly & Steffen, 1986; Hyde, 1984) and sexuality (Oliver & Hyde, 1993). Consideration of questions of gender, competence, and motivation should provide a balanced acknowledgment of both gender differences and gender similarities. Both are interesting and important.

A DEVELOPMENTAL APPROACH

Gendered patterns of motivation and competence are not present at birth (or if they are, no one has yet presented the evidence). Rather, they emerge in the course of development, as a result of the cumulation of experiences with parents, peers, teachers, sports, and so on. If we are to understand gender differences in motivation and competence, we must understand their developmental origins. Therefore, we present developmental evidence whenever possible in this review.

GENDER AS A PERSON VARIABLE VERSUS GENDER AS A STIMULUS VARIABLE

Gender may be conceptualized as either a person variable or a stimulus variable (e.g., Deaux & Major, 1987; Grady, 1979); that is, gender can, on the one hand, be thought of as a characteristic of the person, an individual differences variable. Research on psychological gender differences implicitly assumes this approach. On the other hand, gender can be conceptualized as a stimulus variable. A person's gender serves as a cue to others interacting with and responding to that person, and people respond differently depending on whether they are interacting with a man or a woman, or a boy or a girl. The classic research assessing sex bias in the evaluation of work using the John McKay/Joan McKay paradigm (reviewed by Swim, Borgida, Maruyama, & Myers, 1989) used

this approach of considering gender to be a stimulus variable. As we consider gender, competence, and motivation, we should be alert to findings of gender differences; at the same time, we should be mindful of the fact that gender is a stimulus variable. The individual's gender affects the responses he or she receives from others, which in turn may influence his or her motivation or self-efficacy.

GENDER AND COMPETENCE BELIEFS

Theory

Major theorizing on gender and competence beliefs comes from Eccles's expectancy-value theory (e.g., Eccles, 1987a; Fredricks & Eccles, 2002; Meece, Eccles-Parsons, Kaczala, Goff, & Futterman, 1982) and Bussey and Bandura's (1999) cognitive social-learning theory. Each is reviewed in turn.

Eccles: Expectancy-Value Theory

Eccles' expectancy-value theory of achievement-related choices is a general model that, at the same time, is particularly dedicated to understanding gender differences in these choices (Eccles, 1987a, 1987b, 1994). According to the model, a person will undertake a challenging achievement task—such as taking calculus in high school or applying to medical school—only if he or she expects to succeed at it and values the task. Here, we focus on the path to expectations for success; the question of values is discussed by Eccles in Chapter 7, this volume.

A major force shaping expectations for success at a particular achievement task is one's self-concept of one's abilities (Eccles, 1994), or competence beliefs. Gender differences in competence beliefs, then, will have a profound influence on the achievement tasks that males and females undertake. Competence beliefs themselves, according to the model, are shaped by not only people's past achievement experiences but also a variety of social and cultural factors, including (1) the behaviors and beliefs of important socializers, such as parents and teachers; and (2) cultural gender roles that prescribe certain qualities, such as aggressiveness, as appropriate or inappropriate for males or fe-

males, and gender stereotypes about particular activities (e.g., professional football is played only by men).

Numerous empirical studies by Eccles and others have provided support for links in this model, including the gender-related links. This research is reviewed later in the chapter.

Bussey and Bandura: Social Cognitive Theory

Bussey and Bandura (1999) extended Bandura's (1986) social cognitive theory to address the issue of gender learning and development. Their model of triadic reciprocal causation, which is intrinsically developmental, specifies that person factors, behavior, and environment all exert reciprocal influences on each other. The individual's perceived self-efficacy in a given domain, such as mathematics, is one kind of person factor. (We take Bussey and Bandura's construct of self-efficacy to be roughly equivalent to Eccles's concept of competence beliefs.) According to the model, self-efficacy has a profound impact on behavior; as Bussey and Bandura put it, "Perceived efficacy is, therefore, the foundation of human agency" (1999, p. 691). It influences the challenges that people undertake, and how long they persevere in pursuing a goal.

Self-efficacy comes into play in a particularly powerful way in the area of occupational choice. Most adolescents and young adults eliminate vast numbers of jobs from personal consideration, because their sense of self-efficacy tells them that they cannot do the job or master the knowledge necessary for the job. Gender enters the picture, because occupations are highly gender-segregated (Costello & Stone, 2001). Many adult women and men, then, are making gendered occupational choices. A number of influences are involved, including hostile environments for women in some occupations, but one powerful factor is self-efficacy beliefs that have developed over time. Male college students feel about as efficacious in traditionally female-dominated careers as they do in traditionally male-dominated careers; female undergraduates, however, have a weaker sense of efficacy in traditional male occupations compared with traditional female occupations (Betz & Hackett, 1981).

Gender differences disappear, though, when students judge their efficacy at a task presented in a stereotypically feminine context (Betz & Hackett, 1983), suggesting that women's sense of self-efficacy is not chronically low, but rather responds to situational factors related to gender, as the research on stereotype threat, reviewed below, demonstrates.

Mathematics skill and self-efficacy are a major factor in occupational choice, because they are essential for scientific and technical careers. Mathematics self-efficacy encourages choice of mathematics courses in high school and college, which further bolsters mathematics self-efficacy. Research shows that the effect of gender on mathematics performance is mediated by perceived self-efficacy (Pajares & Miller, 1994). Moreover, mastery experiences eliminate gender differences in mathematics self-efficacy (Schunck & Lilly, 1984).

Self-efficacy, according to social cognitive theory, develops in four ways (Bussey & Bandura, 1999): (1) through graded mastery experiences; (2) through social modeling, such as seeing people like oneself succeed because of effort; (3) through social persuasion, in which another person expresses confidence in one's ability to succeed; and (4) by reducing stress and depression, building physical strength, and changing misinterpretations of bodily states. The second factor, social modeling, is particularly relevant to gender and occupational choice. In everyday life and in the media, children observe the gender segregation of occupations—that almost all nurses and elementary school teachers are women, and that almost all professional basketball players and all presidents of the United States are men. Girls therefore see people like themselves—women—succeeding as nurses and teachers, and boys see people like themselves—men—succeeding as basketball players and presidents. The result is that girls develop a greater sense of self-efficacy at being a nurse or teacher, making them likelier to pursue that career choice. Boys develop a greater sense of self-efficacy in athletics and leadership roles, encouraging a choice of careers in those areas.

Numerous empirical studies by Bussey, Bandura, and others support various aspects of social cognitive theory as it applies to gender differentiation in self-efficacy and

achievements (reviewed by Bussey & Bandura, 1999). For example, concerning social persuasion as one of the factors influencing self-efficacy, research shows that as early as kindergarten, mothers have higher expectations for their daughters in reading, and higher expectations for their sons in math (Lummis & Stevenson, 1990). When boys and girls are matched for math performance, parents rate daughters' mathematical ability as less than sons' (Yee & Eccles, 1988). In a daily checklist study, when praising children for an achievement, mothers of sons were more likely than mothers of daughters to connect the praise to the child's ability (Pomerantz & Ruble, 1998).

A Comparison of the Two Theories

Both Eccles and colleagues' expectancy-value theory and Bussey and Bandura's social cognitive theory contribute to a fuller understanding of how achievement expectations, beliefs, and behaviors become gendered over time. At this point, it is worthwhile to highlight some of the similarities and differences we see in these two approaches in order to understand how they might best be used to inform future research.

These models are similar in that both place importance on the influence of socializers such as parents and peers, the impact of expectations for success, and the pivotal role of individual choice in shaping beliefs about gender and achievement. However, there are also subtle differences in these models in their specific focus on how these variables combine to predict and explain the intersection of gender and achievement. For example, Bussey and Bandura elaborate on specific processes of social learning that might unfold to explain how parents' beliefs and behavior about achievement are learned by children. Because parents serve as models in this framework, the extent to which children learn gendered beliefs from parents should vary in response to specific parameters, such as the attention children focus on the model at a given time, the similarities between the child and the model, and whether there are inconsistencies between the model's behavior and what the model explicitly teaches. Processes such as these help specify when and how socializers affect children's beliefs about achievement. Adding processes such as these to the expectancy-

value framework should be helpful. Second, the Eccles and colleagues and the Bussey and Bandura models also differ slightly in how they treat the relationship between competence beliefs and task value. Specifically, Eccles's model, as an explicit expectancy-value model, predicts that achievement choices are impacted both by expectancies for success and task values. In this way, believing that one is skilled at a task and that the task is worthwhile can operate independently. In this model, task value is determined by factors in addition to competence beliefs, such as short- and long-term goals, and these values can contribute to expectancy beliefs, as well as combine with them to predict achievement behavior. In contrast, Bussey and Bandura's model implies that efficacy beliefs affect achievement choices, and the role of values is given little attention.

These theories provide frameworks within which to describe and predict achievement behaviors, and how these behaviors might differ by gender. Although similar in some ways, they each offer specificity in different areas. It is important to draw from each theory in order for us, as researchers, to reach a more thorough understanding of gender, competence, and achievement.

Gender Socialization and the Gender Segregation Effect

In this section, we shift the focus to empirical findings on the role of parents, teachers, and peers in the development of gender differences in competence beliefs. A thorough review of all studies on gender socialization relevant to motivation and competence is beyond the scope of this chapter. Bussey and Bandura (1999) reviewed many of the relevant studies. Here, we focus on some key ones and others that are exemplars of various categories of evidence.

Lytton and Romney (1991) conducted a meta-analysis of 172 studies of parents' differential rearing of boys compared with girls. The studies used a variety of methods, including reports by the child, interviews and questionnaires for parents, and direct observations. The studies also covered a wide array of domains that included encouraging achievement, warmth, encouraging dependency, restrictiveness, discipline, and encouraging sex-typed activities. The most relevant domain for this discussion of gen-

der and the development of competence is encouragement of achievement. For North American studies, the effect size was $d = 0.05$; that is, there was essentially no difference in the extent to which parents encouraged achievement in girls compared with boys. Does that imply that parental socialization is not a force? Not in the least. A more substantial effect size was found for encouragement of sex-typed activities ($d = 0.34$). Measures in these studies assessed practices such as encouraging boys to play with trucks or to shovel the sidewalk, and girls to play with dolls and help with vacuuming. To the extent that parents encourage boys to play with trucks, they are building a sense of competence in a particular domain in their sons more than in their daughters. The same is true for encouragement of girls in activities such as playing with dolls. This meta-analysis is helpful insofar as a general impression exists that parents treat boys and girls entirely differently; the results, in contrast, show that, on the whole, parents treat their sons and daughters quite similarly. Encouragement of sex-typed activities, however, is a major exception, and this tendency can easily lay the foundation for different senses of competence in girls compared with boys; that is, these results indicate that girls and boys will become differentiated not in their global sense of competence, but rather in their sense of competence in specific domains.

Teachers, too, are socializers. Research based on classroom observations in pre-schools and elementary schools indicates that teachers treat boys and girls differently. Teachers, on average, pay more attention to boys than to girls (DeZolt & Hull, 2001; Golombok & Fivush, 1994). When teachers praise students, the compliments go to girls for decorous conduct and to boys for good academic performance (Dweck, Goetz, & Strauss, 1980; Golombok & Fivush, 1994). Teachers, then, are socializing a sense of academic competence for boys more than girls.

Maccoby (1990, 1998) has argued that one of the most potent forces encouraging gender differentiation is the largely self-imposed gender segregation that occurs in childhood. By 3 years of age, children have a tendency to seek out and play with other children of their own gender and to avoid playing with children of the other gender. The tendency grows stronger by the time

children are in elementary school. It occurs regardless of the gender socialization principles in their families, and in villages in developing nations as much as in the United States. Importantly, all-girl and all-boy groups differ in terms of their activities. Boys' play is rougher and involves more risk, confrontation, and striving for dominance. All-girl groups are more likely to use conflict-reducing strategies in negotiating with each other and to engage in more self-disclosure. All-girl groups also tend to maintain communication with adults, whereas boys separate themselves from adults, test the limits, and seek autonomy. Later, in adolescence, heterosexual attraction brings the sexes back together again, but that cannot undo the effects of the years of segregation.

The net effect of gender segregation in childhood, and the differentiation of activities intertwined with it, is that girls and boys have success experiences and build their sense of competence in different domains. Boys develop a sense of competence in rough, active pursuits that will contribute to competence beliefs in athletics and other competitive domains. Girls' practice at communication and maintaining harmonious relationships within the group will build their sense of competence in the domain of relationships. And these are precisely the domains in which the culture at large expects competence from girls and women compared with boys and men.

Development of Competence Beliefs in Girls and Boys

As reviewed earlier, several processes might contribute to gender differences in competence beliefs. Therefore, a crucial initial question surrounding gender and motivation within achievement settings concerns whether there are indeed gender differences in competence beliefs. If gender differences in competence beliefs exist, the next pressing issues are when and how these differences emerge. At first blush, evidence concerning the presence versus absence of gender differences in competence beliefs is mixed. In general, there is little empirical evidence to suggest that gender differences in competence beliefs exist at a global level. For example, most studies investigating academic competence beliefs in general indicate no or very small gender differences (e.g., Cole et al.,

2001; Jambunathan & Hurlbut, 2000). Although these studies report data from U.S. samples, this pattern of gender similarity appears to characterize non-U.S. samples as well. A study of elementary school students' achievement-related beliefs in several cities around the world (East and West Berlin, Berne, Los Angeles, Moscow, Prague, and Tokyo) revealed that girls and boys hold similar beliefs about their general academic competence (Stetsenko, Little, Gordeeva, Granshof, & Oertingen, 2000).

Research addressing competence beliefs within specific domains reveals a pattern that is more gender-differentiated. For example, several studies have found that boys report more competence in math, science, and athletics, and girls report less competence in these domains (Crain, 1996; Debacker & Nelson, 2000; Eccles, Wigfield, Harold, & Blumenfeld, 1993; Fredricks & Eccles, 2002; Jacobs, Finken, Griffin, & Wright, 1998; Lummis & Stevenson, 1990; Marsh & Young, 1998; Malpass, O'Neil, & Hocevar, 1999; Wigfield et al., 1997). A meta-analysis of studies of gender differences in attitudes toward math indicated that boys had somewhat higher competence beliefs in math than girls, and that this difference was widest during high school (Hyde, Fennema, Ryan, Frost, & Hopp, 1990). In contrast, girls report feeling more competent than do boys in language arts (Crain, 1996; Eccles, Wigfield, et al., 1993; Lummis & Stevenson, 1990; Marsh & Young, 1998; Wigfield et al., 1997). It is noteworthy that these domain-specific gender differences have emerged among samples from Taiwan and Japan, as well as the United States (Lummis & Stevenson, 1990).

Consistent with theorizing by Eccles and her colleagues, girls and boys come to develop nuanced beliefs about gender, and these beliefs are intimately tied to specific achievement domains. The developmental patterns of gender differences in competence beliefs within different domains are less clear. Although there is evidence to suggest that there are larger gender differences in competence beliefs among older children than younger children (Eccles, 1987a; Eccles, Adler, & Meece, 1984; Hyde, Fennema, Ryan, et al., 1990), most work has not examined the competence beliefs of the same group of individuals over a long enough

span of time to determine the trajectory of gender differences across different ages.

However, a recent study provided a comprehensive analysis of gender differences in three different domains from childhood through adolescence (Jacobs, Lanza, Osgood, Eccles, & Wigfield, 2002). In this longitudinal study, participants reported their competence beliefs in math, language arts, and sports from first through 12th grades. The results indicated that the patterns of gender variations were specific to domain. In the domain of math, although in first grade boys' beliefs in their math competence was higher than those of girls, the difference disappeared in high school. The nature of this pattern, however, is revealing about competence beliefs in math more generally. Both girls' and boys' feelings of competence in math decreased through childhood and adolescence. However, because boys' competence beliefs decreased at a faster rate than those of girls, by late high school, girls' and boys' competence beliefs concerning math were the same. These results suggest that there might be more global social or contextual processes operating within schools and beyond that cause both genders' math competence beliefs to decrease (Eccles & Midgley, 1989; Eccles, Midgley, et al., 1993) and thereby converge over time. These effects are different from those reported in earlier work that revealed a larger gender difference in math competence in high school than in middle school (Eccles, 1994). Because the data collected from the cohort reported by Jacobs et al. (2002) were more recent than those reported by Eccles (1994), this narrowing gender difference from childhood through adolescence could be taken as a promising sign of social changes that promote greater gender equality. Consistent with this, meta-analyses of gender differences in math performance revealed larger gender differences among older studies than among more recent studies (Hyde, Fennema, & Lamon, 1990). Although this is promising, it is still worrisome that both boys' and girls' beliefs in their mathematics competence plummet through elementary and secondary school.

The pattern of results found by Jacobs et al. (2002) concerning competence in language arts tells a different story. Girls believe they are more competent in language arts

than do boys, and this difference actually becomes more pronounced over time. In this domain, the widening gender gap occurred as a consequence of boys' accelerated decline in competence beliefs concerning language arts. As in the math domain, both genders evidenced a decline in competence beliefs in language arts, but boys' decline was more steep.

These results lend themselves to a discussion of the effects that varying levels of competence might have on later academic, extra-curricular, and career choices. In the Jacobs et al. (2002) study, the researchers also assessed students' valuation of math and language arts, and found that beliefs about competence predicted the extent to which children valued the given domain. As a consequence, children's feelings of competence are likely to affect their interests and the activities that they pursue (Eccles, 1994; Eccles & Midgley, 1989; Eccles et al., 1984). This becomes increasingly important as children grow older, because course taking in high school and college becomes increasingly more driven by interests.

Before continuing, it is worth noting that the gender differences in *beliefs* about competence exceed any differences in actual achievement. For example, meta-analyses indicate that there is only a small gender difference in math performance favoring males, and that this becomes apparent only in late high school and college ($d = 0.32$; Hyde, Fennema, & Lamon, 1990). Similarly, a meta-analysis of studies on gender and verbal abilities revealed essentially no difference ($d = -0.11$; Hyde & Linn, 1988). The presence of gender differences in competence beliefs, especially given that there are virtually no differences in actual achievement, inspires curiosity concerning environmental influences that affect children's beliefs about competence. For a review of how parents affect children's beliefs about competence and their achievement behaviors, see Chapter 15, this volume.

Competence Beliefs and Stereotype Threat

Steele introduced the concept of stereotype threat to capture the ways in which stereotypes can have a deleterious impact on performance (Steele, 1997; Steele & Aronson,

1995). His original research dealt with ethnic stereotypes—specifically, the stereotype that African Americans are less intellectually competent than their white peers. When the researchers activated stereotype threat by telling participants that a test was diagnostic of intelligence, highly talented black students at Stanford performed worse than a control group that was told the test was not diagnostic of intelligence. White students' performance was unaffected by instructions about the test.

Later researchers tested whether stereotype threat applies to gender stereotypes, in particular, the stereotype that women are bad at math (Brown & Josephs, 1999; Quinn & Spencer, 2001; Spencer, Steele, & Quinn, 1999; Walsh, Hickey, & Duffy, 1999). In an experiment by Spencer et al. (1999, Study 2), male and female college students with equivalent mathematics backgrounds were tested. Half were told that the math test had shown gender differences in the past, and half were told that the test had been shown to be gender-fair, and that men and women had performed equally on it. Under stereotype threat conditions, women underperformed compared with men, whereas when gender fairness was assured, there were no gender differences in performance. This effect has been replicated a number of times (Brown & Josephs, 1999; Davies, Spencer, Quinn, & Gerhardtstein, 2002; Spencer et al., 1999).

What mediates the effect of stereotype threat conditions on performance? Several possible mediators have been proposed, including self-evaluative anxiety (Spencer et al., 1999; Steele, 1997), dejected mood (Keller & Dauenheimer, 2003), and feelings of competence or self-efficacy (Spencer et al., 1999; Steele, 1997). Here, we focus on sense of competence. Spencer et al. (1999, Study 3) specifically tested whether sense of self-efficacy, measured by items such as "I am uncertain whether I have enough mathematical knowledge to do well on this test," mediated the experimental effects of stereotype threat on performance on a mathematics test. The results indicated that self-efficacy was not a significant mediator. However, this experiment (Spencer et al., 1999, Study 3) did not include a condition of explicit stereotype threat activation; it simply gave no information about the math

test or instructed participants that there were no gender differences on the test. Therefore, the failure to find mediation effects for self-efficacy may have been a result of the absence of an experimental condition involving explicit stereotype threat activation. Clearly these questions should be pursued with additional research.

A developmental approach is useful in understanding the origins of these effects. Ambady, Shih, Kim, and Pittinsky (2001) found that gender stereotype threat effects on mathematics performance occurred among middle school girls, as they expected. Surprisingly, the same effect was found for lower elementary girls, but not for upper elementary girls. This particular study involved Asian American girls and also activated their ethnic identity in some conditions, which improved their performance. These results seem to derive from a complex interplay of gender and ethnic stereotype awareness. Perhaps most importantly, they indicate that the effects of gender stereotype threat appear early. Unfortunately, sense of competence in mathematics was not measured in this study.

The research on stereotype threat demonstrates that although mathematics performance, competence, and gender differences in competence are generally thought of as trait-like, one's sense of competence at a particular task can also be quite sensitive to situational cues or context. Thus, gender differences in feelings of competence may appear or disappear, depending on the task and contextual cues.

Expectations and Performance Feedback

The research on stereotype threat indicates that performance can be undermined when group status is salient and one's group is believed to be disadvantaged in that particular domain. This raises the possibility that, by undermining performance, stereotype threat can undermine feelings of competence. With this in mind, it is worth examining how individuals respond *after* they receive feedback about their performance within gender-stereotyped domains.

Limited research exists on the effects of performance feedback (either positive or negative) on females' and males' motivation within gender-typed domains. One notable study examined third graders' and junior

high school students' achievement-related beliefs just before and a few days after taking a math exam (Stipek & Gralinski, 1991). Consistent with the work reviewed earlier, prior to the test, boys expected to do better on the exam than girls did. However, the focus of the study was students' reactions after they received their scores. Girls and boys attributed their success and failure to different sources. Girls who performed well on the test were less likely to attribute their success to high ability than were boys who performed similarly well. These girls did not reap the confidence-building benefits of success. Moreover, girls who performed poorly were more likely to attribute their failure to low ability and to want to hide their exam papers from others, compared with boys who performed similarly. These girls made more harsh attributions about their performance. Finally, the researchers found that girls' attributional patterns could ultimately lead them to avoid math activities. This study nicely illustrates the insidious nature of stereotypes within achievement domains. Performing in the domain is only the beginning of the process, and research attention should also focus on what happens after individuals find out how they performed. Receiving feedback and either altering or affirming one's personal beliefs about competence in a given domain are all part of the continuing process whereby individuals develop beliefs about their abilities.

The previous study involved a situation in which individuals received fairly objective feedback about their performance (i.e., scoring math tests relies very little on subjective judgments). However, interpreting feedback is more difficult when the criteria for evaluation are less clear, as might be the case in occupational and interpersonal contexts. Crocker and Major (1989) have examined the difficulty that individuals in stigmatized groups can have when interpreting evaluations from others who are aware of their group membership. Specifically, these researchers pointed out that when stigmatized individuals interpret feedback from others, there is ambiguity, because the feedback could be based on actual performance, or be tainted by information about group membership. For example, imagine a woman who works for a male supervisor in a primarily male engi-

neering firm. Upon receiving her end-of-the-year evaluation, she might be cautious about how to interpret it. Specifically, if the evaluation is positive, she might wonder whether her evaluation is based on her true merit or influenced by the fact that she is a woman. For example, she might wonder whether her boss judged her by lower standards than those used for her male peers or was afraid of giving negative feedback because he was concerned that she might think he was sexist. Although attributional ambiguity can buffer the effects of negative feedback on self-esteem (Crocker & Major, 1989), this example illustrates how it can prevent stigmatized individuals from fully enjoying positive feedback (Crocker, Voelkl, Testa, & Major, 1991).

The research described earlier identifies some of the difficulties women encounter when performing in domains in which men are believed to perform better than women. There is surprisingly little research investigating how men behave when they perform in domains in which women are believed to perform better than men. For example, it is very possible that boys make different attributions for success and failure than girls on reading-related tasks. Perhaps boys in these situations are less likely to attribute success to high ability and more likely to attribute failure to low ability. Advancing research within domains believed to be both female- and male-typed will help us better understand the system that is set in motion when an individual performs in a domain where his or her group is believed to be disadvantaged.

GENDER AND ACHIEVEMENT MOTIVATION

History of Research on Gender and Achievement Motivation

McClelland's traditional method of measuring achievement motivation, developed in the 1950s, uses a projective technique in which people's stories in response to an ambiguous picture cue are scored for achievement imagery (McClelland, Atkinson, Clark, & Lowell, 1953). Most of the classic literature reviews concluded that there were gender differences in achievement motivation, with females showing a lower level of moti-

vation than males (Hoffman, 1972; Tyler, 1965). In the late 1960s and 1970s, these differences were thought to be important in explaining why women had not achieved as much as men in the realm of adult occupations. Theories were constructed to explain the developmental forces, such as socialization, that might lead girls to display less achievement motivation (Hoffman, 1972). It was also believed that females were motivated more by a need for affiliation than by a need for achievement (Hoffman, 1972).

In their watershed review, however, MacCoby and Jacklin (1974) challenged these views, concluding that there was little evidence for lower achievement motivation in females. Their conclusions are complicated by the variety of ways in which achievement motivation can be measured. In the neutral or relaxed condition for the McClelland et al. (1953) measure, females actually show higher achievement motivation than males. Under achievement-arousal conditions, however, males' achievement motivation increases sharply, whereas females' does not.

A number of scholars criticized McClelland and Atkinson's classic theory of achievement motivation as applied to questions of gender (e.g., Spence & Helmreich, 1983). Stewart and Chester (1982) noted substantial flaws in the experimental methods used by McClelland and Atkinson to arouse achievement motivation. McClelland and Atkinson's theory specified that achievement motivation should increase under achievement arousal conditions—for example, when participants were told that the test measured capacity to act as a leader. Males' behavior was consistent with this prediction, whereas females' behavior was not, so McClelland and Atkinson excluded females from later empirical studies. Indeed, McClelland went so far as to say: "Clearly we need a differential psychology of motivation for men and women" (1966, p. 481), never questioning the adequacy of his own theory, but instead concluding that someone else would have to develop a theory to account for women's behavior.

In an effort to create new theory and methods, Spence and Helmreich (1983) developed a nonprojective, self-report measure of motivation that, additionally, expanded on the classic unidimensional view of

achievement motivation to recognize multiple domains of achievement motivation. Their research uncovered three dimensions of achievement motivation: work, mastery, and competitiveness.

Also following on the research from the 1950s and 1960s indicating that females had a lower level of achievement motivation than did males, evidence suggests that women's achievement motivation has increased over time. Veroff, Depner, Kukla, and Douvan (1980) found that achievement motivation increased among American women from 1957 to 1976, and Jenkins (1987) found similar increases from 1967 to 1981. The most recent studies show no gender differences in achievement motivation (Mednick & Thomas, 1993).

What can account for these changes over time? It seems likely that the opening of educational opportunities and career options for women over the last three decades has increased achievement motivation for women as they gain experience in careers, and for girls as they anticipate jobs with exciting possibilities for achievement. Jenkins (1987) found that achievement motivation in female students who were college seniors in 1967 predicted their employment in achievement-oriented occupations 14 years later. Even more intriguing is the finding that women employed as college professors or as business entrepreneurs showed significant increases in their achievement motivation compared with their scores in college, whereas those in other occupations showed no change in achievement motivation (Jenkins, 1987).

Motive to Avoid Success

Seeking alternatives to traditional models of achievement motivation, Horner (1969) formulated the construct of a motive to avoid success, or fear of success, among bright, high-achieving women. In attempting to understand the gender differences in achievement that were present in the 1960s, Horner observed that achievement situations were more anxiety provoking for females than for males. To measure this phenomenon, Horner devised a projective test in which respondents completed a story that began "After first-term finals, Anne (John) finds herself (himself) at the top of her (his) medical

school class." Women wrote about Anne and men, about John.

Men's stories in response to this cue generally indicated happiness and feelings of satisfaction over achievement. Women's responses, in contrast, were far more negative, indicating fears of social rejection, worries about maintaining womanhood, and denial of the reality of success. In Horner's sample from the University of Michigan, 65% of the women showed such negative responses, compared with 10% of the men.

Horner collected her original data in 1965 for her doctoral dissertation. The publication of the findings in 1969 attracted widespread attention from the popular media, and the *Psychology Today* article was required reading for students in many courses. The research was appealing, because it appeared at the time of the emergence of the women's movement and concern over women's equal opportunity. The research seemed to offer a believable explanation for why more women had not succeeded in high-status occupations—they simply feared success.

More than 30 years later, the research does not seem nearly as appealing. It has been criticized on a number of grounds (Mednick, 1989; Shaver, 1976; Tresemer, 1977; Zuckerman & Wheeler, 1975):

1. Other studies using Horner's techniques often found men displaying as much motive to avoid success as women. Therefore, there is no reason to believe that it is found only in women, or even that it is more frequent in women. If that is the case, it cannot be used to explain women's lesser occupational achievements.
2. Anne's success was in a field that, at the time, was stereotyped as male-oriented, namely, medical school. Therefore, the research might not indicate a generalized fear of success so much as a fear of being successful in a way that violates gender stereotypes. Indeed, when Anne was presented as successful in nursing school, women did not show anxiety about her success (Cherry & Deaux, 1978).
3. The research method confounded gender of stimulus person with gender of respondent; that is, women wrote about Anne, and men wrote about John. Perhaps

women are not anxious about their own success, but rather Anne's success stimulates anxiety, whether a woman or man writes about her and, in fact, one study showed exactly that (Monahan, Kuhn, & Shaver, 1974).

Today, research on motive to avoid success has virtually disappeared. Nonetheless, it provides an important object lesson on the popular appeal of attributing women's lesser achievements to internalized, intrapsychic factors and how, ultimately, such factors were unsuccessful in accounting for the striking gender differences in occupational achievement that characterized the 1950s and 1960s. As we search for productive research approaches for the future, models that assume widespread intrapsychic deficits in women are unlikely to be productive. The models reviewed next show far more promise.

Gender and Achievement Goal Theory

Achievement goals are cognitive representations that define individuals' desired outcomes concerning competence (Ames, 1992; Dweck, 1986; Nicholls, 1989; see other chapters in this volume for discussions of achievement goal theory). As such, achievement goals orient individuals toward competence and help organize behavior in order to attain competence. Although very little research has been done to examine relationships between gender and achievement goals (Pintrich & Schunk, 2002), two primary questions are of interest. The first concerns whether there are gender differences in the extent to which women and men adopt achievement goals for themselves. The second question concerns whether the processes initiated by the adoption of achievement goals differ depending on gender. Overall, the answers to these questions appear to be somewhat mixed, although most studies do not find large gender differences of either kind.

Several authors have noted the paucity of research on gender and achievement goals (e.g., Pintrich & Schunk, 2002). To begin to remedy this situation, we undertook a brief review of studies in which gender was included in analyses of mastery and performance-approach achievement goals, al-

though gender was rarely the focus of these studies. Our review indicated that many studies reveal no gender differences in self-set mastery and performance-approach achievement goals (e.g., Barron & Harackiewicz, 2001; Fukada, Fukada, & Hicks, 1993; Gernigon & Le Bars, 2000; Pajares, Britner, & Valiante, 2000; Sachs, 2001). However, some studies do report gender differences; in these studies, the general pattern was that females reported adopting higher levels of goals than males, and often higher levels of mastery goals in particular (e.g., Bouffard, Boisvert, Vezeau, & Larouche, 1995; Elliot & Church, 1997; Harackiewicz, Barron, Carter, Lehto, & Elliot, 1997; Nolen, 1988; Pajares et al., 2000; Wentzel, 1993). In order to try to make sense of this mixed set of results, we reexamined these studies to determine whether there was a pattern in the types of studies that revealed differences versus similarities across gender. Specifically, given the data reported earlier suggesting that task domain is a crucial determinant of competence beliefs for females and males, we examined whether the presence or absence of observed gender differences in achievement goals systematically differed by domain.

Overall, this analysis revealed some general patterns. Of the studies indicating that women adopted higher levels of mastery goals than men, two were in psychology (Elliot & Church, 1997; Harackiewicz et al., 1997), one was in language arts (Pajares et al., 2000), one was in science (Nolen, 1988), and two were in academics in general (Bouffard et al., 1995; Wentzel, 1993). In contrast, the domains in which women and men did not show differences in adopted mastery goals seemed to be more stereotypically masculine: one in math (Barron & Harackiewicz, 2001), one in science (Pajares et al., 2000), one in educational research (Sachs, 2001), and two in athletics (Fukada et al., 1993; Gernigon & Le Bars, 2000).

Only four studies revealed gender differences in performance goals. The studies reporting that women adopted higher levels of performance goals than men were in academics generally (Bouffard et al., 1995; Wentzel, 1993), and in psychology (Harackiewicz et al., 1997). Only one of the studies indicated that men adopted higher levels of performance goals than women, and this

was a study of math (Middleton & Midgley, 1997).

Given the apparent domain specificity, suggesting that individuals are more likely to set approach achievement goals in domains where their gender is favored, a fascinating question is whether an inverse pattern would be observed for the adoption of avoidance goals. Performance-avoidance goals are focused on *not* performing poorly relative to others. Specifically, individuals might be more likely to adopt avoidance achievement goals in domains in which their gender is believed to be disadvantaged. Imagine two high school calculus students, Jennifer and Sam. Most likely, both Sam and Jennifer will focus on performing well and achieving success on an upcoming examination. However, if Jennifer is concerned about confirming the stereotype that girls do not perform as well as boys in calculus, then she might also adopt a performance-avoidance goal not to do poorly relative to the boys in the class. This possibility is bolstered by data suggesting that competence beliefs are inversely related to the adoption of avoidance goals (Elliot & Church, 1997). If girls believe they are not as good at math as boys, then girls will be more likely to adopt performance-avoidance goals. Moreover, performance-avoidance goals are associated with a host of negative outcomes, including lower interest and lower performance (Elliot & Church, 1997). This is especially interesting in light of the earlier discussion on the undermining effects of stereotype threat on performance. As more research on avoidance goals accumulates, it will be interesting to determine whether members of the gender that is believed to be disadvantaged in a given domain are more likely to adopt performance-avoidance goals in those contexts.

Finally, few gender differences are evident when considering whether gender moderates the effects of goals on other outcomes. For example, in laboratory studies in which goals are experimentally manipulated, the effects of these goals are typically not found to differ by gender (e.g., Barron & Harackiewicz, 2001; Elliot & Harackiewicz, 1994). However, there is some evidence to suggest that the motivational benefits of adopting performance-approach goals are stronger for males than for females (e.g., Bouffard et al., 1995; Linnenbrink, Ryan, &

Pintrich, 2000). In general, there is little consensus on what processes related to achievement goals differ by gender. There is much to be gained from research in the area—both identifying consistent patterns (either patterns of gender similarity or difference) and understanding why those patterns emerge.

Overall, there is much more work to be done in this area to synthesize results across studies, identify meaningful patterns, and gain a better understanding of when gender differences do and do not emerge, but the trends indicate that gender differences in achievement goals depend on domain and are generally consistent with gender stereotypes about competence in domains such as mathematics, athletics, and psychology.

CULTURE AND ETHNICITY

A thorough understanding of gender, competence, and motivation should involve a consideration of the cultural contexts in which gendered beliefs develop and change over time. This includes a consideration of how variations across ethnicity and cultures affect gender roles and beliefs about gender and competence, and how achievement is demonstrated by and expected from each gender. The issues surrounding culture and ethnicity, as they relate to competence and motivation, are addressed in other chapters of this volume (see Chapters 22–26), and as research accumulates, it will be possible to understand better how gender intersects with various social and cultural factors. Here, we review two empirical examples of how gender and cultural norms can affect competence behaviors and beliefs.

One facet of culture concerns the extent to which social roles are divided by gender. As a consequence, we might expect larger gender differences in motivation and achievement among groups that adhere to more rigid gender roles. However, layered on top of traditional roles is a more dynamic process, in which some cultures are becoming more egalitarian in terms of gender. Cialdini, Wosinska, Dabul, Whetstone-Dion, and Heszen (1998) proposed a process by which individuals from cultures that have seen social movements toward gender equality

might reject their traditional roles and respond in nontraditional ways. The cultural norm examined in this study involved the traditional expectation that women be modest about their achievements and successes. Cialdini et al. argued that American women, compared with Polish women, would respond in a way counter to the traditional female role (less modestly) when gender roles were made salient, because the women's movement in the United States would cause American women to want to reject their traditional role. Consistent with hypotheses, American women evidenced more reduced modesty about their achievements when traditional gender roles were salient than when they were not salient. In contrast, gender role salience did not affect the reports of modesty made by American men, or Polish men and women.

These results are intriguing not only because American women were likely to display less modesty in their achievements but also because this process might predict that individuals would reject traditional gender roles in other ways as well. For example, some women might come to care about doing well in math in order to reject rather than conform to traditional gender roles. Moreover, although these data on role rejection might seem contradictory to the research on stereotype threat reviewed earlier, they might actually be parts of the same process. Accordingly, wanting very much to reject the stereotype about one's group might exacerbate performance problems.

A few studies have examined the intersection of race and gender within the context of stereotype threat. For example, Asian American women are in a particularly interesting situation when it comes to the domain of mathematics: They are stereotyped to be skilled at math because they are Asian, and unskilled at math because they are female. Pursuing this phenomenon, Shih, Pittinsky, and Ambady (1999) found that the aspect of identity that was activated (either Asian or female) predicted whether Asian American women evidenced performance decrements or enhancements under stereotype threat conditions. When their ethnic identity was primed, they evidenced performance enhancements. In contrast, they showed performance decrements when their gender was salient.

Similarly, because women are stereotyped to be less competent in math than men, and Latinos are stereotyped to be less competent at math than whites, Latina women are double-stereotyped to be unskilled at math. One study has examined whether performance decrements due to stereotype threat are additive in this sense (Gonzales, Blanton, & Williams, 2002). In this study, white and Latino men and women were randomly assigned to perform a math task either under stereotype threat conditions or not. Whereas white men evidenced performance enhancement under stereotype threat conditions, white women and Latino men evidenced some performance decrements, and Latina women evidenced the greatest performance decrements. Importantly, all participants scored similarly when the task was not performed under stereotype threat conditions. These data suggest that the effects of both gender and ethnic stereotype threat can accumulate and have an additive effect on performance.

SUMMARY AND CONCLUSIONS

Rapid advances over the past 30 years in women's educational and occupational achievements have been paralleled by advances in theory and research on gender, competence beliefs, and motivation. Eccles's expectancy-value theory and Bandura's (1999) social cognitive theory provide similar—although not identical—accounts of how gender differences in competence beliefs might be created. Both theories allow for the conceptualization of self-efficacy as domain-specific rather than general. Both highlight the importance of input from significant socializers, such as parents, teachers, and peers, and from the culture more broadly (in the form of gender stereotypes and gender segregation of adult occupations) in shaping competence beliefs.

We view competence beliefs as the result of developmental processes. In both mathematics and language arts, patterns of gender differences in self-efficacy shift from early elementary school through high school. Maccoby (1998) highlighted the importance of gender segregation in childhood in creating gender differences in behavior and competence beliefs. Stereotype threat may affect

competence beliefs both acutely, in a particular situation, and chronically, as many experiences of stereotype threat accumulate for the developing child. These effects may be particularly relevant to issues of girls and mathematics achievement.

In the realm of achievement motivation, research and theory have shifted rapidly from the 1950s, when girls and women were believed to be low in achievement motivation and were excluded from much research, to the 1980s, when gender similarities seemed to be the rule for achievement motivation. The construct of motive to avoid success emerged in 1969 as a complement to the classic research on achievement motivation, but researchers uncovered many problems with the construct, and it has largely faded from contemporary research. Achievement goal theory is now the dominant approach; research based on this model often fails to detect gender differences in achievement goals. When gender differences are detected, they tend to fall along stereotypical lines, for example, with women adopting higher mastery achievement goals than men in areas such as psychology and language arts.

We have noted the importance of considering the intersection of gender and ethnicity when studying competence, achievement motivation, and stereotype threat. Gender and ethnicity may in some cases create a double-dose of stereotype threat that attacks competence beliefs, as in the case of Latinas and mathematics. In other cases, gender and ethnic effects may act in opposite directions, as in the case of Asian American women and mathematics. Only by studying gender and ethnicity simultaneously will we be able to understand the complexity of these influences.

For the most part, gender differences in self-efficacy and in achievement goals are small and domain-specific. Gender similarities may prove to be the rule. Our belief is that, rather than studying main effects of gender, researchers should consider gender interactions. For example, are performance goals more beneficial for men than for women? Do some categories of women and other categories of men respond to achievement challenges with enhanced competence beliefs? These more complex approaches will be necessary for research to advance.

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CHAPTER 22



Race and Ethnicity in the Study of Motivation and Competence

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About 10 years ago, one of us wrote a review on motivational processes in African Americans (Graham, 1994). That article summarized what was known at the time about five motivational constructs that had been studied in African American participants. Because those constructs are pertinent to the theme of this volume on motivation and competence, one strategy for organizing our chapter on race and ethnicity might be to take the Graham review as a starting point. For example, we could update what has been documented since 1994 on attributions, expectancies, and self-perceived competence in African Americans and other ethnic groups. We could expand our analysis by synthesizing current research on other contemporary motivation constructs represented in this *Handbook*—such as achievement goals, values, and efficacy beliefs—that were not well studied in ethnic minority groups at the time of the Graham review.

We have chosen not to take this approach

to writing our chapter for two reasons. The first reason is a fairly practical one. There simply is not enough of a contemporary empirical literature with ethnic populations on any of the motivation constructs that now dominate the field. It is not that researchers have failed to consider the thoughts and feelings that energize or impede achievement strivings among ethnic groups in this country; but that work has not been situated within the literatures on motivation and competence.

Our second reason is more conceptual. The Graham review was guided by an intrapersonal view of motivation (individual needs, self-directed thoughts and feelings), with little attention to the larger context in which achievement strivings unfold. The review started with person-oriented theories of motivation about, for example, causal attributions or personal control, and then examined whether or not hypotheses derived from those theories were supported in Afri-

can Americans. We now recognize the limitations of that approach. The significance of race and ethnicity for understanding motivation and competence requires that we cast a broader net and begin with factors that are unique to the everyday lives of people of color. Some of those factors are historical and structural in nature. Many racial and ethnic minority groups in contemporary America are positioned at the bottom of a status hierarchy wherein barriers to opportunity often override personal strivings for achievement. In an influential conceptual analysis, Garcia-Coll and colleagues (1996) identified experiences with racism and discrimination as meaningful macro-system variables that compromise the outcomes of children of color. Following their lead, we therefore begin our chapter with a discussion of perceived discrimination and coping with racial and ethnic stereotypes as structural variables that influence achievement strivings and the quest for competence among persons of color.

Members of racial and ethnic groups have proven to be remarkably resilient in the face of structural barriers such as those to be considered in the first two parts of this chapter. One important psychological variable that may contribute to that resilience is racial or ethnic identity, defined as one's attitudes and feelings about membership in his or her group (see Phinney, 1996). In the third part of this chapter, we examine research on racial/ethnic identity, with a particular focus on how that literature sheds light on motivation and competence in minority group members. The psychological meaning of race and ethnicity in the United States has been reshaped by the driving forces of immigration, and in the fourth section of our chapter, we consider how achievement strivings might be influenced by immigrant history and generational status. The four main topics reviewed—reactions to discrimination, coping with stereotypes, racial and ethnic identity, and the immigration experience—encompass vast literatures that have been just as much the intellectual terrain of sociologists and anthropologists as of psychologists. Therefore, we cannot do them justice in the context of this chapter. Rather, our goal is to use our knowledge of the topics as a framework for discussing the unique

challenges of racial and ethnic groups as they strive for mastery and competence.

We use the terms "race" and "ethnicity" throughout the chapter, so we want to be clear about how we define those terms. In theory, "race" is an ascribed category, with a race being a group of persons with shared genetic, biological, and physical features. Using that definition, we think of blacks, whites, and Asians as different races, and we refer to them as such in this chapter. However, we also realize that race is more socially constructed than biologically determined, in that the meaning of racial group membership changes across time and context, and that the variability within racial groups far exceeds that between groups (Yee, Fairchild, Weizmann, & Wyatt, 1993). "Ethnicity," on the other hand, has been defined as a category, either ascribed or voluntary, that reflects a group's common history, nationality or geography, language, and culture. For example, Black Haitian immigrants and African Americans are different in many significant ways despite sharing a common racial designation, and the construct of ethnicity allows us to capture many of those differences. Some advocate consolidating the two terms into a single identifier for the sake of clarity (Phinney, 1996). Others argue that such an approach obscures important differences between theoretically distinct constructs (Helms & Talleyrand, 1997). We take the position that the two constructs are distinct but not mutually exclusive, consistent with what sociologists refer to as the *new ethnicity* approach (Cornell & Hartmann, 1998). Thus we frequently use the two terms in tandem in this chapter. However, when describing distinct research literatures (e.g., racial identity development vs. ethnic identity development) we use the specific term most appropriate to that literature.

REACTIONS TO DISCRIMINATION

One of the major challenges faced by racial and ethnic minority groups in the United States is the experience of discrimination. By "discrimination," we mean negative or harmful behavior toward persons because of their membership in a particular group (see

Jones, 1997). We also focus on personal experiences or the *perception* of harmful treatment because of one's racial or ethnic group membership rather than actual (documented) group discrimination in the legal sense.

Despite the economic, political, and social gains of the second half of the last century among people of color, experiences with racial discrimination continue to be quite prevalent in contemporary America. Survey data reveal that at least two-thirds of African Americans report that they have been discriminated against in the last year (e.g., Broman, Mavaddat, & Hsu, 2000; Kessler, Mickelson, & Williams, 1999). Even children as young as age 10 have reported race-based mistreatment, especially in schools and public places (Simons et al., 2002), and middle-class samples are just as likely to be targets of racial discrimination as their economically disadvantaged counterparts (Cose, 1993; Feagin, 1991).

Perceived discrimination can occur in almost any arena. It can be blatant, intended, and obvious; or subtle, unintended, and not easy to detect. Some researchers have used the term "microaggressions" to capture a particularly subtle but pernicious kind of degradation that many people of color encounter on an almost daily basis (Pierce, 1995). Examples of microaggressions include being ignored or overlooked while waiting in line, being suspected of cheating because one received a good grade on a test, being followed or observed while in public places, or being mistaken for someone who serves others (Harrell, 2000; Solorzano, 2000). One of us (S. G.) is reminded of a particularly painful example of microaggression that her husband (an African American) encountered during his first year of medical school. Beginning his first clinical rotation, the aspiring young physician entered the university hospital, dressed in a white medical coat, shirt and tie, and with a stethoscope around his neck. As he rushed down the corridor on the way to Grand Rounds, a patient raised her hand, caught his attention, and signaled him to come to her room, by calling, "Oh, waiter, I'm ready for my tray." On the face of it, one such experience may seem fairly benign. But cumulative microaggressions can surely take their toll on mental health.

Consequences of Discrimination for Motivation and Competence

Many of the negative consequences of discrimination have implications for motivation and competence. People who perceive themselves to be chronic targets of others' mistreatment often lose confidence in themselves and in their ability to be self-efficacious. Because coping with discrimination is recognized as a major stressor for ethnic minorities, it also has been linked to a number of physical health problems associated with stress, including hypertension, decreased immune functioning, and heart disease (Clark, Anderson, Clark, & Williams, 1999). And because discrimination often takes the form of social exclusion, it can threaten one of the most fundamental human motives—the need to belong (Baumeister & Leary, 1995). Many studies have documented that even mild forms of laboratory-induced social exclusion can lead to both distressed affect and depletion of the cognitive resources needed to function productively (e.g., Baumeister, Twenge, & Nuss, 2002; Eisenberger, Lieberman, & Williams, 2003).

Most of the research on the mental and physical health consequences of discrimination has been conducted with adults, but there is a growing literature on the correlates of perceived race-based maltreatment among adolescents. Among the most prevalent kinds of unfair treatment reported by ethnic minority youth is that which takes place in school settings. Receiving a lower grade than deserved or being the recipient of unusually harsh discipline are common experiences of mistreatment in school reported by youth of color (Fisher, Wallace, & Fenton, 2000). Such experiences have been linked to more depression among early adolescents of color (Simons et al., 2002), drug use (Gibbons, Gerrard, Cleveland, Wills, & Brody, 2004), decreased perceptions of mastery (Phinney, Madden, & Santos, 1998) and increased negative attitudes about school (Brand, Felner, Shim, Seitsinger, & Dumas, 2003). Perceived discrimination can lead to mistrust of teachers and to the general belief that the school rules and policies are unfair. A number of studies now document that personal experiences with discrimination, in combination with racial mistrust, can contribute to academic disengagement

and other problem behaviors at school (e.g., Taylor, Casten, Flickinger, Roberts, & Fulmore, 1994).

Attributions to Discrimination: Risk or Protective Factor?

If discrimination is so ubiquitous, then how do ethnic minority targets manage to cope with it? One explanation pertinent to motivation and perceived competence focuses on the attributions of stigmatized groups (including racial and ethnic minorities) for their negative outcomes. Imagine for example, an African American student who receives a low grade on a test despite the fact that she thought she had answered all of the questions correctly. Because the failure was unexpected, she is likely, implicitly or explicitly, to ask, "Why?" Although attributional reasoning is complex, involving multiple causes, a basic distinction has been made in attribution research between causes that are internal (e.g., "It is something about *me*—my ability or effort") versus external (e.g., "It is something about my teacher; he's prejudiced") (Weiner, 1985; Chapter 5, this volume). External attributions for failure protect personal esteem by shifting blame away from the self. In an influential theoretical review, Crocker and Major (1989) drew on attribution research to argue that attributions to prejudice were an important self-protective mechanism that members of stigmatized groups use to maintain their self-esteem in spite of disparaging treatment by others.

Empirical support for the adaptiveness of external attributions for discrimination has been found in experimental research (see Major, Quinton, & McCoy, 2002, for a review), correlational studies (e.g., Moghaddam, Taylor, Lambert, & Schmidt, 1995), and longitudinal analyses (LaVeist, Sellers, & Neighbors, 2001). For example, LaVeist et al. (2001) found that African American adults who attributed discrimination to external factors (what the authors labeled as *system blame*) were more likely to be alive 13 years later than were their counterparts who attributed the same outcome to their own characteristics (self-blame). Lower mortality among the external attribution group was upheld even after controlling for the known correlates of survival, such as age, health status, and income.

The idea that external attributions can be self-protective for stigmatized groups provides a compelling theoretical account for why low-status groups have positive self-views *in spite of* their disadvantaged position. In recent years, however, empirical support for the esteem-protecting function of attributions to prejudice has been questioned (see Major et al., 2002). It has been argued, for example, that stigmatized groups only make external attributions when evaluator prejudice is very salient (Ruggiero & Taylor, 1995). In causally ambiguous contexts, targets are more likely to blame themselves in order to maintain personal control. There also appear to be social costs to making attributions to prejudice that may result in the dampening rather than maintenance of high self-esteem. Kaiser and Miller (2001) found that an African American target person who attributed a negative job evaluation to racial discrimination was perceived as irritating and troublesome, even when it was clear that the evaluator had reacted in a biased manner. Ethnic minorities may also be less likely to endorse attributions to prejudice when those causes need to be stated in the presence of a high-status evaluator (Stangor, Swim, Van Allen, & Sechrist, 2002). These studies suggest that people may be motivated to minimize attributions to prejudice to avoid devaluation, exclusion, or retaliation by others.

Some of the inconsistent findings in the attributional literature on discrimination may be due to an overly simplistic conception of an attribution to prejudice. Because perceived discrimination implicates personal characteristics (one's race or ethnicity), as well as the characteristics of external agents, it may be perceived as both internal and external on the locus dimension of causality (for related discussions, see Major et al., 2002; Schmitt & Branscombe, 2002). Moreover, internal and external causes differ along two other causal dimensions identified in attribution theory (i.e., stability and controllability) that also have motivational consequences. We suspect that the key attributional dimension for predicting how individuals cope with discrimination may be stability rather than locus. Stable causes for an outcome, whether internal or external, lead to the expectation that the same outcome will occur again, and that expectation,

in turn, predicts cognitions, affect, and behavior associated with one's future prospects (Weiner, 1985). Cumulative experiences with discrimination and the perception that the causes of discrimination are stable will lead to depressed affect (e.g., feelings of hopelessness) and giving up in the face of challenge. Those stability-expectancy linkages, which mirror research findings on the negative consequences of discrimination reviewed earlier, bear little relation to self-esteem and the locus of attributions to discrimination.

Summary

Experiences with discrimination are a significant risk factor for undermining motivation and competence in children, adolescents, and adults of color. Causal attributions for discrimination appear to be an important mechanism for understanding the effects of unfair treatment on subsequent adjustment. However, the properties of that causal explanation and their relation to adjustment have not been fully explored. We believe that the stability of attributions for discrimination, rather than locus, may be especially meaningful for understanding the relations between coping with discrimination and competence motivation.

RACIAL STEREOTYPES

Stereotypes are culturally shared beliefs, both positive and negative, about the characteristics and behaviors of particular groups. For example, the notion that blondes have more fun or that adolescents are victims of "raging hormones" is part of our culturally endorsed beliefs about the attributes of those social groups. An important distinction has been made in the stereotype literature between one's own privately held beliefs about members of social groups (personal stereotypes) and the consensual or shared understanding of those groups (cultural stereotypes), for the latter are primarily of interest in this chapter.

Most of the racial stereotype literature in the United States has focused on African Americans, and there is much evidence that the cultural stereotypes of that group remain largely negative. Even though privately held

beliefs have become more positive over the last 50 years (e.g., Schuman, Steeh, Bobo, & Krysan, 1997), studies of cultural stereotypes continue to show that respondents associate being black (and male) with low intelligence, hostility, aggressiveness, and violence (e.g., Devine & Elliot, 1995; Krueger, 1996). The much smaller stereotype literature on other ethnic groups in the United States also portrays the more marginalized groups in a negative light. For example, cultural stereotypes of Latinos represent them as illegal immigrants who prefer menial jobs, thus driving down wages, while driving up the costs of social services (e.g., Kao, 2000). Similar to African Americans, adolescent Latino males are perceived as unintelligent, antisocial, and with little personal ambition (Cowan, Martinez, & Mendiola, 1997; Neimann, Pollack, Rogers, & O'Connor, 1998). So pervasive are these linkages that they are sometimes endorsed even by members of the target ethnic groups. In our own research, for example, we found that African American and Latino adolescents were just as likely as their white classmates to associate being male and black or Latino with academic disengagement and socially deviant behavior (Graham, Taylor, & Hudley, 1998; Hudley & Graham, 2001).

Racial Stereotypes about Intelligence

African Americans and Stereotype Threat

Because the notion of race differences in intelligence has such a long history in the United States, it is not surprising that people continue to believe that African Americans are innately less intelligent than whites. Recall the enormous media attention to *The Bell Curve* but a decade ago (Herrnstein & Murray, 1994). For many, the book was derided as scientific racism; but for others, it was heralded as reviving a scientific truth.

Long before and after publication of *The Bell Curve*, social scientists have been writing about the negative consequences of stereotypes that associate being black with low intelligence. One particularly provocative program of research relevant to motivation and competence has been carried out by Claude Steele, Joshua Aronson, and their colleagues on a phenomenon that they label *stereotype threat* (Steele, 1997; Steele &

Aronson, 1995). Because that phenomenon is the subject of an entire chapter in this *Handbook*, we only briefly describe it here.

"Stereotype threat" is the awareness that individuals have about negative stereotypes associated with their group. Although considered to be a general psychological state applicable to any negative group stereotype, the construct originated in the achievement domain, and it has been applied to African American students' awareness of the cultural stereotype associating their race with intellectual inferiority. That awareness can be quite debilitating, especially for those African American students who are invested in doing well in school. For example, in a series of studies with black and white students attending Stanford University, Steele and Aronson (1995) found that black students performed more poorly than whites on test items taken from the Graduate Record Examination (GRE) when they were told that the test was diagnostic of their abilities. When told that the test was a problem-solving activity unrelated to ability, there was no difference in the performance of the two racial groups. In ability-related contexts, therefore, what became threatening for African American students was the fear that they might confirm the stereotype or be treated and judged by others based on that stereotype. Steele and Aronson suggested that stereotype-threatened students often are dividing their attention between the task itself (e.g., taking a GRE) and ruminating about the meaning of their performance (e.g., "What does this say about *me* or about members of my racial group?").

Stereotype threat researchers have documented two motivational consequences of the anxiety associated with thinking about race and intelligence in highly evaluative achievement contexts (Steele, 1997). Some African American students may choose to work especially hard as a way of disconfirming the stereotype. Of course, high effort in the face of increasing academic challenge may be difficult to sustain and may even lead one to question his or her abilities. Stereotype threat can also have the opposite effect, causing students to minimize effort and downplay the importance of doing well in school. Steele coined the term academic "disidentification" to describe students who no longer view academic achieve-

ment as a domain that is either important to them or their self-definition. Disidentification has been operationalized as the absence of a relationship between academic performance and self-esteem, and it has been associated with declining achievement from middle school to high school, particularly among African American boys (Osborne, 1997). A similar process, labeled academic "disengagement," occurs when students begin to discount the feedback they receive about their performance or to devalue achievement altogether (e.g., Major, Spencer, Schmader, Wolfe, & Crocker, 1998; Major & Schmader, 2001). Thus, while disidentification and disengagement may be self-protecting mechanisms for coping with negative racial stereotypes, in the long run, their detrimental effects on achievement strivings may outweigh any short-term self-enhancing effects.

Asian Americans and the Model Minority Stereotype

Unlike African Americans, the cultural stereotype about Asians is that they are hardworking and intellectually gifted high achievers who are especially competent in math and science (Kao, 1995). The term "model minority" was coined in the 1960s by social scientists and journalists to capture those characteristics and to account for the seemingly unprecedented successful entry of East Asian immigrants into mainstream American society (Sue & Okazaki, 1990). Many studies have now documented that Asians and non-Asians alike are aware of the culturally shared association between high academic achievement strivings and being an Asian American (e.g., Kao, 1995, 2000; Lee, 1994). Asked to describe the stereotypes about their group, over 80% of Asian American college students in one study listed terms such as "smart," "nerdy," and "overachiever" (Oyserman & Sakamoto, 1997).

While it may be more tolerable to know that one's ethnic group is viewed as smart and hardworking rather than as lazy and dumb, that stereotype also has its own unique set of challenges. Ethnographic, survey, and experimental research all point to psychological and emotional costs associated with living up to the model minority

stereotype. Ethnographic studies, for example, detail the anxiety that many Asian American students feel when forced to cope with the perception of their group as academic superstars (see Lee, 1994). Many report feeling frustrated and pressured to attain or maintain high academic achievement because of the expectations placed upon them. As one Asian American student poignantly disclosed:

They [whites] will have stereotypes, like we're smart. . . . They are so wrong, not everyone is smart. They expect you to be this and sometimes you tend to be what they expect you to be and you just lose your identity. . . . When you get bad grades, people look at you really strangely because you are sort of distorting the way they see an Asian. It makes you feel really awkward if you don't fit the stereotype. (in Lee, 1994, p. 419)

Consequences of those pressures have also been confirmed in laboratory experimental studies. Cheryan and Bodenhausen (2000) had Asian American women college students complete a set of math problems under conditions that manipulated whether their ethnicity was salient at the time of testing. Women in whom ethnic group membership had been primed performed more poorly and reported greater difficulty concentrating than those in a neutral condition. The authors suggested that positive stereotypes about academic ability can lead to "choking" under pressure if there is concern about failure to live up to high expectations about one's group. It also has been documented that Asian students were punished more for poor performance on a math tests than non-Asians who achieved the same outcome (Ho, Driscoll, & Loosbrock, 1998), implying that their evaluators perceived them as not trying hard. From an attributional perspective, failure attributed by others to lack of effort, given high ability, is maximally punished (Weiner, 1995).

Teacher Expectancies (Stereotypes?) as Self-Fulfilling Prophecies

Thus far, we have argued that intelligence-related stereotypes about African American and Asian American students are prevalent, and that these stereotypes influence students' motivation and perceptions of compe-

tence. It is reasonable also to ask whether teachers hold stereotypes linking race to intelligence and, if so, whether such stereotypes have an impact on student motivation and competence. Rosenthal and Jacobson's (1968) classic study, *Pygmalion in the Classroom*, was the first to document how teachers' inaccurate expectancies about students' intelligence actually produced changes in students' IQ scores that were consistent with their expectancies. Teacher expectancies became self-fulfilling prophecies (Merton, 1957), because an initially false definition of a situation evoked behaviors that subsequently made the false belief true. Stereotypes are often conceptualized as inaccurate expectations about individuals based on group membership, and a number of experimental studies have now documented the behavior-confirming (i.e., self-fulfilling) potential of social stereotypes (for recent examples, see Bargh, Chen, & Burrows, 1996; Chen & Bargh, 1997).

There is not a lot of concrete evidence that teacher expectations function as self-fulfilling prophecies (see review in Jussim, Eccles, & Madon, 1996). When found, however, those effects are often stronger when the expectations are low rather than high, and when they are held for African American compared to white students (see Rubovits & Maehr, 1973, for an early example and Jussim et al., 1996, for a more contemporary example). In the Jussim et al. study of sixth-grade math teachers and their students, teacher perceptions of low math ability in the fall predicted actual (low) achievement in the spring, over and above that explained by students' measured abilities. That effect was especially powerful for African American students, suggesting that these children are particularly vulnerable to confirming the beliefs of teachers who have low expectations about their academic potential.

How are negative teacher expectations communicated to students in self-fulfilling ways? One possible mechanism is the use of instructional practices that indirectly communicate low ability messages. For example, one of us (Graham, 1991) has found that undifferentiated praise for success at easy tasks, unsolicited offers of help, and too much sympathy following failure can lead students to attribute their academic setbacks to low ability (see also Mueller & Dweck,

1998 on the praise-low ability relation). Furthermore, altering pedagogical practices to be more effort- rather than ability-oriented can have immediate impact on students' motivation, even among those who are highly identified with the achievement domain. Cohen, Steele, and Ross (1999) found that African American college students displayed more subsequent task motivation when poor performance feedback was accompanied by criticism and communicated high expectations than when the same criticism was accompanied by general praise as a buffer. Such feedback, labeled "wise" by Cohen et al. (1999), can shift the attribution for failure away from low ability and toward those factors, such as lack of effort, that are under volitional control.

Racial Stereotypes about Antisocial Behavior

Arguably, *the* most pernicious racial stereotype affecting motivation and competence is the culturally shared belief that African Americans are violent, dangerous, aggressive, and antisocial. As we stated earlier, there is a great deal of evidence that this stereotype remains a part of the contemporary American psyche (e.g., Devine & Elliott, 1995).

Racial stereotypes about antisocial behavior have been linked to the disproportionately harsh treatment of African American youth in both the juvenile justice system and in the area of school discipline. For example, African American youth ages 10-17 are three to five times more likely than whites to be confined in the juvenile system (Poe-Yamagata & Jones, 2000). Some of that racial disparity is due to bias, inasmuch as African American offenders often receive harsher sentences than do whites, even after controlling for legal variables such as crime severity and prior offense history (Bridges & Steen, 1998; Leonard, Pope, & Feyerherm, 1995). In the school domain, Zero Tolerance and related "get tough" policies have produced racial disparities in the use of disciplinary practices. In a recent study of school suspension across 10 large school districts in the United States, the suspension rate for African American students was from two to five times greater than their representation in the school population (Applied Research

Center, 2000). As in the justice system, racial disparities are evident, because many studies document that black students are punished more harshly than white students for the same school offense, and they appear to be disciplined for less severe and more subjectively perceived transgressions, such as behaving in a threatening or disrespectful manner (Skiba, 2001).

While many social scientists have argued that disproportionately harsh treatment of African American students and young offenders can be attributed to the presence of racial stereotypes, at present, there is little empirical research that directly tests those linkages. We believe that the stereotypes do exist, and that they influence decision making about African American youth largely at an unconscious level (e.g., Graham & Lowery, 2004). That belief is consistent with a growing literature in social psychology documenting that stereotypes can be activated and used outside of conscious awareness (e.g., Greenwald & Banaji, 1995). Unconscious stereotypes are *unintentional*, because they are not planned responses; *involuntary*, since they occur automatically in the presence of an environmental cue; and *effortless*, in that they do not deplete an individual's limited information-processing resources (Bargh & Chartrand, 1999). By automatically and effortlessly categorizing people according to the stereotypes that they hold about them, perceivers can manage information overload and make social decisions more efficiently. Particularly among perceivers at the front end of a system, such as police officers in the justice system or teachers dealing with classroom disorder, decisions often must be made quickly, under conditions of cognitive and emotional overload (e.g., perceived threat), and where much ambiguity exists. These are the very conditions that are known to activate unconscious beliefs (Fiske, 1998).

Situating the study of racial stereotypes in basic social cognitive processes provides new opportunities to think about intervention at the individual level. Even if stereotypes are largely automatic, they are still amenable to change (Blair, 2002). For example, perceivers can unlearn negative stereotypes with enough practice ("Just say no"), and they can be taught to focus on counter-stereotypical associations with mental imag-

ery (Kawakami, Dovidio, Moll, Hermsen, & Russin, 2000). Thus, decision makers in our courts, schools, and other social arenas can be educated to be more aware of the nature of their biases and how to change them.

Summary

Stereotypes that associate being African American with low intelligence, or those that associate being Asian American with high intelligence, can undermine the motivation and perceived competence of the targets of those stereotypes. The stereotype threat literature suggests that some African American students fear that their performance will confirm a negative stereotype; the model minority literature proposes that some Asian American students fear that their performance will disconfirm a positive stereotype. We suspect that coping with ability-related stereotypes in the academic domain, either negative or positive, can lead to performance-avoidance goals (i.e., being oriented toward a negative possibility), which have known negative consequences for motivation and performance (see Elliot, 1999; Chapter 4, this volume). Thus, students of color may often define their achievement goals according to the stereotypical images of their group. Racial stereotypes about antisocial behavior have been linked to punitive outcomes that cut off opportunities to be competent. Linking stereotypes to faulty information processing provides new directions for cognitive intervention at the individual level that can complement activism to combat racism at the institutional level.

RACIAL AND ETHNIC IDENTITY

Research on stereotypes and discrimination provides a natural bridge to racial identity because social psychologists have become very interested in the ways in which ethnic identity might moderate the relationship between perceived discrimination and adjustment. For example, it has been suggested that a strong racial identity can buffer the negative effect of discrimination on mental health (Sellers & Shelton, 2003). That finding is consistent with a growing literature on racial and ethnic identity, and the role that

they play in healthy adjustment. In this section, we turn to that literature in the context of academic achievement.

We define racial (ethnic) identity as a person's sense of belonging to his or her group and the meaning attached to that group membership (e.g., Phinney, 1990). Sense of belonging has many dimensions, including self-labeling (e.g., Do I describe myself as *Mexican American*?); level of knowledge about one's group, including its history and culture; and participation in activities and practices of the group. Psychological meaning includes the importance of ethnic membership, one's feelings of pride associated with membership in the group, and one's attitudes about his or her group, particularly the way it is perceived in the eyes of others (Sellers, Smith, Shelton, Rowley, & Chavous, 1998).

In a multiethnic society, members of minority groups are constantly called upon to negotiate their identity. They must weigh the relative value of maintaining a distinct group identity versus taking on some, if not all, of the perceived characteristics of the dominant group. Ethnic identity negotiation can be challenging. Some of the challenge relates to forging an ethnic identity when one's group historically has been devalued by the larger society, as in the case of African Americans. Other difficulties concern reconciling bicultural identities with both country of origin and country of residence, as is true for many Latino and Asian youth with recent immigrant histories. For children and adolescents, the school context is one of the primary environments in which identity negotiation is enacted, and the consequences of that negotiation may significantly influence a child's motivation for and commitment to school learning. While a strong identification with one's ethnic group may facilitate achievement motivation, an alternative perspective suggests that a strong ethnic identity may pose a significant barrier to achievement strivings.

Ethnic Identity as Educational Risk Factor

Conceptualizing ethnic identity as an educational risk factor is perhaps most clearly represented by John Ogbu's cultural ecological theory (Ogbu, 1978, 2003). That theory ex-

amines achievement striving in the context of a minority group's historical, social, cultural, and linguistic relationship to the dominant culture. Two interlocking influences are seen as central to the achievement strivings of ethnic minority youth. One is what Ogbu refers to as "the system," or the manner in which the larger society and its institutions have incorporated and treated the minority group. The other is "the community," or the collective adaptation of the group to the dominant society and to its minority status.

Cultural ecological theory argues that each ethnic or cultural group in a pluralistic society tends to perceive its identity according to how it has historically been incorporated into the social system. Involuntary minorities are those that have been incorporated into the dominant society without their consent, through slavery, conquest, or colonization. Members of these groups understand the racism and discrimination that they experience as an expression of their forced subordinate status and see the dominant cultural forms taught in "the system's" public schools as tools used against them for the purpose of oppression. In response to repeated experiences of discrimination and subordination by the dominant group, involuntary minority groups may develop a system of secondary cultural differences that are formed by a process known as "cultural inversion."

Oppositional Identity

Through the process of cultural inversion, certain behaviors and symbols are assigned exclusively to the dominant group, and the minority group adopts behaviors and symbols in direct contradiction to those of the dominant group. This process of cultural inversion creates among members of involuntary minority groups what cultural ecological theory refers to as an "oppositional identity." In an effort to maintain cultural boundaries, anything labeled as a characteristic of the dominant group (e.g., academic motivation, school engagement, and success) is, by definition, not appropriate for members of their own ethnic group. Rather, the involuntary minority group must be defined by characteristics (e.g., school disengagement) that are the direct opposite (i.e., an in-

version) of the dominant group. In school, student members of involuntary minority groups may reject achievement striving and displays of effort to preserve their ethnic or cultural identity.

Consistent with oppositional identity, several ethnographies have concluded that African American adolescents believe that working hard for school success may be viewed by their black peers as "acting white," or supplanting one's own ethnic identity with that of the dominant culture (Fordham, 1996; Fordham & Ogbu, 1986; Tatum, 1997). It has been proposed that highly academically motivated African American students must adopt a "raceless" identity (Fordham, 1996) and often endure the rejection and outright ridicule of peers who espouse an oppositional identity. Furthermore, even among middle-class African American families and students, suspicion of racial inequity often creates an oppositional frame of interaction between schools and families and an oppositional identity among students, who reject achievement striving in favor of aspirations for sports or entertainment careers (Ogbu, 2003). A few ethnographic studies of oppositional identity have also been carried out with other marginalized (involuntary) ethnic groups and report similar findings. For example, a study of Mexican-descent high school students revealed that youth with a particular type of ethnic identification (e.g., *cholo*) endorsed beliefs about barriers to opportunity, experienced identity conflict, and displayed the same kinds of oppositional behaviors that Fordham and Ogbu (1986) have attributed to African Americans (Matute-Bianchi, 1991). In addition, Lee (1994) reported that some Asian-identified students, labeled as *New Wavers*, showed similar disdain for academic achievement, not only as a reaction to the model minority stereotype, but also because they associated being popular with academic disengagement.

The discourse surrounding oppositional identity during adolescence has become very lively among public intellectuals, as well as researchers, at least partly because it provides a motivational explanation for the achievement gap between black and white students. One would be hard pressed to find an article on academic motivation in African American adolescents in the last 10 years

that does not explicitly or implicitly make reference to oppositional identity. That construct also has been linked to other motivational phenomena discussed earlier in this chapter, such as stereotype threat and disidentification, as a way to fully capture the academic challenges that African American students face (Steele, 1992).

Aside from the ethnographic studies, however, there is not much empirical support for the phenomenon of oppositional identity. For example, two studies (Ainsworth-Darnell & Downey, 1998; Cook & Ludwig, 1997) tested hypotheses about oppositional identity using data from the National Education Longitudinal Study (NELS), a nationally representative panel study of 25,000 ethnically diverse students, their parents, and their teachers, who were assessed when students were in 8th, 10th, and 12th grade. Examining 10th-grade data, but using different analytic strategies, neither Ainsworth-Darnell and Downey (1998) nor Cook and Ludwig (1997) found clear evidence for attitudes resembling oppositional identity in African American high school students. Black students reported *more* proschool attitudes than their white counterparts, had equally high expectations for their future, and felt that high-achieving black peers were indeed among the most popular in school. To be sure, African American students in NELS analyses had lower school achievement than whites on virtually every indicator. But to the degree that antiachievement peer norms were present, they were the same for the two racial groups.

Some scholars have countered that large-scale surveys such as NELS are not sensitive enough to capture the more nuanced cultural and school contexts that do indeed promote oppositional identity among involuntary minorities (e.g., Farkas, Lleras, & Maczuga, 2002). Yet other qualitative studies do not find that African American adolescents believe either that doing well in school threatens their racial identity or that high achievers are rejected by the peer group (Bergin & Cooks, 2002; Datnow & Cooper, 1997). Rather than being oppositional, a strong racial identity was promotive of achievement strivings. In the next section, we turn to other research that argues for positive associations between ethnic identity and motivation.

Ethnic Identity as a Protective Factor

Although lacking a provocative conceptual framework like that of Fordham and Ogbu, a growing empirical literature has documented the motivational benefits of strongly identifying with one's ethnic group. Rather than cultural anthropology, this literature is grounded in more psychological approaches that measure ethnic identity with established scales and then relate strength of measured identity to a number of outcomes. For African Americans in particular, supportive results have been found with samples from childhood to young adulthood. Among elementary school students, for example, self and teacher ratings of school interest and school adjustment relate significantly to measures of racial identity (Thomas, Townsend, & Belgrave, 2003). Furthermore, a racial identity that includes the attitude that academic achievement is a part of being black has been shown to predict subsequent motivation and achievement (Oyserman, Harrison, & Bybee, 2001) as well as self-perceptions of ability and career aspirations in African American middle school students (Smith, Walker, Fields, Brookins, & Seay, 1999). Similarly, recent data indicate that African American middle school students with a positive racial identity are more likely to have high academic self-concepts and to be academically more successful than their counterparts who endorse a Eurocentric identity (Spencer, Noll, Stoltzfus, & Harpalani, 2001). Spencer et al. have been particularly vocal in criticizing the "acting white" phenomenon.

Consistent with findings from younger students, positive attitudes toward racial identity are also predictive of high academic self-concept and achievement among African American high school students (O'Connor, 1999; Witherspoon, Speight, & Thomas, 1997). In one of few studies to examine racial identity in a longitudinal design, Chavous et al. (2003) documented that 12th graders who perceived their racial identity to be central to their self-concept attended school more regularly, achieved higher grades, and were more likely to graduate from high school and go on to college. As might be expected from the foregoing results, positive racial identification is also predictive of achievement motivation and academic success in African American col-

lege undergraduates (Cokley, 2001; Sellers, Chavous, & Cooke, 1998).

The effects of a strong ethnic identity seem to generalize to other racial and ethnic groups as well. Research on Native American college students has consistently linked a positive psychosocial connection to Native culture with academic motivation, persistence, and achievement (Montgomery, Miville, Winterowd, Jeffries, & Baysden, 2000). This literature suggests that the most motivated students construct a unique academic identity that explicitly incorporates Indian ways of knowing, including the value of guides, the wisdom of elders, and the reciprocally supportive relationship between the Native community and the student. Among Latino students across grade levels, strong ethnic identity has been associated with school engagement, intrinsic motivation, and a belief in the value of schooling, although these findings appear to be more robust for Latino females than for males (e.g., Okagaki, Frensch, & Dodson, 1996; Lasley-Barajas & Pierce, 2001).

What are the origins of strong ethnic identity in youth of color? One important factor appears to be the way parents socialize their children about race and ethnicity. Two types of attitude about race that parents transmit to their offspring have been identified: (1) the communicated messages that instill racial and ethnic pride, including learning about one's history, heritage and culture; and (2) preparation for experiences with racial bias and discrimination (Bowman & Howard, 1985; Hughes & Chen, 1997). An underlying theme in this socialization research is that ethnic minority parents begin to teach their children about their ethnic history, heritage, and culture as early as the preschool years, and that preparation for coping with discrimination increases as children get older, especially in African American families. These communicated messages are related not only stronger to ethnic identity but also to higher academic achievement, more perceived mastery, and better problem-solving skills.

Summary

There are two competing hypotheses in the literature about the relationship between ethnic identity and achievement strivings.

Using qualitative methods, cultural ecological theorists argue that positive achievement attitudes and behaviors can threaten the identity of involuntary minority groups. On the other hand, contemporary programs of research using survey methods and self-report measures of identity find that strong ethnic identity is related to successful academic outcomes. It also is evident that parental socialization about race contributes to the positive relation between identity and achievement. What is missing from this literature is an understanding of process, or the mechanisms by which identity promotes motivation and competence. For example, the process may be primarily affective (e.g., ethnic pride enhances the subjective feeling of being competent), cognitive (e.g., strong identity enables one to filter out negative, ability-related messages of others), or some combination of feeling and thinking sequences. These are issues for future research.

THE IMMIGRANT EXPERIENCE

Census 2000 completely redefined the racial and ethnic landscape in the United States. Although whites are still the majority group in the nation as a whole, Asians and Latinos are now the fastest growing ethnic groups. In some states, such as California, that growth has been so dramatic that it is no longer meaningful to talk about majority and minority groups, inasmuch as no single ethnic group holds the numerical balance of power. The increased presence of immigrant children of color in the schools has led to an interest in the psychosocial impact of acculturation on academic motivation and adjustment, and we concentrate our review on that literature. As schools become more multicultural, immigrant students cope simultaneously with increased cross-ethnic contact and pressures to adjust to the dominant culture. These acculturation pressures are presumed to impact a number of areas, including mental health, coping with discrimination, ethnic identity, and orientation toward school.

Segmented Assimilation

Traditional theories about immigration were guided by the experiences of European im-

migrants in the early 20th century (e.g., Gordon, 1964). Those "melting pot" theories proposed that social and economic mobility should increase across successive generations of residence as the descendants of early immigrants are steadily assimilated into the American fabric. Thus, second- and third-generation residents should achieve better outcomes than their first-generation forbears to the extent that they adopt the language, culture, and values of the host society and become more similar to (indistinguishable from) mainstream Americans.

The outcomes for immigrants since the 1960s, who are largely of African, Latino, and Asian rather than European descent, have not supported the assimilationists' theory of upward mobility across successive generations. A growing literature on the psychosocial adjustment of youth as a function of immigrant history documents poorer adjustment across successive generations of residence in the United States (see review in Zhou, 1997). For example, in some studies, first- and second-generation adolescents of Latino, Asian, or black (Caribbean) descent did better in school and maintained more positive attitudes about achievement than did same-ethnicity youth whose families had resided in this country for three or more generations (Fuligni, 1997; Kao & Tienda, 1995; Matute-Bianchi, 1991; Rong & Brown, 2001). Lower self-esteem also has been associated with longer residence among adolescent children of immigrants (Rumbaut, 1994). Such findings have led immigration researchers to propose that there might be multiple pathways to immigrant success, not all of which involved rapid assimilation (Portes & Zhou, 1993). The theory of segmented assimilation suggests that adopting the characteristics of the host culture, while relinquishing one's culture of origin, can lead either to upward mobility and absorption into the middle class, or to downward mobility and absorption into the urban underclass. Yet a third pathway involves upward mobility, while holding on to the values embedded in one's culture and maintaining close ties with one's immigrant community. In the following sections, we consider research on family socialization and on ethnic identity across generations to illustrate these divergent pathways.

Family Socialization and Motivation

Communicated parental values about hard work and the importance of a good education appear to be among the most important factors accounting for higher achievement among immigrants and children of immigrants (second generation) compared to their counterparts of third generation and beyond. For example, Fuligni (1997) found that the higher academic performance of Asian and Latino first- and second-generation adolescents could be traced to higher parental expectations that they do well in school and higher parental aspirations for their educational attainment. Much of the parental socialization around achievement involves encouragement of children to overcome setbacks, because their educational opportunities are perceived to be much greater in the United States than those available in their home countries.

Parental socialization about obligation to the family has been similarly linked to higher achievement strivings among relative newcomers to this country. "Family obligation" refers to how much family members feel a sense of duty to help one another and to take into account family needs when making personal decisions (Fuligni, Tseng, & Lam, 1999). It has been shown that Latino and Asian immigrant youth are more likely than their American-born counterparts to report a belief in family duty, although both groups display more family loyalty than European American peers (Fuligni et al., 1999; Suarez-Orozco & Suarez-Orozco, 1995). Family obligation also is correlated with achievement values, inasmuch as many of the youth feel that doing well in school is something that they owe their parents.

Identity Development

Picture two second-generation adolescents, one whose parents were born in Mexico, and the other whose parents were born in Haiti. If we were to ask these youth the perennial "Who am I?" question by selecting an ethnic label, what would each choose? Will the youth of Mexican origin self-identify as *Mexican*, *Mexican American*, or *Latino*? Will the youth of Haitian origin self-identify as *Haitian*, *African American*, or

black? More generally, are immigrant youth more likely to adopt pan-ethnic labels, such as *Mexican American* or *African American*, that link them to American-born peers with similar (albeit distant) ethnic heritages, or are they more likely to self-identify in ways that tie them more closely to the immigrant experience and their country of origin? While complex and not easy to answer, this question is very relevant to our chapter. How children with recent immigration histories negotiate their ethnic identity has important implications for motivation and competence.

A number of studies that have addressed this question with diverse immigrant groups reached similar conclusions. For example, in a study of adolescent children of Vietnamese immigrants in New Orleans, Bankston and Zhou (1997) found that adolescents who remained highly integrated within their ethnic communities (e.g., had Vietnamese friends, preferred Vietnamese food and music, maintained close family ties) were doing better in school and were better socially adjusted than those who had come to identify with local American youth. Waters (1994) studied second-generation Haitian and West Indian adolescents in New York City. The middle-class youth in that study, and those who were doing well in school, preferred to be identified with their country of origin. Such youth consciously rejected being viewed as African American because of the negative stereotypes associated with that group. In contrast, lower socioeconomic scale and lower achieving blacks were more likely to identify with African Americans, to be particularly sensitive to discrimination, and to adopt many of the negative attitudes about school that have been associated with oppositional identity. In research on Mexican-descent high school students in central California, Matute-Bianchi (1991) distinguished between second-generation students, who identified with traditional Mexican culture, values, and language (Mexican-oriented), and their native-born counterparts, who were least likely to self-identify as such (*Chicanos* and *Cholos*). Mexican-oriented students were more liked and respected by their teachers, reported being more engaged in school, and experienced higher academic achievement than *Chicanos* and *Cholos*. These latter groups, in fact,

were among the most troubled in the school, suggesting that their identities had been transformed in way that alienated them from both their school context and traditional Mexican culture. Thus, a common theme in all of these studies is that adolescents with recent immigration histories fare better when they strongly identify with their country of origin rather than distancing themselves from it.

The notion of segmented assimilation, its relationship to identity negotiation, and multiple pathways to upward or downward mobility is complementary to Ogbu's cultural ecological theory introduced earlier. While some students may adopt attitudes and display behaviors characteristic of an involuntary minority, those children who experience a more modified acculturation process and retain their traditional ethnic identity are consistent with Ogbu's definition of "voluntary minorities." Members of this group have chosen minority status in the dominant American culture, with the expectation of a better life, rather than having that status forced upon them, as is the case with involuntary minorities. As such, voluntary minorities believe in the value of schooling as a means to get ahead, they retain their original cultural values and language rather than developing a unique secondary culture in opposition to the dominant culture, and they tend to experience school success at much higher rates than involuntary minorities. Thus, Ogbu's typology of voluntary-involuntary minorities and the theory of segmented assimilation lead to similar conclusions about the impact of acculturation on motivation and competence. The key to success appears to be the development of a strong bicultural competence (LaFromboise, Coleman, & Gerton, 1993), or the ability to function effectively in the dominant culture, while retaining a primary ethnic identity.

GENERAL SUMMARY

The study of race and ethnicity in motivation and competence needs to begin with the unique experiences of people of color in this society. We have focused on a set of interrelated factors that draw on the historical circumstances and cultural forces that have shaped those experiences and that have mo-

tivational significance. Coping with discrimination and cultural stereotypes is meaningful because it sheds light on what Weiner (Chapter 5, this volume) has labeled the "social psychology of competence." The way other people perceive the abilities of ethnic minority members, and how those perceptions are communicated and enacted, partly determine what ethnic group members think and feel about themselves. Perceptions of others also affect the goals toward which people of color strive (e.g., to disconfirm negative stereotypes about competence), their causal explanations for discrimination (e.g., Is it *me* or is it *them?*), and the perceived costs and benefits of sustained achievement strivings.

Discrimination and racial stereotypes are structural variables that impact motivation and perceived competence of people of color, an impact that is filtered by how individuals think about their membership in a particular racial or ethnic group. We therefore have focused on ethnic identity as the lens through which people of color interpret the reactions of dominant group members. Our interpretation of the literature is that ethnic identity is a protective factor, particularly during adolescence. When adolescents of color are strongly identified with their ethnic group, they are more motivated to achieve and have a greater repertoire of skills to ward off threats to their competence. A task for the future is to better understand process, or the psychological mechanisms by which ethnic identity serves this buffering role.

Finally, we have incorporated the immigration experience as a way of acknowledging the changing racial and ethnic landscape in this country. There was a time when the discourse about race and psychological variables was limited to African Americans and the ways in which they were similar to or different from whites. The large influx of ethnic immigrants from Latin America, the Caribbean, and Southeast Asia has fundamentally altered that discourse. The serious researcher who wants to study how ethnicity shapes achievement strivings and the pursuit of competence will have to address immigrant and generational status. For some ethnic groups, motivation and competence can be impaired over time and across generations.

TOWARD THE FUTURE

We conclude with a set of guidelines for research on motivation and competence in racial and ethnic groups that evolves from our focus in this chapter. None of the guidelines is discussed in detail, and they surely reflect our biases. We offer them as food for thought, and in some cases, as cautionary notes.

The Intersection of Social Class and Gender

Some scholars, critical of how race has been studied in psychological research, have argued that most of what the field attributes to racial or ethnic differences is really a function of social and economic disparities, and that the latter is where our emphasis should be placed. We agree in part with this position, because we are well aware that ethnic minority groups are overrepresented among those who endure social and economic marginality. However, many of the phenomena examined in this chapter transcend social class differences. Coping with discrimination and stereotypes and identity negotiation are challenges faced by ethnic group members across all socioeconomic strata (e.g., Feagin, 1991). Those challenges might inform debate on the achievement gap (e.g., Jencks & Phillips, 1998) and on physical health disparities (e.g., Adler & Snibbe, 2003), two contexts wherein differences between African Americans and whites remain even when social class is taken into account. After reviewing the literature on relations between socioeconomic status and physical health, Adler and Snibbe (2003) concluded that "although a substantial portion of the racial-ethnic differences in health is due to social disadvantages associated with low SES, unique effects specific to race-ethnicity also exist, reflecting experiences of discrimination, residential segregation, negative stereotypes, and other circumstances" (p. 122). We agree with this conclusion. There is something unique about being an ethnic minority, over and above poverty or affluence, and that uniqueness should not be ignored in the study of motivation and competence.

There also are particular circumstances

associated with being *male* and a member of an ethnic minority that have not adequately been recognized in motivation research. In most gender research on motivation, a dominant theme is the heightened vulnerability of girls to motivational deficits. Some argue that gender role socialization and cultural stereotypes about women and achievement lead many girls to question their academic competence more, particularly in math; to display more maladaptive reactions to failure, including low-ability attributions; to perceive more barriers to success; and to experience more conflict between individual achievement strivings and social conformity (see reviews in Eccles, Wigfield, & Schiefele, 1998; Ruble & Martin, 1998). Even research on stereotype threat in young adults underscores that developmental gender literature because it draws many parallels between the academic plight of African Americans and that of women in math and science (Steele, 1997).

We believe that gender analyses in motivation research may need to be reframed. In research on motivation and achievement that examines both ethnic and gender differences, it is evident that ethnic minority males (i.e., African American and Latino) are faring more poorly than females (e.g., Graham et al., 1998; Matute-Bianchi, 1991; Osborne, 1997; Taylor et al., 1994). The ethnicity-by-gender differences increase across the school years and are particularly apparent when the measures are so-called "markers" of adolescent success (i.e., high school graduation) and young adult mobility (i.e., enrollment in and completion of college; see review in Sidanius & Pratto, 1999). The outcomes of racial stereotypes about antisocial behavior, such as school suspension and confinement in the justice system, also fall disproportionately on African American males. We believe that ethnic minority males, more so than other groups, must cope with the dual stressors of academic challenge and negative stereotypes about their group. Such stressors create particular needs that can be addressed with appropriate pedagogical intervention (Hudley, 1995, 1997). Therefore, research on motivation and competence must be particularly sensitive to gender-by-ethnicity interactions in order to uncover other kinds of challenges that are unique to ethnic minority boys.

Beyond Self-Esteem

If we were to base our appraisal of racial differences in motivation and competence on what research participants *say*, we would find a perplexing, some might say, counterintuitive pattern of findings. African American children and adolescents' perceptions of their competence, whether measured by general or academic-specific measures of self-esteem, are equal to or more positive than those of their white counterparts, even when achievement data indicate that they are doing more poorly in school. This robust finding is documented in several reviews (Crocker & Major, 1989; Graham, 1994; Gray-Little & Hafdahl, 2000). Important theoretical contributions have emerged from scholars' attempts to understand how African Americans can continue to report feeling good about themselves when achievement outcomes indicate otherwise. In the literature on external attributions for discrimination, reviewed in this chapter, a good example is Crocker and Major's (1989) influential analysis of the self-protective (esteem-enhancing) strategies employed by stigmatized groups. As important as that work has been (it certainly dispelled the myth of black self-hatred), we believe that the study of motivation and competence in racial and ethnic groups should move beyond personal esteem and related self-appraisal constructs. Among African Americans at least, self-perceived competence is not a reliable predictor of actual competence. We suspect that there is more to be learned by focusing on constructs that tap perceived barriers to opportunity or the payoff of persistence in spite of those barriers. These are expectancy- rather than esteem-related constructs.

Importance of Multiple Methods

Motivation research on racial and ethnic groups needs to employ multiple methods. At least one phenomenon that we have considered in this chapter—oppositional identity—so captured the interest of motivation researchers that it had an impact on our field even in the absence of a strong empirical base. Not until the ethnographic studies were complemented with survey methods did the literature begin to question whether, how, and when African American (involun-

tary minority) youth actually displayed the attitudes and behavior associated with oppositional identity. Other phenomena examined in this chapter also have been linked to a single empirical approach. For example, stereotype threat and teacher expectancies as self-fulfilling prophecies have mainly been documented in laboratory experimental studies; vulnerability to the model minority stereotype has been best illustrated in the qualitative approach of ethnography; and contemporary ethnic identity research mainly draws on correlational studies that measure individual differences in the strength of one's allegiance to his or her group. We believe that experimental, ethnographic, and correlational approaches are all necessary to capture fully the dynamics of motivation and striving for competence in ethnic minority groups. Also needed are longitudinal analyses that track growth and change in these phenomena over time. We do not know of any longitudinal studies in which the primary focus is the development of motivation in ethnic minority youth.

Revitalizing the Socialization (Child-Rearing) Antecedents of Achievement Strivings

In the history of motivation research with racial and ethnic groups, parental socialization once played a pivotal role. Early research from the 1950s on the achievement syndrome by Bernard Rosen and colleagues attempted to examine how child-rearing practices, such as early training in mastery and independence, were related to achievement aspirations and values (e.g., Rosen & d'Andrade, 1959). Yet it was never clearly documented that any components of the achievement syndrome were related to racial and ethnic differences in child-rearing practices, and by 1980, that genre of socialization research had faded from view.

As motivation researchers, we do not lament the early demise of socialization research in ethnic minority youth. Even in general motivation research, it is not clear that particular child-rearing practices are systematically related to specific motivational characteristics in children. That weak empirical literature also frequently portrayed black families in a negative light (see Graham, 1994). More promising, we believe, is a re-

newed interest in socialization influences, within the context of research on parental socialization about race and ethnicity among American ethnic groups and the socialization of achievement attitudes and values among children of immigrants. We are especially encouraged by this newer literature, because it focuses on normative rather than deviant child-rearing and on adaptive rather than pathological functioning in families of color.

Ethnicity in Context

Throughout this chapter, we have emphasized the importance of situating the study of motivation and competence in the broader social context. We certainly are not unique in this claim. All of the contributors to this *Handbook* acknowledge that personal motivation is responsive to contextual influences. Less clear, however, is *how* to study context when one's primary focus is race and ethnicity. We think of context in the Bronfenbrenner (1979) framework as nested levels of influence with varying degrees of proximity to the individual. Thus, students are nested within peer groups, which in turn are nested within classrooms that are within schools, and so forth. Using this framework, one promising approach to studying ethnicity within context might be to examine how individual motivation and competence develop in classrooms and schools that vary in ethnic composition. For example, do children of color develop stronger ethnic identity (and presumed higher motivation) when their ethnic group is the numerical majority in their school and they have many same-ethnicity peers with whom to affiliate? Or does ethnic identification intensify when one's group is the minority and there are distinct boundaries between groups (e.g., "us" vs. "them")? Is perceived discrimination more psychologically harmful when the target is a numerical ethnic minority? In our research (Bellmore, Witkow, Graham, & Juvonen, 2004; Graham & Juvonen, 2002), we found that targets of mistreatment by peers tend to feel worse when they are members of the *majority* ethnic group in their classroom or school, and that those targets are particularly vulnerable to self-blaming attributions (it may be hard to make an external attribution to the prejudice of same-

race others). One might also ask how these same processes are influenced by a changing ethnic context, such as transitioning from a small and relatively homogeneous elementary school to a large and ethnically heterogeneous middle school. School transitions are important turning points in which students lose social status when they go from being the oldest to the youngest in their school, and that loss may be exacerbated by the shift from ethnic majority to minority status.

These kinds of questions are guided by our belief that it is not so much ethnicity *per se*, but rather ethnicity within a particular social context (e.g., numerical majority vs. minority) that will inform future motivation research. We have to look back to the aftermath of *Brown v. Board of Education* and the desegregation studies of the 1960s and 1970s to find any substantive empirical literature on the psychological impact of racially homogeneous versus heterogeneous school contexts. Regrettably, that literature had all but disappeared by 1980 (see Schofield, 1991), and its only real legacy was that black children had higher self-esteem when they attended racially segregated rather than integrated schools. On the 50th anniversary of *Brown v. Board of Education*, the time seems right to revisit that legacy. Studying ethnicity in context may shed new light on how racial and ethnic diversity can foster achievement strivings and greater competence in people of color.

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CHAPTER 23



Children's Competence and Socioeconomic Status in the Family and Neighborhood

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In 2001, 16% of children in the United States lived in poverty. Although this figure has dropped in the last decade, the poverty rates in the United States surpass those of other industrialized nations (Federal Interagency on Child and Family Statistics, 2003). Rates for children residing in female-headed households and for minority children are even higher (i.e., 54% and 30%, respectively). Growing up in poverty has detrimental impacts on young children's well-being across multiple domains, including children's school readiness and educational outcomes, as well as their physical and mental health (see Brooks-Gunn & Duncan, 1997; Leventhal & Brooks-Gunn, 2002). Other outcomes, including children's competence, while important to children's future well-being and adjustment (Dweck, 2002; Elliot & Thrash, 2001; Harackiewicz, Barron, Tauer, & Elliot, 2002), have been studied less often as correlates of childhood poverty.

Although family income and poverty status are the most frequently studied indicators of family socioeconomic status (SES), empirical work has identified other correlates of child well-being, the most important of these is parental education (see e.g., Duncan, Brooks-Gunn, & Klebanov, 1994; Magnuson, 2003; Smith, Brooks-Gunn, & Klebanov, 1997). Family structure (typically measured as living in a two-parent vs. single-parent family, or living with both biological parents vs. living with one biological parent and a stepparent), parental occupation, and especially in the case of mothers, parental employment are also important (Bornstein & Bradley, 2003; Brooks-Gunn, Duncan, & Rebell, 1999; Hoffman & Youngblade, 1999; Leventhal & Brooks-Gunn, 2000; McLanahan & Sandefur, 1994; Smith, Brooks-Gunn, & Jackson, 1997). Neighborhood SES may also be associated with child well-being, independent of (or over and above) family SES, although the evidence for

these links is less clear than the evidence for family SES (Jencks & Mayer, 1990; Leventhal & Brooks-Gunn, 2000).

In this chapter, we define SES broadly for several reasons. First, there are multiple indicators of SES (i.e., income, wealth, parental education, family structure, and occupation), all of which theoretically may have independent associations with child well-being. Second, these SES conditions usually co-occur, such that even when studies present results for individual conditions (via regression analyses), they cannot always be neatly unpacked. Analyses based on regressions represent an "ideal" child rather than a "real" child (Zhao, Brooks-Gunn, McLanahan, & Singer, 1999). More person-oriented approaches to the links between SES and child well-being are not reviewed in this chapter, due to the paucity of relevant research. However, we wish to highlight this limitation of the extant regression-based work. Third, SES conditions vary over time.

This chapter explores in detail the topic of links between SES and children's well-being. In the first section, we discuss common ways of measuring income poverty and SES, and potential limitations of the current measures. Second, we review research documenting direct associations between family and neighborhood SES measures and child well-being; we focus on children, because not all relevant studies include adolescent samples. Associations between SES and children's well-being are likely indirect, operating through a variety of pathways involving family (parental mental health, parenting practices) and neighborhood (environmental toxins, neighborhood resources, and community norms).

MEASUREMENT OF SOCIOECONOMIC STATUS

Family Socioeconomic Status

In this chapter, we review four family-level SES conditions: measures of economic conditions (e.g., earned income, wealth/assets, income-to-needs ratios), human capital variables (e.g., parental education, cognitive skills), parental employment, and family structure-turbulence (e.g., marital dissolution, residential mobility).

Economic Conditions

Family-level economic conditions are frequently measured via money, wealth/assets, government cash transfers and tax benefits, and, for low-income families, poverty thresholds. Earned income is the most common indicator of family economic well-being. Because population income distributions are often positively skewed (i.e., many families cluster at the low end of the distribution), the logged form of income is often used in regression models (Conley, 1999; Duncan, Yeung, Brooks-Gunn, & Smith, 1998; Mayer, 1997b). Other scholars use hourly earnings as an assessment of family economic conditions, especially in lower income samples, where employees often earn an hourly wage versus a salary (Petersen, 1989). Larger families presumably need more resources than smaller families to live comfortably, so the number of household members is often included in analytic models in order to place the proper weight on income (Phillips, Brooks-Gunn, Duncan, Klebanov, & Crane, 1998). Furthermore, due to increased measurement stability, a sum of several years of income data compared with a single-year measure is the preferred measure in most economic and sociological studies (Duncan et al., 1994; Mayer, 1997b).

Some scholars suggest that assets, including savings accounts, stocks, and homes, are more stable indicators of SES than yearly earned income measures given the variability of the latter (Mayer, 1997a). An obvious problem with using asset measures is that low-income individuals may not have any assets. Another issue involves cash transfers, such as Temporary Assistance for Needy Families (TANF), child support, and the Earned Income Tax Credit (EITC). These transfers supplement family income and thus should be considered in assessments of families' economic conditions, especially in low-income samples. Assessments of families' disposable income should include both money income from all sources and the value of in-kind benefits, such as food stamps and housing vouchers (Citro & Michael, 1995).

In the United States, income poverty is defined via an absolute rather than a relative threshold. The current measure, developed in 1959, is based on expected food expendi-

tures for families of varying sizes and adjusted annually for the cost of living. As seen in Figure 23.1, the child poverty rate exceeded 25% in 1959, the first year official poverty rates were available, declined in the 1960s, and then began rising in the 1970s and 1980s. In 2003, the poverty threshold for a single mother raising two children was \$14,824, and for a two-parent, two-child family, it was \$18,660 (U.S. Bureau of the Census, 2003).

Studies of basic family budgets suggest that the current U.S. poverty threshold may be too low, because even families above the poverty level (especially in metropolitan versus rural areas), are not able to "make ends meet" (Edin & Jencks, 1992; Edin & Lein, 1997; Mayer & Jencks, 1988). Researchers have also noted that the current poverty measure has never been revised. Thus, the cutoff, based on food expenditures as approximately one-third of families' expenses, overestimates the proportion of families' income allotted to food. Today, food spending has decreased to approximately one-fifth of the family budget (Citro & Michael, 1995),

due in part to large increases in the proportion of income needed to maintain housing. Other critiques of the absolute poverty threshold measure currently used in the United States include its lack of attention to regional differences in the cost of living (Betson & Michael, 1997), its exclusion of cash transfers (e.g., TANF, child support) and housing subsidies in calculations of families' income, and that the threshold measure does not take into account expenses associated with employment (e.g., transportation, child care) or benefits such as food stamps or health insurance.

Because the United States poverty threshold is so low, poverty is often defined up to 150% of the threshold (or, in a single-parent family, \$22,236, and in a two-parent, two-child family, \$27,990). Indeed, some federal programs use 185% of the poverty threshold as the eligibility cutoff including the Women, Infants, and Children (WIC) program, the federal nutrition program, and Medicaid (Currie, 1997; Devaney, Ellwood, & Love, 1997). The income-to-needs ratio, a frequently used extension of the standard

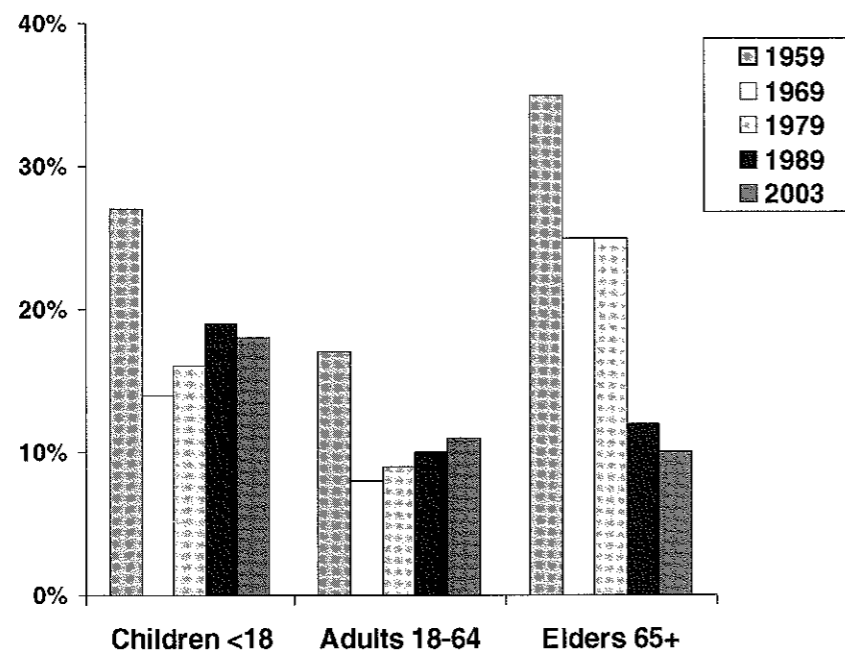


FIGURE 23.1. Percentage of children and adults who were poor from 1959 to 2003. From U.S. Bureau of the Census (2003).

poverty measure, is calculated to adjust income for household size. For example, an income-to-needs ratio of 1.0 indicates that the family is living at the poverty threshold, a ratio of 0.5 is indicative of living at half of the poverty threshold (i.e., deep poverty), and a ratio of 2.0 is defined as living at twice the poverty threshold (Duncan & Brooks-Gunn, 1997).

Human Capital

Human capital, another facet of families' SES, captures personal attributes that are productive in an economic market (Becker & Tomes, 1986). Parental cognitive skills are an example of human capital, because they represent an endowment that may benefit children. These skills are assessed using a variety of instruments, including short-word definition tests (e.g., the General Social Survey asked adults to provide definitions for 10 words over the telephone), receptive verbal ability (e.g., pointing to one of four pictures when given a word, as in the Peabody Picture Vocabulary Test), cognitive test batteries (e.g., the Armed Forces Qualification Test includes arithmetic reasoning, math knowledge, paragraph comprehension, and word knowledge), achievement tests (e.g., Peabody Individual Achievement Test, Woodcock-Johnson Tests of Achievement), and full-scale intelligence tests (e.g., Weschler Adult Intelligence Scale, Stanford-Binet Intelligence Scale).

Parents' formal education is another indicator of human capital, because education is an investment with likely returns in the form of wage earnings. Education is usually operationally defined as the number of years of completed schooling.¹ Completed schooling is influenced by both cognitive and non-cognitive competencies, including both personality and motivational constructs (e.g., planfulness, orderliness, and efficiency, as recent work has shown; Dunifon, Duncan, & Brooks-Gunn, 2001, 2004).²

Low education may impair adults' ability to complete basic tasks, such as counting change during a purchase, reading labels on food/grocery items, understanding medication directions, comprehending public transportation maps and timetables, and understanding government forms and applications

(e.g., for housing, social services, TANF, EITC). Measures that have been developed to assess these basic skills have been shown to be predictive of adult success over and above education levels (Baydar, Brooks-Gunn, & Furstenberg, 1993).

Employment

Employment, as it relates to families' SES, is often assessed via occupational complexity and/or status measures and is associated with educational attainment and income (Menaghan & Parcel, 1995; Smith et al., 1997). Measurement is sometimes limited to the head of household, which in two-parent families is the father (regardless of which parent earns more or is more highly educated), and for single-parent families is considered the residential parent (in the vast majority of cases, the mother). Other, less frequently used measures of occupation include percentage of females in a particular occupation, work hazards, and part- versus full-time employment. Parental time allocation is also a consideration, especially for low-income families, because it creates a conflict between availability of parents to engage in child-rearing versus time spent earning money.

Other Measures

Other commonly used measures of families' SES include family structure and turbulence. Single mothers and unwed parents tend to be more disadvantaged than married parents, because these families cannot pool their monetary resources in the same manner as cohabiting and married couples (Jackson, Tienda, & Huang, 2001; McLanahan & Sandefur, 1994; Wilson & Brooks-Gunn, 2001). Turbulence includes marital dissolution (McLanahan & Sandefur, 1994), the birth of another child (Menaghan & Parcel, 1995), and residential moves (Astone & McLanahan, 1994; Haveman, Wolfe, & Spaulding, 1991; Simpson & Fowler, 1994; Tucker, Marx, & Long, 1998). It may also affect families' SES in either direction; that is, whereas divorce, the birth of another child, and moving to a neighborhood with few economic or child care opportunities may deplete families economically, remar-

riage and/or moving to a resource-rich neighborhood may boost families' SES.

Neighborhood Socioeconomic Status

Each decade, the U.S. Bureau of the Census canvasses the country to provide extensive geographical and socioeconomic information on census tracts and blocks, two commonly used indicators of neighborhood boundaries. Census tracts are small, relatively permanent county (or equivalent) subdivisions containing between 1,000 and 8,000 individuals; tracts are frequently marked via visible, permanent features, such as railroad stations (U.S. Bureau of the Census, 2002). Each tract can be broken down into one to four blocks or block groups in order to gauge more nuanced descriptors of a particular area; tracts cannot be broken down further because of confidentiality concerns. Many census measures parallel those discussed earlier in relation to family SES. Various indicators of structural neighborhood SES are often averaged together to create a single construct (e.g., neighborhood affluence or neighborhood poverty; Leventhal & Brooks-Gunn, 2000).

Economic Conditions

Neighborhood affluence or poverty is generally measured via median or per capita income for a particular tract. Additionally, the fraction of residents living within various income ranges (e.g., less than \$10,000 per year, \$10,000–\$14,999 per year, \$15,000–\$24,999 per year, and \$25,000 or more per year) is also available. The percentage of residents living below the poverty line and the percentage receiving public assistance are other commonly used economic variables.

Human Capital

Human capital can be measured using educational attainment data from the census. For example, the percentage of residents over the age of 25 years with a high school degree is a commonly used indicator. For wealthier tracts, similar variables delineating the percentage of residents with college and/or graduate degrees are also available.

Employment

Labor force status aggregated across individuals in a tract is a community-level indicator of employment. The percentage of residents in management or professional occupations can be used as an assessment of occupational status. Similarly, data regarding the fraction of residents in service, sales, farming, or production industries are also available. Length of travel time to work may be used to gauge access to convenient employment opportunities.

Other Measures

Other commonly used indicators of neighborhood SES include the percentage of residents residing in female-headed households, the percentage of residents who have resided in a tract for less than 5 years, the percentage of minority or foreign-born residents, and the percentage of owner-occupied (vs. rental) housing.

BEHAVIORAL AND SOCIAL ASPECTS OF SOCIOECONOMIC STATUS

Research groups led by Conger (Conger, Rueter, & Conger, 2000; Conger & Elder, 1994), Elder (Elder & Caspi, 1988), and McLoyd (McLoyd, Jayaratne, Ceballos, & Borquez, 1994) have included behavioral aspects in their conceptualization of family economic pressure or hardship, such as families' perceived inability to make ends meet, their sense of not having money for bills and other necessities, and economic adjustments as a result of insufficient resources. Inclusion of these behavioral constructs often accounts for additional variance above and beyond family income, suggesting that although these constructs overlap with income (i.e., they are correlated), they are distinct, to some extent.³

FAMILY SOCIOECONOMIC STATUS AND CHILD WELL-BEING

Indicators of child well-being reviewed here include cognitive and academic competence, and behavior problems. These terms are first defined, followed by a discussion of how each is linked with SES.

Cognitive and Academic Competence

Typically, children's cognitive competence is examined by verbal or mathematics ability and is assessed via standardized tests that measure basic skills related to the subject and may serve as predictors of future school performance. The Peabody Picture Vocabulary Test (PPVT) is one example of a receptive verbal ability assessment that measures children's skills related to reading, language, and vocabulary. Academic competence and achievement are related constructs that may be defined by the level a child has reached in a particular subject area (Stipek & Ryan, 1997). For example, the Woodcock-Johnson Tests of Achievement measures achievement and learning in various domains, including letter-word identification and applied problems.

Links between family poverty and lower cognitive test scores are found, starting at 2 to 3 years of age and continuing through childhood (Klebanov, Brooks-Gunn, McCarton, & McCormick, 1998; McLoyd, 1998). These associations are lowered, but do not disappear, when maternal cognitive skills and education are controlled (Crane, 1996; Duncan et al., 1998; Fish & Pinkerman, 2003; Huston, McLoyd, & Garcia Coll, 1994; Korenman, Miller, & Sjaastad, 1995; Liaw & Brooks-Gunn, 1994; McLoyd, 1998). In general, differences between poor and nonpoor children's IQ scores, assessed at 2–5 years of age range from 2 to 4 points (Duncan et al., 1994; Klebanov et al., 1998; Smith, Brooks-Gunn, & Klebanov, 1997). Moreover, test score differences are sustained as children begin formal schooling and may lead to lower achievement, grade retention, and possibly school drop-out over time for poor children (Axinn, Duncan, & Thornton, 1997). Researchers have examined aspects of family SES in addition to income, such as maternal education and single parenthood (Blau, 1999; Smith, Brooks-Gunn, & Klebanov, 1997; Dearing, McCartney, & Taylor, 2001). It is not clear whether income or human capital is more predictive of children's cognitive outcomes (Blau, 1999; Dearing et al., 2001).

When considering the effects of poverty on cognitive and academic competence, it is essential first to consider nuances of poverty, including the timing, depth, and duration of

poverty in the child's life. Children fare the worst when the family lives in deep poverty, when family poverty is experienced early in the child's life, and when the child's family lives in poverty for a long time (Brooks-Gunn & Duncan, 1997). Effect sizes are small to moderate; children ages 3–8 years old living in deep poverty scored between 6 and 13 points lower on standardized tests of achievement, IQ, and verbal ability than more affluent children living in families with incomes 1.5–2 times the poverty threshold (Brooks-Gunn & Duncan, 1997; Brooks-Gunn et al., 1994; Korenman et al., 1995; Smith et al., 1997). Smaller test differences are found for children in families who live closer to (but still below) the poverty threshold compared to more affluent children (Smith et al., 1997). Second, family income over an individual's childhood is often unstable (Duncan, 1988). With respect to timing, early childhood poverty is more predictive of high school completion than is middle childhood or early adolescent family poverty (Duncan et al., 1998). For example, a \$10,000 increase in family income during the first 5 years of life for children in the bottom half of the income distribution was associated with a 1-year increase in completed schooling. Third, children age 5 living in persistent poverty (in this study, defined as being poor over a 4-year span) scored 6–9 points lower on test scores than children who were never poor (Smith et al., 1997). Long-term poverty (measured over a 13-year time span) had a greater impact on children than short-term poverty (family poverty in the year before cognitive scores measured), even after controlling for a number of demographic characteristics (Korenman et al., 1995).

Behavior Problems

Behavior problems are discussed with respect to more global mental health, including attention and self-regulation. Children's self-regulation is usually captured via a number of constructs, including motor control, cognitive control, delay of gratification, and sustained attention (see McCabe, Hernandez, Lara, & Brooks-Gunn, 2000; McCabe, Hernandez, Rebello-Britto, & Brooks-Gunn, 2004). Early self-regulation is associated with fewer behavior problems

later in childhood (Rothbart & Bates, 1998). One study reported that sustained attention and inhibitory control tasks moderated the association between family SES (measured via maternal education) and children's level of hyperactivity, with high self-regulators (compared with low self-regulators) being more sensitive to declines in SES (Miech, Essex, & Goldsmith, 2001). Children's motor control abilities and attention have been studied as correlates of early health risk factors such as low birth weight, lead exposure, and poor nutrition, which are more common among low-income children (Hack, Klein, & Taylor, 1995; McMichael et al., 1988; Starfield et al., 1991; Taylor, Klein, Minich, & Hack, 2000).

Parents of poor children are more likely than parents of nonpoor children to report that their child has ever had an emotional or behavioral problem and been treated for such problems (Korenman et al., 1995; McLeod & Shanahan, 1993). Family income and poverty status, over and above maternal education and family structure, have small-to-moderate effects on young children's externalizing and internalizing behaviors (Brooks-Gunn, Duncan, Klebanov, & Sealant, 1993; Duncan et al., 1994; Klebanov, Brooks-Gunn, & McCormick, 1994; Smith et al., 1997). Associations between family SES and children's mental health are generally smaller than those found between family SES and children's cognitive outcomes. Lower parental education and living in a single-parent home are associated with behavior problems; family structure has a greater effect on behavior problems than achievement, while parental education has more influence on achievement compared to behavior problems (Amato, 2000; Linver, Brooks-Gunn, & Kohen, 2002).

The timing, depth, and duration of childhood poverty may differentially affect children's mental health outcomes. Early childhood poverty has been associated with depression that persists until late childhood and may also impact adolescent's antisocial behavior, anxiety, and hyperactivity (McLeod & Shanahan, 1996; Pagani, Boulterice, & Tremblay, 1997). Compared with nonpoor peers, young children living in persistent poverty have higher internalizing problem

scores (Duncan et al., 1994). Some researchers have found that persistent poverty is associated with externalizing problems (e.g., Hanson, McLanahan, & Thomson, 1997). A recent study of American Indian children revealed that the higher levels of psychiatric symptoms exhibited by poor children were attenuated 4 years later among children who were no longer living in poverty, particularly for externalizing symptoms (Costello, Compton, Keeler, & Angold, 2003). Elevated psychiatric symptoms were only seen among the persistently poor children. Finally, deep poverty is more strongly associated with children's behavior problems than less poor children living at the poverty threshold (Smith, Bastiani, & Brooks-Gunn, 1998).

NEIGHBORHOOD SOCIOECONOMIC STATUS AND CHILD WELL-BEING

In the following sections, we review associations between neighborhood SES and children's well-being. Poor children and families are more likely than their nonpoor counterparts to grow up in disadvantaged neighborhoods characterized by unemployment and crime. Neighborhood residence may be more important for adolescents than for children, due to their increased independence from parents and their peer group interaction (Aber, Gephart, Brooks-Gunn, & Connell, 1997; Graber & Brooks-Gunn, 1996). Studies have examined associations between various neighborhood SES dimensions and children's outcomes. This review summarizes only studies that simultaneously controlled for family-level SES indicators to avoid attributing neighborhood effects to family effects. Whenever possible, results are presented by the type of neighborhood SES condition indicator utilized, including neighborhood poverty or affluence (median income, percentage of poor, percentage on public assistance), employment rates, racial/ethnic diversity, and residential stability.

Cognitive and Academic Competence

Research using data from large longitudinal studies (e.g., Infant Health and Development Program [IHDP], Children of the National

Longitudinal Survey of Youth [NLSY-CS]) has documented positive associations between neighborhood affluence (e.g., proportion of residents earning \$30,000 or more per year, proportion of adult residents with 13 or more years of schooling, proportion of professional workers) and children's school readiness and achievement outcomes. Neighborhood-level effects, though significant, are much smaller than family-level effects. Although neighborhood SES was not a significant predictor of very young children's (i.e., 2 years or younger) IQ scores (Klebanov et al., 1998), neighborhood affluence was positively associated with preschool-age children's IQ and vocabulary scores, especially for boys and white children (Brooks-Gunn, Duncan, et al., 1993; Chase-Lansdale, Gordon, Brooks-Gunn, & Klebanov, 1997). These associations persisted once children entered kindergarten or first grade (Chase-Lansdale & Gordon, 1996; Chase-Lansdale et al., 1997; Duncan et al., 1994) and among a slightly older sample of fifth graders for various outcomes, including IQ scores and reading achievement (Shumow, Vandell, & Posner, 1999). Experimental evidence from the Moving to Opportunity (MTO) for Fair Housing Demonstration, in which low-income, minority children were randomly selected to move out of housing projects in high-poverty areas to private housing in low-poverty neighborhoods, revealed minimal achievement differences between children who moved to low-poverty neighborhoods and children in the original, high-poverty neighborhoods approximately 6 years following moves (Orr et al., 2003). However, in this experiment, children did not move to higher quality schools (Leventhal & Brooks-Gunn, 2004).

Although less common, associations between neighborhood poverty (e.g., percentage of poor, percentage on public assistance, percentage of unemployed, and percentage of female-headed households) and measures of children's cognitive ability and achievement outcomes have been found. Most studies have documented negative links between neighborhood disadvantage and children's cognitive outcomes (Halpern-Felsher et al., 1997; Kohen, Brooks-Gunn, Leventhal, & Hertzman, 2002; McCulloch & Joshi, 2001). The degree of racial/ethnic diversity

in a neighborhood was negatively associated with outcomes in a few studies, especially for white children (Brooks-Gunn, Duncan et al., 1993; Chase-Lansdale et al., 1997).

Neighborhood effects on children's outcomes may be moderated by family SES. For example, one study using a nationally representative sample of eighth graders found the negative association between neighborhood disadvantage and children's math scores was moderated by family SES, with the largest associations found for high-SES children (Catsambis & Beveridge, 2001). Another study, with a slightly older sample, reported strong positive associations between neighborhood income and children's PPVT scores, when family income was low (Gordon et al., 2003). In the same study, a mismatch between family and neighborhood income was associated with elevated attention-deficit/hyperactivity disorder symptoms.

Behavior Problems

Most frequently, associations between neighborhood low-SES (vs. high-SES) and behavior problems have been documented. A British study documented associations between residence in poor neighborhoods and more behavior problems among 2-year-olds (Caspi, Taylor, Moffitt, & Plomin, 2000). High adult male unemployment and low percentages of professional workers have been associated with more problems for 3- to 4-year-olds (Brooks-Gunn, Duncan et al., 1993; Chase-Lansdale et al., 1997). Several international studies reported similar links between neighborhood SES and 4- to 7-year-old children's behavior problems (Boyle & Lipman, 2002; Kalff et al., 2001; Kohen et al., 2002). Results for 5- to 6-year-olds' externalizing problems are similar (Chase-Lansdale et al., 1997). However, residence in affluent neighborhoods was also associated with higher levels of internalizing problems (Chase-Lansdale & Gordon, 1996). Are neighborhood effects conditional on family SES? High-SES in one domain (i.e., family or neighborhood) attenuated negative associations between disadvantage in the other domain on children's behavior problems and self-esteem (Boyle & Lipman, 2002; Turley, 2002).

PATHWAYS BETWEEN SOCIOECONOMIC STATUS AND CHILD WELL-BEING

Child development occurs within several distinct but interrelated ecological systems, including the family, the school, the neighborhood, and the wider network of community and government institutions (Bronfenbrenner, 1979). Here, we consider poverty's influences on child well-being, through family- and neighborhood-level characteristics and resources. Risk factors within and between ecological levels frequently co-occur; children who experience poverty are also likely to experience additional risk factors, such as attending a lower quality school or living in an impoverished neighborhood (Brooks-Gunn & Duncan, 1997). In fact, cumulative effects of multiple risk factors are greater than the additive combination of the effects of individual risks (Liaw & Brooks-Gunn, 1994; Sameroff, Seifer, Baldwin, & Baldwin, 1993; Sameroff, Seifer, Baroas, Zax, & Greenspan, 1987).

Family Mechanisms

As reviewed previously, associations between income and SES on young children's well-being are consistently found. The family stress model and the investment model have hypothesized pathways through which low income operates.

The Family Stress Model

The family stress model (and related models) hypothesizes that low income, unemployment, and income loss lead to family financial strain, which in turn influences parental mental health and parenting behavior (Conger, Conger, & Elder, 1997; Elder, 1999; McLoyd, 1989, 1990). The proposed pathways differ somewhat from scholar to scholar: Some believe that parenting behavior may be directly influenced by financial strain, while others believe that such associations are usually mediated through parental mental health.

Parental mental health, notably, emotional health (e.g., depression, anxiety), may link family SES with children's outcomes. Maternal depression has been shown to predict decreased cognitive and academic com-

petence among children (Downey & Coyne, 1990; Murray, Fiori-Cowley, Hooper, & Cooper, 1996), as well as increased behavior problems (Alpern & Lyons-Ruth, 1993; Cicchetti, Rogosch, & Toth, 1998; Downey & Coyne, 1990; Hubbs-Tait et al., 1996; Leadbeater, Bishop, & Raver, 1996; Marchand & Hock, 1998; Shaw & Vondra, 1995). Additionally, parental psychopathologies, including substance abuse, antisocial behavior, and depression, are related to conduct disorder and hyperactivity in children (McGee, Williams, & Silva, 1984; Webster-Stratton, 1998).

Parenting practices are another pathway that link family SES with children's well-being. Warm, nonharsh, and responsive parenting is favorably associated with children's cognitive and mental health outcomes (Bornstein, 1995; Collins, Maccoby, Steinberg, Hetherington, & Bornstein, 2000; McLoyd & Smith, 2002). Moreover, empirical work has demonstrated that economic hardship diminishes parental abilities to provide warm, responsive parenting and contributes to an increase in the use of harsh punishment (McLoyd et al., 1994; Sampson & Laub, 1993; Smith & Brooks-Gunn, 1997).

Warm parenting mediates the relation between economic hardship and academic school performance (Conger et al., 1992, 1993), and harsh parenting mediates the relation between economic hardship and externalizing behavior problems (Conger, Ge, Elder, Lorenz, & Simons, 1994; Conger, Patterson, & Ge, 1995). A recent study reported that 6% of the differences in poor and nonpoor children's behavior problems was explained by maternal depressive affect and parenting practices, yet only 2% of the differences in children's IQ scores was explained by the same factors, indicating that family stress processes are likely more predictive of children's emotional health compared to cognitive outcomes (Linver et al., 2002).

Parental Investments

Income enables families to purchase materials, experiences, and services (including schools, child care, food, housing, stimulating learning materials and activities, and extracurricular activities) to invest in human

capital of their children. Children in low-income families tend to have less favorable developmental outcomes due to limited access to resources. This view has been termed the "human capital," "financial resources," or "investment model" (Becker & Tomes, 1986; Haveman & Wolfe, 1994; Mayer, 1997b).

Provision of learning experiences in the home has been associated strongly with child cognitive outcomes (Bradley, 1995; Bradley et al., 1989; Gottfried, Fleming, & Gottfried, 1998; Mayer, 1997b). Many studies use the Home Observation for Measurement of the Environment (HOME) Inventory, to assess the home environment. The HOME is based on observation and interview during a home visit (i.e., types of play materials in the home are observed, and mothers are asked about reading materials and amount of time spent reading to the child). The ways in which parents read to their children are associated with their preschooler's language skills, over and above the amount of reading that occurs in the home (Snow, 1986; Whitehurst et al., 1994; Whitehurst & Lonigan, 1998). In a related vein, help and support provided by mothers during a problem-solving assessment have been associated with young children's enthusiasm and persistence toward the task (Bornstein, 1989; Spiker, Ferguson, & Brooks-Gunn, 1993). Our group has found that providing a stimulating environment in the home (including book reading) mediates the association between income, and children's behavioral and cognitive outcomes (Linver et al., 2002; Yeung, Linver, & Brooks-Gunn, 2002). This follows directly from the investment model, wherein parents with diminished economic conditions have less access to resources (e.g., books, quality child care, and extracurricular lessons) that lead to a more stimulating home environment (Becker & Tomes, 1986; Haveman & Wolfe, 1994).

Involvement in extracurricular activities is another example of a human capital investment in children. The New Hope experiment in Milwaukee, which offered low-income working families job search assistance, earnings supplements, and affordable health and child care, provided some evidence for the importance of extracurricular activities on children's well-being. Elementary school

boys whose families received the New Hope supplements were rated by teachers as doing better in school than boys who did not receive additional benefits (Morris, 2002). Additional analyses revealed that boys in the experimental group were more likely to be enrolled in extracurricular activities than boys in the control group, who did not receive services.

Other work using data from the Panel Study of Income Dynamics (PSID) has examined conscientiousness or organization as correlates of earnings (Dunifon et al., 2001; 2004). Specifically, during annual home visits between 1968 and 1972, interviewer assessment of clean house was collected and linked to respondents' earnings in the mid-1990s. Controlling for a rich array of background characteristics and housework, the clean house assessment was modestly predictive of higher earnings. Stronger support for the benefits of a clean house was found for children of the original respondents (also assessed in the mid-1990s). Even after controlling for potentially confounding parent characteristics, including housework, years of schooling, test scores, and measures of psychological-oriented constructs (i.e., efficacy and fear of failure), parents' clean house was positively associated with children's earnings nearly 25 years later.

The clean home measure might be tapping efficiency, as well as organization, both of which might be related to personality or motivational factors. In fact, conscientiousness, which encompasses orderliness, effort, constraint, dependability, and will, is one of the five personality domains identified in many studies of adults (Goldberg, 1990; Wiggins & Pincus, 1992). A long-term study of Harvard College students revealed that conscientiousness during college was associated with income and lower rates of smoking, alcohol abuse, and psychiatric treatment 45 years later (Soldz & Vaillant, 1998). Other work has also reported links between conscientiousness and employment success (Schmidt & Hunter, 1998).

This research review leads to the question of whether parents in cleaner homes relative to parents in less clean homes are more organized and efficient in general, such that they are providing more structure in the home, more family routines, and perhaps more cognitive stimulation. The HOME In-

ventory has a clean home item (Bradley & Caldwell, 1984; Caldwell & Bradley, 1984). Although it does not contain an assessment of clean home per se, the CHAOS (Confusion, Hubbub, and Order) scale was negatively associated with responsive parenting (Corapci & Wachs, 2002; Matheny, Wachs, Ludwig, & Phillips, 1995); for example, lack of order within the home may be associated with low scores on measures of children's task persistence (Evans, Saltzman, & Cooperman, 2001). Whether this is due to internal conditions, such as physical crowding in the home, and/or external environmental conditions, such as traffic and noise, or more generally, the orderliness of the internal environment (independent of crowding and outside traffic), is not known.⁴

Comparing Pathways

Much of the research examining family effects on children's well-being focuses on one or two spheres in isolation. For example, the focus is on how parenting practices affect children's emotional or cognitive well-being or on how family income is correlated with school success. Few researchers have combined multiple domains in order to understand how these contexts may work together to influence children's development. In contrast, some recent work has examined family processes that may serve as links between family economic and human capital indicators and young children's well-being, combining the family stress model with the investment perspective.

For example, in a study of low-wage-earning single black mothers in New York City, we found approximately one-third to one-half of the effects of income on achievement and cognition operated through maternal mental health and parenting behavior (Jackson, Brooks-Gunn, Huang, & Glassman, 2000). Specifically, maternal education and earnings were directly related to financial strain, which in turn was associated with maternal depressive symptoms. Depressive affect was associated with mothers' provision of cognitive stimulation and emotional support to their 3- to 5-year-old children. Completing the link, preschoolers' scores on a school readiness measure directly related to these parenting practices; however, an indirect pathway from financial strain to de-

pression, to parenting, and then to school readiness was not found (Jackson et al., 2000).

When our research group conducted similar models with a large, nationally representative sample, we found evidence of these indirect pathways (Yeung et al., 2002). Family stress model mediators included economic pressure, maternal depressive affect, warm parenting, and parents' use of physical discipline. The physical environment of the home, child care costs, provision of stimulating materials, and parents' activities with the child were included to assess the investment model. Child well-being outcomes included math and reading achievement, and externalizing behaviors. Our results revealed that different mediating mechanisms were at work for different child outcomes. Much of the association between income and children's cognitive test scores was mediated by the family's investment in providing an environment beneficial to children's learning. In contrast, results for children's behavior problems demonstrated that maternal emotional distress was the primary mediator of income associations with children's behavior (Yeung et al., 2002).

Neighborhood Mechanisms

Neighborhood processes that may serve as an important link between neighborhood-level SES and children's competence include environmental toxins, neighborhood resources (child care and schools), and families' sense of community within their neighborhoods, represented by neighborhood collective efficacy (Sampson, Morenoff, & Earls, 1999; Sampson, Raudenbush, & Earls, 1997).

Environmental Toxins

Experimental and nonexperimental studies have documented associations between neighborhood SES and children's health outcomes (e.g., injuries, asthma), which may be due in part to environmental quality (Durkin, Davidson, Kuhn, & O'Connor, 1994; Katz, Kling, & Liebman, 2001; Spengler et al., 2002). There seems to be an asthma epidemic among low-income minority children, particularly those who live in poor urban neighborhoods. Children's

breathing problems are associated with exposure to high levels of diesel exhaust (via major roadways), the presence of incinerators, and factories (Carr, Zeitel, & Weiss, 1992; Northridge et al., 1999). One study reported negative associations between children's prenatal exposure to industrial compounds, and their scores on memory and visual discrimination tasks measured at 4 years of age, but not their sustained attention (Jacobson, Jacobson, Padgett, Brumitt, & Billings, 1992). Postnatal exposure via breast-feeding was not associated with children's outcomes, indicating the elevated importance of protecting unborn children from toxins. Children's cognitive well-being may also be affected indirectly by the presence of environmental toxins, because of school absences due to persistent health problems such as asthma (Potasova, 1998).

Resources

Although little empirical evidence is available, the presence or absence of neighborhood resources is a likely conduit between neighborhood SES and children's well-being. Public schools often service children residing in a particular locale. Research has shown that neighborhood SES is a correlate of school quality, with lower quality schools clustered in low-income neighborhoods (Jencks & Mayer, 1990). Thus, a child residing in a more affluent neighborhood is likely to receive a higher quality education than a child living in a poor neighborhood. Child care may operate differently for low-income families, because publicly funded child care (e.g., universal prekindergarten programs, Head Start) may be clustered within very low-income areas, and the center-based care accessible to low-income families in these locales is likely to be of higher quality than other arrangements including kith and kin care or unregulated center care (National Institute of Child Health and Development Early Child Care Research Network, 1997; Zigler & Styfco, 2004). Work on family-level economic status indicates that the association between income and child care quality is curvilinear, with families in the middle quintiles receiving lower quality care than families on the top and bottom quintiles (National Institute of Child Health and Human Development Early Child Care Re-

search Network, 1997; Phillips, Voran, Kisker, Howes, & Whitebook, 1994). This trend may extend to neighborhood SES.

What is it about child care and school environments specifically that affect children's well-being? Aspects of the school environment, including school expenditures (Greenwald, Hedges, & Laine, 1996; Hanushek, 1986; Hedges, Laine, & Greenwald, 1994), class size (Finn, 1998; Finn & Achilles, 1990; Glass, Cahen, Smith, & Filby, 1982; Mosteller, 1995; Robinson & Whitebols, 1986; U.S. Department of Education, 1998), teacher qualifications (Darling-Hammond, 2000; Henke, Choy, Chen, Geis, & Alt, 1997; U.S. Department of Education, 1999, 2001), and teacher involvement (Howes & Hamilton, 1992; Skinner & Belmont, 1993; Tucker et al., 2002), may affect children's well-being, although links are often not found. Important aspects of child care quality include health and safety provisions, caregiver quality, developmentally appropriate curriculum, provision of learning activities, small staff-to-child ratios, and staff development, among others (Brooks-Gunn, Fuligni, & Berlin, 2003; Scarr, Eisenberg, & Deater-Deckard, 1994).

Other neighborhood resources, including health clinics, libraries, parks, and recreational programs, may also affect children's well-being. Neighborhood disadvantage may be associated with the type of medical care available (Brooks-Gunn, McCormick, Klebanov, & McCarton, 1998), as well as the prevalence of recreation programs and museums (Catsambis & Beveridge, 2001). Use of recreation programs was higher among families in high-poverty neighborhoods compared with those in moderately poor neighborhoods (Rankin & Quane, 2000), indicating that, if present, families residing in impoverished environments make use of such resources.

Collective Efficacy

Collective efficacy captures shared values among residents and their willingness to intervene on behalf of the community. Collective efficacy is linked with favorable outcomes for children and youth, including achievement (Ainsworth, 2002), school involvement and affiliation with academically oriented peers (Fletcher & Shaw, 2000;

Rankin & Quane, 2002), and avoidance of problematic behavior (Elliott et al., 1996; Gorman-Smith, Tolan, & Henry, 2000; Greenberger, Chen, Beam, Whang, & Dong, 2000; O'Neil, Parke, & McDowell, 2001). Neighborhood disadvantage, residential instability, immigrant concentration, observed neighborhood disorder, and crime are negatively associated with collective efficacy (Raudenbush & Sampson, 1999; Sampson, 1997; Sampson et al., 1997, 1999).⁵

The absence of community-level institutions is associated with exposure to risks including danger, violence, crime, and access to illegal or harmful substances. One study found strong negative associations between neighborhood disorder (e.g., persons arguing, shouting, or fighting in a hostile or threatening manner, as observed by interviewers) and preschool-age children's verbal ability, after controlling for family and neighborhood structural dimensions, as well as maternal mental health (Kohen et al., 2002).

Children and youth reared in poor neighborhoods are likely to be exposed to violence, whether by witnessing or personal victimization (Buka, Stichick, Birdthistle, & Earls, 2001; Martinez & Richters, 1993; Richters & Martinez, 1993). Exposure to violence and disadvantage may lead to hostile attribution bias, wherein children view positive or neutral events through a negative lens (see Bennett & Fraser, 2000). Violent environments may also leave children feeling helpless and with diminished expectations for the future (see Garbarino, 1999). A large body of work has documented the deleterious effects of violence exposure on children's outcomes, ranging from mental health problems to poor academic functioning, attentional difficulties, and low perceived competence (Aneshensel & Sucoff, 1996; Buka et al., 2001; Gorman-Smith & Tolan, 1998; Margolin & Gordis, 2000; Osofsky, 1999; Schwab-Stone et al., 1995, 1999).

Each of the potential neighborhood-level pathways reviewed is directly impacted by neighborhood SES, and in turn, affects children's well-being. Thus, changes in neighborhood SES may not alter children's well-being if they are not coupled with changes in some or all of the potential pathways. Moreover, it is likely that family and neighbor-

hood SES additively influence children, such that low-income children residing in affluent neighborhoods may experience different outcomes than higher income children residing in the same neighborhoods.

SUMMARY, POLICY IMPLICATIONS, AND FUTURE DIRECTIONS

In this chapter, we have focused our review on outcomes for young children; SES in early childhood has lasting impacts on children's well-being. The National Academy of Science's groundbreaking *Neurons to Neighborhoods* concluded that early development "matters a lot, not because this period of development provides an indelible blueprint for adult well-being, but because it sets either a sturdy or fragile stage for what follows" (Shonkoff & Phillips, 2000, p. 5). Children's well-being can have a significant impact on future competencies and successes in adolescence and adulthood, including high school graduation, delayed childbearing, and future earnings; these are all associated with family SES (Brooks-Gunn, Guo, & Furstenberg, 1993; Furstenberg & Hughes, 1995; Trusty, 2000; White & Glick, 2000; Willie, 2001).

Low family and neighborhood SES is problematic for children's well-being. Although economic disadvantage has both harmful and widespread effects on child development, it may be difficult to disentangle the effects of SES from the effects of other risk factors, including, for example, ethnicity, immigrant status, and gender. As detailed in this chapter, SES is directly and indirectly linked with child well-being. The family SES-child outcome link is mediated by familial factors such as parenting, parent mental health, and parental investments, while neighborhood SES is related to child outcomes via environmental toxins, neighborhood resources, and collective efficacy. Researchers are cautioned to examine the effects of SES on child well-being carefully; statistical and methodological techniques are available to consider complex models that can take into account diverse contexts and extensive covariates. More importantly, it is essential to design studies and devise research questions that address the complex relations and contexts linking SES to children's well-being.

Our research findings comparing pathways of SES-child outcome links underscore the importance of trying to understand the process of how family—and wider—contexts are associated with children's well-being. In particular, parenting stands out in our statistical models as a strong mediator, often explaining much of the association between income and child developmental outcomes. However, the connection between parenting and children's well-being is not straightforward. Indeed, other factors, such as the home environment (e.g., single- vs. two-parent family, parental employment, parental mental health), individual characteristics (e.g., race/ethnicity, cognitive functioning), neighborhood characteristics (e.g., access to resources, exposure to violence), and even societal factors (e.g., current policy climate must be taken into account when examining parenting and child well-being).

Children's race/ethnicity is usually controlled for in analyses examining SES and child outcomes. The use of race/ethnicity as a statistical control, however, does not specifically address how race/ethnicity matters for children's well-being. Our group has participated in a line of research parceling out racial test score gaps. White and black children in the United States have vastly different experiences in school and the broader society. Test score gaps are found as early as 3 years of age and persist. Parent education and verbal ability differences account for a large portion of the gap. In addition, we found that the black-white test score gap was influenced by quality of maternal high school, over and above maternal education, maternal verbal ability, and a host of demographic characteristics (including grandparent characteristics) (Phillips et al., 1998). When such characteristics were controlled, the test score gap decreased by 40–85%. This work indicates that parents' schooling influences have lasting impacts on their ability to provide a stimulating environment for their children.

A large body of work has shown negative associations between disadvantage—both at the family and neighborhood levels—and children's well-being, but few researchers have attempted to address how and why this connection is so strong and persists throughout childhood and into adolescence (Jencks & Phillips, 1998). Exploring the processes

that link SES with child well-being is especially critical when thinking about how to improve the school readiness of poor children. Programs geared toward improving young children's cognitive skills may work best if they focus on providing children with cognitively stimulating materials, increasing family literacy, or encouraging parents to engage in reading activities and/or stimulating outings, as well as facilitating positive parenting skills (Brooks-Gunn, Berlin, & Fuligni, 2000; Fuligni & Brooks-Gunn, 2000). If a program's goal is to promote healthy development of children across multiple domains, a multipronged approach may be most appropriate. For example, a package of services could be offered to families that includes cash benefits, as well as services that target family literacy, stress relief, parenting practices, and provision of high-quality child care.

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NOTES

1. It is important to note that this definition does not capture differences in quality of education. For example, one study found a negative association between the number of white students at mothers' high schools and the test score gap between black and white children, indicating that attending schools with large proportions of white students (a proxy for school quality) led to smaller race differentials in children's vocabulary scores than attending schools with large minority student bodies, even controlling for mothers' years of school and cognitive ability (Phillips et al., 1998). Virtually all of the current national longitudinal studies collect some data on cognitive skills, as well as education.
2. Cognitive skills and education are highly, but not perfectly, correlated (i.e., correlation coefficients of .40 to .60, in most studies).
3. Whether or not a family lives above the poverty line is not necessarily indicative of the difficulty of making ends meet (Jackson et al.,

- 2000). Some families living below the poverty line have their basic needs met through, for example, subsidized housing, publicly funded health insurance, TANF payments, child support, and/or food stamps. A working poor family, in contrast, will likely have higher reported income but may lack eligibility for any or all of the benefits just listed, and thus, the family may report high financial strain. A recent study documented this phenomenon with welfare recipients who entered the workforce compared with those who did not; the former reported higher strain than the latter (Gyamfi, Brooks-Gunn, & Jackson, 2001).
4. Although in the analyses using PSID data, the number of individuals in the home and the presence of an individual with health limitations in the home were controlled for in analyses (Dunifon et al., 2001).
 5. Although this chapter is most concerned with children, much of the extant research on collective efficacy focuses on adult and youth samples.

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CHAPTER 24



Stereotypes and the Fragility of Academic Competence, Motivation, and Self-Concept

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Human intelligence is among the most fragile things in nature. It doesn't take much to distract it, suppress it, or even annihilate it.

—NEIL POSTMAN (1988)

Despite occasional statements like this from education researchers and commentators, most people think of intellectual competence as a stable thing. We expect children who do well in grammar school to perform well in junior high and high school; we expect those who score well on tests this week to score well next week, and so on. But we are often wrong about this. Although clearly not the most fragile thing in nature, competence is much more fragile—and malleable—than we tend to think. Consider a few examples:

In a recent study by Baumeister, Twenge, and Nuss (2002), college students were

given bogus feedback from a personality test; for some, the test was said to indicate that others would one day reject them. This bad news dramatically interfered with their performance on a standard IQ test they took shortly afterward; they solved about six fewer items than equally smart students in control groups, who got either a different kind of negative feedback or no feedback at all.

Mueller and Dweck (1998) gave students a problem-solving task (engineered to guarantee high performance) and then praised students for their success. The feedback varied by condition, so that

some students were praised for their intelligence (“You must be really smart at these”), while others received effort praise (“You must have worked hard”), and members of a third group were told simply that their score was very high. Later, on a subsequent set of harder problems, those praised for being smart performed significantly worse than the other groups.

College freshmen signed up for a study conducted by Wilson and Linville (1982) because they were struggling academically: They were performing less well than they wanted to, felt intellectually inferior to their classmates, and were generally anxious about doing well in college. By the flip of a coin, some of these students were assigned to receive an intervention—lasting all of a few minutes—wherein they learned that their struggles were not unique, and that many struggling students improve over time in college. Compared to the control group, these students solved significantly more items on a standardized test taken a short while later and dramatically improved their grade point averages (GPAs) in the following year.

Such examples not only show how competence is both fragile and responsive to intervention but also point to why. Specifically, in many contexts, intellectual competence is not just something inside a person's head (Sternberg, 2002). Rather, it is quite literally the product of real or imagined interactions with others. How a student construes the way he or she is viewed and treated by others matters a lot: how welcomed or excluded, how respected, how tuned in to others' difficulties and triumphs—these perceptions can exert a profound influence on intellectual competence, on motivation, and ultimately upon a student's academic self-concept. Competence is fragile, then, because it is transacted within a web of social relations. The social psychology and education literatures are full of examples of how things that influence social relations also influence motivation, learning, and performance (e.g., National Research Council, 2003), but too often we fail to appreciate these social forces.

To be sure, we do sometimes acknowledge impediments to competence—especially our

own competence—as when we experience *stage fright*, *writer's block*, or some other temporary hindrance. Yet particularly when judging others, we have what amounts to an “innate ability bias” (Aronson, 2002a; Aronson & Jones, 1992); we are apt to assume that people's intellectual accomplishments are products of internal forces like giftedness, rather than situational ones, like an encouraging social climate (e.g., Dweck, 1999; Jones, 1989). Thus, unless we have prior knowledge to the contrary, students who score poorly on tests or get bad grades in school will probably just seem untalented or lazy. These impressions may be correct some of the time, but in many cases, as in the earlier examples, there is more to the story; social forces are at play that may be hard to see or appreciate, but that nonetheless undermine people's academic achievement in important ways.

In this chapter, we focus on one set of forces, the influence of stereotypes on academic performance, engagement, and self-concept, which together comprise what we see as fundamental to *competence*. There is much evidence, beginning with research in the 1960s, to suggest that teachers' expectations about their students can play a significant role in the nurture (or neglect) of student competence (see Rosenthal, 2002). We briefly review similar, more recent, research that applies a similar logic to stereotypes, which are expectations based on category membership. Our own research in this area began several years ago with a search for new answers to the decades-old question about why African American and other minority students' test performance and achievement lags behind that of white students, even when comparing students who attend the same schools, whose parents are comparably well off and well educated, who come from comparable neighborhoods, and so on (e.g., Herrnstein & Murray, 1994; Jencks & Phillips, 1998; Ogbu & Davis, 2003). The fact that equating students on such background factors reduces yet fails to eliminate the gap in achievement frustrated the standard arguments about genetic or cultural influences on test and school performance, because these arguments rest upon the notion that ability, skills, and preparation account for nearly all the variance in achievement. But because black students

with equal ability and preparation so frequently underperformed in college relative to identically scoring whites (Jensen, 1980), there seemed to be an unaccounted factor at play, something beyond the things to which we customarily attribute achievement. Our research, and that of many others, suggests that part of the problem is rooted in the psychology of stereotyping and stigma, namely, the way people are influenced by stereotypes of intellectual inferiority that surround certain groups in American society.

STEREOTYPES SHAPE SOCIAL INTERACTIONS

One way stereotypes influence competence is that they cause stereotype targets to be perceived and treated differently than non-targets. Stereotypes were nicely described long ago by Walter Lippman (1922/1997) as "the pictures in our heads" that simplify the world by saving us the trouble of thinking when we come into contact with people. These pictures function as expectations of what people in particular categories (boys, girls, blacks, Latinos, etc.) will be like and what they can and cannot do, thus allowing us to fill in the blanks when information is ambiguous or incomplete. The problem, of course, is that stereotypes are overgeneralizations; they encourage simplistic thinking that ignores individual differences between people who belong to certain categories.

There is no shortage of stereotypes about the reputed abilities of social groups, and by a surprisingly young age, Americans become familiar with their content (Aboud, 1988; Huston, 1983). Thus, by middle childhood, most American children have learned that blacks and Latinos are less intelligent than whites, that Asians are good at math, while girls are not, that blacks are better athletes than whites, and so on (e.g., McKown & Weinstein, 2003; Smith, 1990). Not everyone believes the stereotypes, but most people in the culture are aware of them, targets as well as nontargets. Regardless of whether we come to hold these stereotypes as strong convictions or merely as familiar-but-distrusted images, knowledge of their content alone can bias perceptions of stereotype targets (Devine, 1989).

Teachers

This can pose a measurable problem for students who happen to belong to groups alleged to lack academic competence. For example, in a recent study, Arnold and Cross (2003) had teachers rank-order the children in their Head Start classes with respect to their interest in math activities. The teachers rated the Asian children as far more interested than African American or Anglo children, quite in line with the stereotypical image of Asians as math-oriented. But the picture in the teachers' heads was misleading: Expert objective observers found nothing to confirm the teachers' rankings of math orientation—neither the children's self-reports nor objective recordings of children's observed interest in playing math games revealed any differences. The black and Latino kids liked math just as much as the Asian kids, but the teachers missed it.

The problem, as we know from years of research, is that these distorted perceptions are not inert; people act upon them, treating the targets as if the stereotypes are true. Beginning with Rosenthal's Pygmalion studies (Rosenthal & Jacobson, 1968; Rosenthal, 2002), research shows that stereotyped expectations shape social interactions and over time can result in the stereotype's fulfillment, a process known as a "self-fulfilling prophecy." Specifically, if a student's social identity suggests high ability, interest, or potential, he or she may be treated accordingly by a teacher—receiving more warmth, more challenging material, more patience, and so on—and over time, develop into the bright student the teacher imagined initially. By the same token, negative expectancies based on group reputation can have the opposite effect, leading a teacher to create a colder, less challenging environment for students from these groups. For example, teachers in a study by Brophy and Good (e.g., 1974), treated differently students they had labeled as strong or weak. When a "strong" student faltered, say, during a reading task, teachers were more likely to give subtle clues until the student came upon the solution. When a "weak" student faltered, teachers were more likely to simply supply the correct answer, thus depriving the student of the opportunity to build skill and a sense of accomplish-

ment. The process can be subtle and nonverbal, and it can occur without intention among individuals who consciously (and even adamantly) reject the stereotyped notions (Darley & Gross, 1983; Word, Zanna, & Cooper, 1974; Fazio, Jackson, Dunton, & Williams, 1995).

Sometimes the differential treatment is not so unconscious or unwitting. Evidence from various studies shows that teachers sometimes use stereotypes in not-so-subtle ways, attaching social identity to negative behavior or poor performance, such as when the poorest, least liked, children are seated at the back of the room (Rist, 1970), or when incompetence or unruly behavior is openly attributed to race (Tyson, 2003). Whether blatant or subtly expressed, teacher expectations can shape student performance, leading some scholars to cite low expectations—based on stereotypes—as a significant factor in the achievement gap between blacks and whites (e.g., Ferguson, 1998; Weinstein, 2002), and the gap between students of high and low socioeconomic status (e.g., Croizet & Dutrévis, in press).

Parents

Parents, surprisingly, are not immune to the influence of stereotypes. For example, there is research to suggest that the "girls-can't-do-math" stereotype distorts the way parents evaluate their children's interests and abilities. Parents in various studies have been found to see their daughters as less interested and adept than their sons at math and science, to see their girls succeeding through effort, but their boys succeeding by dint of natural ability. These attributions shape the messages that parents send their kids, a process very similar to the self-fulfilling prophecy described earlier for teachers. For example, recent research conducted by Tenenbaum and Leaper (2003) found that parents asked more cognitively challenging questions of boys when working through a science problem than when discussing a less male-associated topic, such as interpersonal relations. Remarkably, other research further showed that parents' beliefs predicted their child's self-efficacy (confidence) better than actual performance (e.g., Frome & Eccles, 1998). This means that parental ex-

pectations—which are influenced by gender stereotypes—can matter more than a child's actual ability, interests, and performance in shaping their child's academic self-concept.

There are, of course, a variety of ways that a child's orientation to achievement can be shaped by parent beliefs, such as the way they respond to a child's successes, or with criticism or praise (see Dweck, 1999, for a review), or withdrawal of affection (Elliot & Thrash, 2004; Jones & Berglas, 1978), or the schools, media, or playmates they choose for their children (Harris, 1998). What is clear is that stereotyped notions about intellectual ability can influence the way parents respond to their children, and that these responses, in turn, have effects on various aspects of competence.

Peers

Needless to say, fellow students play a tremendous role in a child's developing competence and achievement-related self-conceptions. There seems to be validity to the claim that adolescents in American schools care about belonging—fitting in socially with their peers—more than they care about nearly anything else (e.g., Arroyo & Zigler, 1995; Coleman, 1961). Indeed, peer influence is so important that some scholars have been compelled to conclude that teacher or parental influence is secondary to that of other children (e.g., Harris, 1998). Statistics suggest that this is particularly true during the middle school and high school years, when social concerns reach their apex. One sees clues that stereotypes create academic problems at this stage in the fact that this is precisely when many bright and high-achieving students begin to falter academically (e.g., Aronson & Good, 2002; Wigfield & Eccles, 2002), and when most children attain an awareness that certain groups are broadly stereotyped in society (McKown & Weinstein, 2003). Minority students are at increased risk for social exclusion by peers, which, as suggested by the Baumeister et al. (2002) study described earlier, can have direct effects on academic performance. School-based studies confirm that peer rejection imperils school performance and engagement (e.g., the likelihood of dropping out), particularly if those excluded are seen

as hostile, or when teachers are thought to dislike the excluded student (see Harrist & Bradley, 2002, for a review). Children get excluded for a number of reasons—being unattractive, aggressive, or just different (see Killen, Lee-Kim, McGlothlin, & Stangor, 2002, for a review). Racial and ethnic minorities appear to experience more than their fair share of peer rejection (Kistner, Metzler, Gatlin, & Risi, 1993); thus, by itself, minority status appears to lead to differential treatment by classmates and can thereby put students at risk for academic problems. This appears most likely in classrooms where competition is stressed (Aronson & Patnoe, 1997; Sherif & Sherif, 1969).

Social pressures come from within minority groups as well. For example, there is some evidence to suggest that minority students, more than their nonminority classmates, must choose between academic and social success within their ethnic group, because engaging academically invites charges of “acting white” and abandoning one’s social group (Fordham & Ogbu, 1986). Although any student is likely to pay a social price for being too “nerdy,” some peer nomination studies—which ask students to list who is cool, admirable, and influential in their school—suggest that black and Latino males pay the highest social penalties for engaging academically (e.g., Graham, Taylor, & Hudley, 1998). If this is so, then it may partly explain why, as a group, African American males appear to be the least academically identified students in America (Osborne, 1997). In many middle and high schools, there is a trade-off for students between social or academic success that varies in intensity depending on race and gender.

It is important to note that the evidence for peer sanctions against achievement is mixed. For example, studies using national samples of data suggest that adolescents do not generally devalue education (e.g., Spencer, Iserman, Davies, & Quinn, 2001), and that the “acting white” or “oppositional culture” hypothesis may be an overgeneralization from ethnographic case studies (Cook & Ludwig, 1998). Yet these large survey studies have their own limitations as well. There appears to be enough evidence to suggest that, at least under some circumstances and in some schools and classrooms,

social success and academic engagement have inverse relationships, and this may interfere with the development of competence among some minority students.

In sum, stereotypes about academic abilities can inhibit the expression and development of competence by prompting differential treatment by teachers, parents, and peers. For the remainder of the chapter we focus in considerably more detail on different route by which negative stereotypes influence competence.

STUDENTS REACT TO STEREOTYPES

Stereotype Threat

Our research over the last decade shows that a student need never encounter actual prejudice or differential treatment of the sort described earlier to be meaningfully affected by stereotypes. Just as mere knowledge of a stereotype can influence the thinking and behavior of a teacher, parent, or peer, it can also, in a variety of ways, impact the student more directly. Our initial hypothesis (Steele 1992; Steele & Aronson, 1995) was that students targeted by negative stereotypes are bothered by the implications of the intellectual inferiority stereotype—the possibility that they will be viewed through its negative lens, and that the stereotype could accurately characterize them or their group. Confirming a stereotype through low performance poses a threat to at least three important human motives: the need for competence (e.g., White, 1959), the need to appear competent to others (e.g., Jones, 1989), and the need to belong socially in a domain that one values (Baumeister & Leary, 1995).

Thus, our argument goes, compared to people not targeted by stereotypes, in situations where academic competence is relevant—taking a test, speaking up in class, working on a project with peers, or even doing one’s homework, stereotype targets will feel extra pressure not to fail. This extra burden, therefore, could induce black students, Latino students, or women working in male-dominated arenas (i.e., math and science) to perform less well, thereby confirming the stereotype that they want to disprove. Ten years later, we have ample confirmation that this phenomenon—which we named “stereotype threat”—is real, and that

it contributes to the gap in performance between minorities and whites. Over a hundred studies conducted since we coined that term have revealed much about the conditions under which stereotype threat undermines performance, the groups susceptible to it, individual risk factors that amplify its effects, the processes by which it interferes with achievement, and some useful techniques for reducing its impact on achievement (e.g., Aronson, 2002b; Steele, Spencer, & Aronson, 2002). We begin with research demonstrating its effects on standardized test performance.

Stereotype Threat and Test Performance

In our early studies, we started with a simple hypothesis: If concerns about confirming a negative stereotype undermine standardized test performance, then arranging situations to minimize those concerns should boost performance of individuals stereotyped as intellectually inferior. To those not stereotyped as inferior, the change of situation should have little or no effect on performance. To test this reasoning, we had African American and Caucasian college students take a difficult standardized verbal

test, which we constructed by culling some of the more difficult items from an old Graduate Record Examination (GRE). The students took this test under one of two conditions. In the “stereotype threat” condition we presented the test the way such tests are typically presented: as a diagnostic tool we were using to measure their verbal ability. This explicit scrutiny of ability, we thought, should bring to the fore concerns about confirming the stereotype. In the “no stereotype threat” condition, we presented the same test as a nonevaluative exercise aimed at teaching us about the psychology of verbal problem solving. In other words, we made it clear to the students that although we wanted them to try hard to get the problems right, we were not the least bit interested in how smart they were. We thought that, framed in this way, the students should be less worried about confirming the stereotype.

The results suggested we were right. As shown in Figure 24.1, after we statistically controlled for individual differences in preparation and verbal aptitude (we covaried out students’ verbal Scholastic Aptitude Test [SAT] scores), we found that black students performed dramatically better in the no stere-

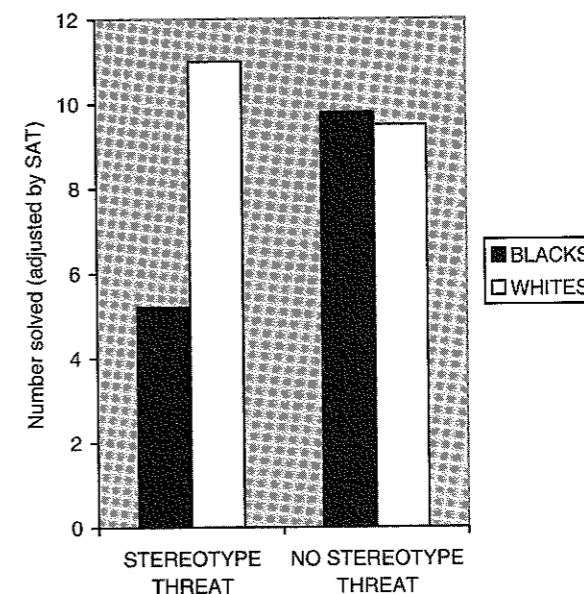


FIGURE 24.1. Test performance under stereotype threat versus no stereotype threat conditions. Adapted from Steele and Aronson (1995). Copyright 1995 by the American Psychological Association. Adapted by permission.

reotype threat condition than they did in the stereotype threat condition. Caucasian test takers were not meaningfully affected by the framing of the test.

Follow-up studies using the same diagnostic-nondiagnostic manipulation provided some clues about the experience of stereotype threat—and to some extent validated our conception of the phenomenon. For example, Steele and Aronson (1995, experiment 3) found that black students who thought that we were interested in measuring their intelligence (on an upcoming test) had more stereotypes on their mind. Specifically, we used an implicit memory measure, which supplies a long list of partial words and asks people to quickly fill in the blanks to make an English word. Cognitive psychologists have found that people completing such tasks will tend to construct words that fit with recently activated (thought about) ideas. Thus, given the word stem (*_ _ C E*), one might come up with a number of different completions (MICE, RICE, FACE, PACE, etc.), depending upon recently encountered stimuli or thoughts. What we found is that black students in our diagnostic condition were significantly more likely to come up with the word RACE—as well as other words associated with black stereotypes on other word stems. They seemed, in other words, to have racial stereotypes on their mind as a result of having their intelligence evaluated. This we took as evidence that stereotypes are indeed linked to the experience of evaluative scrutiny in a domain where competence is relevant. When the evaluative stakes are raised, so too are thoughts about racial stereotypes, suggesting that the two contexts are cognitively associated for African Americans but not for whites.

Moreover, our data suggest the desire on the part of stereotype-threatened black test takers to disprove the negative stereotype. Immediately after the word stem task, our students were given a survey. The survey asked about the kinds of activities they enjoyed—the kinds of sports they played, the kind of music they enjoyed, and so on. Some of these preferences were clearly stereotypical of African Americans (liking rap music, playing basketball, being lazy, and so on). There was a very telling difference in the way that black students filled out the survey.

Those who thought we would be diagnosing their intelligence later on distanced themselves from the stereotypical portrayals of themselves. They reported liking basketball, rap music, being lazy, and so on, significantly less than their counterparts, who thought the upcoming exam was not going to diagnose their abilities. And most (75%) of these students chose the option of not indicating their race at the end of this survey, whereas all the black students in the no-stereotype-threat condition (and all the white students in both conditions) indicated their race. It seemed clear, therefore, that the evaluative nature of the situation made them think about stereotypes and be wary of confirming them.

A subsequent experiment nailed down the role of this wariness in the impairment of test performance among African American students. In this study (Steele & Aronson, 1995, experiment 4), all test takers were put in the nondiagnostic condition of the previous experiment; they were told we would not be evaluating their abilities. But for half, we made their racial identity salient; we asked them just prior to beginning the test to indicate their race on a demographic questionnaire (this time it was not optional). Whereas this mere mention of race had no effect on white test takers, it rather dramatically impaired the black test takers, cutting in half the number of items they correctly solved. This is clear evidence that our attention to race spurred evaluative concerns—and a nice illustration of Postman's claim that it does not take much to suppress human intelligence.

Generality of Stereotype Threat Effects

But this raises a critical question: To what extent do such effects generalize to other groups of humans? Is the experience of stereotype threat limited to African Americans? While stereotype threat may be most likely and most keenly felt among historically stigmatized groups such as African Americans, it is a predicament that can trouble the member of any group, because it is largely a product of circumstances that threaten basic human motives—being competent, appearing competent, and being accepted by others (e.g., Aronson, Quinn, & Spencer, 1998). Thus, anyone who conceivably could be tar-

geted by a stereotype alleging inferiority could experience pressure to disprove the stereotype. This would be important, because to remove barriers to all students' demonstrating and developing their competence, it is critical to know the extent to which these barriers originate from something unique to their social group, or something more general operating in the situations most students confront. Research conducted over the past decade has mostly supported the generality hypothesis.

For example, similarly dramatic affects using a different manipulation have been found by Spencer, Steele, and Quinn (1999) among women taking mathematics tests. In their study, highly math-proficient male and female college students (they were in the upper 15% of the university population in terms of SAT scores) took a very challenging math test. In the control group, the women performed significantly less well than the men. In the experimental condition, stereotype threat was nullified with a simple statement: "This test has never produced gender differences in the past." In this condition, women's performance rose markedly, equaling that of the men. Other research finds similar effects with Latino students, importantly, with variations on the manipulation of stereotype threat (Aronson & Salinas, 2001), and in another case (Gonzales, Blanton, & Williams, 2002), examining the role of "double-minority status." The former study found impaired performance when the issue of bias in standardized testing was raised; the latter suggested that conditions that make Latina women aware of their ethnicity make them especially likely to underperform on a math test.

Similarly, research has found that the stereotype suggesting that old people's memories are faulty and deteriorating can be similarly disruptive to its targets. When the elderly participants in one experiment were subtly reminded of the stereotype regarding old age and senility, they performed worse on a test of short-term memory than when they were reminded of the more positive "old-people-are-wise" stereotype instead (Levy, 1996). In a subsequent study by Hess, Auman, Colcombe, and Rahhal (2003), older adults read mock newspaper articles on research about aging and memory. Half of the articles presented negative findings

that suggested mental declines were inevitable. The other half presented more positive findings, which implied that some mental skills lasted into old age, and that cognitive declines could be slowed. After reading the articles, the subjects were given a memory test in which they had to recall a list of words. Those who read the positive article performed about 30% better on the test than those who read the negative article.

Jean Claude Croizet and his colleagues have found that stereotype threat effects extend to students of low socioeconomic status (Croizet & Claire, 1998; Croizet & Dutrévis, in press). This suggests that the stereotype of poor people as less intelligent may contribute to the oft-cited correlation between socioeconomic status and test performance.

Perhaps the most persuasive findings regarding the generality of these effects is that stereotype threat can impair the performance of even those groups who are neither minority nor broadly stereotyped as intellectually inferior—for example, white males at top tier universities. In a simple experiment (Aronson, et al., 1999), we asked highly competent white males to take a difficult math test. Both groups were told that the test was aimed at determining their math abilities. For one group we added a stereotype threat: We told them that one of our reasons for doing the research was to understand why Asians seemed to perform better on these tests. In this condition, these highly competent and confident males—most of whom were mathematics or engineering majors—lost a significant number of items on the test. These were students with extremely high skills—most had earned near perfect scores on the math portion of the SAT. Thus, if they can experience stereotype threat, anyone who plausibly can be targeted by a stereotype can feel it (for similar findings with white males see Leyens, Désert, Croizet, & Darcis, 2000; Smith & White, 2002). The rather exotic situation that we imposed upon them—a direct comparison with a supposedly superior group—is, in form, similar to the predicament of blacks and Latinos, who contend daily with such settings in any integrated academic setting. For us, these findings make it easier to accept a situational account of their relatively low academic outcomes; it proves that lower com-

petence or motivation need not be involved in their underperformance.

Studies aimed at discovering the developmental onset of stereotype threat effect show that children, as well as adults, can be impaired by making their stereotyped social identity relevant to an ability test (Aronson & Good, 2002; McKown & Weinstein, 2003). In the Aronson and Good studies, stereotype threat effects did not emerge in children in the fifth grade but showed up reliably among sixth graders—girls on math tests, and Latinos on verbal tests. The McKown and Weinstein studies suggested that children at this stage become stereotype-vulnerable because they are able to grasp the fact that their group is broadly stereotyped in society. Whatever the exact mechanism, it is clear that by middle childhood, children, like adults, can become unnerved by the negative stereotypes about their group's intellectual abilities.

Stereotype threat effects also generalize to other performance domains. In a particularly notable example, Stone, Lynch, Sjomeling, and Darley (1999) found that when a game of miniature golf was framed as a measure of "sport strategic intelligence," black athletes performed worse at it than whites. Interestingly, by framing this same golf game as a measure of "natural athletic ability," the pattern reversed, and the black athletes outperformed the whites. Similarly, Garcia, Helms, and Garcia (2003) report results of a study suggesting that white athletes jumped less high when observed by an African American coach than when observed by a white coach, suggesting a stereotype threat—and therefore partly situational—explanation involving the stereotype that "white men can't jump." Such studies show not only the group-by-situation variability of stereotype threat but also suggest its generalizability in real life across groups, settings, and types of behavior. Studies that we discuss shortly further reinforce the breadth of stereotype threat effects.

Mediation of Test Performance

What mediates the effects of stereotype threat on test performance? That is, how does stereotype threat turn into lower performance? Various researchers have asked this question and, as it turns out, have found

almost as many mediators as they have looked for.

Anxiety

Our original hypothesis (Steele & Aronson, 1995) was this: trying extra hard to disprove the negative stereotype arouses anxiety, which in turn interferes with performance. Although our original studies tested for this—we used standard self-report measures of test anxiety, evidence was spotty at best; we would find it in one study but not in another. Other researchers using self-reports (typically administered retrospectively after the exam) have found similarly inconclusive mediation data. Two research studies used more direct measures and confirmed that anxiety plays at least a partial role. Blascovich, Spencer, Quinn, and Steele (2001) had black and white college students take a difficult verbal test under "stereotype threat" or "no stereotype threat" conditions (the diagnostic test was described as "racially fair" in the no stereotype threat condition). The test takers' blood pressure was monitored throughout the test in all conditions. The study yielded a typical pattern of stereotype threat effects on performance: Blacks performed worst when the test was represented as diagnostic of verbal ability, best when represented as racially fair. But for blacks in the stereotype threat condition, blood pressure rose sharply and significantly above baseline levels, whereas for all other test takers, it dropped. Interestingly, on questionnaires probing for anxiety, there were no differences, suggesting that self-reports may be inaccurate indicators of internal states in stereotype threat situations.

Another way of assessing the role of anxiety is to compare the effects of testing conditions on complex versus simple tasks. Anxiety has long been known to boost performance on simple tasks but interfere with performance on complex tasks. Thus, if stereotype threat did the same, this would be more evidence that anxiety is involved in stereotype threat. In a recent experiment, O'Brien and Crandall (2003) showed just this. Women under stereotype threat performed better on an easy math test than women under no stereotype threat but, replicating earlier stereotype threat studies (e.g., Spencer et al., 1999), stereotype threat im-

paired their performance on the difficult math test.

That stereotype threat arouses anxiety squares nicely with important work on achievement goals. Specifically, Elliot and colleagues find that people experience more anxiety and perform worse when they pursue performance avoidance goals—when they try to avoid comparing poorly to others, as opposed to just doing their best (Elliot & Church, 1997; Elliot, McGregor, & Gable, 1999). Such a mind-set appears to be the least productive and enjoyable way to approach achievement, and it aptly describes the hypothesized goal—and the observed achievement outcomes—of people subjected to stereotype threat. Research is currently under way that directly examines the mediational role of performance avoidance goals in stereotype threat-related underperformance.

Expectations

The previous studies do not, however, force the conclusion that anxiety is the sole mediator of stereotype threat; other processes may be involved. One possible comediator is performance expectations. Some researchers have found that activating stereotypes lowers performance expectations (Stangor, Carr, & Kiang, 1998), but in this study, performance was not assessed, so it is unclear whether these lowered expectations would have translated into lower performance. Other studies (e.g., Spencer et al., 1999; Stone et al., 1999) found no such direct effect of stereotype threat on expectations, despite the fact that stereotype threat impaired performance. Still other studies find that raising performance expectations fails to "wipe out" the effects of stereotype threat on performance. The role of expectations in stereotype threat is therefore likely to be a complex one; because, for one thing, initial expectations based on situational cues that arouse or nullify stereotype threat can change as soon as one encounters success or difficulties while progressing from item to item on a test.

Effort

One would think that a likely response to stereotype threat might be simply to give up or

withdraw effort and, thereby, perform worse. Yet studies that have measured effort—how long people work on the test, how many problems they attempt, how much effort they report putting in, and so on—have revealed no evidence that this happens. In one study, Aronson and Salinas (2001) had participants complete a difficult math test with electrodes on their wrists that purportedly monitored the effort they expended during the test. Participants also understood that they would have to retake the test until an acceptable amount of effort was detected. Despite this elaborate effort-assuring ruse, stereotype threat effects still emerged, suggesting that reduced effort is not a necessary mediator of stereotype threat effects. This hardly forces the conclusion that effort withdrawal *never* mediates these effects. After all, most studies have involved strong students, people who are highly invested in academics, who take a test that is portrayed as an important indicator of their ability. And they work on the test for a relatively short time (usually 20–30 minutes). These are the conditions likely to produce maximal effort. It does not seem unreasonable to assume that less invested students involved in more drawn out tasks might respond to stereotype threat with lower effort. Future research will sort out the conditions under which this strategy is most likely to occur. What can be said with confidence is that lower performance due to stereotype threat can occur without the withdrawal of effort, and this is important to know.

Cognitive Load

Earlier, we noted evidence that black test takers in stereotype threat situations seem to have more stereotypes on their mind, which suggests that stereotype threat imposes an extra cognitive burden. Various studies have examined this situation and found that being stereotype threatened eats up valuable cognitive resources. Schmader and Johns (2003), for example, found that stereotype threat reduces working memory capacity. Croizet, Desprès, Gauzins, Huguet, and Leyens (2003) found that it increases heart rate variability, an index of cognitive load. Steven Spencer and his colleagues (2001) have found evidence that people under stereotype threat actively try to suppress the negative stereotypes and attendant unpleas-

ant thoughts, a mentally taxing—and largely futile—exercise that consumes resources needed for test performance. Inzlicht, McKay, and Aronson (2004) found that stereotype threat taxes self-regulation capacity, mental energies needed for important executive functions, such as self-control, memory, and organizational skills. In one study, they showed that, under stereotype threat, people were less able to maintain a tight squeeze on an exercise handgrip, a common, non-reactive measure of self-regulation energy. In sum, just about every study that has examined a cognitive-load or divided-attention explanation for stereotype threat effects has found supportive evidence. The exceptions are those studies that employed self-report measures (e.g., Steele & Aronson, 1995; Aronson et al., 1999).

Ideomotor Effects?

One of the most intriguing findings to have emerged in the past several years is that when a stereotype is mentally activated without conscious awareness, people display a remarkable tendency to behave in line with it. Subtly expose college students to words suggesting old age and they will walk more slowly away from an experiment. Do the same with words suggesting rudeness, and they will be more likely to interrupt a conversation a few moments later (Bargh, Chen, & Burrows, 1996). These are called “ideomotor” effects, because they occur automatically, with no apparent mediator between thought and action. Research like this suggests that test performance could likewise be impaired—or lifted—by “priming” social stereotypes associated with high or low ability. In a particularly striking example of such effects, Shih, Pittinsky, and Ambady (1999), found that when primed with their Asian identity, women performed better on a math test. But if they were primed to think of their female identity, they performed worse. These effects do not appear to require any sense of threat or anxiety; people need only know the stereotype’s content. Accordingly, even young students, who are familiar with the stereotypes but are not yet aware of how broadly they are applied, can nonetheless be susceptible to their influence (Ambady, Shih, Kim, & Pittinsky, 2001). The extent to which these direct effects of stereotypes are involved in

underperformance in the real world (where many stereotypes are activated simultaneously) is unclear. It is important to recognize that even in the sterile confines of a laboratory experiment, the effect of such subtle primes on performance is often quite modest: In most studies, they produce no meaningful difference in the number of items solved, but instead impair performance accuracy (the number of items solved divided by the number attempted). Still, more research needs to be conducted to sort out the degree to which this process mediates underperformance of stereotyped groups (Wheeler & Petty, 2001; Steele et al., 2002).

All of these mediation findings suggest that negative stereotypes, in one way or another, impair performance by depleting cognitive resources away from the performance task, by arousing anxiety, or by simply prompting people to unconsciously behave as the stereotype prescribes—or by some combination of these. That researchers have found evidence for several mediators does not, we think, indicate empirical murkiness. Rather, it reflects the complexity and fragility of human performance: there are many ways to fail. Indeed, the fact that one can find several different pathways between the presence of stereotypes and impaired performance should, if anything, strengthen our confidence in the relationship between negative stereotypes and performance difficulties. All the pathways seem to lead to the same result.

Situational Risk Factors for Stereotype Threat

Implicit in the findings of much of the research discussed earlier is that certain situations are likely to give rise to stereotype threat. For example, in the Steele and Aronson (1995) studies, both ability evaluation and the salience or implied relevance of racial identity induced the underperformance among black students. Likewise, cues about the biased or fair nature of this tests were sufficient to turn on or off stereotype threat in other studies, such as the Aronson and Salinas (2001), Blascovich et al. (2001), and Spencer et al. (1999) studies. Thus, one can see the inherent difficulty in arranging situations to reduce stereotype threat, given that the evaluation of abilities is endemic to

most testing situations, and that in diverse classrooms in America, the salience of race and gender are difficult to reduce.

This latter point is underscored by recent experiments conducted by Michael Inzlicht and colleagues, which show how group composition can matter. In one study (e.g., Inzlicht & Ben-Zeev, 2000), highly competent female undergraduates took a difficult math exam in small groups. Depending on the condition of the experiment, the researchers added one or more men to this testing session. The mere presence of one male test taker was enough to significantly impair the performance of the female test takers in the group. Moreover, adding another male into the testing session, such that women were outnumbered, produced an increase in stereotype threat and a corresponding drop in the women’s performance, a linear effect of gender integration on underperformance. Inzlicht, Aronson, Good, and McKay (2003) reported effects that suggest African Americans are sometimes susceptible to such effects as well. The critical variable in these studies seems to be the salience of one’s negatively stereotyped social identity, which minority status activates and apparently amplifies. Studies also show that the variety of cues regarding social identity—the gender or race of the test administrator, or a recently viewed TV spot in which women are depicted stereotypically—can have disruptive effects on performance (e.g., Marx & Roman, 2002; Davies, Spencer, Quinn, & Gerhardtstein, 2002). In sum, there are two primary triggers that can turn the performance of challenging cognitive tasks into a stereotype-threatening situation—ability evaluation, and the salience of a social identity that is stereotyped as inferior in the ability domain.

Stereotype Vulnerability: Individual Risk Factors for Underperformance

Such triggers are not equally unnerving to all individuals. Important individual differences make some individuals more vulnerable than others to the kind of underperformance we have been discussing. The sum of these risk factors can be thought of as “stereotype vulnerability.” The following factors appear to contribute to an individual’s level of stereotype vulnerability.

Domain Identification

In his remarkable book, *A Hope in the Unseen*, Ron Suskind (1999) tells the true story of a high school student, Cedric Jennings, who beats the odds: Poor, black, and schooled in the worst high school in Washington, DC, he succeeds through grit, determination, and intelligence to make it into the Ivy League. When Cedric gets his score on the SAT, he is disappointed but remains determined. He buckles down hard and studies his SAT prep virtually night and day, hoping to lift his score when he takes it again several months later. He goes at his studies with the devotion and drive that we hope to find and cultivate in our students. In the language of educational psychology, Cedric is a highly *engaged* or *identified* student. He cares. When he gets his scores back, we see the ironic fruits of his labor—his score has *dropped* significantly.

This is a perfect illustration of a commonplace finding in our research: Stereotype threat it is most keenly felt by the individuals who care most about doing well. In a number of studies, we have measured the degree to which people care about a particular domain—how much they value doing well in math, science, or any particular domain of academic achievement, and how much doing poorly in the domain threatens their self-esteem. What we find is that underperformance under stereotype threat is more pronounced for those who really want to do well (Aronson et al., 1999; Aronson & Good, 2001a). This is quite logical, of course. We would not expect to be unnerved by a stereotype alleging a lack of ability if that ability was trivial. The irony is that we increasingly see high-stakes testing used to evaluate our students’ progress or suitability for admissions to institutions of higher learning, or to advance from one grade level to the next. It is unfortunate that, in a sense, we punish those minority students—like Jennings—who care the most about doing well, and who will go through hell and high water to succeed.

Group Identification

The best available research suggests further that people who feel a deep sense of attachment to their ethnic or gender group are also

more at risk for feeling stereotype threat. Some individuals are less invested than others in their gender or racial identity, and initial research into this area of research, while not yet definitive, suggests that the less attached to or identified with one's group, the less one will be bothered by stereotypes impugning that group's abilities (e.g., Schmader, 2002). Apparently, in some cases, there can be an unfortunate trade-off for feelings of group pride and solidarity; deep identification with one's own group can create difficulty navigating integrated situations in which stereotypes may be relevant. Group identification may in part explain the fact that black immigrants, such as West Indians, have been found to be less vulnerable to stereotype threat despite the fact that they are seen and often treated as African Americans—and are quite aware of the negative stereotypes. They simply have less identification with African American identity and can easily draw positive benefits from their West Indian identity. This is particularly true among first-generation West Indians; those from the second generation, who identify more with an African American identity, appear to be more vulnerable to underperformance than their first-generation counterparts (Deaux et al., 2003).

Stigma Consciousness and Rejection Sensitivity

One reason group pride may heighten stereotype threat is that it often comes along with higher expectations for discrimination. Studies of "racial socialization" find that African Americans who have experienced discrimination in their lives often attempt to prepare and shield their children from such discrimination by teaching them to expect it—and to counter it with pride in their group (e.g., Hughes & Chen, 1999). Thus, along with a sense of group pride, some children also develop a heightened sense of what Pinel (1999) calls "stigma consciousness" and what Mendoza-Denton, Purdie, Downey, and Davis (2002) call "race-based rejection-sensitivity." Both measure the tendency to expect and to be bothered by prejudice, and people who score high on these measures perform worse in evaluative testing situations (e.g., Brown & Pinel, 2003; Aronson & Inzlicht, 2004).

Acceptance of the Stereotype

One need not believe a stereotype in order to feel threatened by its implications. Even if one rejects the premise of a stereotype, one nevertheless must contend with others and what they think. One can still feel uneasy or alienated in academic settings if there is a suspicion of inferiority—and these feelings, we have shown, are sufficient to undermine performance (Aronson, et al., 1999). But it seems reasonable to assume that some people may suspect that a stereotype may have some validity, a "kernel of truth," and such individuals would presumably be more threatened by the stereotype. Using subtle measures of people's implicit acceptance of stereotypes, recent research shows that the more people accept the stereotypes as true, the more vulnerable they are to stereotype threat (Spicer & Monteith, 2001; Schmader, 2002).

Self-Monitoring?

Because stereotype threat, as suggested earlier, stems partly from concern regarding other's impressions, people who are particularly good at managing impressions may be less susceptible to stereotype threat. Some recent research led by Michael Inzlicht (Inzlicht et al., 2003) suggests that this is indeed the case. In this research, black students took standardized tests either in the presence of other black students or one or more white students. The results showed that self-monitoring mattered. Only those black students who were "low self-monitors" were impaired in the presence of whites. Low self-monitors are typically less concerned with creating positive impressions; they just want to be themselves. As a result, they may be less practiced at the art of contending with situations where they are at risk of looking bad. More research is under way to examine these results, but they are also mirrored in studies involving women and mathematics, which suggest a robust relationship between self-monitoring and reactions to stereotype threat.

Beyond Test Performance

Stereotype threat effects such as we have described have been observed for many differ-

ent populations and by numerous researchers. They have also been found on a variety of different tests, such as the GRE (Steele & Aronson, 1995), the Texas Assessment of Academic Skills (Aronson & Good, 2001b), Raven's Progressive Matrices (Croizet & Dutrévis, in press), and the Advanced Placement (AP) Calculus exam (Stricker & Ward, 1998), among others. If the influence of stereotype threat were limited to performance on standardized tests, this would be bad enough; performance on these tests is associated with important life outcomes, such as admission to college, advanced placement in college, and eventual earnings (e.g., Jencks & Phillips, 1998). But recent research suggests the role in other important indices of competence, such as the avoidance of challenge, identification with academics, and academic self-image.

Avoidance of Challenge

It is axiomatic in educational psychology that intellectual growth requires intellectual challenge. Yet when stereotypes are salient, challenge can signal the potential for racial or gender devaluation—in others' eyes and in one's own eyes as well. Aronson and Good (2001b) wanted to see whether, in addition to performance differences, children would respond to an evaluative setting by shying away from challenging problems in favor of easy, success-ensuring ones. They found that at the 6th grade (but not before), children did just this: They selected easier problems on an evaluative test but selected problems appropriate for their grade level when the test was framed as nondiagnostic of their abilities. This was true of both Latinos on a reading test and girls on a math test, a finding that mirrored precisely the performance differences we found for 6th graders. Jeff Stone (2002) has found nearly identical results: Under stereotype threat, athletes were more likely to avoid practice. Similarly, Pinel (1999) showed that women most prone to stereotype threat avoided tests in domains in which women are stereotypically alleged to be inferior to men. Such avoidance tactics are quite related to *self-handicapping*, in which individuals interfere with their own performance in order to have a plausible excuse for failure. One can well imagine that when given the choice

of curriculum that is challenging or not, the potential for encountering stereotype-threatening circumstances may steer people toward lower threat alternatives, and as a result, missed opportunities for developing competence.

Grades

In an important study, Massey, Charles, Lundy, and Fischer (2003) conducted a longitudinal survey of over 4,000 freshmen from different ethnic backgrounds attending over 28 U.S. colleges. These students were surveyed each year, and their performance in college was monitored throughout their undergraduate careers. Unsurprisingly, Massey et al. found the common achievement gaps observed between groups; Asians and whites outperformed blacks and Latinos, even when controlling for SAT scores, family income, and other important background factors. But when students' responses to questions probing their degree of stereotype vulnerability were controlled, the grade gaps disappeared; the degree of stereotype threat they felt as freshmen was associated with lower grades. This not only tells us that stereotype threat influences GPA, it tells us that it is a phenomenon that operates in the real world, outside the psychology laboratory.

Disidentification

After blunders or failures, people tend to rationalize. When people fail a math test and then claim the test was biased against them or that they do not really care about math anyway, we refer to this response as *devaluing*—and nearly everyone engages in some form of it (Major, Quinton, & McCoy, 2002). But when the response becomes so chronic that people adjust their self-concepts, divesting their self-esteem from the domain, this response can thwart achievement. We call this chronic adaptation "disidentification." We noted earlier that stereotype threat is strongest among students who are most invested in doing well, those who are highly identified with an intellectual domain. Disidentification helps by reducing sensitivity to failure. Although failure in and of itself is enough to prompt disidentification, stereotype threat appears to make it a more common response among

blacks and Latinos, because the stereotype suggests not only a lack of ability but also limited belongingness in the domain (Cohen & Steele, 2002). But disidentification in the long run will hurt achievement because some degree of psychological investment is necessary; caring about doing well underlies the motivation for achievement (Osborne, 1997; Steele, 1992, 1997).

Rejection of Feedback

Targets of stereotypes suspect that others hold negative views about their group. Whether or not it is justified by actual prejudice, this can create an atmosphere of mistrust in any situation where those stereotypes are relevant (e.g., Cohen & Steele, 2002; Major et al., 2002). Thus, when a black student receives feedback from a white evaluator, it may be rejected as prejudiced. As Crocker and Major (1989) have shown, this "discounting" of feedback preserves self-esteem. But as Cohen and Steele's (2002) research suggests, it also impairs motivation. It is as if the student asks, "Why try hard to do a good job when whatever I do will be devalued?" Indeed, even positive feedback is often discounted. In a recent study by Lawrence and Crocker (2002), we see just how tricky the business of giving feedback can be in the context of a negative stereotype. White evaluators gave both blacks and whites a test that was engineered to produce high performance. For half the participants, she simply wrote the score on the exam. For the other half, she added the words "great job." The white students reacted quite differently to this detail: The black students thought the evaluator had lower expectations of them when they received the praise, as though surprised by a black student's high performance.

Thus, although there are clear benefits in terms of self-esteem maintenance, discounting feedback has serious drawbacks; one loses motivation and, presumably, important information about how to improve one's performance whenever one rejects feedback. Moreover, Aronson and Inzlicht (2004) have found that those most vulnerable to stereotype threat (as measured by questionnaire responses) have unclear academic self-concepts; that is, they are less aware of their strengths and weaknesses than individuals

who are not stereotype-vulnerable. Because this sort of awareness is a key component of competence—one needs to know one's weaknesses to improve on them or compensate for them—lacking clarity can be a risk factor (e.g., Sternberg, 1996). Thus, all of these self-image protective strategies—avoiding challenge, avoiding practice, avoiding evaluation, and discounting feedback—reveal another irony about stereotype threat: Often, *feeling* competent matters more than becoming competent.

BOOSTING THE PERFORMANCE OF STEREOTYPE-VULNERABLE STUDENTS

One advantage to explaining underperformance in terms of situational variables is that this both implies and points the way to situational solutions to boosting performance. At the same time, given the nature of the triggers to stereotype threat—evaluative situations and social identity salience, changing situations to reduce the threat may be more difficult in the real world. Although schoolteachers can work to create a non-evaluative atmosphere in class, doing so on tests is another matter. Likewise, since the mere mixing of students can arouse stereotype threat even in the absence of evaluation, the diverse classroom or testing center is likely to be rife with apprehension for minority students who are invested in doing well.

Yet there is mounting evidence from both laboratory and field studies that the gaps in performance can be narrowed with careful attention to how situations are created and to what students can be taught.

Situational Approaches

Cooperation

Stereotyping and intergroup tensions tend to thrive in the competitive settings, as in traditional American classrooms. A number of interventions have yielded impressive gains in the academic achievement of minority youth by structuring classroom or study environments to minimize the performance-undermining processes akin to those have discussed here. E. Aronson's "Jigsaw Class-

room" (Aronson & Patnoe, 1997) and Uri Treisman's (1992) work with African American math students are outstanding examples in this regard. In the Jigsaw Classroom, lessons are broken up into several pieces, with one piece distributed to each member of the group, who must learn the material and teach it to the others. To perform well, therefore, students must cooperate, because the piece of the puzzle held by each student is vital to everyone's successful learning and performance. Studies of the Jigsaw Classroom show that the technique typically raises the minority students' grades (by about a letter grade), raises their self-esteem, increases friendships between ethnic group members, and leads to greater enjoyment among students of all backgrounds. (In some cases, the nonminority students also benefit academically, but in no case do they ever do worse than in the traditional classroom.) In Treisman's calculus workshops, there is also cooperative group study outside of class in special homework sessions, but the cooperation is not rigidly divided as in the Jigsaw Classroom. Moreover, the work is very challenging, going beyond what is covered in class. Treisman's program lifted the African Americans' calculus achievement to surprising levels; they earned grades as high as the Asian students in the class. Getting children or adult students to work cooperatively not only reduces prejudice (and thus stereotype threat), but it also ensures that all students feel a sense of belongingness. These studies are touchstones; they prove that group differences are tractable, that achievement gaps narrow under the proper social conditions.

Drawing on the Treisman work, Steele, Spencer, Davies, Harber, and Nisbett (2001) designed a comprehensive program for first-year students at the University of Michigan. This program sought to reduce stereotype threat through a number of tactics. First, students were recruited to the program in a way that emphasized that they had already met the tough admission standards at the University of Michigan. During the program, students participated in weekly seminars throughout the first semester that allowed them to get to know one another and to learn some of the common problems they shared. They also participated in subject mastery workshops in one of their courses

that exposed them to advanced material that went beyond material in the class. These tactics were designed to convey three vital messages: that instructors and peers believed in their potential to excel academically, that they would not stereotype them, and that they believed they belonged at the university. Several years of the program demonstrate that such practices can lead to a substantial increase in African American's performance in school. On average, African Americans randomly assigned to the program do .4 of a grade point better than African Americans randomly assigned to a control group. This increase in performance, despite diminishing somewhat over time, led to higher retention rates. What makes the program work? Analysis of survey data collected from the program participants and the control group suggests that the program decreases stereotype threat, which in turn promotes identification with school, which leads to better grades and retention.

Individual Approaches

Forewarning

Can awareness of one's susceptibility to processes such as stereotype threat release one from its effects? In other words, is forewarned forearmed? Apparently so, according to two recent studies. In one (Aronson & Williams, 2004), prior to being tested in the Steele and Aronson paradigm described earlier, black college students were sent and instructed to read a pamphlet describing either the stereotype threat effect, the phenomenon of test anxiety, or a completely unrelated topic. Those in the first two conditions performed just as well as those who took the test under no stereotype threat conditions; those in the control group performed significantly less well, as low as those students under stereotype threat but not forewarned. A very similar study (Johns & Schmader, 2004) found precisely the same effect with women taking a difficult math test. These studies are important for those of us who are interested in interventions to boost student achievement, but they also provide relief for those of us who worry that teaching their psychology students about the research might create rather than reduce a vulnerability to stereotypes.

Reframing Ability

Based on research by Carol Dweck (e.g., 1999), Aronson (1999) predicted that stereotype threat would be least problematic for students who conceived of their abilities as malleable. After all, if the stereotype gains power by implying a lack of ability, stereotype threat should be less threatening if one sees ability as expandable. To test this reasoning, students took a difficult GRE verbal test presented as a test of an ability that was either malleable or fixed. As predicted, the African Americans—and to a lesser degree the whites—performed much better and reported lower performance anxiety when the test was said to diagnose an ability that could be expanded with practice. The utility of seeing ability as malleable is further underscored in a similar study (Aronson, 1997). In this study, undergraduates were led to believe they had either performed well or poorly on a test measuring their speed-reading ability. Prior to receiving the feedback, the test takers had been led to believe either that speed-reading was a highly improvable skill, or that it was an endowed ability that could not be improved much with practice. At issue was how the feedback and the conception of the ability would interact to influence how much the students devalued the importance of speed-reading. The results were clear. When speed-reading was presented as a trait that could not be improved, test takers who received positive feedback gave it high ratings ("Speed-reading is an extremely valuable skill"). In contrast, test takers who received negative feedback did not believe that speed-reading was an important skill. This devaluing did not occur when the test takers were led to believe that they could get better at speed-reading. Students in both groups in this condition—those who got positive feedback and those who got negative feedback—said that speed-reading was an important skill. Thus thinking of a skill as malleable appears to reduce the tendency to disidentify in the face of failure.

A pair of field interventions built upon these findings. One program involving African American and European American college students (Aronson, Fried, & Good, 2002) employed numerous tactics of attitude change to get them to adopt the malleable

intelligence mind-set. Attitudes toward academic achievement and actual performance were assessed 4 months later and at the end of the school year. The results were highly encouraging. On average, African American students improved their grades (overall GPA) by .4 grade point. In a second program (Good, Aronson, & Inzlicht, 2003), college students mentored Latino and European American junior high students. The mentors conveyed to their students different attitudes that we hypothesized would help the students navigate the difficult transition year from elementary school to junior high school. For one group of students, the mentors focused on the idea that intelligence is expandable; for another group of students, the mentors discussed the perils of drug use. At year's end, students mentored in the malleability of intelligence received higher scores on the statewide standardized test of reading ability than students who received the antidrug message. Similar results were found for girls' math performance on the mathematics test. When the malleability message was not incorporated into the mentoring, girls underperformed relative to boys. When they were taught about the expandability of intelligence, their performance increased substantially. Similarly positive results were found in an additional condition, in which the students were taught to attribute any difficulties or anxieties they were experiencing to the normal difficulties of junior high rather than any lack of ability. This is a replication of the intervention by Wilson and Linville (1982), described at the beginning of this chapter. This research shows that although stereotype threat is a real phenomenon, it is certainly not insurmountable; there are many ways to overcome its effects. What remains to be studied is the extent to which elements in each of these studies can be combined to produce additive effects on performance.

In considering the effect of stereotypes on achievement, we think it is vital to realize that competence is both fragile and malleable. Social relations—how people think about and treat one another—can make a big difference for achievement. The good news is that understanding this can help us reduce some of the achievement inequities that continue to perplex researchers, educators, and policymakers. But we hasten to un-

derscore that arguing that stereotypes can undermine student performance, motivation and self-concept should not be taken to mean that these are the *primary* sources of the achievement gap. There are bigger factors at play, most notably, inequities in socioeconomic background, schools, and teacher quality that put many minorities at a distinct disadvantage. But we do think that stereotypes account for a meaningful portion of the gap that remains when these factors are equivalent. The fact that the minority-white achievement gap persists—and continues to puzzle those who study it—lies partly in the difficulty of recognizing the forces that can make human competence more fragile than we customarily think.

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CHAPTER 25



The "Inside" Story

A Cultural-Historical Analysis of Being Smart and Motivated, American Style

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A popular video used in social science and education courses, *Preschool in Three Cultures*, presents highlights of a study comparing preschool practices in the United States, Japan, and China. In the video (Tobin, Wu, & Davidson, 1989), teachers from each of the three cultural contexts comment on each other's teaching and classroom practices. In the Japanese segment, a boy called Hiroki is obviously disrupting his class. He stands on the table, tosses around cards from a sorting game, tells jokes, sings, and engages other kids in noisy conversation while the teacher is giving a lesson. The teacher ignores him. The American teachers are alarmed by Hiroki's behavior, but are even more concerned by the teacher's inaction. They wonder aloud why the teacher does not intervene to stop Hiroki. They suggest that because he is very intelligent, perhaps gifted, and obviously bored by classroom routine, he should be given some individualized or special instruction. The Japanese teachers are taken back by this

characterization. While agreeing that Hiroki disrupts the class, they question how he could possibly be "very intelligent" if he does not even know how to control his behavior and fit in with his fellow students.

The example of Hiroki is instructive about competence and motivation, American¹ style. The American preschool teachers assume, as do many American teachers, supervisors, and employers, that intelligence displays itself in verbal output and through behavioral expressions that are in some ways distinctive. Their comments further reveal their belief that competent behavior requires that the student be personally interested and engaged. The surprise of the Japanese teachers at the American reflections highlights different understandings of competence and motivation. From their perspective, it is impossible to see Hiroki as a competent or gifted student. Competence and intelligence, Japanese style, requires knowing how to behave properly. A sensitivity to others and their expectations is the signature of motivation.

The mutual bewilderment of the two sets of teachers at what is regarded as smart or motivated by teachers in the other cultural context points to the influence of invisible networks of culture-specific assumptions about the social world. These assumptions include solutions to questions: What is a person? What are the sources of behavior? and What is the good and right way "to be" within this social world? We call these culture-specific sets of meanings and practices "cultural models." These typically tacit models render the actions in the Japanese classroom meaningful and coherent to the Japanese observers, and, simultaneously, peculiar to the American observers who are using different models to make sense of the classroom.

In this chapter, we examine the importance of cultural models to both scientific and lay understandings of competence and motivation. We (1) provide some examples of sociocultural diversity in models of competence and motivation, (2) describe the origins and nature of the common European American model that underlies most psychological theorizing and research, and (3) review recent comparative empirical research that illuminates the sociocultural specificity of many findings in the competence and motivation literature.

In examining cultural models, we draw on the cultural psychological literature. "Cultural psychology" is the interdisciplinary study of how cultural practices and meanings, and psychological processes and structures depend on each other (Fiske, Kitayama, Markus, & Nisbett, 1998; Miller, 1994; Shweder, 1991). A cultural psychology approach focuses on the interpretive structures of the world within which the person is a participant. We analyze cultural models of competence and motivation as significant features of cultural contexts that fashion individual experience (Bruner, 1990; Holland, Lachicotte, Skinner, & Cain, 1998). Being competent and motivated, as well as identifying competence and motivation in others, entails engagement with cultural models.

Although a variety of models of competence and motivation are possible and indeed exist in various contexts, the most prevalent and well-elaborated lay and scientific models within American contexts represent these phenomena as innate individual

properties and locate them firmly "inside" the individual. As these models are taken for granted and absorbed in the everyday practices of teaching and testing, their organizing force is made transparent, so that the search for the sources of competence and motivation focuses on the internal properties of brains, minds, and people. There are, of course, and have always been other theories and perspectives suggesting that competence and motivation—in fact, all of human behavior—is best understood by focusing on the outside: the external, the contextual, the social, the cultural, and the historical (e.g., Lewin, 1935; Vygotsky, 1978). Likewise, there have always been theories proposing that the self is socially constructed (Cooley, 1902; Mead, 1934). Why the "inside" story tenaciously persists as the most prevalent interpretation of differences in competence and motivation is the story of this chapter.

The view that competence and motivation are primarily individual and internal forces is not the result of the unfettered observations of the way humans "actually are"; instead, this view reflects the incorporation of historically derived, widely dispersed systems of meanings and ideas about humans, the self, the role of others in action, and the consequences of action. This vast interpretive matrix is essential for human behavior; it affords individual experience. Yet a comparative approach reveals that the "inside" cultural model of competence and motivation is in many ways discretionary. It could have been, and perhaps could still be, otherwise.

SOCIOCULTURAL HISTORICAL MODELS: THE INVISIBLE FOUNDATION OF COMPETENCE AND MOTIVATION

What does it mean to be competent? In many American workplaces and schools, the answer is obvious. Competence, unless it is qualified (e.g., athletic or social competence), refers to intellectual competence. The focus is on the nature of the mind, thinking, and knowledge. The competent person is quick, sharp, able to express him- or herself, has a lot of knowledge, and is able to use it successfully to make connections and solve problems or intellectual puzzles. The social

context, social skills, relationships, and other people and their expectations are largely irrelevant and external to the domain of intellectual competence.

Most psychological concepts of "competence" (defined in this volume as ability or success, including phenomena such as aptitude, intelligence, proficiency, skill, etc.) are rooted in deeply entrenched but rarely articulated cultural models of intelligence (e.g., Carugati, 1990; Polanyi, 1957). These models include tacit assumptions, images, and metaphors that carry a far ranging set of commitments. For example, they define what competence is, what it does, where it comes from, and where to look for it.

A Machine or a Root?: Divergent Metaphors of Mind

Metaphors provide the initial blueprints for understanding competence and the source of competence (Sternberg, 1990; Weiner, 1991). For example, according to Lakoff and Johnson (1999), the mind is often conceptualized as

a container image defining a space that is inside the body and separate from it. Via metaphor, the mind is given an inside and an outside. Ideas and concepts are internal, existing somewhere in the inner space of our minds, while what they refer to are things in the external, physical world. This metaphor is so deeply ingrained that it is hard to think about the mind in any other way. (p. 266)

In Western philosophy and in the science that is built on its philosophical assumptions, the mind is also often metaphorized as a mechanical device, a switchboard, a machine, a set of gears that "works" (Lakoff & Johnson, 1999). As people think, they can feel that the "wheels are turning" and have a sense that they are "cranking out a solution." Sometimes the mind is a calculator that counts and sums (e.g., "To what does it all add up?" or "What is the bottom line?" or "Give me 'an account' of what happened"). Problems are solved with "power" from the "engine" of the brain. In recent theorizing, the machine that is the mind is a computer: The mind is the software; the brain is hardware (Minsky, 1986). When the mind machine is experiencing difficulties, it

is said to be a little rusty or to be experiencing a mental breakdown. In an extreme statement, but one that aptly characterizes empirical work in psychology, Shweder (1990) argues that psychology

assumes that its subject matter is a central (abstract and transcendent = deep or interior or hidden) processing mechanism inherent (fixed and universal) in human beings, which enables them to think (classify, infer, remember, imagine) . . . and that "all the other stuff—stimuli, contexts, resources, values, meanings, knowledge, religion, rituals, language, technologies, institutions—is conceived to be external to or outside of the central processing mechanism. (pp. 45–46)

Machine metaphors are central to Western conceptions of mind and thinking, and they simultaneously define what is involved in being a competent person. In many European American cultural contexts, the person is represented and realized as a separate, bounded, autonomous entity—an individual (Markus & Kitayama, 1991; Shweder & Bourne, 1984). Individual actions result from the attributes or the properties of the person that are activated and then cause behavior. Competence is one such individual property. Accordingly, competence is located *in* the individual, *in* the mind, *in* the brain. European American competence is active; it cranks, works, churns, turns, hums, percolates, crackles, and illuminates, and out come solutions and products. Typically, it involves technical intelligence that is distinctly separate from socioemotional expertise or skills (Goleman, 1995; Rogoff & Chavajay, 1995). People are understood to be powered by what is inside. Whether the right stuff is DNA, genes, neurons, hormones, traits, abilities, motivation, drive, or talent, it is what is inside that counts. The inside view sets up the powerful inside-outside dichotomy that pervades lay thinking and scientific theorizing alike. If the inside is good, the outside (the world, others and their expectations) is irrelevant, or maybe even corrosive to the inside.

Minds and intellectual competence take a different form in many non-Western contexts (Greenfield, 1997; Harkness, Super, & Keefer, 1992). In East Asian cultural contexts, minds are not containers with fixed boundaries marking inside and outside. In-

stead, they are entities more likely to be of the natural world, like wind or water, or organisms, like plants or roots, which are interdependent with the environment and require the sun and nutrients of the soil (Markus, Kitayama, & Heiman, 1996). In some East Asian contexts, the "good" mind is not cranking and churning but is instead clear or blank or still, and is often described through metaphors of water. It is "a mind as clear and reflective as water is central . . . for it is accurate information, whether it is in the detection of an opponent's next move in judo, or the anticipation of a subtle shift in consumer taste in automobiles that forms the basis for creative action" (Kraft, as quoted in Goleman, Kaufman, & Ray, 1992, p. 42).

In Korean cultural contexts, the mind and self are sometimes metaphorized as a white root. When a white root is planted within red soil, it becomes red; when planted within green soil, it becomes green. Similarly, in Japan, the mind becomes a willow and the self is a rice plant (Ohnuki-Tierney, 1995). Willows and rice plants are appropriate metaphors, because they grow and mature; they are flexible and bend, as should good minds, according to the requirements of social conditions and the press of one's responsibilities and obligations. Through these metaphors, the mind, competence, and motivation become inherently relational in nature and take form as a transaction between inside and outside. People and their actions are understood to be dependent on time, place, and circumstance. From a Western point of view, imagining the mind as a plant may seem like a demotion for such a critical and powerful entity. Yet once the mind is likened to a plant rather than to a machine, it is evident that the soil, the culture—what is often from a Western point of view, construed as the "outside"—is critical for development and growth of the mind.

A number of research groups within Western cultural contexts have sought alternative metaphors for the mind. Extending Mead's idea of thought as conversation with a generalized other, they have converged on notions of thinking as shared, collaborative, communicative, or intersubjective (Ickes, Stinson, Bissonnette, & Garcia, 1990; Zajonc, 1992). Other researchers have challenged the long-standing distinction between

the cognitive and the social (Greeno, 1988), and have described cognitive systems as social systems (Minsky, 1986). Others have described becoming competent as joining a conversation (Bruner, 1990), and learning as a process of becoming a member of a sustained community of practice (Lave & Wenger, 1991; Rogoff, Baker-Sennett, Lacasa, & Goldsmith, 1995). These evocative ideas, however, have not been widely accepted in research on competence and motivation.

WHAT IS GOOD THINKING?

Gaining Knowledge

Metaphors of mind and intelligence carry with them assumptions about the nature and purpose of thinking, which are in turn tied to understandings about good thinking and desirable modes of being. In most Western conceptions, competence involves gaining knowledge, figuring things out, good reasoning, and problem solving. According to Aristotle, "All men by nature desire to know." The powerful underlying belief is that the world is systematic, and that it is possible to gain knowledge of it (Lakoff & Johnson, 1999). Gaining this knowledge is an effortful, individual pursuit and involves the application of reason to discover the truth. The preference for self-generated knowledge reflects the Socratic tradition, which is skeptical of the beliefs of others and prizes only truth that is "neither prescribed by authority figures nor socially negotiated. Rather it is found by the self" (Tweed & Lehman, 2002, p. 91). Rodin's sculpture, *The Thinker*, captures the essence of good thinking, Western style. Prototypical good thinking is a highly effortful, private, and internal activity. It is done with eyes closed, the body hunched over, while the world is held at bay.

To assume that the goal of using the mind is to know or to gain information also fits well with a Cartesian world view, in which the pursuit of knowledge, truth, or reason is valued more than activities of doing, being, or feeling (Misra & Gergen, 1993). Given that knowledge is the goal, the more knowledge the thinker can gain, the better. Hence, rapid thinking or mental processing that quickly produces a general understanding is

most highly valued. The analysis of information processing from this perspective has led to discoveries of tendencies to "go beyond the information given" (Bruner, 1957), to find meaningful patterns, to take salient examples that are prototypical of the relevant general phenomenon, and to draw probabilistic, rather than determinate, conclusions (Fiske & Taylor, 1994). These tendencies, however, may reflect not basic human tendencies but instead Western mentalities that derive in part from Western assumptions about the purpose and meaning of thinking and intellectual competence (Goodnow, 1990).

In an analysis of American implicit theories of intelligence, Sternberg, Conway, Ketron, and Bernstein (1981) asked laypeople and experts to list characteristics of intelligence. The most important factor was problem-solving ability, which included behaviors such as "reasons logically and well," "identifies connections among ideas," and "sees all aspects of a problem." A second factor was verbal ability, which included "speaks clearly and articulately" and "converses well." Finally, a third but less important factor was social competence, which included "admits mistakes" and "displays interest in the world at large." These implicit theories reveal the pervading influence of a metaphor that conceptualizes intelligence as something internal to and contained within the person (Sternberg, 1990).

Dweck and her colleagues have also examined theories of intelligence and found two general types of implicit theories or meaning systems (Dweck, Chui, & Hong, 1995; Dweck & Leggett, 1988). Some people believe that intelligence is relatively fixed (an entity view), while others hold that intelligence is relatively malleable (an incremental view). The view that intelligence is an entity locates competence somewhere inside the person, away from influence. The view that intelligence is malleable and grows and changes focuses attention on the importance of effort and persistence in competence, and can signal a more social and relational view of competence. Such an incremental construction of intelligence can draw attention to the learner trying to meet the expectations and standards of others, and to the role of others in encouraging such persistence (Hong, 2001). Still, many descriptions of in-

telligence as incremental or malleable are relatively intrapersonal and foster an inside view of competence (Ames & Archer, 1988; Maehr & Yamaguchi, 2001). From the incremental, inside perspective, others serve primarily to evaluate performance, while the potential for mastery comes as a consequence of individual differences in internal qualities such as effort or intrinsic motivation.

Responding to Others

In many contexts other than European American ones, competence, thinking, and intelligence are associated with very different meanings and practices. These differences are linked to alternative ideas of what it means to be a person. The person is an interdependent being, a part that becomes whole only in relation to others (Markus et al., 1996). Consequently, the intelligence or competence of this interdependent being is naturally and decidedly more social and relational. The goal of good thinking is to maintain relations with others. Competence is not developed *within* individuals but is fostered *through* relations, particularly attending to the expectations of others. Using a methodology similar to that of Sternberg et al. (1981), Azuma and Kashiwagi (1987) found that when characterizing intelligence, Japanese respondents gave much greater emphasis to interpersonal qualities than to problem-solving and verbal ability (Shapiro & Azuma, 2004). The first interpersonal factor was characterized by sociability, humor, and leadership, and the second, by characteristics such as sympathy, social modesty, and the ability to take another's perspective. Notably, another important aspect of competence, Japanese style, was the ability to regulate or to achieve control over one's inner state.

Competence in many East Asian contexts is imagined not so much in terms of internal properties of the head, but instead in terms of relationships among hearts. And social competence is the litmus test for general competence. Lewis (1995) reported that Japanese educators emphasize "the relationship of hearts, the nurturing of bonding between the teacher's and children's hearts" (p. 56). Thus, Hiroki's problem in the opening example is that he was not properly responsive

to others and to his socializing milieu (White & LeVine, 1986). A smart child is one who is intelligent enough to know how to listen to others. According to the Japanese Ministry of Education, the goal of preschool is not academic preparation but instead to build the proper relationships and good habits that will become the bedrock of later competence (Peak, 1991; Shapiro & Azuma, 2004). In many Western schools and educated contexts, relating to others in the academic context is fraught with potentially negative associations; for example, a reliance on others to solve a problem is classified as cheating. In the everyday situations of many other cultural settings, however, not using a companion's assistance is regarded as folly or egoism (Rogoff & Chavajay, 1995).

Living in the Right Way

According to many diverse and richly elaborated Indian philosophical works (Das, 1994; Srivastava & Misra, 1999), competent persons are those who are reflective and sensitive to context, and who select the appropriate behavior for the situation. An emphasis is placed on "waking up, noticing, recognizing, understanding, and comprehending" (Srivastava & Misra, p. 160). Knowledge acquisition, while important, appears as a way station on the path to understanding. Knowing is not for its own sake; instead, thinking is for the purpose of living in the right way. Intelligence is not neutral. Instead, intelligence and morality are interwoven, and good intelligence is constructive and associated with happiness, pleasure, and prosperity, while bad intelligence is destructive and leads to unhappiness. Competence, then, both reflects and fosters karma, the doctrine by which one's deeds are related to the quality of one's life both currently and in the future incarnations.

Examining what it means to be intelligent in India, Srivastava and Misra (1999) identified hundreds of Sanskrit Suktis and proverbs spoken in Hindi that had some relevance to intelligence as it is commonly understood. These *sukti* and proverbs were coded for their meaning and were then grouped into a few broad categories. Across both sets of texts, intelligence and competence involved being good or smart at life.

The notion of being privately smart in a way that is not useful for life was relatively infrequent. A key aspect of social competence was situational sensitivity and knowing how to behave appropriately according to time, place, and person. Showing respect to parents, elders, and guests was another feature of intelligent behavior.

In Chinese cultural contexts, thinking also has a very important relational function, in particular, a hierarchy-maintaining function. When thinking in the presence of an elder, for example, tradition requires acknowledging one's relative incompetence. In such situations, one should wait to be addressed or questioned before beginning conversation. The lower status person should not direct the conversation, introduce topics, or begin a reply until the teacher or superior is finished, or answer a question if there is someone else for whom it is more appropriate to do so (Legge, 1967, as described in Scollon & Scollon, 1994, pp. 144-155). Learning is less likely to be associated with evaluating, questioning, and generating knowledge, which is referred to as "critical" thinking in the West; it is instead tuning into the insights and wisdom of those in the collective who have been recognized as exemplars (Tweed & Lehman, 2002). Within cultural contexts influenced by Confucianism, it may follow then that intelligence, competence, or good thinking, at least in the social domain, may not require snap judgments, rapid distinctions, quick inferences, or going beyond the information given to impose meaning, but instead requires listening, receiving, accepting, applying multiple frames, reflecting, letting meanings arise or reveal themselves, hesitating, or making a judgment only after an extended period.

An emphasis on social competence as the defining feature of competence is not confined to East Asia or to India. In fact, in virtually all contexts other than middle-class American ones, competence is in large part explicitly social. For example, in a comparison between Puerto Rican families in Puerto Rico's metropolitan areas and Anglo families in New Haven, Connecticut, Harwood, Miller, and Irizarry (1995) found striking differences in what parents valued and hoped to foster in competent children. Anglo mothers valued autonomy (children exploring settings on their own), self-control

(rather than control by others), initiative, and self-maximization. Puerto Rican mothers, like many mothers outside of middle-class American settings, valued displaying proper social demeanor and maintaining harmony within the group. The proper child in Puerto Rican settings would be "calm, obedient, and respectfully attentive to the teachings of his or her elders, in order to become skilled in the interpersonal and rhetorical competencies that will someday be expected of the well-socialized adult" (p. 98). Indeed in some settings, beyond an emphasis on harmonious and stable intergroup relations, there is a distinct prescription for intelligent people to conform. Harkness et al. (1992), report, for example, that in Kenya, parents defined intelligence as the "ability to do what is needed to be done around the homestead without being asked" (p. 105).

In studies conducted in Uganda, Wober (1974) asked samples of villagers, teachers, and medical students that differed in their level of education and contact with Western ideas to rate various concepts related to intelligence on 9-point semantic differential scales (consisting of pairs of adjectives with opposite meanings). Although there were important differences among the samples of Ugandans, there was also considerable overlap. Most notably, intelligence was not associated with haste or mental speed. Many respondents thought of intelligence as slow, careful, straightforward, and sane. The villagers were also likely to associate intelligence with terms such as "friendly" and "public," suggesting that a productive use of the mind is to be found in a reaching out to others and in a prosocial or public-spirited orientation. Wober's study reveals, however, that with exposure to Western ideas, intelligence becomes less social, and becomes instead a more individual and private entity. In contrast to the villagers, students were more likely to associate intelligence with rapid response, and not with pause or delay.

The literature on competence is replete with compelling theoretical statements (e.g., Berry, 1996; Luria, 1981) urging those who are interested in the nature of the mind, intelligence, or competence to attend carefully to the environment that the mind has been shaped to meet. These views, as well as a variety of recent ones (Shapiro & Azuma, 2004; Sternberg & Grigorenko, 2004), find

that different ecologies and situations recruit and create different ideas of competence and intelligence; thus, competence will necessarily assume a variety of forms. Moreover, recent theories of competence and motivation, for example, Gardner's (1993) multiple intelligences, Sternberg's (1997) triarchic theory of intelligence, Cantor's social intelligence (Cantor & Kihlstrom, 1985), Goleman's (1995) emotional intelligence and Mischel and Shoda's (1995) cognitive-affective theory, increasingly reflect within a Western context some of the understandings of Hiroki's preschool teachers, and explicitly delineate the importance of the interpersonal context and the requirements and expectations of others in developing competence. Yet given the dominance of the "inside" story of competence in both lay and scientific imaginations, the theories of competence and motivation that challenge the inside-outside dichotomy and that instead conceptualize them as context-dependent and fundamentally interpersonal social phenomenon (for a review, see Salili, Chiu, & Hong, 2001) have tremendous difficulty taking hold (Farr, 1996).

IMAGINING AGENCY: CONCEPTIONS OF TRYING AND DOING

The Force Within

Because competence and related concepts such as ability and intelligence often fail to adequately account for variation in achievement, other explanatory constructs have become necessary. The concept of motivation, like the concept of competence, is tied to a set of culture-specific understandings and practices that describe what motivation is and why it is necessary. Motivation is generally understood as the reason for behaving in some way, or the explanation for stopping one action and beginning another (Mook, 1986). The concept of motivation serves to justify and explain the direction and purposefulness that seem to characterize human action, at least in European American contexts (Stewart & Bennett, 1991).

Although the source of individual behavior could theoretically be social, relational, or located outside the person, in the most popular lay accounts of motivation, is an inside entity, a feeling of interest or enthusi-

asm, or a personal or individual force. Motivation is one of the set of internal attributes that defines the person and that causes behavior. Why is Hiroki misbehaving? Because he is not excited and interested by the lesson. He is bored; he is not intrinsically motivated. According to this account, people perform well or successfully because they are motivated, or they fail because they have insufficient motivation. Motivation is extremely important in European American contexts; a growing motivation industry produces speakers, seminars, books, tapes, and CDs exhorting people to feel the power of the force "within them" and to understand that what lies behind, or what lies ahead, is nothing compared to what lies "within." Lance Armstrong, six-time winner of the Tour de France bicycle race is described in an advertisement for Subaru cars to be "driven by what's inside." Similarly, in analyzing the outcome of a game, sports commentators often make statements such as "The losing team didn't have enough drive," or "The winning team was hungrier." Americans, in fact, are quick to make internal attributions for behavior relative to situational attributions (Ross, 1977), more so than people in other cultural contexts such as China and India (Miller, 1984; Morris & Peng, 1994).

In analyzing metaphors of motivation, Weiner (1991) finds two dominant ones: the person as a machine and as a god. He argues that the machine metaphor has been attractive to Western theorists, because it incorporates concepts from the natural sciences related to energy, force fields, and associative connections, and seems to account parsimoniously for the initiation, maintenance, and termination of behavior. Freud construed the person as a steam engine that was allotted a fixed amount of energy to realize desired end states. Hull (1943), in what was characterized as drive theory, saw the behaving organism as "a completely self-maintaining robot" (p. 27).

The second metaphor for motivation, according to Weiner, is the person as a god. This metaphor was invoked as theorists grappled with how to explain individual choices and decisions. The idea is that people are perfectly rational and all-knowing. Such a metaphor provides the basis for theories of the person as a rational decision

maker and as a scientist. More recently, Weiner (2001) suggested that people are also judges, and when an individual acts, a field of others considers the action, and then judges the person—good or bad, responsible or not, moral or immoral, deserving sympathy or anger. The judge metaphor helps highlight the particular cultural models that guide our observations and attributions. People are assumed to "have" high or low ability. Those with high ability who do not work or try are judged harshly. Potential is an innate attribute, and not realizing it is regarded very negatively. Those with less ability but who nonetheless succeed through effort are regarded somewhat more positively. Despite the importance of effort, however, in many settings, those who succeed without much effort, working "smart" rather than hard, are often admired. The nature of these evaluations reveals the operation of a dense network of assumptions about the nature of competence and motivation, and how they work together to generate performance. As we explore later, these assumptions are not natural or human but are instead rooted in the Protestant ethic, which values overcoming obstacles through hard work, and in other assumptions about natural virtues (Spence, 1985; Weiner, 2001).

Agency in the World

The most common metaphors of agency are alike in their location of the driving force of behavior as inside the individual. Metaphors of agency in other contexts conceptualize the person as a more porous, fractional, and interdependent entity. In holistic world views, in which there is no clear division between the human and the natural or supernatural, agency is projected outward and located in the world at large (Misra & Gergen, 1993). Agency can be located in spirits, in the Evil Eye, in hexes or curses, in the imbalance of various forces, or more simply in social practices—the routine scripted social activities that structure life and require participation (Landrine & Klonoff, 1994). Drawing on his fieldwork among the Miamin in Papua, New Guinea, Gardner (1987) observes, "The concept of agency employed by the Miamin is embedded in social practices; far from there being any abstractions from these practices, in the form

of a model of human nature, the characteristics of specifically human agency are projected upon the world at large" (p. 174). Stewart and Bennett (1991) quote a Ghanaian government employee as saying, "We do not concern ourselves with motivation as the Americans do. We know what our job is and we do it" (p. 78). From this perspective, problems with individual performance are not located inside the individual but instead stem from role confusion, or from some difficulty in the social context, such as antagonism among groups.

Miller (1984, 1988) was among the first to draw attention to the social and interpersonal nature of motivation. For example, in American contexts, doing one's duty or sacrificing one's self for others is tantamount to giving up one's own agency or to being extrinsically motivated (Markus & Kitayama, 1994). In Hindu Indian contexts, on the other hand, performing interpersonal responsibilities—doing what relevant others oblige one to do—is more frequently experienced as agentic and intrinsically motivated.

In Western contexts, the individualist assumption that people are separate from others is the cornerstone assumption in the most prevalent models of agency. To explain the actions of isolated individuals requires the postulation of a force to propel them, something to move them to work or achieve and to define them. One such force is the "achievement motive" (McClelland, 1961), variously defined as the desire to overcome obstacles, to exert power, or to do something as well as possible, or to master or manipulate it. Markus and Kitayama (2004) suggest, however, that if the individual is not described as an independent, autonomous self who seeks to express itself through action, but instead is characterized as an interdependent self who requires a relationship or a social setting in order to "be," then the characterization of motivation will take new forms. Motivation will involve other people and social situations, and independent actions or achievements will be less relevant or significant. Of greater importance will be behaving according to obligations, duties, rules, and privileges. Such motivations have often been regarded in European American settings as "outside," and therefore less legitimate, authentic, or powerful than internal factors.

Although the recognition of individuality and of purposeful agency appears to be universal, Markus and Kitayama (2004) contend that this recognition does not require a commitment to the European and American ideology of individualism and its particular normative models of human nature. In describing the various ways in which actions can be constructed, these authors use the word "agency" to refer to the "self in action." They propose that how actions are understood is tied to conceptions of the self. They find that European American contexts reflect an implicit cultural model of agency, in which normatively good actions originate in an independent autonomous self, and the actions of this self are *disjoint*, that is, in some ways separate or distinct from the actions of others. By contrast, East Asian contexts often reveal another implicit cultural model of agency, in which normatively good actions originate in an interdependent self, and the actions of this self are *conjoint*, that is, in some ways impelled by interactions or relationships with others.

This distributed view of agency is not restricted to New Guinea, Africa, India, or East Asia. Wherever there are contexts that encourage strong notions of relationality among people or between people and nature, agency and motivation are less likely to be viewed as abstractions detached from the world and as properties of people, and instead are assumed to be social in origin and conceptualized as shared. Lamont (2000), for example, notes that in both French and American working-class contexts, respondents in in-depth interviews signal an awareness that their actions and their fate are interdependent with others, and that their actions are responsive to the need to be responsible to others and uphold the moral order. Similarly, Markus, Ryff, Curhan, & Palmersheim (2004) find that those engaged in working-class settings are more likely to be attuned to the requirements of others and to the demands of the situation. Given their occupations and living arrangements, they are more likely to understand themselves as maintaining their integrity and controlling themselves in uncertain material and social worlds, and may therefore be less likely to view themselves as freely choosing their own actions (Snibbe & Markus, in press).

In recent writings, achievement motivation theorists appear to be shifting the focus away from the inside, blurring the dichotomy between person and environment. Weiner (2001) underscores that success and failure do not occur in a vacuum, but "in a social context which affects and is affected by achievement performance" (p. 19). He also emphasizes that motivation has a strong interpersonal component. Other theorists are examining how the environment or the context influences the nature of an individual's goals (Steele & Sherman, 1999). Thus, task goals, or similar constructs such as mastery or learning goals (e.g., Dweck, 1986), draw somewhat more attention to the social nature of motivation, because they implicate others, and the expectations of others, more than performance goals, or similar constructs such as relative ability goals or ego goals (e.g., Maehr, 1984). When learning goals are present, for example, students are more willing to seek out others for academic help. And whether or not learning goals are present depends on the goal structure of the classroom (Urdu, 2001). Research explaining the performance gap between middle- and working-class students (Croizet & Claire, 1998), or between white and black students (Steele, 1997), is also explicitly training theoretical and empirical attention on more external, contextual factors in motivation. Thus, Graham (2001) argues that motivation is interpersonal, and that the broader context of cultural and social influences may provide a set of untapped clues for understanding minority achievement. Whether the "it's what's inside that counts" story of motivation, with its focus on internal and intrinsic factors, will be challenged by the accounts that illuminate interpersonal contexts will depend on how well theorists can create metaphors, narratives, and models that can effectively communicate and represent their more social perspectives on motivation.

HISTORICAL AND IDEOLOGICAL FOUNDATIONS OF THE INSIDE STORY

Why is the inside story of competence and motivation so powerful in many European American contexts? Why is it difficult for a

more contextual, social, or relational account to take hold? The historical and ideological foundation of the inside story has been forged out of a set of powerful and sometimes conflicting collective beliefs, including beliefs in inherited traits, in the power of the environment, and in the need for the self to feel autonomy and control to develop to its full potential.

Innate Faculties

The notion of innate faculties takes root in the ancient Greek concept of essentialism—that objects have inherent qualities. For example, Socrates spoke of God creating people of gold, silver, or brass and iron, which defined their place in society (e.g., as a commander vs. a craftsman) and that of their offspring. This concept of inborn competencies that are naturally occurring properties of a person has survived in some form throughout American history. The belief that people have innate faculties figured prominently in the discourse of the Founding Fathers during and after the formation of the American republic (Wiley, 1994). They believed, for example, that a natural aristocracy existed among men (Lemann, 1999) and that some (e.g., free white persons) were fit for self-government, whereas others (e.g., Indians and slaves) were not (Jacobson, 1998).

The notion that certain desirable qualities were heritable gained prominence in the latter part of the 19th century with the rise of Social Darwinism. This movement promoted the application of quasi-evolutionary principles, such as "survival of the fittest," to human behavior and social and psychological attributes. The popularity of Social Darwinism was made possible by the growing knowledge of the work of three British scientists: Darwin's evolutionary theory, Mendel's genetics, and Galton's behavioral genetics. In particular, in *Hereditary Genius*, Galton (1869/1978) explored the importance of genetics for the transmission of intelligence by analyzing families of "eminent" men. Galton also promoted the use of selective breeding techniques to improve the intelligence of the human race—a concept that he dubbed "eugenics." Influenced by Galton, psychologists such as McDougall, who conducted studies on inherited characteristics

and believed that individuals are motivated by inherited instincts, helped to introduce the study of eugenics and heredity to the United States. From roughly the 1890s to the 1920s, the eugenics movement spread through American academic and political institutions. The movement, which heralded the biological engineering of the body politic, was motivated in large part by recent waves of immigration to the United States from Southern and Eastern Europe, and the concomitant fear that these immigrants would pollute the American genetic pool.

The significant immigration during this time period, together with the establishment of compulsory education and American involvement in World War I, also produced a perceived need for identifying and classifying large numbers of people (Chapman, 1988)—a need soon satisfied by the development and widespread use of mental tests. American psychologist J. Cattell (1890), who had briefly worked with Galton, originated the term "mental test." At the turn of the century, Thorndike, one of his students, was developing a variety of intelligence measures. The American initiative to develop mental tests was also advanced by similar work in Europe. In 1904, the French government asked Binet and Simon to develop a test to identify slow learners, so that they could be given special help. The resulting Binet-Simon Intelligence Scale (1905, 1911) was meant as a measure of current performance, not innate intelligence. In 1916, Terman, a Stanford professor known to have eugenicist proclivities, adapted the Binet-Simon for Americans. At this point, the test lost its basis in performance and shifted to innate intelligence. The test measured IQ and was renamed the Stanford-Binet Intelligence Scale. Mass testing of intelligence received a further boost during World War I, when the military needed a way to assess quickly and classify large numbers of new recruits. The first large-scale mental test was an IQ test administered to nearly 2 million recruits.

With the use of large-scale group testing, the American public began to accept the inside account of intelligence and the idea that people could be sorted into different levels of mental abilities. Testing became more widespread in schools and industry. A variation of the IQ test—the Scholastic Aptitude

Test (SAT)—was first administered in 1926. Broad-scale SAT testing emerged soon afterwards, aided by World War II, the GI Bill, the Cold War, the founding of the Educational Testing Service, and the vision of Harvard administrators of an elite democratically chosen on the basis of mental test scores (Lemann, 1999).

Testing has not been confined to the United States. In China, for example, civil service tests have long been used to assess knowledge of geography, law, military, and agriculture. In France, Germany, and Great Britain, students must pass the Baccalaureat, Abitur, and A-levels, respectively, to gain placement in university. In contrast to American tests, however, these tests are primarily knowledge-based. In the United States, the culture of testing has focused more on assessing how "smart" a person is rather than how much knowledge he or she has accumulated, or how much he or she has learned. This concern with native intelligence has manifested itself in the development and widespread administration of intelligence tests throughout the 20th century, and both IQ tests and the SAT are still in use today. For many, intelligence testing had appeal, because it presented a way to assess and sort students according to their capabilities. According to Lemann (1999), "Testing touched upon the deepest mythic themes: the ability to see the invisible (what was inside people's heads), the oracular ability to predict the future (what someone's grades would be in courses he hadn't even chosen yet)" (p. 18). These themes were made real when they were incorporated into practice. Once people were given an intelligence score, by definition, they were seen as "having intelligence and potential within them," or not.

Other countries have overtly rejected American-style mental testing, often because of its social implications. In the Soviet Union, for example, mental testing was abandoned, because it was believed to reinforce class structure. In the United States, the relationship of mental testing with race—rather than social class—has generally been a primary area of concern, although it has seldom been used as the basis for eliminating this form of testing. Instead, eugenicist ideas linking race and intelligence frequently reappear, perhaps owing to the widespread acceptance of the innate model of competence.

For example, in a 1969 article, "How Much Can We Boost IQ and Scholastic Achievement?," Jensen argued that racial differences in intelligence are due to heredity rather than to social factors such as poverty and discrimination. In 1994, Herrnstein and Murray published *The Bell Curve*, in which they discussed the relationship of intelligence (genetically determined) to social structure and argued that whites are genetically superior to blacks with respect to IQ.

Although some controversy exists within the field about the conceptualization of intelligence, the vast majority of theories still posit that intelligence is internal—confined to what is inside the head. At the height of the testing movement, one of the most influential theories, British psychologist Spearman's (1927) *g* factor, catapulted the notion of general intellectual ability into academic and public discourse. Other theorists, although still working with the model of intelligence as inside the head, subsequently presented more multifaceted views of intelligence (e.g., Gardner's multiple intelligences [1993], Sternberg's triarchic theory [1985]). Nonetheless, the idea of *g* and IQ still resonate strongly, not just in the field of psychometrics but also in education, the military, and corporate America (see, e.g., Gladwell, 2002).

The Power of the Environment

Despite its predominance, the "inside" story has been paralleled by an "outside" story. Many scholars have voiced the opinion that what is "outside" (e.g., the environment, culture) has a significant influence on individuals' behavior and development. For example, in the 17th century, the idea of the mind as a "blank slate," written on by experience, was introduced by Locke (1690/1979), who wrote:

Let us then suppose the mind to be, as we say, white paper, void of all characters, without any ideas; How comes it to be furnished? Whence comes it by that vast store, which the busy and boundless fancy of man has painted on it, with an almost endless variety? Whence has it all the materials of reason and knowledge? To this I answer, in one word, from experience. (p. 104)

Locke believed education, not natural ge-

nius, to be the prime determinant of success: "I think I may say, that of all the Men we meet with, Nine Parts of Ten are what they are, Good or Evil, useful or not, by their Education. 'Tis that which makes the great Difference in Mankind" (1693/1989, p. 83). Locke's influence in academic psychology came in part from his empiricism, the idea that knowledge must be based on observable things and events. He proposed that people do not possess innate ideas but experience the world through their senses, that a person's ideas are mental models of experienced reality, and that mind is a receptacle of input meanings. Locke believed that unequal faculties were the effect unequal environments (Wiley, 1994).

This idea lay somewhat dormant during the 19th century, and the influence of environmental circumstance on the individual resurfaced with the rise of behaviorism. For many behaviorists, the mind was, in a sense, the ultimate blank slate, while for others, there was no slate to be written on, because what was inside the mind did not affect the stimulus-response sequence. In either case, from the behaviorist perspective, intelligence testing and the innate faculties approach in general were an erroneous way of understanding human behavior. In staunch opposition to the notion of innate faculties, Watson (1924) famously said,

Give me a dozen healthy infants . . . and my own specified world to bring them up in and I'll guarantee to take any one at random and train him to become any type of specialist I might select—doctor, lawyer, artist, merchant . . . regardless of his talents, penchants, tendencies, abilities, vocations, and race of his ancestors. (p. 82)

From this perspective, environmental conditions were seen as much more powerful predictors of human potential than how an individual scored on an IQ test.

During this same period, in anthropology, Boas and his students proposed that culture casts a shadow on biology as the prime determinant of social behavior. The Boasian vision of environmentalism, culture, and human changeability, unlike Social Darwinism, explained human variation in a way that was compatible with an egalitarian form of government (Wiley, 1994). The concept of culture thus gained popularity in part as a

reaction to the events in Nazi Germany. In the 1950s, M. Mead, a student of Boas, helped increase the popularity and prevalence of the concept of culture in the social sciences. However, with the discovery of the double helix in the mid-1950s, the pendulum began to swing back in the direction of the inside, natural story. By the 1980s, the computer metaphor had taken hold in psychology, and sociocultural approaches that attempted to see how psychological processes are grounded were met with resistance, in favor of the notion of basic, universal psychological processes.

The Rise of the Self

While the study of environmental and cultural influence, which shifted focus away from the self and articulated a more external and social view, did penetrate the American public and academic discourse, other ideologies and psychological theorizing sustained a powerful American belief that the key to being successful lay within the self. In the 19th century, in an address on the elements of success, R. Cushman stated: "The things which are really essential for a successful life are not circumstances, but qualities, not the things which surround a man, but the things which are in him; not the adjuncts of his position, but the attributes of his character" (1848, as quoted by Wyllie, 1954, p. 21). And in the 20th century, although it was acknowledged that intelligence and aptitude tests could shed light on the inner contours of the mind, success was still seen as emanating from a person's willpower, perseverance, ambition, and industry. Through a combination of American ideology and psychological theorizing, the self became seen as the key to being competent and motivated. In particular, ideas about the self's independence and self-reliance, personal responsibility and control, and psychological theories of optimal self-development were fueled and invigorated by the foundational ideologies of independence, the Protestant ethic, and the American Dream.

Independence and Self-Reliance

American institutions, practices, and psychological tendencies reflect an ethos of independence and individualism (Baumeister,

1987; Plaut, Markus, & Lachman, 2002). Locke's "liberal individualism"—the idea that societies are made up of autonomous individuals who form governments in order to protect their natural rights—forms the philosophical foundation of the U.S. Declaration of Independence. Lockean philosophy reflects an ontological individualism whereby the individual is seen as prior to society; moreover, this philosophy is atomistic, in that it views society as an aggregation of independent entities. This model of the person as independent and free from others has survived throughout American history (Bellah, Madsen, Sullivan, Swidler, & Tipton, 1985; Fiske et al., 1998). Freedom is, according to Bellah et al., "perhaps the most resonant, deeply held American value" (1985, p. 23). American notions of freedom and autonomy include wanting to be left alone by others and not to be imposed upon by other people's values, beliefs, or lifestyles. Whereas some cultural contexts may stress the importance of tradition and meeting social standards, U.S. culture emphasizes a "socially unsituated self" that thrives on "separating oneself from the values imposed by one's past or by conformity to one's social milieu, so that one can discover what one really wants" (p. 24). In American contexts, this emphasis on independence leads to respect for the individual and fosters initiative and creativity (Bellah et al., 1985).

Independence and self-reliance became key to the American understanding of success in the 19th century. Transcendentalists such as Emerson and Thoreau articulated and helped popularize these concepts. For example, Emerson (1950) wrote in his 1841 essay "Self-Reliance" that one should "trust thyself" (p. 146), that "[s]ociety everywhere is in conspiracy against the manhood of every one of its members," and that to be a man, one need "be a nonconformist" (p. 148). Moreover, Emerson espoused the belief that the key to success lay within the person, evidenced, for example, in the following statement: "The reason why this man or that man is fortunate is not to be told. It lies in the man" (p. 367). In his 1840 commentary on democracy in America, de Tocqueville (1840/2000) made the following observation about Americans: "They are in the habit of always considering themselves in isolation, and they willingly fancy that

their whole destiny is in their hands" (p. 484). Indeed, the independent, self-reliant, self-made man, who rose out of obscurity on his own personal merit without external help, soon became a powerful image in American society (Wyllie, 1954).

Personal Responsibility and Control

Notions of personal responsibility and control have contributed significantly to American models of competence and motivation. Two ideologies in particular, the Protestant ethic and the American Dream, have contributed to the individualistic focus of current conceptions of success and achievement in American culture (Spence, 1985).

The Protestant Ethic. Success in America has long been associated with moral superiority. Success and morality are linked under the Protestant ethic, which emphasizes the duty to pursue one's calling and the moral superiority of industriousness and hard work. According to Weber (1904/1958), under the Protestant ethic, the individual's highest moral obligation is to fulfill his duty in worldly affairs. This idea is derived from the Calvinist doctrine of predestination, which holds that God predetermines who will be saved from damnation. People cannot work toward becoming one of the few "elect"; however, they should regard themselves as chosen, as an act of faith, and should demonstrate that faith by pursuing success in a calling. Attaining that success came to be regarded as a sign that a person was in a state of grace. Calvinism, according to Weber, supplies the moral energy and drive of the capitalist entrepreneur. This is in contrast to a religion such as Confucianism, for example, which set as the ideal the harmonious adjustment of the individual to the established order of things (Munro, 1969).

The link between religion, hard work, and success has a long history in American discourse, reflected in, for example, the lessons of Benjamin Franklin. Franklin, a product of Puritan Boston, was highly influenced by Cotton Mather, who wrote that God approved of business callings and rewarded virtue with wealth (Wyllie, 1954). Franklin's adages, such as "Early to bed and early to rise, makes a man healthy, wealthy, and

wise" and "Remember that time is money," reflected a can-do ideology—the idea that one can get ahead on one's own initiative. They also implied that virtues (e.g., industry, frugality, honesty, and integrity) both lead to and reflect success. This ideology, also called utilitarian individualism (Bellah et al., 1985; Spence, 1985), is considered to be a secular version of the Protestant ethic.

Whereas Weber (1904/1958) claimed that by Franklin's time, the religious basis of capitalism had "died away" (p. 180), others have demonstrated a strong link between the church and economic practices. Many Congregational clergy wrote on success, and both clergy and secular writers continued to stress the importance of the secular calling, the pursuit of wealth as a religious duty, the importance of frugality, and the moral superiority of the rich (Wyllie, 1954). De Tocqueville (1840/2000) remarked that, in America, the spirit of religion and the spirit of freedom "united intimately with one another: they reigned together on the same soil" (p. 282). More recently, psychologists have commented that religion in U.S. contexts is tied to ideas of personal control and independence (Cohen, Hall, Koenig, & Meador, 2003; Snibbe & Markus, 2002).

Regardless of whether the Protestant ethic endures in a religious or secular form, the ideology continues to influence ideas about the person. Well into the 20th century, "[p]uritanism lingered on, not so much as a search for individual salvation or as a celebration of the virtues of thrift and industry but as a recognition of the dignity of the individual and of his duty to achieve both spiritual and material prosperity" (Commager, 1950, p. 410), so that the Protestant ethic remains one of America's core values (Hsu, 1972). Lamont's (1992) cultural sociological study comparing American and French workers in the 1980s reveals that in the United States, ambition and hard work are seen as central to moral character, that dynamism and energy signal competence, and that hard work and competence are seen as signs of moral purity (at least in upper-middle-class male culture). The Protestant ethic ideology continues to be reflected in American patterns of psychological well-being and attitudes toward work (Plaut et al., 2002; Quinn & Crocker, 1999).

The American Dream. American notions of competence and motivation have also been shaped by the American Dream ideology. The American Dream is a central ideology in American culture and is the cornerstone of American individualism, combining success and self-interest, and promoting the idea that the greatest good is to be as individually successful as possible (Bellah et al., 1985; Hochschild, 1995). This ideology has promoted a perspective of optimism in one's capacity for success and of personal control and determination in achieving success.

The American Dream took root in the promise of "a new world where anything can happen and good things might" (Hochschild, 1995, p. 15). From the colonial period to the present, the United States has been perceived as a land of opportunity and plenty (Potter, 1954), and many immigrants have come with hopes of improving their economic status (Takaki, 1993). The United States has long promoted the idea that it is not where one came from or what one did before that matters, but what one does now: One can shed the past and invent a better future. This emphasis on opportunity, imagining the future, and starting over has been embodied in many American institutions (e.g., western land grants of the 19th century, the Civil Rights Acts), in common practices (e.g., political campaigns run on "change," change management), in cultural artifacts (e.g., Horatio Alger's rags-to-riches stories), and in popular ideas (e.g., the frontier, Manifest Destiny) (McElroy, 1999; Turner, 1920).

A central assumption of the American Dream is that people can remodel themselves if they possess determination; thus, seeking success is under their control. Nineteenth-century guides for success touted maxims such as "Will it and it is thine" and "To the man of vigorous will there are few impossibilities" (quoted in Wyllie, 1954, p. 40). More recently, in a 1993 speech, President Clinton remarked: "The American Dream that we were all raised on is a simple but powerful one—if you work hard and play by the rules you should be given a chance to go as far as your God-given ability will take you" (quoted in Hochschild, 1995, p. 18). The American Dream promises that everyone, regardless of ascribed traits, family background, or personal history, may

reasonably seek success through actions and traits under their own control (Hochschild, 1995), and implies that it is important to possess such a mind-set.

In addition, the American Dream ideology's focus on optimism, control, and determination fosters an expectation of success and an association between success and individual satisfaction. Success is central to Americans' self-image, and Americans not only expect or hope to achieve but are also not gracious about failure (Hochschild, 1995; Spindler & Spindler, 1990). De Tocqueville (1840/2000) famously wrote that every American is "devoured by the desire to rise" (p. 599). In a 19th-century business self-help book, Marden wrote, "The Creator made man a success-machine, and failure is as abnormal to him as discord is to harmony" (quoted in Wyllie, 1954, p. 37). Although the American Dream's emphasis on material rewards may seem to suggest that the focus is solely on external contingencies, it is a thoroughly "inside" story. The American Dream involves doing better and getting ahead not just for the sake of material wealth but also out of a sense of personal investment in and commitment to one's work and to personal advancement. Feeling personally satisfied and fulfilled, and that one has "made it," are integral to this ideology.

The American Dream is not just a relic of the past; it is still alive and well. For example, a recent television commercial for the financial services company American Century states, "American determination, American enlightenment, American optimism," while showing a graduate running across a college campus; NBC has entitled a new prime-time drama, *American Dreams*; and multimillionaire Latina singer-actress Jennifer Lopez has recently been called the perfect Horatio Alger story.

Psychological Theorizing

Pragmatism. In psychology, many scholars have channeled independence, the Protestant ethic, and/or the American Dream in their theorizing. For example, Pragmatism, introduced in the early 20th century by James (1978), who built on the work of Pierce, was a highly individualistic philosophy. Pragmatism attempted to make philosophy more

practical, stressing that the meaning of a belief depends on the practical difference it makes in one's life. Thus, Pragmatism emphasized personal experience, the effect of one's thoughts or actions, and changing existing realities. Pragmatism therefore reflected qualities in the American character: "It assigned to each individual, as it were, a leading role in the drama of salvation, gave him a share and a responsibility in making what he held good come true . . . and decreed that he succeeded or failed through his own efforts . . . [and] emphasized his uniqueness rather than his conformity" (Commager, 1950, p. 95). Pragmatism suggested that people held the future in their own hands and encouraged optimism.

Drives and Needs. Many theories of motivation developed in the United States have conceived of motivation as the internal processes that cause individuals to move toward a goal. For example, Hull (1943), arguably the most influential drive theorist, believed that human behavior could be reduced to the drive—the major underlying instigator of behavior. Also depending on a view of motivation as emanating from within the individual, McClelland and colleagues (McClelland, Atkinson, Clark, and Lovell, 1953) developed a theory of motivation based on intrinsic motivational needs. Building on the work of Murray (1938), who developed the concept of achievement motivation and the Thematic Apperception Test, McClelland et al. (1953) distinguished between people high in need for achievement (*n* Ach) and those low in *n* Ach. This theory of achievement motivation captured the spirit of the traditional work ethic (Spence, 1985), and is reminiscent of de Tocqueville's observation that Americans are eaten up with longing to rise.

Self and Psychological Development

Self-Actualization. Although it opposed drive theories and incentive-goal theories, the humanist perspective on motivation also focused on processes within the autonomous individual. According to humanism (e.g., Maslow, 1970; Rogers, 1977), people's actions are influenced by a need for personal growth and fulfillment, and people have free will to determine their destiny. People create

their own perceptions of the world and actively choose their own life experiences. A key concept in humanism is self-actualization, which is thought to be a fundamental need that motivates people to fulfill their potential and is seen as the ultimate level of psychological development. Self-actualization theory has been influential in business, psychotherapy, and education. Perhaps its popularity outside of academic psychology stems in part from its focus on the independent, self-determined, satisfaction-seeking individual, consistent with the American Dream ideology. After all, self-actualization theory regards the individual as capable of overcoming repressive social constraints in order to achieve the highest level of psychological development (Hewitt, 1989). And, although it was influenced in part by Buddhism and Hinduism (Wilson, 1997) and stimulated by a rejection of materialist goals, self-actualization has been referred to as "another facet of unbridled individualism" (Spence, 1985, p. 1290).

Competence, Self-Efficacy, and Control. Theories of competence (White, 1959) and self-efficacy (Bandura, 1977, 1997) also hinge on a model of the person as autonomous and in control of his or her environment and actions. White introduced to the study of motivation the notion of "competence," defined as the capacity to interact effectively with the environment. According to White, the motivation needed to attain competence could not come from drives alone and required effectance motivation to produce a feeling of efficacy. The need for efficacy was considered to be a fundamental motive that was highly important in the growth of personality. "Self-efficacy" is defined by Bandura (1997) as "beliefs in one's capabilities to organize and execute the courses of action required to produce given attainments" (p. 3). It is perceived as necessary for success. A strong relationship has been established between self-efficacy beliefs and cognitive engagement, academic performance, and persistence (Pintrich & Schrauben, 1992; for a meta-analysis, see Multon, Brown, & Lent, 1991).

A vast literature on control has also emerged in psychology. Rotter's (1966) work on locus of control and Weiner's (1985) model of attribution, for example,

center on notions of personal responsibility and beliefs about the individual's ability to control events (Miller, 1996). Research on illusions of control emphasizes the positive consequences of believing that one has control over one's outcomes (Taylor & Brown, 1988). Other work has introduced a distinction between primary and secondary control, the former involving behaviors aimed at changing the world to fit the needs of the individual, and the latter involving behaviors aimed at fitting in with the world (Rothbaum, Weisz, & Snyder, 1982). Heckhausen and Schultz (1995) have claimed that across cultures and history, primary control has functional primacy over secondary control in development, while secondary control takes on a support role.

In response to notions of control as individual and primary, cross-cultural research has suggested some important cultural variation. Some have suggested that that people in East Asian contexts emphasize secondary control more than do people in Western contexts (Gould 1999; Weisz, Rothbaum, & Blackburn, 1984). Others believe that the important distinction is between indirect and direct primary control, and argue that the Japanese evince more indirect primary control, which involves the modification of existing reality not through direct confrontations but by deliberately using tactics that are expected eventually to modify behavior in appropriate directions (Kojima, 1984). Others have suggested that the Japanese meaning of success is control over one's inner state as opposed to achieving control over external circumstances, which is more common in U.S. contexts (Shapiro & Azuma, 2004). Markus and Kitayama (2004) have distinguished between disjoint and conjoint models of agency, with disjoint agency permeating U.S. contexts and conjoint agency occurring more frequently in East Asian contexts. Researchers have also looked at variation within the United States by comparing the models of agency that are prevalent in working-class or high school-educated versus middle-class or college-educated contexts (Snibbe & Markus, in press).

Self-Determination and Intrinsic Motivation. A class of theories of motivation has rested on the assumption that human beings

have an inborn need to exert mastery, or control, over their external environment (deCharms, 1968; Deci, 1975). It is generally assumed that these innate intrinsic motives serve as the milieu out of which springs intrinsic motivation (Spence, 1985). According to Spence, the belief in the intrinsic value of work is a permutation of the Protestant work ethic. This view encourages the notion that work should be engaged in primarily because it is inherently satisfying, and it assigns greater value to intrinsic than to extrinsic motivation.

Researchers have constructed a dichotomy between motivation that comes from internal as opposed to external sources and have repeatedly demonstrated that external sources can undermine intrinsic motivation (e.g., Deci, 1971; Lepper, Greene, & Nisbett, 1973). According to cognitive evaluation theory (Deci & Ryan, 1980), events that negatively affect a person's experience of autonomy or competence diminish intrinsic motivation, whereas events that support perceived autonomy and competence enhance intrinsic motivation. To the degree that the controlling aspect of an external reward is salient, the reward will undermine intrinsic motivation because of the perceived external locus of causality (deCharms, 1968), which is the sense that the behavior stems from a source outside the self. Furthermore, according to self-determination theory (Deci & Ryan, 1985), external goals and rewards (e.g., social recognition and money) can provide only indirect satisfaction of basic psychological needs for autonomy, relatedness, and competence. And focusing on external cues and contingencies as the basis for regulating behavior instead of on internal needs and feelings can have significant personal and interpersonal costs (Ryan & Connell, 1989). Decades of research indeed have revealed that people (at least in U.S. contexts) are most motivated when able to initiate and direct their own behavior (Condry, 1977; Rotter, 1966). Choice and control have been found to affect intrinsic motivation positively (Cordova & Lepper, 1996; Deci & Ryan, 1985). In contrast, removing choice (Brehm, 1966; Wicklund, 1974) or imposing someone else's choice (Iyengar & Lepper, 1999) has been shown to affect intrinsic motivation negatively.

COMPETING STORIES: COMPARATIVE EMPIRICAL EXAMPLES

Models of competence and motivation are not merely cultural construals used to interpret behavior after it has occurred. Rather, they are lived; that is, they are institutionalized and given a material form, thereby structuring behavior. For example, in the American novels of the must-read humanities canon, the heroes are most often those who show competence and motivation, American style. Their competence and motivation spring from private, internal stores, and they are capable of standing out from the group and going their own way. Many educational practices, such as testing and ability tracking, also reflect the commitments of these models, and play a role in identifying and fostering competence and motivation as personal, internal entities. People live their lives in terms of the blueprints provided by these models, thereby making them reality (Adams & Markus, 2004). If people's worlds are set up in such a way as to foster a particular model of competence and motivation, then, on average, the behavioral tendencies of many people engaged with these contexts will reflect that model. Through people's actions, which reproduce the model, the inside story becomes the real story and the true story.

Yet the inside story is a particular one, a historically and socioculturally specific one. In other contexts, there are other models of competence and motivation. A growing number of empirical studies carried out in contexts other than European and American ones reveal patterns of behavior that reflect these different models. Major dimensions of cultural variation include whether achievement is considered to be individual or social; how self-efficacy relates to performance; perceptions of the roles of effort and ability in success; the relationship between choice, control, and intrinsic motivation; and styles of competence and acknowledgment of different styles.

Achievement: An Individual or Social Construct?

Empirical evidence suggests that cultural contexts differ in the extent to which people seek more affiliative, or social, as opposed to

individual goals. This line of inquiry arose, in part, in response to the need for achievement literature that was prevalent in the 1960s and deemed to reflect individualistic achievement values (Salili, 1996). In the subsequent three decades, researchers have explored cross-cultural differences in the achievement construct, arguing that this construct takes on different meanings in different cultures, and that it is important to understand these sociocultural variations (Fryans, Salili, Maehr, & Desai, 1983; Maehr, 1974; Niles, 1998).

Divergent Goals: Individual versus Social

Research in this area has generally revealed more individual-oriented achievement motivation in U.S. and other Western contexts than in Asian and Latin American contexts, where a socially oriented motivation is more prevalent. For example, Japanese and Native Hawaiians have been found to associate achievement with goals of affiliation and social belonging more than with individual goals (De Vos, 1973; Gallimore, Boggs, & Jordan, 1974). Research in India also has revealed more emphasis on group-related goals than on individual ones (Agrawal & Misra, 1987; Singhal & Misra, 1989). Similarly, Niles (1998) found Sri Lankan adults to be more family- and group-oriented in their achievement goals than Australians, although Sri Lankans were also found to have important individual goals. In a study comparing Chinese and Australian gymnasts, the Chinese rated affiliation motivations as more important than did the Australians (Kirkby, Kolt, & Liu, 1999). In a review of learning style and achievement orientation in Asian contexts, Salili (1996) argued that socially oriented achievement motivation is more common in Asian than in Western cultures because of cultural differences in attitudes toward learning and education; for Asian students, success is defined in terms of recognition and smooth social relationships. In Japanese contexts, "success only for oneself has been considered a sign of excessive, immoral egoism" (De Vos, 1973, p. 181).

Some research suggests that individual and social motivation may be more entangled in Asian than in U.S. contexts, where affiliative and individualistic achievements are seen as mutually exclusive. In a study of

university students in the Philippines and in the United States, Church and Katigbak (1992) found a closer relationship between intrinsic task motives and affiliative motives in the Filipino than in the American sample. They suggested that school is a more interpersonal experience for Filipinos, and that need for achievement and for affiliation are more intertwined in Filipino contexts. Similarly, Salili (1994) found that for Chinese adult students, affiliative and individualistic achievement were closely related.

These types of differences have also been examined within the United States. Results of one study revealed that Mexican American and black subjects scored higher on family achievement than did Anglo subjects (Ramirez & Price-Williams, 1976). "Family achievement" was defined as goals from which the family would benefit or that would gain recognition from family members. Notably, Mexican American and black subjects emphasized both family and individual achievement, indicating that, in some cultural contexts, the achievement for purposes of self and family are not considered contradictory. In some U.S. minority contexts, achievement may be pursued for the purpose of family and peer-group solidarity and identification, rather than, or in addition to, individual and independent attainment (Gallimore et al., 1974; Ramirez & Price-Williams, 1976). According to Fryberg and Markus (2004), learning in American Indian settings reflects a concern with family and with community relationality.

Pleasing Parents and Family Pressure

Research in this area has also revealed that pleasing parents, parental pressure, and responsibility felt toward one's family are strong motivations for achievement in Asian and Latino contexts. Azuma (1994) observed that pleasing the mother was one of top three reasons Japanese fifth graders gave for doing well on tests. Similarly, Salili and Ching (1992, cited in Salili, 1996) found that when they asked Chinese students to rate their reasons for working hard, both low and high achievers rated pleasing parents as the most important reason. In an investigation of Asian American students' success in high school, Reglin and Adams (1990) found Asian American high school

students to be more influenced by their parents' desire for success than were their non-Asian counterparts. The authors argued that, for Asian American students, perceived parental desire for success creates pressure to achieve, motivating them to spend more time on homework. In examining Asian children's adaptation to U.S. schools, Hirayama (1985) argued that parents emphasize the welfare of the family as a whole, and children assume the moral burden of succeeding for the whole family.

Similar observations have been made about the role of the family in Latin American and Latino contexts. For example, Mexican children feel responsible for the honor of the entire family, and Central American refugee students whose families have experienced misfortune in coming to the United States feel both guilt and responsibility (Suarez-Orozco, 1987). Trueba and Delgado-Gaitan (1985) have argued that education-relevant motivations change as immigrant children learn different motivations in U.S. schools, such as competition and individualism.

Predicting Achievement

Cultural variation has also surfaced in predicting achievement. In one study, need for affiliation, rather than need for achievement, predicted reading achievement for Native Hawaiians (Gallimore, 1974). Another study revealed that qualities found to be predictive of achievement in U.S. samples, such as high mastery, high work orientation, and low competitiveness, did not predict academic achievement in Fijians (Basow, 1984). Fryberg and Markus (2004) found that self-ratings of interdependence predicted grades for American Indian high school students but not for European American high school students.

Feelings of Competence and Self-Efficacy: Tied to Performance and Persistence?

Relationship between Performance and Self-Efficacy, Competence, and Fear of Failure

The link between self-efficacy and performance that is strong in North American contexts, and that reflects and promotes the incorporation of the inside story, does not

obtain in Asian and Asian American contexts. One study revealed that although Taiwanese children rated themselves significantly lower on perceived competence than American children, they outperformed the Americans academically (Stigler, Smith, & Mao, 1985). In a similar study, Kwok (1995) found that Chinese children downgraded their competence, as compared with Canadian children. Eaton and Dembo (1997) examined differences in motivational beliefs and performance on a word unscrambling task among Asian American and non-Asian (mostly Anglo) ninth graders. While Asian American students reported lower levels of self-efficacy beliefs, they outperformed their non-Asian counterparts. Similarly, Whang and Hancock (1994) found that Asian American students scored higher than non-Asian students on standardized math tests but reported lower self-concepts for mathematical ability relative to non-Asian students. According to Eaton and Dembo (1997), Asian Americans focus less on self-efficacy, or perceptions of capability to complete a task, and more on the importance of excelling at a task. In contrast, non-Asian children in U.S. contexts may overestimate their abilities. Children in these contexts are encouraged to maintain self-esteem regardless of their academic performance, which may contribute to self-protective illusions, or overestimating one's competencies relative to actual performance (Oettingen, Little, Lindenberger, & Baltes, 1994; Taylor & Brown, 1988).

Whereas self-efficacy concerns individuals in non-Asian U.S. contexts, failure seems to weigh on the minds of individuals in Asian contexts. In a study by Steinberg, Dornbusch, and Brown (1992), Asian American students showed simultaneously the highest academic achievement and the highest fear of failure. Eaton and Dembo (1997), in the same study described earlier, discovered that fear of the consequence of academic failure best explained the performance of Asian American participants but least explained results for non-Asian students. Their main explanation for these findings relates to the previous discussion of parental pressure: Fear of academic failure stems from Asian American parental stress on academic success for their children (Siu, 1992).

Self-Enhancing versus Self-Improving Motivations

Whether self-efficacy is tied to motivation may depend on whether motivation centers on enhancing the self, reflective of an internal, individualistic model of motivation, or on improving the self and meeting expected standards, reflective of a more relational model. In a study of Filipino and American university students, for example, Church and Katigbak (1992) found that approval and self-improvement motives ranked higher for Filipino college students than for American students. Similarly, Heine et al. (2001) tested the hypothesis that Japanese students focus more on self-improving motivations, while North American students focus more on self-enhancing motivations. Results confirmed their hypothesis: North Americans persisted more on a creativity task after success than after failure, whereas Japanese persisted more after failure than after success. Moreover, North Americans, but not Japanese, were more likely to view creativity as important for life success if they had done well, while Japanese were more likely to view creativity as important for life success if they had done poorly. Finally, North Americans felt better after success than did Japanese. The authors concluded that although individuals in both cultures want to do their best, North Americans pursue this goal by focusing on their strengths, while Japanese pursue this goal by focusing on their shortcomings. Oishi and Diener (2003) likewise found that European Americans' choice of a second task was based on how well they thought they had done on an earlier task, but this did not hold for Asian Americans. Furthermore, choice was related to more enjoyment of the second task for the European Americans, but not for the Asian Americans.

If one is interested in self-advancement, one will work harder to stick out, which is more common in American cultural contexts. In contrast, if self-improvement is the goal, one will work harder to avoid sticking out, which is more prevalent in Asian cultural contexts. In these contexts, fulfilling role obligations may be a more salient goal, requiring more attention to meet a minimum standard than to surpass the standard (Su et al., 1999).

Perceived Determinants of Success: Ability or Effort?

If an individual assumes that motivation is linked to actualizing one's potential and displaying one's ability, as is more common in American contexts, then he or she most likely will view ability as relatively fixed and most predictive of success (Heine et al., 2001). However, if one believes that motivation is linked to discovering shortcomings and correcting them, as is more prevalent in Japanese contexts, one most likely will view ability as malleable and may believe that effort plays a larger role in determining success than does innate ability. Heine et al. tested the hypothesis that cultures differ in their emphasis on entity versus incremental theories and found cultural variation on the Beliefs in Incremental Abilities Scale. This scale asked participants to respond to concrete behavioral scenarios (e.g., "Imagine that Michelle, a sophomore, scored the highest grade in her history class. Only knowing this about Michelle, please do your best to estimate what percentage of her performance in the class was due to her natural-born ability and how much was due to her effort and studying"). The Japanese believed that abilities were more incremental (i.e., more effort-based) than did European Americans. Moreover, on an item that asked what percentage of intelligence is due to natural ability versus effort, European Americans reported on average that 36% was due to effort, Japanese reported 55%, and Asian Americans reported 45%.

Although implicit theories of intelligence are conceptualized primarily as an individual difference construct (e.g., see Dweck & Leggett, 1988), it seems likely that they will also vary by cultural context, insofar as models of competence and motivation also vary. Moreover, if an incremental view predominates, tasks will likely be understood as reflecting process (e.g., effort), and performance will not likely be linked with underlying traits and self-worth. If an entity view prevails, however, tasks will likely be understood as measuring permanent intelligence (e.g., intelligence tests in the United States) and achievement. Empirical observations indicate that Japanese and Chinese respondents' beliefs about achievement outcomes

center primarily on effort, while American respondents assign more importance to ability (Lewis, 1995; Stevenson & Stigler, 1992; White, 1987). Thus, one reason for Hiroki's teachers' surprise at the Americans' insistence that he was gifted, as described earlier, is that in Japanese contexts, "the notion that children's success and failure and their potential to become successful versus failed adults has more to do with effort and character and thus with what can be learned and taught in school than with raw inborn ability" (Tobin et al., 1989, p. 24).

Research on attributions for academic achievement also has suggested cultural variation in perceptions of the importance of ability and effort, with individuals in U.S. contexts generally seeing ability as the primary determinant of success, and individuals in Asian contexts attributing academic success and failure to effort (Holloway, 1988; Stevenson & Stigler, 1992). In one study, American undergraduate and graduate students attributed academic achievement significantly more often to ability than did Asian (Japanese, Korean, Chinese, and Southeast Asian) students (Yan & Gaier, 1994). American students also believed that effort was more important for success than lack of effort was for failure, whereas Asian students believed effort to be equally important for success and failure. Hess, Chang, and McDevitt (1987) compared the attributions of Chinese mothers living in China, Chinese American mothers, and Caucasian American mothers. Whereas Chinese mothers in China viewed lack of effort as the major cause of their children's low performance, Caucasian American mothers attributed least to effort and distributed responsibility more evenly across the options. Chinese American mothers also viewed lack of effort as important but assigned considerable responsibility to other sources. Holloway, Kashiwagi, Hess, and Azuma (1986) examined attributions for math performance by Japanese and American mothers and children. Whereas American mothers and children emphasized ability, Japanese respondents emphasized effort, particularly when assessing low performance.

Studies also show that Americans support rewarding people for their accomplishments rather than for their efforts

(Hochschild, 1995). In Japanese cultural contexts, on the other hand, the process is just as important as the outcome and must involve *gambaru*, which means working hard and persisting (White, 1987). In work by Mashima, Shapiro, and Azuma (1998), 70% of Americans described success or failure in terms of achieving some effortful goal, in contrast with only 29% of Japanese. Instead, Japanese described the internal process of exerting effort, without mentioning whether the final outcome had been achieved.

Research indicates that although individuals in American and Asian contexts use the categories of effort and ability to understand achievement, the meaning and relationship of these categories differs (Miller, 1996). For example, whereas in U.S. contexts, ability and effort are perceived as having a compensatory relationship, in Chinese contexts, they are often seen as being positively related, implying that ability can be increased through effort (Hong, 2001; Salili, 1996). Under Chinese models of competence and motivation, "people working hard have higher ability and those who have high ability must have worked hard" (Salili & Hau, 1994, p. 233).

Intrinsic Motivation: Personal Choice and Control Required?

Theories of achievement motivation developed in U.S. and other Western contexts generally have been based on individualism, emphasizing personal choice and responsibility (Miller, 1996; Spence, 1985). In so doing, these theories have also contributed to the development and perpetuation of the inside story. Under the predominant model of motivation, controlling one's environment, self-determination, and freedom of choice are associated with higher intrinsic motivation, whereas feelings of being controlled can decrease intrinsic motivation (Deci & Ryan, 1985). The relationship between intrinsic motivation and control may assume a different form in cultural contexts in which alternative models of motivation prevail—ones that stress indirect or secondary modes of control, relational sources of control, tolerance, and flexibility (e.g., see Weisz et al., 1984).

Internal and External Sources of Control

Iyengar and Lepper (1999) questioned the assumption that intrinsic motivation and the provision of individual choice and self-determination go hand in hand by examining the relationship between choice and motivation across cultures. In one study, Anglo American and Asian American grade-school children were asked to work on an anagrams task. Anglo American children performed best and spent more time working on the anagrams when they chose which anagrams they would work on for themselves, while Asian American children performed best and spent more time working on the anagrams when they thought that their mothers had chosen the anagrams for them. Iyengar and Lepper obtained similar results when children were told that an outgroup (children at another school) or ingroup (their own classmates) had made the selections.

Asian American children may perform best and appear to enjoy tasks most when valued ingroup members choose for them, because of the different models of motivation that permeate their cultural contexts. It is not surprising that children are more motivated by "what Mom thinks" in a cultural context that stresses the relational nature of motivation than in one that stresses the independent, internal sources of motivation. Moreover, boundaries between intrinsic and extrinsic motivation are culturally defined (Iyengar & Brockner, 2001; Iyengar & Lepper, 1999). Iyengar and Lepper note that in American society, if someone behaves in order to please someone else or conform to their ideals, then that behavior is viewed as extrinsically motivated (deCharms, 1968; Deci, 1975). In East Asian settings, external sources of motivation may not inherently contradict or interfere with internal motives. For example, Church and Katigbak (1992) found a closer relationship between intrinsic task motives and affiliative motives among Filipino than among American university students. Salili, Chiu, and Lai (2001) observed that in Chinese cultural contexts, extrinsic and intrinsic motivation may work side by side. According to Tweed and Lehman (2002), in Chinese contexts, external goals, such as social recognition, are positively associated with mastery goals,

suggesting that the Confucian emphasis on pragmatic learning does not preclude learning-related goals.

Practices of Choice and Control

Different cultural contexts also provide varying degrees of opportunity for exercising choice and control. For example, whereas in American contexts, choice may figure prominently in daily life, having and making choices is not part of a students' normal daily routine in Japanese contexts (Lewis, 1995). Instead, conforming to the preferences of a social group or adjusting to others is more prevalent. Furthermore, according to Tweed and Lehman (2002), the Socratic approach to learning common in Western cultures is associated with a desire for self-directed tasks, but cultures that stress Confucian approaches to learning may not foster self-determination to the same extent. A recent study by Morling, Kitayama, and Miyamoto (2002) examined cultural variation in the affordance of direct control. They asked Americans and Japanese to describe actual social situations in which "you have influenced or changed the surrounding people, events, or objects according to your own wishes" or in which "you have adjusted yourself to surrounding people, objects and events." Respondents also indicated when the events had occurred. Americans recounted more recent influencing events than adjusting events, but Japanese recounted more recent adjusting than influencing events.

The inside story, although common in American cultural contexts, is not uniformly distributed across social settings. For example, studies find that people in working-class contexts are less likely to be acting upon the world by expressing their own preferences through choice, and are perhaps more likely to be adjusting to the world by conforming to relational norms and meeting obligations (Kusserow, 1999; Lamont, 2000). As a result, working-class participants may respond differently to choice than do middle-class participants. For example, Snibbe and Markus (in press) examined social class differences in personal choice within the United States. Results indicated that college-educated participants, but not high school-edu-

cated participants, like an object better if they have chosen it themselves.

Competence: Competing Perspectives?

Different Styles of Competence

Models of competence and motivation can also be linked to the styles of thinking that pervade a cultural context (Cole & Scribner, 1974; Nisbett, Peng, Choi, & Norenzayan, 2001). Consistent with the more relational models in Eastern cultures, holistic or relational-contextual thought predominates in these cultures. In holistic thought, there is greater attention to the field in which objects are embedded. In contrast, and consistent with the inside story, an analytic approach to the world is more characteristic of Western cultures. Analytic thought emphasizes paying attention primarily to the object and to the categories to which it belongs. For example, Ji and Nisbett (2001) examined Chinese and American participants' use of relationships versus categories as bases for grouping objects together. They found that Chinese participants were more likely to group objects on the basis of relationship (e.g., "Because the sun is in the sky"), while Americans were more likely to group objects on the basis of category or shared object features ("Because the sun and the sky are both in the heavens"). In a study by Masuda and Nisbett (2001), which also examined cultural variation in thinking styles, Japanese and American students saw animated vignettes of underwater scenes. Subsequently, they were shown figures that had either been previously seen or not seen, and that were either in their original setting or in some other setting. Japanese students recognized previously presented figures more accurately when seen with the original background than with the new background, whereas the latter manipulation had no effect on American subjects.

Awareness of Difference

Within American contexts, some researchers who focus on explaining differences between ethnic and racial groups in academic performance achievement motivation have drawn attention to the role of the context in perfor-

mance (Jones, 1999; Markus, Steele, & Steele, 2001; Steele, 1997). Mainstream contexts typically inscribe the ideas and practices of the majority. Thus, those who examine these contexts from the perspective of the minority are often in a good position to see the context, which is often invisible to the majority. The mainstream context can facilitate performance for some and impair it for others. Without acknowledging that the context of learning and motivation may differ for those in the majority and those in the minority, explaining the gap among students and employees from different backgrounds in terms of internal factors can seem reasonable. And historically, researchers have pursued this exact explanatory path, thereby continually reinforcing the inside story. Even social psychologists have leaned toward explanations that focus on internal basic processes. As Steele and Sherman (1999) argue, despite the initial impact of Lewin's theoretical formulations, researchers have paid relatively little attention to "the 'life-space' contexts of people's lives—their socioeconomic position in society, their position in a family, their group identities, the cultures they are immersed in, the status they enjoy, the stigmas they endure, and the opportunities and resources they possess" (pp. 393–394).

Charting the particulars of the relevant contexts reveals, for example, that those in the majority, compared to those in the minority (e.g., white students compared to black students in a predominantly white school), are not in the same context. They are often assumed by teachers, principals, and other students to be able to succeed, and they are expected to succeed. Furthermore, whites are likely to have benefited from contexts with relatively better schools and more prepared teachers, to have better educated parents, and to live in homes and neighborhoods with more school-relevant resources (Lamont & Lareau, 1988; Ogbu, 1991). Whites also are relatively free from a whole concert of negative stereotypes and limiting evaluations that are often associated with minority groups in academic contexts (Crocker & Major, 1989). Steele and colleagues (Steele, 1997; Steele & Aronson, 1995) found that if negative stereotypes of academic ability of black students are present in a context, then even well-qualified black students can experience a threat to

their identity and perform less well than they do in a context free of these stereotypes. Seen from the point of view of the minority, many elements of the context and its potential impact on competence and motivation are in relatively high relief.

Given the prevalence of the inside story in mainstream American cultural contexts, majority members are less likely to notice how the context may be more supportive and less toxic for them than it is for those in the minority. Since the scaffolding provided by the supportive social context is rarely delineated, especially when the context is supportive and affirming, the inside story gains credibility. Competence and motivation are seen to stem from their internal traits and properties. The ways in which the assumptions, expectations, representations, and practices of the context afford the inside view are hidden. For majority learners or observers in a majority context, it is as if they were "born on third base" (with all of its relative advantages), yet believe, thanks to the automatic engagement of the inside cultural model, that they have "hit a triple."

Most American mainstream educational contexts, while seemingly fostering a "general" or "basic" model of education, promote mainstream or European American ideas and practices of education (Bruner, 1996). Students who have been socialized according to this model may have an important, yet largely unseen, advantage over those with very different frameworks of understandings relevant to education and competence. For example, Fryberg and Markus (2004) found that education in American Indian contexts involves fostering a trusting relationship between student and teacher. Yet schooling, as practiced in mainstream settings, focuses on the autonomous, independent individual and may be experienced as threatening to valued relationships. Oyserman, Gant, and Ager (1995) found that, whereas for white students, achievement is related to individualism and the Protestant work ethic, for blacks, it is related to collectivism and ethnic identity. A reasonable congruence between the models that the student invokes and the models that are predominant in the student's school setting is likely to facilitate academic success, while a lack of congruence may decrease the likelihood of such success.

CONCLUDING REMARKS

As with all psychological phenomena, competence and motivation are multiply afforded and maintained. Surely, both individual differences in capacities identified as internal, as well as differences in individual engagements with the social context, will prove to be significant in the analysis of competence and motivation. The main point of the chapter, however, is that the story of being smart and motivated in America has been, and continues to be, primarily an inside story. It is an inside story, not because the weight of the evidence overwhelmingly supports this perspective, but because the inside understanding of competence and motivation fits like Cinderella's slipper to the predominant cultural model of behavior. When parents, teachers, and employees seek to explain variation in competence and motivation, they most commonly look to what is believed to be inside the person—to an entity or a set of entities, or to a force or energy that powers and controls behavior. Whether these entities or forces are presumed to be innately given faculties or the result of effort and persistent engagement with the relevant tasks, they are believed to reside inside the person and to be subject to individual, willful control.

Given the historical and ideological foundations of the American and European contexts in which these theories have developed, peering inward is natural and obvious. In individualistic cultures that prize, above all, freedom (both freedom from the constraint of others and the freedom to express one's self through choice and control), it is unthinkable to locate the sources of positive, desirable behavioral tendencies (those associated with achievement and success) anywhere but inside the person. Many analyses of competence and motivation then quite reasonably seek and find these phenomena or processes within the person. Given the ideological landscape and the extensive system of practices and institutions that accord these ideas a real and objective status, the relative underdevelopment of a social or relational understanding of competence and motivation is hardly surprising. A collective preference for a view of the actor as independently mastering the environment obscures the potential role of the social context.

Our argument is that the inside model is prominent and powerful, not that it is the only model of competence and motivation that has been theorized in American and European contexts. Certainly, the role of the social context, particularly the expectations of others, has been explored. However, these views are swimming upstream against a dense and forceful flow of meanings and practices, both in science and in the everyday world, and these more social views of competence and motivation have not caught on and have not stuck. Our review of the literature reveals that in contexts in which the person is regarded as an interdependent part of an encompassing social network, the social nature of competence and motivation is decidedly more obvious and natural. Our review of these studies serves primarily to underscore that the prevalent, implicit cultural models in a given context shape the scientific search, analysis, and interpretation strategies in ways that are important to identify and delineate. As a science, have we searched for the sources of competence and motivation and found them "inside" because they are there, or have we searched where the cultural spotlight is brightest?

Is it a problem that an "it's what's inside that counts" cultural context has "it's what's inside that counts" theories and practices of competence and motivation? Our view is that it is a problem if the scientific goal is to develop a comprehensive human psychology, not a particular or a partial one. Socially and practically, within European and American contexts, it matters because, as a growing number of empirical studies suggest, the social context is important for competence and motivation, but this may be the case particularly for those outside mainstream contexts—those who engage or have engaged in cultural contexts different from the middle-class European American one—and for those who have been historically marginalized and excluded from full participation in mainstream contexts. For these individuals, failures to manifest competence or motivation may result from different understandings and approaches to motivation, but they are often immediately explained with inside accounts (e.g., these people are stupid or lazy). The role of the context, as well as the potential mismatch between the prevalent models in a context and those that stu-

dents or employees bring with them, may be relatively invisible and unidentified. To be competent and motivated in a given context requires behaving in a culturally appropriate manner. Those who are motivated by friends and family more than by their own interests may be judged as followers; those who are very receptive to others, and to relations with others, may be seen as dependent and uncreative; those who criticize rather than enhance themselves may be judged as unmotivated or may not be noticed at all. Moreover, those who expect that a positive and effective context is an interdependent, relational one may not respond well in contexts requiring separation, independence, and relative autonomy from others. Finally, failures to manifest competence and motivation that arise because people are required to contend with the pressure of being stereotyped, devalued, and otherwise limited may go completely undetected. Under the influence of the inside model, those in this predicament may be readily labeled as incompetent or unmotivated.

The situation of Hiroki, whom Americans judged as gifted and Japanese judged as unintelligent, is a powerful reminder of the importance of explicitly examining the prevailing implicit cultural models of competence and motivation. What does it mean to be competent or motivated in this situation? What is the source of this understanding? Does the arrangement of classrooms and workplaces foster one model of competence and motivation at the expense of others? Who is privileged by this arrangement of the context, and who is disadvantaged? What is missing in many European American contexts is the idea that competence and motivation arise from complex, dynamic relations between people and their social environment. Enriching the inside story with a more social view will serve to generate more competence and motivation. The inside story, while a best-seller, is not the full story, and it leaves a lot of competence and motivation on the shelf.

NOTE

1. When we refer to "American" or "American style," we mean pertaining to "mainstream" U.S. cultural contexts and to those who have

engaged with dominant, middle-class U.S. ideas and practices and participated in U.S. institutions. Depending on the literature being reviewed or the studies being portrayed, in some places, we use the term "European American" to denote Americans of European descent, and "Anglo" to mean Americans of British descent. By "Western," we mean from countries that are culturally Western, most of which are located in Europe and North America, and have been strongly influenced by Greek and Roman culture and Christianity.

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CHAPTER 26



Cultural Competence

Dynamic Processes

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The rapid increase in global interconnectedness has created a pressing demand for a model of cultural competence in many areas, including management, medical professions, counseling, social services, and education (e.g., Bernal & Castro, 1994; Sue, 1998). Experts in the field have different opinions on what "cultural competence" is, despite the strong agreement on its importance (Cunningham, Foster, & Henggeler, 2002). Most practitioners believe that cultural competence involves self-understanding, knowledge of others whose cultural origins and values are different from one's own, and adapting one's own behaviors to the needs of culturally diverse groups (e.g., Hansen, Pepitone-Arreola-Rockwell, & Greene, 2000). However, little is known about the roles of awareness, knowledge, and skills in enabling people to function effectively in a variety of cultures.

In this chapter, drawing on recent research in cultural and cross-cultural psychology, we offer a framework for conceptualizing the nature of cultural competence, and for identifying its major components. We also dis-

cuss the relationships between multicultural experiences and cultural competence, and the implications of our conceptual framework for studying the psychology of culture.

THE NATURE OF CULTURAL COMPETENCE

There is a lesson that cultural competence researchers can learn from the social competence literature. In his seminal paper, Edward Thorndike (1920) defined "social competence" as a kind of intelligence analogous to abstract academic intelligence. Whereas abstract academic intelligence is "the ability to understand and manage ideas and symbols," social intelligence is "the ability to understand and manage men and women, boys and girls—to act wisely in human relations" (p. 228). Inspired by Thorndike's idea, numerous attempts have been made by researchers to identify the specific expertise and skills (e.g., expertise in decoding communicative behaviors, expertise in judging people, tacit knowledge about

managing other people) that define social competence (e.g., Sternberg & Smith, 1985). Many such attempts have failed (e.g., Brown & Anthony, 1990; Ford & Tisak, 1983). Then some investigators realized that although expertise and specific skills are necessary for competent social behavior, they are not sufficient for attaining personal goals and promoting interpersonal relationships. Two crucial components of social competence have been overlooked: sensitivity to subtle cues about the psychological meanings of *changing* situations, and *discriminative* use of social knowledge and skills across situations (Cheng, Chiu, Hong, & Cheung, 2001; Chiu, Hong, Mischel, & Shoda, 1995). In this chapter, learning from the experience of studying social competence, we highlight four major components of cultural competence, namely, sensitivity to both inter- and intracultural variations in cultural meanings, use of context-appropriate cultural knowledge in intercultural interaction, flexibility in switching cultural frames for sense making, and use of cultural knowledge to foster creativity.

In psychological research, "culture" is often defined in terms of relatively static qualities (traits, essence, values, beliefs) shared by individuals in a delineated population (see Lehman, Chiu, & Schaller, 2004). According to this entity view of culture, a person who enters a new culture must accept as a fixed reality the qualities that make up the new culture. To behave competently in an unfamiliar culture, people need to acquire knowledge of the culture's essences, and adapt their responses to the seemingly unalterable reality. Indeed, much psychological research has focused on the shock experiences and psychological stress that people need to overcome when they adapt to a new culture (Ward, Bochner, & Furnham, 2001). Not surprisingly, many cultural competence training programs emphasize learning the characteristic patterns of thoughts and actions in other cultures, reflecting on one's own thoughts and actions, and adapting one's thoughts and actions to the expectations in other cultures (e.g., Dogra, 2001).

A different view of culture, which emphasizes the dynamic and agentic aspects of culture and behavior, is assumed in our conceptualization of cultural competence. In this view, culture consists of a network of

knowledge and practices that is produced, distributed, and reproduced among a collection of interconnected people. In addition, by taking an agentic perspective to culture and psychology, we assume that people may use culture as a resource to attain their goals. Accordingly, people are not passive carriers of culture. Instead, they express and exercise agency via culture, and apply cultural knowledge flexibly and discriminatively across situations. Because this conception of culture, which is crucial to understanding cultural competence in a multicultural environment, is relatively novel in the psychological literature (Hong & Chiu, 2001), we elaborate on the major assumptions of this conceptual approach to culture.

Culture as Distributed Knowledge

As mentioned, we use culture to designate a coalescence of loosely organized knowledge (or learned routines) that is produced, distributed, and reproduced among a collection of interconnected individuals. The idea that culture consists of a network of distributed knowledge has gained considerable support in anthropology (e.g., Shore, 1996; Sperber, 1996) and in psychology (Chiu & Chen, 2004; Hong & Chiu, 2001; Kashima, Woolcock, & Kashima, 2000). Two important aspects of this conception of culture should be highlighted. First, our usage of knowledge is most similar to the one proposed by Barth (2002), which refers to "all the ways of understanding that we use to make up our experienced, grasped reality" (p. 1), and includes all learned routines of thinking, feeling, and interacting with other people. In this usage, knowledge is a necessary accompaniment to action, and vice versa. As Barth (p. 1) put it, while "knowledge provides people with materials for reflection and premises for action, . . . actions become knowledge to others" after the fact. Thus, knowledge and practice form a circular causal chain. Second, these learned routines are not just personal knowledge in the heads of individuals. Instead, they are shared, albeit incompletely, among individuals in a delineated population. Because cultural knowledge in a delineated population is not perfectly shared, cultures are not homogeneous monoliths. Although many researchers (e.g., Appadurai, 1996; Friedman,

1994) have commented on the danger of treating cultures as static monoliths, one commonly held view is that people will act competently in a new culture if they possess knowledge about the average proclivities of members of the new culture. If cultures are not static monoliths, such knowledge is more likely to be overgeneralization than to be veridical knowledge. To act competently across cultures, individuals need to be sensitive to *both* intercultural and intracultural variations in knowledge.

Culture and Psychology: An Agentic Perspective

Culture can be compared to a toolkit that can be put to manifold uses (DiMaggio, 1997). People in a cultural group can sample knowledge tools from their cultural toolkit to construct their experiences. In addition, people are not passive carriers of cultural meanings; they express their agency via culture and participate actively in culture (Chiu & Chen, 2004). In other words, culture should be understood in terms of how cultural agents use cultural knowledge in particular social contexts to fulfill their goals.

Consistent with the idea that culture is a collection of consensually validated interpretive tools (DiMaggio, 1997), research has shown that people are likely to apply cultural knowledge in problem solving when the situation calls for a consensually validated, conventionalized solution (Briley, Morris, & Simonson, 2000), or when the problem solver lacks the capability, motivation, or resources to consider alternative solutions (Chiu, Morris, Hong, & Menon, 2000; Knowles, Morris, Chiu, & Hong, 2001; Morris & Fu, 2001).

People may also use culture to fulfill their identity needs (Chiu & Chen, 2004). Culture and identity are related. When a cultural identity is made salient, its attendant cultural knowledge becomes cognitively accessible (Hong, Ip, Chiu, Morris, & Menon, 2001; Rhee, Uleman, Lee, & Roman, 1995). In addition, people might use cultural knowledge to express or defend their social identity (Jetten, Postmes, & Mcauliffe, 2002) and threat against mortality (Greenberg, Solomon, & Pyszczynski, 1997; Solomon, Greenberg, & Pyszczynski, 1991). In short, what is interesting in an agentic analysis of

culture and identity is the possibility that people may use culture to fulfill some identity needs.

Finally, in intercultural interactions, individuals can use their knowledge about another culture to guide their interaction with people from that culture.

COMPONENTS OF CULTURAL COMPETENCE

Cultural Sensitivity

As mentioned, sensitivity to intercultural and intracultural variations in behavior contributes to culturally competent behavior. However, to what kind of inter- and intracultural variations would a culturally competent person attend? Before we can answer this question, we need to identify the major sources of inter- and intracultural variations.

Intercultural Variations

Cultural Differences in Meanings. Culture legislates what kinds of behaviors are deemed to be acceptable or desirable expressions of the same basic psychological process. When psychological differences between two cultural groups are observed, it is important to determine whether the differences reflect different psychological processes in the two groups, or whether they are different expressions of the same psychological process in two different populations. We illustrate this point with a recent debate in the psychology of human agency, a construct that is at the heart of any definition of human competence.

Both social cognitive theory of personality (Bandura, 2001) and self-determination theory (Ryan & Deci, 2000) take an agentic perspective to human motivation. In social cognitive theory, agentic individuals are efficacious persons, who believe that they can intentionally influence their functioning and life circumstances. In self-determination theory, an agentic self is also an autonomous self, whose actions are driven by personal choice or intrinsic aspirations. In both theories, a subjective sense of agency energizes agentic actions and enables people to devise ways of adapting flexibly to remarkably diverse environments.

Some recent findings in culture and moti-

vation research seem to question the universality of human agency as a primary source of human motivation. First, compared to Westerners,¹ East Asians have lower self-esteem (Heine, Lehman, Markus, & Kitayama, 1999; Hetts, Sakuma, & Pelham, 1999), and are less likely to reduce postdecision dissonance by justifying their personal choices (Heine & Lehman, 1997). East Asians also use more negative descriptions and fewer positive descriptions than do Westerners to describe themselves, particularly when they do so in front of an authority figure (Kanagawa, Cross, & Markus, 2001). In some studies, East Asians even exhibited a significant bias toward self-criticism (Hetts et al., 1999). Also, they do not view criticism or negative feedback as a threat to self-esteem. In response to failure feedback, they do not defend their self-esteem by derogating high performers, as Westerners often do (Brockner & Chen, 1996).

Second, compared to Westerners, Asians are less motivated by success, and more motivated by avoidance of failure. For example, among Westerners, success-foregone events are perceived to be more important than failure-avoidance events (Lee, Aaker, & Gardner, 2000), success situations have more influence on self-esteem than do failure situations (Kitayama, Markus, Matsumoto, & Norasakkunkit, 1997), and success feedback is more motivating than failure feedback (Heine et al., 2001). By contrast, Asians pursue more avoidance goals than do Westerners (Eaton & Dembo, 2001; Elliot, Chirkov, Kim, & Seldon, 2001). Asians also perceive failure-avoidance events to be more important than success-foregone events (Lee et al., 2000), and think that failures would decrease their self-esteem more than success would increase their self-esteem (Kitayama et al., 1997).

Third, Iyengar and Lepper (1999) reported that whereas European American children show more intrinsic motivation when they make their own task choices than when choices are made for them by others, Asian American children are most intrinsically motivated when choices are made for them by trusted figures or peers. These findings seem to question whether personal choice generally enhances motivation for people in different cultural contexts.

In summary, compared to the Western self, the East Asian self seems to be a less efficacious agent. However, Asians do not appear to have more motivation deficiencies than do Westerners. On the contrary, compared to Westerners, Asians are oftentimes more persistent and mastery-oriented in the face of setbacks, work more diligently toward their goals, and have higher performance (Blinco, 1992; Chen & Stevenson, 1995; Eaton & Dembo, 2001; Heine et al., 2001). On the surface of it, these findings seem to cast doubt on the centrality of agency in East Asian cultures.

In response, Bandura (2002) argued that cultural psychologists have misrepresented the construct of agency. According to Bandura, people can exercise their agency through the self (direct personal agency), other people who act on the self's behalf (proxy agency), or group action (collective agency). Successful functioning requires an agentic blend of these three modes of agency. When this expanded conception of agency is adopted, agency is central to personal development, adaptation, and change in diverse cultural milieus. By contrast, confining agency to direct personal agency would inevitably result in a distorted view of agency, in which collective efficacy is disembodied from personal efficacy.

Similarly, Ryan and Deci (2000) argued that in some East Asian societies, people often identify with choices made for them by significant others, and experience autonomy through pursuing a self-identified collective choice. Consistent with this contention, research has shown that in East Asian societies, successful pursuit of self-identified collective choices (vs. externally imposed goals) contributes to psychological well-being (Chirkov, Kim, Ryan, & Kaplan, 2003).

It is important to distinguish between the generic and specific senses of agency. The "generic" sense of agency refers either to the universal capability to participate in or to the state of engaging in generative and proactive (or goal-directed) actions. The "specific" sense of agency refers to concrete, culturally constructed models for exercising agency. These agency models differ in the pathway(s) they prescribe for exercising agency. However, all agency models function to orient people to pursue and to develop the capability to pursue their valued goals.

From this perspective, the East-West differences that appear to challenge the universality of agency should be construed as differences arising from societies' choices between different models of agency. Every society has its unique collection of agency models, and societies differ systematically in how they weigh the relative importance of different agency models. For example, Chinese societies emphasize group agency more than they do direct personal agency. In contrast, in North America, direct personal agency is emphasized over group agency (Chiu et al., 2000; Menon, Morris, Chiu, & Hong, 1999; Su et al., 1999). Whereas European American students tend to define "individual competence" as success in projects that are important to the self, Chinese students tend to define it as success in socially recognized projects (Chang, Wong, & Teo, 2000; Tao & Hong, 2000; Yu & Yang, 1994). Furthermore, in North America, people are encouraged to construct their self-worth based on generalized self-competence. In many East Asian contexts, people are encouraged to construct their self-worth on the basis of how successfully they adhere to socially approved standards (Tafarodi, Lang, & Smith, 1999).

Moreover, people may choose to use the most widely accepted agency model in their society as a tool to attain important goals in life. Consistent with the idea, research has shown that people in different societies may adopt different strategies to achieve the same valued goals. For example, positive self-image and favorable public image are valued among individuals in most societies. People may seek to enhance their self-image by rating themselves on attributes that are highly valued in their cultural context. Compared to East Asians, European Americans are more inclined to self-enhance by rating the self as being above average on personal attributes (Heine & Lehman, 1997; Heine & Renshaw, 2002). East Asians also self-enhance, but they are more inclined than European Americans to do so by holding positive—sometimes unrealistically positive—views of the self when they appraise themselves on communal traits and collectivistic attributes (Kurman, 2001; Sedikides, Gaertner, & Toguchi, 2003).

In a recent study, we (Ip, Chen, & Chiu, 2003) found a similar pattern in manage-

ment of public self-image. In this study, Chinese and European American undergraduates responded to Paulhus's (1984) measure of social desirability, which assesses two components of socially desirable responding: impression management and self-deception. Compared to their European American counterparts, Chinese undergraduates have a greater tendency to manage impression by attributing to the self socially approved behavior with low occurrence probabilities (e.g., "I have never dropped litter on the street"). By contrast, European American undergraduates have a greater tendency to self-deceive by attributing to the self extremely positive personal attributes ("I am fully in control of my own fate").

Finally, people feel happy when they succeed in meeting the standards of an agentic self in their society (Suh, Diener, Oishi, & Triandis, 1998). For example, in countries where personal goals are valued, factors relating to direct personal agency (self-esteem, identity consistency, personal freedom, pursuit and attainment of individual goals) and personal affect predict life satisfaction, whereas factors relating to feelings of connectedness (pursuit and attainment of interdependent goals, quality of interpersonal relationship) do not. In countries where collective goals are also emphasized, both factors relating to personal agency and personal affect, and those relating to feelings of connectedness predict life satisfaction (e.g., Kwan, Bond, & Singelis, 1997; Oishi & Diener, 2001; Oishi, Diener, Lucas, & Suh, 1999; Schimmack, Radhakrishnan, Oishi, & Dzokoto, 2002; Suh, 2002).

In short, when marked behavioral differences between individuals from different cultures are observed, it is tempting to conclude that culture influences some basic psychological processes, although such behavioral differences could be different manifestations of the same psychological process. To understand the behavior of a person from a different culture, one must go beyond mere descriptions of cultural differences in behavior. It is not enough just to identify the behavior that "they" do and "we" do not (e.g., "Unlike Japanese, we don't self-efface"), and the behavior that "we" do and "they" do not (e.g., "Unlike us, Japanese do not desire self-esteem, and do not need to self-enhance"). It is a common tendency to use one's own ex-

periences with a psychological process as the anchor to evaluate cultural similarities and differences. Cultural sensitivity requires suspension of this tendency and calls for attention to the nuances in the meanings of behavioral differences in cultures.

Differences in Prevalence and Chronic Accessibility of Cultural Knowledge. A body of knowledge may be more prevalent or widely distributed in one culture than in another. To be able to interact competently with a person from another cultural group, one also needs to be sensitive to the distribution of knowledge in the target's cultural group. For example, in one study, Li and Hong (2001) found that mainland Chinese students studying in Hong Kong differed among themselves in how much they knew the distribution of values in Hong Kong society. Those who were more knowledgeable had more competent social interactions with Hong Kong students.

A body of knowledge that is widely distributed in a culture often has high chronic accessibility. Chronic accessibility of a body of cultural knowledge is a product of frequent use of that body of knowledge (Higgins, 1996). A body of cultural knowledge that is frequently used in a group is usually widely shared (Lau, Chiu, & Lee, 2001; Lau, Lee, & Chiu, 2004; Sechrist & Stangor, 2001), more frequently reproduced in communication (Lyons & Kashima, 2001), widely represented in external or public carriers of culture (Menon & Morris, 2001), and cognitively accessible to members of the group (Hong, Morris, Chiu, & Benet-Martinez, 2000).

For example, in Asian contexts, group agency and aspects of the interdependent self are relatively well represented in commercial advertisements (Han & Shavitt, 1994; Kim & Markus, 1999), newspaper articles (Menon et al., 1999) and the languages (Kashima & Kashima, 1998). By contrast, in Western contexts, direct personal agency and aspects of the independent self are relatively well represented in these media. In addition, when asked to describe themselves, Asians spontaneously mention more interdependent or group-related self-statements, and fewer independent self-statements than do Westerners, indicating that the interdependent or group-related self is more

cognitively accessible to Asians than to Westerners (Rhee et al., 1995; Wang, 2001).

Sensitivity to the distribution of knowledge in a foreign culture may develop from frequent intercultural contacts. There is some preliminary evidence for this idea. Although both Hong Kong and New York City are cosmopolitan cities, Hong Kong people have more exposure to New York culture than do New Yorkers to Hong Kong culture. Given such asymmetry in the direction of cultural contacts, Lee (2002) found that Hong Kong undergraduates are more accurate in estimating the distribution of knowledge (e.g., general knowledge about flowers and landmarks) among New York undergraduates than are New York undergraduates in estimating the distribution of knowledge among Hong Kong undergraduates.

In a recently completed study, we (Ip et al., 2003) asked American undergraduates, Hong Kong Chinese undergraduates, and Beijing Chinese undergraduates to estimate how American undergraduates would respond to the Regulatory Focus Questionnaire (Higgins et al., 2001), which measures one's personal history of fulfilling personal aspirations (promotion pride) and meeting parental expectations (prevention pride). The American students also indicated how they themselves would respond to this measure. On their self-report, American students scored slightly higher on promotion pride than on prevention pride. American students' estimations of their own group's difference in promotion and prevention pride were highly accurate. Beijing Chinese undergraduates had relatively limited exposure to American culture, and they overestimated by a factor of three the difference between promotion pride and prevention pride among American students. Hong Kong students, who had more exposure to American culture than did Beijing students, were more accurate than Beijing students and less accurate than American students in estimating American students' difference in promotion and prevention pride.

Intracultural Variations

Interdomain and Situational Variations. In psychology, a common practice is to use global, stable cultural dimensions or culture-

prototypical self-construals to explain broad East-West differences in psychological processes. Writing against this practice, Bandura (2002) maintained that "cultures are diverse and dynamic social systems not static monoliths" (p. 275). A recent review of the extant literature on country differences in individualism and collectivism adds ammunition to Bandura's criticism. In this review, Oyserman, Coon, and Kimmelmeier (2002) found that, contrary to popular assumptions in cross-cultural and cultural psychology, "European Americans were not more individualistic than African Americans, or Latinos, and not less collectivistic than Japanese or Koreans" (p. 3). In addition, there are remarkable interdomain variations in country differences in individualism and collectivism. For example, in the case of U.S.-Japan differences, Americans are more collectivistic than Japanese in most domains, which include accepting hierarchy, striving to maintain group harmony, defining oneself contextually, as well as sense of belonging to groups. Japanese are more collectivistic than Americans only in the domain of preference for working in a group. Comparisons of European Americans with other countries all point to the same conclusion: The nature of the country difference depends on which domain of individualism or collectivism is being assessed.

Cultural differences are also situation-dependent (see Lehman et al., 2004). For example, well-documented East-West differences in perception disappear when the research participants have control over the test procedures (Ji, Peng, & Nisbett, 2000). Seemingly robust East-West differences in the preference for holistic versus analytical thinking style vanish when the contradictions between the two thinking styles are not salient (Norenzayan, Smith, Kim, & Nisbett, 2002).

The intracultural variations reviewed earlier have created a crisis in cultural analysis of psychological processes. Is it useful to employ broadly and diffusely defined psychological constructs to explain group differences in cognition, motivation, and behavior? Is it legitimate to accept any country difference as evidence of cultural influence (Oyserman et al., 2002)?

In response to this challenge, Kitayama (2002) argued that attitude and value mea-

asures have failed to capture the coherence of culture, because culture resides in external, public representations, not in people's mind. According to Kitayama, "Within-cultural variation usually draws on individual difference, which is a source of variance that is entirely separate from the sources of variance relevant for between-cultural variation" (p. 91). Culture cannot be reduced to knowledge represented in the minds of individual members of a cultural group. Instead, culture is "out there," in the form of external realities and collective patterns of behavior, which include verbal and nonverbal symbols (e.g., language and media), daily practices and routines (e.g., gossips, behavioral scripts), tools (e.g., mobile phones and the Internet), and social institutions and structures (e.g., reward allocation and legal systems).

By externalizing culture to artifacts and collective behavioral patterns, Kitayama (2002) attributed a special status to these artifacts and behavioral patterns: They represent the "authentic" aspects of people's shared life. These artifacts and behavioral patterns are also granted the final authority in interpreting cultural meanings. This conceptualization of culture draws researchers' attention to the importance of analyzing cultural affordances, but at the expense of objectifying culture. It is inconceivable how meanings of cultural materials could exist independent of the subjective interpretation of the researcher and the people who participate in the culture (Shweder & Sullivan, 1990).

Externalizing culture will not save the project of identifying discrete, homogeneous cultures, unless one also assumes homogeneity in the public meanings that are represented in the social institutions and practices in a cultural group. This assumption flies in the face of the fact that diversity in social institutions and practices in most contemporary societies has pluralized cultural meaning in these societies. In some societies, such as the United States, representation of pluralistic heritage cultures is encouraged, and cultural diversity is celebrated. In Japan, one also finds representations of different philosophical-religious traditions, including Confucianism, Buddhism, Shintoism, and Christianity. Some commentators (Gjerde & Onishi, 2000) have referred to the represen-

tation of Japanese culture as a homogeneous monolith as "the psychological imagination of the Japanese in the era of globalization" (p. 216).

In addition, inconsistent and contrastive cultural ideas are represented in the same external carrier of cultural meanings. For example, popular sayings and idioms carry widely shared evaluative, prescriptive, or proscriptive beliefs, and are embedded in many conversation scripts. Thus, popular sayings and idioms are important carriers of cultural meanings. Ho and Chiu (1994, Study 1) analyzed the contents of 2,056 Chinese popular sayings. Of these sayings, 70 are related to autonomy or conformity, and 98 are related to independence or interdependence. Of the 70 sayings relating to autonomy or conformity, 51 (72.9%) express either affirmation of conformity or negation of autonomy; the remaining sayings (27.1%) express either affirmation of autonomy or negation of conformity. Of the 98 sayings relating to independence or interdependence, 64 (65.3%) express either affirmation of independence or negation of interdependence, and 34 (34.7%) express either affirmation of interdependence or negation of independence. In another study (Ho & Chiu, 1994, Study 2), Hong Kong Chinese undergraduates indicated their extent of agreement with the Chinese popular sayings related to independence and interdependence. They agreed strongly both with sayings expressing interdependence (e.g., "A single hand can hardly make a sound," "If two persons are united with a single purpose, soil turns into gold"), and with sayings expressing independence ("Rather than to ask for help, better rely on oneself," "One accepts the consequences for what one does").

Some culture travelers may enter a new culture with the expectation that behaviors in the new culture are coherently organized around a few broad themes (e.g., Japanese are collectivistic and value interpersonal interdependence). Given the huge amount of intracultural variability, when these cultural travelers get around in the culture, they may find that such knowledge can at best serve as a crude guide after having made many jumbled moves. However, as we argue presently, such intracultural variations should not be treated as random or unpredictable variability. Instead, sensitivity to the psychological

factors that give rise to meaningful patterns amid seemingly uncharted variability underlies cultural competence.

Factors That Underlie Meaningful Patterns. To discern meaningful cultural patterns, it is important to discern the range of applicability of broad cultural themes, and to identify the domain-specific beliefs that mediate behaviors across different life domains, as well as the distribution of these beliefs in the culture.

Some cultural dimensions, such as individualism and collectivism, have a broad range of applicability; they are applicable in situations that involve interests of the self and/or those of the collective. However, cultural differences in individualism and collectivism are target-specific (Hui, 1988): A cultural group (e.g., Japanese) may encourage collectivism in interactions with coworkers, and individualism in interactions with strangers (see Oyserman et al., 2002), while another cultural group (e.g., Chinese) may value collectivism in family interactions, and individualism in interactions with strangers (Ho & Chiu, 1994). Thus, target specificity in the application of broad cultural dimensions can account for a portion of the interdomain variability within a culture.

Differences between cultural groups are also mediated by knowledge with a relatively narrow range of applicability. For example, East Asians believe more strongly than do European Americans in the malleability of intelligence (Heine et al., 2001) and personality (Norenzayan, Choi, & Nisbett, 2002), but European Americans believe more strongly than do East Asians in the malleability of social institutions (Chiu, Dweck, Tong, & Fu, 1997). Beliefs about the malleability of intelligence, personality, and social institutions are only slightly correlated at the individual level (Dweck, Chiu, & Hong, 1995) and at the cultural level (Su et al., 1999). In addition, malleability beliefs in a given domain predict behaviors in the same domain but not in other domains (Chiu, Dweck, et al., 1997). For example, (1) East-West differences in perceived malleability of intelligence predict East-West differences in the likelihood of displaying persistent and mastery-oriented responses in the face of setbacks in an ability task (Heine et al., 2001); (2) East-West differences in

perceived malleability of personality predict East-West differences in reliance on broad personality traits to understand social behavior (Norenzayan, Choi, et al., 2002); and (3) East-West differences in perceived malleability of social institutions predict East-West differences in the way people respond to injustices (Chiu, Dweck, et al., 1997).

Because culturally constructed knowledge is not perfectly shared in a cultural group, there is substantial heterogeneity among individuals within the group. For instance, although Easterners as a collectivity believe more strongly in the malleability of intelligence and personality than do Westerners as a collectivity, a sizeable proportion of East Asians subscribe to a fixed theory of intelligence (Hong, Chiu, Dweck, Lin, & Wan, 1999) or personality (Chiu, Hong, & Dweck, 1997; Tong & Chiu, 2002). Similarly, a substantial percentage of European Americans subscribe to a malleable view of intelligence (Dweck, 1999; Dweck et al., 1995) and personality (Dweck, Hong, & Chiu, 1993; Dweck et al., 1995; Gervay, Chiu, Hong, & Dweck, 1999).

Evidence from experimental studies also supports the idea that seemingly contrastive ideas about the self are available to both East Asians and Westerners. Contextual cues may increase the temporary accessibility of a body of knowledge and momentarily raise the probability that this body of knowledge will be applied (Higgins, 1996). Although the independent self has high chronic accessibility among American undergraduates, American undergraduates mention more group attributes and fewer personal attributes when their collective self is primed than when their private self is primed. This finding reveals that both personal and collective self-construals are available to some American undergraduates, and contextual priming calls out one or the other kind of self-construal (Gardner, Gabriel, & Lee, 1999; Trafimow, Triandis, & Goto, 1991). Similar findings have been obtained among Chinese students (Gardner et al., 1999; Trafimow, Silverman, Fan, & Law, 1997).

In short, cultural knowledge is domain-specific, imperfectly shared, and not entirely internally consistent. These properties of cultural knowledge give rise to intracultural variability. Sensitivity to the range of appli-

cability, target specificity, and prevalence of specific cultural knowledge will enhance people's cultural sensitivity and cultural competence.

Contextual Shift in Cultural Meanings. Another factor that contributes to intracultural variability in behavior is shift of cultural meanings in different situational contexts. Sometimes, cultural meanings are assumed to be invariant across situational contexts. This assumption may be valid in most experimental situations, in which contextual features are carefully sampled to ensure comparability of responses in different experimental conditions. In real-life situations, the motivational context of behavior is usually much richer, and cultural meanings may shift as the motivational context changes. For example, effort is emphasized in East Asian achievement contexts (Hong, 2001). However, as illustrated in the following two studies, the meaning of effort may change as the motivational context changes.

Attributing achievement setbacks to lack of effort (vs. abilities) is usually accompanied by more task enjoyment, greater task persistence, and better performance after failure (Dweck, 1999). Grant and Dweck (2001) found that this relationship changes when students feel a sense of responsibility to their group for their own performance, as students in some East Asian contexts often do. When individual performance becomes a social responsibility, the emphasis on effort may give rise to the perception one has not tried hard enough to meet group expectations, which in turn produces feelings of anxiousness, embarrassment, guilt, and humiliation following failures.

In another study, Salili, Chiu, and Lai (2001) compared the achievement motivation of Hong Kong Chinese high school students with Canadian Chinese and European Canadian high school students. Compared to the European Canadian group, Hong Kong Chinese students and Canadian Chinese students placed heavier emphasis on teacher-, family-, and peer-oriented goals, but the two Chinese groups did not differ from each other in perceived importance of these socially oriented goals, suggesting that the two groups of Chinese students shared the strong socially oriented achievement motivation that is highly en-

couraged in Chinese culture. However, there were salient differences in the motivational contexts in Hong Kong and Canada. In Hong Kong, students with poorer grades were made to work harder; there was a negative correlation between time spent on studying and academic performance. In Canada, students who worked harder had better grades; the correlations between effort and academic performance in both Chinese Canadian and European Canadian student groups were positive. Expectedly, Hong Kong Chinese students and Canadian Chinese students attributed different meanings to effort. Among Hong Kong Chinese students, time spent on studying was unrelated to self-efficacy but positively related to test anxiety (cf. Hong, 2001). Among Canadian Chinese students, time spent on studying was positively related to self-efficacy and unrelated to test anxiety.

In summary, intracultural variations across individuals, contexts, and domains are not random or unwanted residual variances (Hong & Mallorie, 2004). To behave competently in a culture, instead of ignoring such variations, a person would need to decode the subtle meanings of such variations.

Use of Cultural Knowledge in Social Interaction

Cultural knowledge empowers people by providing them with tools for sense making and adaptive, flexible problem solving. Culturally competent individuals make use of these tools in intercultural interactions, and there is evidence that multicultural experiences foster the ability to use cultural knowledge flexibly in intercultural contacts. As noted, in Lee's (2002) studies, Hong Kong undergraduates are more accurate in estimating the distribution of knowledge among New York undergraduates than are New York undergraduates in estimating the distribution of knowledge among Hong Kong undergraduates. In addition, Hong Kong undergraduates are capable of applying their knowledge about New York undergraduates when they formulate communicative messages for New York undergraduates. New York undergraduates, by comparison, have less accurate knowledge about Hong Kong undergraduates and tend not to use such

knowledge when they formulate messages for Hong Kong undergraduates.

Within the United States, Chinese American bicultural individuals are familiar with both Chinese and American cultures, whereas most European Americans are familiar with mainstream American cultures only. In a recently completed study, we (Leung, Chiu, & Hong, 2004) found that, compared to European Americans, Chinese American bicultural individuals were more accurate in their knowledge about Chinese American differences in promotion versus prevention pride. In addition, when asked to persuade a Chinese or American target to purchase an insurance policy, Chinese American bicultural individuals were more likely to tailor arguments according to the ethnicity of the target based on their knowledge (i.e., they chose more promotion-focused arguments for an American target than for a Chinese target). By contrast, the target's ethnic identity did not affect European Americans' choice of persuasive messages.

Flexible Deployment of Cultural Knowledge

Flexible switching of cultural frames is an experience familiar to people with multicultural background. In our research, we (Hong, Benet-Martinez, Chiu, & Morris, 2003; Hong, Chiu, & Kung, 1997) primed bicultural individuals (Hong Kong Chinese, Chinese Americans) with either Chinese cultural icons (e.g., the Chinese dragon) or American cultural icons (e.g., Mickey Mouse). When primed with Chinese (vs. American) cultural icons, these bicultural individuals were more inclined to use a group agency model to interpret an ambiguous event; they made more group attributions and fewer individual attributions. Analogous culture priming effects have been found on spontaneous self-construal (Ross, Xun, & Wilson, 2002) and cooperative behaviors (Wong & Hong, in press). In addition, the culture priming effect has also been replicated in studies that used different bicultural samples (Chinese Canadians, Dutch Greek bicultural children), and a variety of cultural primes (e.g., language, experimenter's cultural identity; Ross et al., 2002; Verkuyten & Pouliasi, 2002).

Cultural frame switching (Hong et al., 2000) is a good example of flexible and discriminative use of cultural knowledge to grasp experiences in a changing sociocultural milieu. The reflectivity, sensitivity, and flexibility that define the conceptual core of cultural competence are epitomized in the following reflection from Susanna Harrington, a multicultural informant of South American origin in Sparrow's (2000) study.

I think of myself not as a unified cultural being but as a communion of different cultural beings. Due to the fact that I have spent time in different cultural environments I have developed several cultural identities that diverge and converge according to the need of the moment. (p. 190)

When bicultural individuals switch between cultural frames, they attend to cultural frames' applicability in the immediate context. In a recent series of culture priming experiments, we (Hong et al., 2003) found that among Chinese American bicultural individuals, culture priming affected the likelihood of applying a group agency model or an individual agency model only when we highlighted the tension between group agency and individual agency in the stimulus event, making the two agency models applicable in the judgment context.

In another study, Wong and Hong (in press) asked Chinese American bicultural participants to engage in Prisoner's Dilemma games with friends or strangers after the participants were primed with Chinese, American, or neutral cultural icons. The cultural primes only affected the participants' cooperative behaviors in the predicted direction (i.e., more cooperative in the Chinese than in the American priming condition) toward friends but had no effect toward strangers. These findings again show that the context limits the applicability of cultural models.

Every society has a collection of knowledge tools. Individuals use these tools to pursue important goals. The availability of multiple tools in every society leaves room for choices, and people often switch their tools as the context changes. Choosing between different tools also presupposes a reflective and agentic self (Sokefeld, 1999), which is at the heart of human competence.

Creativity and Reduction of Culturocentrism

The self is an active cultural agent that proactively engages in transactions with culture. However, the self is always embedded in a cultural context, and always sees the world through a cultural lens. If a cultural lens is used frequently enough to make sense of the environment, it becomes a learned routine and a part of "routinized" culture (Ng & Bradac, 1993). For this reason, although culture provides conventional tools for sense making and problem solving, it also impedes creativity. For example, most creative activities involve instances of conceptual expansion, in which people extend the boundaries of a conceptual domain by creating novel instances of the concept. When people engage in creative conceptual expansion, it is difficult to avoid the influence of exemplars high in chronic accessibility (Ward, Patterson, Sifonis, Dodds, & Saunders, 2002). Such exemplars are also the normative anchors of the concept in the culture. Thus, there might be a limit to the generativity of cultural agency.

However, at least in the domain of conceptual expansion, it is possible to overcome this limit when people are exposed to dissimilar graded category structures of the same concept. Such structures are likely to come from cultures with very different intellectual traditions. For example, in the United States, the most accessible instance of the self is a bounded, distinctive, autonomous, and self-contained entity. When American psychologists learned that the most accessible instance of the self in Japan is socially embedded and defined in relation to a person's position in a relational network, they became aware of the culturocentric nature of their conceptualization of the self. In addition, creative ideas emerge when two seemingly incompatible cultural traditions are combined (Hampton, 1997; Wan & Chiu, 2002). Instead of keeping contrastive cultural construals in juxtaposition, attempts to integrate contrastive ideas from diverse cultures into a coherent conceptual framework should facilitate creative synthesis.

By the same argument, laypeople may also become aware of the culturocentric nature of their own cultural beliefs as they expose

themselves to ideas from foreign cultures. Gradually, they may attempt to weave seemingly inconsistent strands of ideas from diverse cultures into their cultural life, and in the process of doing so become a creative and generative agent in a rich and dynamic culture (Nemeth & Kwan, 1985). Consistent with this idea, there is evidence that exposure to diverse cultural experiences weakens the constraints of conventionalized socialization on creative thinking (Simonton, 2000). For example, the experience of growing up when a nation breaks up into several peacefully coexisting independent states is conducive to development of creativity (Simonton, 1975). In addition, the level of creativity in a country tends to increase when it opens itself to foreign influences (Simonton, 1997). Finally, although children in some Eastern countries (e.g., China, Indonesia) tend to do more poorly than their European counterparts on standardized tests of creativity (Jellen & Urban, 1989), Asian children with rich multicultural experiences (e.g., Hong Kong Chinese children) and Chinese American children outperformed European American children in standardized creativity tests (Niu & Sternberg, 2002; Rudowicz, Lok, & Kitto, 1995). In short, cultural diversity may facilitate creativity (Simonton, 2000).

BOUNDARY CONDITIONS OF MULTICULTURAL EXPERIENCES

Thus far, we have introduced four components of cultural competence. From the literature we have reviewed, it seems that cultural competence develops from cultural contacts. However, under some circumstances, cultural contacts may also promote culturocentrism and intercultural animosity. The Israelis and Palestinians are not deprived of opportunities for intercultural contact. Despite this, when this chapter was written, the two groups were still inflicting harm to each other. Openness to alternative cultural constructions is a necessary condition for intercultural contacts to produce productive intercultural interactions. However, when people are cognitively busy, under time pressure, or accountable to their cultural group, intercultural contacts may increase culturocentrism, or the tendency to

rely on culturally received knowledge in their cultural group to guide perceptions and behaviors (Richter & Kruglanski, 2004). As we mentioned at the beginning of this chapter, other potential boundary conditions for the beneficial effects of intercultural contacts include identity threat and mortality salience. Together, these contextual factors create the boundary conditions for the beneficial effects of intercultural contacts.

PSYCHIC UNITY: THE BASIS OF INTERCULTURAL UNDERSTANDING AND CULTURAL COMPETENCE

David Hume (1784/1894, p. 358) had written in favor of psychic unity: "It is universally acknowledged that there is a great uniformity among the actions of men [sic], in all nations and ages, and that human nature still remains the same, in its principles and operations." According to this view, despite phenotypical variations in behaviors across cultures, there is a universal psychological infraculture that enables communication of minds across the globe. In this sense, psychic unity is the universal foundation for intercultural communication and cultural competence. In the past 15 years, cultural psychological research has uncovered striking group differences in cognition, motivation, emotion, and behavior. On the surface, these findings seem to challenge the notion of psychic unity. In our view, psychic unity and cultural differences are not antithetical to each other.

To resolve the apparent contradiction between psychic unity and cultural differences, cultural psychologists can borrow a lesson from Kelly's personal construct theory. As Kelly (1955) pointed out, when two persons use similar constructs to construe their experience, they go through similar psychological processes. However, people do not need to employ similar constructs or go through similar psychological processes in order to understand each other. As long as one person can cognitively represent the construction processes of another person, social understanding can be achieved. Invariably, people look through a cultural lens when they construe the reality. However, they are also capable of acquiring and momentarily wearing another cultural lens. In cosmopol-

tan societies, frequent intercultural contacts have resulted in extensive global interconnectedness. Many cultural lenses are available to a cultural group, and people can and do see the world through different cultural lenses. The ability to construct reality from different cultural perspectives allows people from diverse cultural backgrounds to establish common ground. Indeed, as cultural boundaries become increasingly permeable and fuzzy, it is difficult to justify cutting up the cultural world with arbitrary boundaries into discrete and seemingly incommensurable meaning systems (Hermans & Kempen, 1998). Cultural boundaries of knowledge may be just as arbitrary.

In light of these arguments, we believe that although all human knowledge, including psychological knowledge, is suffused with cultural meanings, transcultural understanding is attainable. For this reason, we are optimistic about the prospect of developing a general model of cultural competence. We are also hopeful that the four components of cultural competence proposed in this chapter, namely, sensitivity to both inter- and intracultural variations in cultural meanings, use of context-appropriate cultural knowledge in intercultural interaction, flexibility in switching cultural frames for sense making, and use of cultural knowledge to foster creativity, will form the psychological foundation for transcultural understanding and multicultural competence.

NOTE

1. In this chapter, when group differences are described, collective nouns that denote a collectivity (e.g., "Westerners") refer to an average member (statistically speaking) of the collectivity (e.g., an average Westerner).

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PART VI



Self-Regulatory Processes

CHAPTER 27



The Hidden Dimension of Personal Competence

Self-Regulated Learning and Practice

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As each generation traverses the path from childhood to adulthood, its sense of personal identity and esteem is determined by its perceived competence in diverse areas of functioning (Bandura, 1997). The importance of attaining academic competence is widely recognized (Covington, 1992), but other personal competencies also figure prominently in youths' sense of self—especially their athletic prowess (Horn & Hasbrook, 1987; Smoll, Smith, Barnett, & Everett, 1993). More than 50% of all American boys and girls participate in athletic programs between the age of 8 and 18, and millions more participate in interscholastic programs (Ewing & Seefeldt, 1995). But how do these youth acquire high levels of academic and athletic competence?

There is evidence that the attainment of peak levels of academic and athletic competence requires more than basic talent and high-quality instruction; it also involves self-

belief, diligence, and self-discipline. The importance of this often hidden self-regulatory dimension of competence was stressed by Amby Burfoot (1997, p. 189), the 1986 Boston Marathon Champion: "I've always been one of those slow-but-steady runners. If I won a lot of races in my day, my success didn't come from any excess of athletic brilliance. It came from discipline and determination, from the fact that I stuck to my programs and goals no matter how slow and sometimes frustrating the progress." There are considerable empirical data to support Burfoot's observation about the importance of self-disciplined learning and practice. For example, Ericsson (1997) has found that high achievers in diverse fields, such as sport, dance, and music, started their learning and practiced at a younger age than lower achievers, and that their competence is directly related to the time they spent in these self-directed endeavors.

A social cognitive perspective regarding acquisition of academic and athletic competence focuses on the role of learners' social and self-regulatory processes during extensive study and practice. In this chapter, we describe self-regulation, explain the origins and inertia of self-empowering cycles of learning on individuals' academic and athletic competence, and describe how self-regulatory competence emerges from social modeling experiences in a series of levels.

DEFINING SELF-REGULATION AND DESCRIBING KEY SELF-REGULATORY PROCESSES

Although every student has some sense of what it means to self-regulate, most personal definitions involve vague beliefs about personal willpower. Although beliefs about self-regulation are important, social cognitive researchers also emphasize the role of specific self-initiated personal, behavioral, and environmental *processes* designed to attain personal goals cyclically (Zimmerman, 1989). Cyclical adjustments are necessary during the course of learning and performance, because individuals' personal, behavioral, and environmental factors are in constant flux and must be observed or monitored using three self-oriented feedback loops. Behavioral self-regulation involves self-observing and strategically adjusting performance processes, such as one's method of learning or performing, whereas environmental self-regulation refers to observing and adjusting environmental conditions or outcomes, such as one's place for studying or practicing. Covert self-regulation involves monitoring and adjusting cognitive and affective states, such as strategies for remembering or relaxing. To optimize their effectiveness, learners develop self-regulatory plans that involve all three triadic components (Bandura, 1986).

There is extensive evidence that successful students and academics, such as professional writers and athletes, use an array of self-regulatory processes to optimize their learning and performance (Zimmerman, 1998). For example, the key self-regulatory process of "goal setting" refers to specifying intended actions or ends (Locke & Latham (1990). The American baseball star, Steve Garvey, described the importance of goal setting in

the following terms, "You have to set goals that are almost out of reach. If you set a goal that is attainable without much work or thought you are stuck with something below your true talent and potential" (Anderson, 1997, p. 85). The American novelist William Faulkner put it similarly: "Always dream and shoot higher than you know you can do. Don't bother just to be better than your contemporaries or predecessors. Try to be better than yourself" (Cowley, 1959, p. 123). Novelists, such as Anthony Trollope and Ernest Hemingway, set daily or weekly page completion writing goals for themselves to guide their literary progress (Wallace & Pear, 1977).

Another key self-regulatory process is "task strategies," which refers to analyzing tasks and identifying specific, advantageous methods for learning or performing various components of a task. For example, the legendary golfer Sam Snead (1989) would purposely move his ball to the worst lie during practice rounds, because this strategy helped him "develop the shots you need to scramble out of trouble as well as teach you how much you can realistically afford to gamble when in a jam" (p. 160). Many professional writers intentionally end their daily efforts in midsentence, because they have discovered that this practice helps them subsequently to initiate writing (Murray, 1990).

The self-regulatory process of "imagery" refers to creating or recalling vivid mental images to assist learning (Pressley, 1977). One of the most successful golfers of all time, Jack Nicklaus (1992), regularly used visual images to guide his practice and competitive play. The Pulitzer Prize-winning writer Donald Murray (1990) also uses imagery to enhance his writing. "I see what I write and many times the focus of my writing is in my image" (p. 97). The self-regulatory process of "self-instruction" refers to overt or subvocal verbalization to guide performance (Meichenbaum, 1977). To help control their temper, athletes attending the Bolletieri Tennis Academy, where champions such as Monica Seles and Andre Agassi trained, are asked to express positive alternative statements, such as saying "Let it go" or "Come on" (p. 47) to focus or motivate themselves (Loehr, 1991). Professional writers also rely on listening to themselves develop their own personal voice. "As I draft, I

write with my ear, hearing the language before it is on the page, following the beat, the melody, the phrasing that will reveal meaning to me" (Murray, 1990, p. 96).

The self-regulatory process of "time management" refers to estimating and budgeting use of time. Many elite athletes avoid burn-out and stagnation by limiting their daily practice to approximately 4–5 hours, and by avoiding long practice episodes without periods of rest and sleep (Ericsson, 1997). Professional writers also manage their time by setting limits on daily writing efforts. The poet Philip Larkin cautioned, "I don't think you can write a poem for more than two hours. After that you're going round in circles, and it's much better to leave it for twenty-four hours. Some days it goes, and some days it doesn't go. But over weeks and months I am productive" (Murray, 1990, p. 16).

Another key form of self-regulation is "self-monitoring," which involves observing and tracking one's own performance and outcomes. Self-recording one's processes and outcomes can greatly assist self-monitoring, such as when students form lists of key terms and check them off as they memorize them for a forthcoming test. The legendary golfer Ben Hogan (1957, pp. 37–38) once wrote about self-monitoring and self-recording, "Golf also seems to bring out the scientist in the person. He soon discovers that unless he goes about observing and testing with an orderly method, he is simply complicating his problems." Writers also rely on self-recording to guide their creative efforts. "The process log or daybook will help you make the process yours, will give you a chance to see how you write when the writing goes well. If you are to keep improving your writing, you need to build on the procedures you used that have worked" (Murray, 1990, p. 14).

A closely related self-regulatory process is "self-evaluation," which refers to using standards to make self-judgments, such as when students compare their homework answers with those of other students. Standards need to be set appropriately, so that they are challenging but attainable. The poet William Safford warned that excessive self-evaluative standards are a major cause of writer's "block" (Murray, 1990). The famous golfer, Walter Hagen, prevented himself from re-

sponding negatively to errors by assuming beforehand that he would make three or four errors during each round (Nicklaus, 1992). This realistic self-evaluative standard enabled him to shrug off the frustration when an error occurred.

The self-regulatory process of "environmental structuring" involves selecting or creating effective physical settings for learning, such as when students seek out a quiet section of the home or dormitory to study more effectively. Athletes have often gone to special lengths to structure their training environments to increase their chances of success. To prepare himself to win the Tour de France in the mountainous sections of the racecourse, the American bicycle racer, Lance Armstrong, would sleep during training in a low-oxygen tent to adapt himself physiologically to high-altitude conditions ahead of time (Abt, 2001). The novelist William Faulkner humorously recommended a brothel as an ideal setting for writing, because "the place is quiet during the morning hours which is the best time of the day to work" (Cowley, 1959, p. 124).

The self-regulatory process of adaptive "help seeking" involves choosing models, teachers, or books to assist one to learn. Adaptive help seeking is distinguished from social dependence by three key characteristics: self-initiation, selective focus, and limited duration of help seeking. There is considerable evidence that students who are not self-regulated avoid asking for assistance because of concern about adverse social consequences of such requests (Newman, 1994). By contrast, self-regulated students seek help selectively by knowing who and what to ask. Getting social feedback on a selective basis is essential for high-level attainment among athletes, as well as students. For example, if Jack Nicklaus (1992) noticed that some bad habits had crept into his golf stroke, he would ask his former golf coach for assistance in identifying the errors and correcting them. "In my case, Jack Grout can get me back to fundamentals in minutes, whereas it might take me weeks of trial and error to iron out a basic fault on my own" (p. 136).

These anecdotal accounts illustrate the rich variety of self-regulatory processes that students and athletes use to achieve peak performance. The results of their personal

experiences during many hours of self-directed learning and practice convinced them of the effectiveness of these techniques in acquiring and refining mastery of their field of endeavor. Although the ultimate effectiveness of a self-regulated learning process depends on the quality of its triadic match to the individual, environment, and behavioral task involved, there is growing evidence that students who use self-regulatory processes frequently enjoy greater success and are more motivated, as we discuss next.

ROLE OF SELF-REGULATORY PROCESSES IN ENHANCING MOTIVATION AND ACHIEVEMENT

To investigate the impact of self-regulatory processes in students' academic functioning, Zimmerman and Martinez-Pons (1986) developed a structured interview, the Self-Regulation Learning Interview Schedule (SRLIS), that involved asking students to respond to a series of common learning problems or contexts, such as "Most teachers give a test at the end of a marking period, and those tests greatly determine the final grade. Do you have a particular method for preparing for a test in classes like English or history?" The students' answers to these open-ended questions were coded into academic self-regulatory process categories, similar to those we described earlier, or a non-self-regulatory "other" category. The differences in the verbal protocols of students assigned to high- and regular-achievement tracks in school were significant in terms of both the quality and quantity of self-regulatory processes reported: High achievers surpassed regular achievers significantly in 13 of the 14 processes that were studied. High achievers not only reported greater use of personal self-regulatory processes, such as rehearsing and memorizing, but also social assistance processes, such as help seeking from teachers, classmates, and other adults. The other personal processes that were assessed included self-evaluation, organizing and transforming, seeking information, keeping records and monitoring, environmental structuring, providing self-consequences, and reviewing (e.g., tests, texts, and notes). It should be noted that students' reports of task strategies would be classified

within the organizing and transforming category of the SRLIS, and the self-verbalization and imagery processes would be classified within the rehearsing and memorizing category. Time management answers were classified within goal setting and planning or keeping records and monitoring categories of the SRLIS, depending on the details.

As a context-specific measure, the SRLIS assessed students' self-regulation during the course of typical academic assignments, such as reading, studying, and test preparation. However, students' statements that failed to indicate self-initiation (e.g., "I just do the assignment") or students' nonstrategic willpower statements (e.g., "I just try harder") were negatively related to achievement outcomes. Thus, students' responses to academic problems that were merely reactive to the prompts of others were associated with poorer learning. Although individual processes were assessed separately, it was expected that high-achieving students would use them in combination, which in fact was observed (Zimmerman & Martinez-Pons, 1986). As a result, the SRLIS was also analyzed as an omnibus measure of self-regulative functioning both in this study and in subsequent research. Students' combined use of self-regulatory processes accounted for 93% of the variance of their high school achievement track placement and was also highly predictive of their performance on a standardized test.

Ley and Young (1998) reported similar omnibus findings using the SRLIS to identify developmentally delayed students entering a community college. They found that these at-risk students were identified from regular students with 94% accuracy based on their reports of academic self-regulation. Purdie and Hattie (1996) used a questionnaire variant of the SRLIS (i.e., without an interviewer's probing) to study self-regulation by Australian and Japanese high school students, and found that high achievers surpassed medium and low achievers in using most of the self-regulated learning strategies.

In a subsequent study, Zimmerman and Martinez-Pons (1988) sought to validate the SRLIS against teachers' observations of their students' self-regulation in class. These teacher ratings of students dealt with overt manifestations of self-regulation in class, such as items referring to students who so-

licit additional information about tests (help seeking), display awareness concerning test performance before it is graded (self-monitoring and self-evaluation), complete assignments before deadlines (goal setting and attainment), and are prepared to participate in class (strategic planning). Because self-regulation involves self-initiation and perseverance, students' self-motivational beliefs are essential. Several indices of students' motivation were included in the teacher-completed scale: Does a student express interest in the course matter (intrinsic interest?) Does a student volunteer for special tasks related to the coursework (a learning goal orientation)? These researchers found that these teacher-derived measures of students' classroom functioning formed a single, large underlying self-regulation factor, and that the teacher-derived factor was highly correlated with the students' reports of using self-regulated learning strategies on the SRLIS. These researchers also discovered that the students' underlying self-regulation factor was distinctive from but significantly correlated with their scores on standardized tests of achievement. This indicated the divergent, as well as the convergent, validity of the teacher rating scale. Evidence that motivation measures loaded on the same factor as the self-regulatory process measures confirmed that self-regulation processes and motivation were closely associated.

Zimmerman and Martinez-Pons (1990) subsequently studied developmental differences in self-regulated learning strategy use with 5th-, 8th-, and 11th-grade students attending regular or gifted schools. Another key motivational belief was studied: *self-efficacy*, which refers to beliefs about personal capability to perform specific tasks at a designated level of proficiency. These researchers created a self-efficacy scale by selecting from a standardized test mathematical problems and verbal definition problems that ranged in difficulty from elementary school to high school levels. Students were asked to rate their confidence about answering each math or verbal item correctly. The researchers found significant developmental differences in use of self-regulated learning processes. Both regular and gifted students reported developmental increases in overall use of self-regulation processes, but gifted students surpassed regular students at each

grade level. These researchers also found that developmental increases in students' use of self-regulation processes corresponded to developmental increases in their verbal and mathematical self-efficacy. This indicates that use of self-regulatory processes is related closely to this form of motivation.

Two forms of self-efficacy beliefs have been studied to date: self-efficacy for *performance* or *learning* (including the use of self-regulation processes to learn). For example, self-efficacy for math performance involve judgments of capability to solve particular problems, whereas self-efficacy for learning involves a student's belief that he or she can learn the necessary processes to solve a particular problem (Schunk, 1989). There is evidence that self-efficacy for learning mathematical fraction problems is predictive of posttest self-efficacy for math problem-solving performance (Schunk, Hanson, & Cox, 1987). The former form of self-efficacy is particularly important when predicting students' motivation to learn an unfamiliar skill, such as a foreign language. Self-efficacy for self-regulated learning processes refers to self-beliefs about personal competence in using processes, such as goal setting, strategy use, and self-monitoring, to learn.

There is evidence that perceived efficacy for self-regulated learning processes is also predictive of perceived efficacy to perform. Zimmerman, Bandura, and Martinez-Pons (1992) investigated whether high school students' perceptions of self-efficacy regarding self-regulatory skill to learn were predictive of their self-efficacy for academic achievement performance. These researchers assessed self-efficacy for self-regulated learning through ratings of strategies similar to those assessed by the SRLIS, and they assessed self-efficacy for academic achievement using a range of academic subjects, such as math, science, and social studies. They found that self-efficacy for self-regulated learning was indeed linked to self-efficacy for academic achievement. The latter form of self-efficacy for performance, in turn, was predictive of the students' grade goals, as well as their final grades in social studies. Self-efficacy for academic achievement was also indirectly predictive of students' final grades through the goals they set. Interestingly, the self-efficacy and goal-setting measures (given in the fall) increased

the prediction of the final grades in the spring by 31% compared to the students' social studies grade from the previous year. Clearly students' perceived efficacy to self-regulate learning was highly predictive of actual goal setting and academic success. Very similar findings were reported in a follow-up study with college students enrolled in an introductory writing course (Zimmerman & Bandura, 1994). Students' self-efficacy for self-regulation of learning to write was predictive of their self-efficacy for attaining high grades in the course. The latter form of self-efficacy was in turn predictive of the students' writing goals, as well as their final grade in the course.

Similarly, in athletic contexts, self-efficacy beliefs and self-regulatory processes, such as goal setting, have been highly predictive of personal effectiveness. Regarding self-efficacy, there is extensive evidence that athletes' self-efficacy beliefs are correlated positively with their levels of athletic performance (see Feltz, 1992, for a review). In a recent meta-analysis of 45 studies, Moritz, Feltz, Fahrback, and Mack (2000) found that the average correlation between self-efficacy and sport performance was .38. Regarding the link between self-efficacy beliefs and self-regulation, athletes who report high self-efficacy beliefs regarding their performance are more likely to set challenging goals and devise strategies that will help them accomplish these goals. For example, Kane, Marks, Zaccaro, and Blair (1996) conducted a study to examine relations among measures of prior performance, self-efficacy, goals, and individual performance with 216 wrestlers competing at a wrestling camp. In general, findings showed that athletes' prior success in wrestling positively influenced their self-efficacy beliefs, which in turn affected the level of goals they set and, consequently, their performance. More interestingly, self-efficacy was found to be the only significant predictor of athletes' performance in overtime matches.

Goal setting has also received considerable attention in terms of its relevance in athletic motivation. Research indicates that proper establishment of goals plays an important role in an athlete's motivation, effort, and performance in sports (Roberts, 1992; Zimmerman & Kitsantas, 1996). Specifically, setting specific, difficult, yet attain-

able process goals has been associated with higher motivation and sport performance (Locke & Latham, 1990; Zimmerman & Kitsantas, 1996). Overall, goals not only direct athletes' attention to the task but also motivate them to search for effective strategies and strategically plan the next course of action.

Thus, there is compelling research evidence that self-regulated learning processes are predictive of both enhanced motivation and superior academic and athletic performance outcomes. However, how are these processes and motivational beliefs sustained by personal feedback, and how are they structurally linked to other sources of motivation? What leads successful student athletes to develop self-enhancing cycles of learning?

A CYCLICAL VIEW OF ACADEMIC AND ATHLETIC SELF-REGULATION OF LEARNING AND PERFORMANCE

To assess students' use of self-regulatory processes during ongoing efforts learn, social cognitive researchers (e.g., Zimmerman, 2000) have distinguished three cyclical self-regulatory phases: forethought, performance, and self-reflection (see Figure 27.1). Forethought phase processes and beliefs prepare individuals to learn. Performance phase processes influence attention, volition, and action, and self-reflection phase processes influence individuals' reactions to this learning. These self-reflective reactions cyclically influence forethought regarding subsequent learning efforts. Because of its cyclical nature, this model seeks to explain learning in informal contexts, where the goal is often a long-term continuing process of growth rather than a discrete outcome, such as when learning a foreign language or a life-long sport, such as golf, tennis, or skiing.

Forethought Phase

These self-regulatory processes and beliefs fall into two major categories: task analysis processes and self-motivation beliefs. In both academic and athletic fields of endeavor, highly self-regulatory individuals analyze the learning task prior to performance, whether it involves math problems or bas-

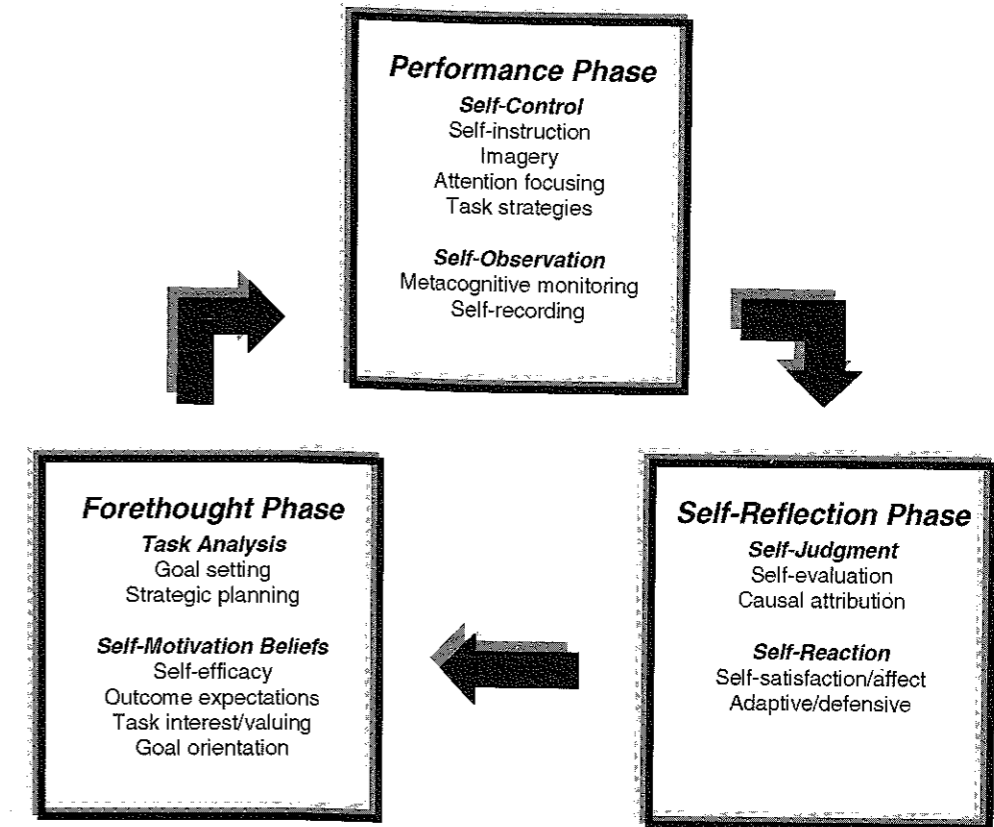


FIGURE 27.1. Phases and subprocesses of self-regulation. From Zimmerman and Campillo (2003, p. 239). Copyright 2003 by Cambridge University Press. Reprinted by permission.

ketball free throws. Highly self-regulated individuals break the task into component parts and *set goals* for learning the parts hierarchically, with subprocess and process goals linked to more distant outcome goals (Burfoot, 1997; Carver & Scheier, 2000), such as bending one's legs, positioning one's hands, and following through with one's arms during a basketball free throw). To reach these goals, highly self-regulated learners must *plan strategies* that are appropriate for the task and environmental setting (Weinstein & Mayer, 1986). For example, students may set subprocess goals in carrying out steps for solving math fractions and link them to the outcome goal of getting a higher grade on the next test (DeCorte, Verschaffel, & Op'T Eynde, 2000). The advantage of linking process goals to short- and long-term outcome goals in a hierarchical system is that it enables individuals to practice effectively by themselves for long

periods of time (Locke & Latham, 1990; Bandura, 1991).

The forethought processes of highly self-regulated learners depend on their advantageous self-motivational beliefs, namely, high perceptions of self-efficacy, outcome expectations, intrinsic interest, and learning goal orientation. As we noted, "self-efficacy" refers to personal beliefs about having the means to learn or perform effectively, and as we have already discussed, these beliefs are linked to students' motivation to initiate and sustain self-regulatory efforts (Bandura, 1997, Pajares, 1996). Don Murray (1990, p. 5) described the power of self-efficacy beliefs as follows: "Yet we also write best—just as we play tennis best—if we feel confident. We have to learn to write with confidence." A closely related source of motivation, "outcome expectation," refers to beliefs about the ultimate ends of performance (Bandura, 1997; Lens, Simons, & Dewitte, 2002). For

example, self-efficacy refers to the belief that one can solve story problems on a math test or make a parallel turn on skis, whereas outcomes refer to expectations about the consequences these solutions will produce with their peers, such as receiving social acclaim. A "learning goal orientation" (Ames, 1992; Dweck, 1988; Harackiewicz, Barron, Pintrich, Elliot, & Thrash, 2002; Nicholls, 1984) refers to learners' intention to develop their competence rather than to achieve competitive success. This goal orientation was expressed by the tennis star, Monica Seles: "I really never enjoyed playing matches, even as a youngster. I just love to practice and drill and that stuff. I just hate the whole thought that one [player] is better than the other. It drives me nuts" (Vecsey, 1999, p. D1). Her statement reveals that the process of learning has supplanted achievement outcomes as a source of motivation.

"Intrinsic interest" refers to valuing a task for its inherent rather than its instrumental qualities in gaining other outcomes (Deci, 1975; Lepper & Hodell, 1989). The American actress Geena Davis took up archery just 3 years ago, but she has developed a high skill level by using powerful self-regulation techniques. She described how much she enjoys her solitary learning experiences and has described the feelings of intrinsic interest from practicing in the following way: "I guess I just got hooked. It is really fun to try to see how good you can get, and I don't know how good that is. I haven't maxed out. I haven't peaked. I'm trying to get better" (Litsky, 1999, p. D4). By contrast, poorly self-regulated learners perceive little efficacy, have low academic outcome expectations, are performance-oriented, and have little intrinsic interest in academic learning tasks.

Performance Phase

These phase processes have been grouped into two major classes: strategy use and self-observation. We have already discussed highly self-regulated learners' extensive use of strategic processes, such as self-instruction, imagery, and environmental structuring, whereas poorly self-regulated learners are not strategic in their approach to learning. Attention-focusing strategies are designed to improve one's concentration and

screen out distracting events (Corno, 1993). Kuhl (1985) studied volitional methods of control, such as avoiding ruminating about past mistakes, and found them to be effective. The second major class of performance phase processes is "self-observation," which refers to metacognitive monitoring or physical record keeping of specific aspects of one's performance, the conditions that surround it, and the effects that it produces (Zimmerman & Paulsen, 1995). Because poorly self-regulated learners fail to set selective goals, they are often overwhelmed metacognitively by the amount of information that must be self-monitored, and they cannot adjust their strategies optimally. The legendary golfer Bobby Jones (Jones, 1966) put it this way: "But no human is able to think and at the same time execute the entire sequence of correct movements. The player must seek for a conception, or fix upon one or two movements, concentration on which will enable him to hit the ball" (p. 211). "Self-recording" of problem solution efforts can greatly increase the proximity, informativeness, accuracy, and valence of feedback (Zimmerman & Kitsantas, 1996), and there is evidence that highly self-regulated learners engage in more record keeping than do poorly self-regulated learners (Zimmerman & Martinez-Pons, 1986; 1988). Often professional writers record notes to guide their efforts to compose: "Process notes help me understand what I do when the writing goes well so I can look back and repeat it when the writing doesn't go well" (Murray, 1990, p. 21).

Self-Reflection Phase

Two major classes of self-reflection are self-judgments and self-reactions. "Self-judgments" involve self-evaluating one's learning performance and attributing causal significance to the outcomes. We have already discussed "self-evaluation" in terms of comparing self-monitored outcomes with a standard or goal. Highly regulated students self-evaluate more appropriately and more frequently than do poorly regulated students (Lan, 1998). Or, as one poorly regulated student put it, "I don't need no bad news!" Self-evaluative judgments are linked closely to *causal attributions* about the results of learning efforts, such as whether a failure is

due to one's limited ability or to insufficient effort. Poorly regulated learners attribute their errors to uncontrollable variables such as fixed ability, whereas highly regulated ones attribute errors to controllable variables such as solution strategies. Attributions to uncontrollable variables discourage poorly regulated individuals from further learning efforts (Weiner, 1979), whereas attributions of errors to controllable variables sustain further efforts to learn (e.g., Zimmerman & Kitsantas, 1996, 1997). Similarly, elite golfers tend to disregard the possibility that factors outside their control play an important role (Kirschenbaum, O'Connor, & Owens, 1999) and instead attribute their performance to poor concentration, tenseness, and poor imagination and feel (McCaffrey & Orlick, 1989).

Two key forms of self-reactions to learning efforts have been studied to date: self-satisfaction and adaptive inferences. "Self-satisfaction" refers to perceptions of satisfaction or dissatisfaction and associated affect regarding one's performance. People will pursue courses of action that result in satisfaction and positive affect and avoid those courses that produce dissatisfaction and negative affect, such as anxiety (Bandura, 1991). Unlike poorly regulated learners, highly self-regulated ones condition their self-satisfaction on reaching their learning goals, which helps them direct their actions and persist in their efforts much better (Schunk, 1983). Although high achievers set higher evaluative standards for their self-satisfaction (Zimmerman & Bandura, 1994), all learners need to attain some level of personal satisfaction to sustain their motivation to continue their practice and play.

The other form of self-reactions involves "adaptive or defensive inferences," which are conclusions about how one needs to alter his or her approach during subsequent efforts to learn. Highly regulated learners make adaptive inferences, such as by choosing a more effective strategy (Butler, 1998; Winne, 1997), but poorly regulated ones resort to defensive inferences, which serve primarily to protect them from future dissatisfaction and aversive affect. Among the most insidious defensive self-reactions are helplessness, procrastination, task avoidance, cognitive disengagement, and apathy (Boekaerts & Niemivirta, 2000; Garcia &

Pintrich, 1994). Or as one hip inner-city student put it, "When it comes to school, I play defense!" After his bout with cancer, Lance Armstrong had to alter his bicycle training methods to minimize pedal resistance (which taxes leg strength), so he adapted by increasing pedal speed (which taxes aerobic capability). As he improved his aerobic capacity, this adaptation became a tremendous advantage over his competitors (Lehrer, 2001).

Because of the cyclical nature of self-regulation, self-reactions to learning efforts influence forethought processes regarding further solution efforts. For example, positive self-satisfaction reactions of highly regulated individuals strengthen their self-efficacy beliefs about eventually learning, enhance their learning goal orientations (Schunk, 1996), and increase their intrinsic interest in a task (Zimmerman & Kitsantas, 1997). These enhanced self-motivational beliefs are the source of highly regulated learners' greater sense of personal agency about continuing their cyclical self-regulatory efforts and eventually reaching a solution. The writer Murray (1990, p. 21) put it this way: "The affective—feelings—usually control the cognitive—thinking—in my life. It is important for me to know how I feel when I write well and what causes me to feel that way." A key implication of a cyclical model is that failures to engage in *proactive* forms of forethought, such as setting hierarchical goals and choosing a strategy, relegate learners to *reactive* forms of performance and self-reflection, such as unsystematic self-evaluation, attributions to uncontrollable causes, and dissatisfied self-reactions. Although the importance of the self-regulatory processes and beliefs has been widely recognized by academic and athletic experts, as we summarized earlier, the importance of cyclical interdependence is less well understood.

CYCLICAL RELATIONS AMONG SELF-REGULATORY PROCESSES AND SELF-MOTIVATIONAL BELIEFS

To examine the validity of a cyclical model of self-regulation, social cognitive researchers have adopted microanalytical research designs to reveal specific links between an individual's self-beliefs and use of self-regulatory processes during efforts to learn. A

microanalytical methodology involves asking specific questions about important self-regulatory processes, such as self-efficacy and attribution beliefs, at key points during the act of learning and performing (Kitsantas & Zimmerman, 2002). To test the descriptive accuracy of this model with high school athletes, Cleary and Zimmerman (2001) studied differences between expert and novice male basketball free-throw shooters in forethought and self-reflection phase processes among high school males who were basketball experts, nonexperts, or novices during a practice episode. *Experts* were boys who shot a high percentage of their free throws during varsity basketball games; *nonexperts* shot low percentage in those games, and *novices* had not played basketball on organized teams during high school. During individual practice sessions in a gymnasium, these adolescent boys were questioned regarding their forethought phase goals, strategy choices, self-efficacy beliefs, and intrinsic interest, as well as their self-reflection phase attributions and feelings of satisfaction as they practiced their free-throw shooting.

The experts and nonexperts were similar in age, practice time, playing experience, and basketball shooting, but there were significant differences in the use of goals and strategies among the three groups. Regarding forethought measures, experts adopted more specific process goals (i.e., focusing on shooting form) and selected more technique-oriented strategies (i.e., keeping one's elbow straight on the follow-through) than nonexperts or novices. Experts also reported higher self-efficacy perceptions and intrinsic interest in basketball shooting than novices. During the self-reflection phase, experts attributed their failures to strategy use and adjusted their strategies appropriately. By contrast, the nonexpert group members attributed their failure to successfully shoot a basket to general focus strategies, such as not being able to concentrate, and as a result, they made less effective strategy adjustments. Finally, it was found that although nonexperts' general knowledge of the skill was comparable to that of experts, the former did not utilize it in a self-regulated manner.

In another study examining differences in self-regulatory processes among experts,

nonexperts, and novice female collegiate volleyball players, Kitsantas and Zimmerman (2002) found similar results. *Experts* were selected from the university's varsity volleyball team. The participants in the *nonexpert* group, selected from the university's volleyball club, had been on the club team for at least 3 years, and the *novices* were individuals who had not participated in volleyball as an organized sport but had played it informally. The volleyball players were studied individually while serving overhand during a practice episode. The overhand serve was selected because it is a difficult skill to master even for varsity volleyball players; thus, it represents a challenge for all expertise groups. Because the goal of the study was to discover differences in practice methods rather than in effects of differential knowledge of the overhand serve among the three expertise groups, all participants were given a modeled demonstration of this serve. A scoring procedure was created, wherein the opponents' court was divided into six designated target areas, with each area assigned a predetermined number of points written on the volleyball court.

It was shown that experts displayed better goals, planning, strategy use, self-monitoring, self-evaluation, attributions, and adaptation than either nonexperts or novices. Experts also displayed higher self-efficacy beliefs, perceived instrumentality, intrinsic interest, and self-satisfaction in volleyball serving than either nonexperts or novices. Interestingly, 94% of the accuracy in the girls' volleyball serving skill was explained by these self-regulation measures.

The additive effects of cyclical self-regulatory training in forethought, performance, and self-reflection phase processes during basketball free-throw shooting were studied with college students (Cleary, Zimmerman, & Keating, 2005). Participants were given three-phase training that involved forethought phase goal setting, performance phase self-recording, and self-reflection phase attributions and strategic adjustment processes. The two-phase group received identical training, with the omission of self-reflection processes (i.e., attributions, strategic adjustments), while the one-phase group received training only in goal setting. The results showed a positive linear trend between the number of self-regulatory phases in

which the participants were trained and their free-throw shooting skill and shooting adaptation. The two- and three-phase training groups displayed significantly more accurate free throws and were able to self-correct following missed shots more frequently than the other groups. It should also be noted that the participants who received three-phase training displayed the most adaptive motivational profile, characterized by making strategic attributions and strategic adjustments, and using self-process criteria during self-evaluations.

In the academic realm, there is evidence that instructing students to self-monitor their learning more effectively can increase their other self-regulatory processes and beliefs, as well as their achievement. Lan (1996, 1998) used a written variant of the SRLIS as an outcome measure in a self-monitoring training study designed to improve college graduate students' self-regulation and achievement in a statistics course. Students were given a list of 75 statistical concepts that were goals of the course, along with a protocol for self-monitoring their study of each concept, as well as their self-efficacy about knowing it. This *self-monitoring* group was compared with an *instructor-monitoring* intervention, in which the students kept track of the teachers' coverage of the concepts, or with a no-treatment control group.

Students who self-monitored displayed significantly higher final course grades than students in the instructor-monitoring group and marginally significantly higher grades than students in the no-treatment control group. Compared to students in the other two experimental conditions, students in the self-monitoring group reported using self-evaluation and the planning, and use of the following self-regulatory strategies: environmental structuring, rehearsal and memorization, reviewing the textbook in preparation for a test, and reviewing previous tests in preparation for a test. The instructor-monitoring group reported seeking assistance from peers significantly more often than the self-monitoring group. Lan also discovered that students' use of self-evaluation, and the planning and use of five task strategies, were significantly correlated with their final course grades. These task strategies included seeking information, rehearsal and memori-

zation, seeking peers' assistance, reviewing the textbook, and reviewing previous tests in preparation for a test. Clearly, training in self-monitoring led students to increase their use of a range of self-regulatory strategies. The cyclical power of this self-monitoring intervention was particularly evident in one student's informal self-reflections: "It helped me to manage my studying time, and it helped me to determine when I felt comfortable with the material because I could rate my understanding while studying" (Lan, 1998, p. 99).

These studies revealed significant differences in the quality of self-regulation during personally directed learning efforts by high school and collegiate athletes of varying levels of expertise. Athletic experts were more focused in their goals, strategies, and attributions than nonexperts or novices, and they were more self-efficacious about their performance. Students who were trained in successive self-regulatory phase processes displayed not only higher levels of athletic and academic functioning but also superior motivational profiles. These studies indicate that self-regulatory training has important benefits. We now turn to the questions of how such training should be organized to be optimally effective.

ACQUIRING SELF-REGULATORY COMPETENCE AND MOTIVATION VIA SOCIAL COGNITIVE TRAINING

A social cognitive perspective (Schunk & Zimmerman, 1997; Zimmerman, 2000) envisions optimal self-regulatory training as initially social in form but becoming increasingly self-directed. What changes during the process of acquisition is a person's capability to self-regulate both internal processes and external forces *proactively* in specific areas of academic and athletic functioning, such as math or basketball playing.

Four signposts have been discerned on a social cognitive path to self-regulatory skill. When acquiring an academic or athletic skill at an *observational level*, learners must carefully watch a social model learn or perform (Rosenthal & Zimmerman, 1978; Zimmerman & Rosenthal, 1974). This first signpost involves discrimination of the correct form of the skill from a model's performance and

descriptions, such as when a novice athlete can discern a difference between the golf swing of a professional and that of an amateur. Complete induction of a skill seldom emerges from a single exposure to a model's performance but usually requires repeated observation, especially across variations in task (Rosenthal & Zimmerman, 1976), such as seeing variations in golf swing based on the position of the ball and the club selected. A novice's motivation to learn at an observational level can be greatly enhanced by positive vicarious consequences to the model, such as an audience's applause for a golfer's fine play. Perceptions of personal similarity to a model increase the impact of consequences to that model vicariously on one's motivation (Brown & Inouye, 1978). In addition to conveying cognitive or motoric skill, expert models display implicit self-regulatory processes, such as adherence to performance standards, and motivational orientations and values (Schunk et al., 1987). For example, athletic models who self-correct their technique help observers to discriminate and rectify common errors. Such models also convey the high value placed on accurate speech and the need to persist in order to improve one's performance.

When acquiring a skill at an *emulation level*, the second signpost, a learner must duplicate the general form of a model's response on a correspondent task. Learners seldom copy the exact actions of the model; rather, they typically emulate the model's general pattern or style of functioning. Although learners can induce the major features of a complex skill from observation, they need performance experiences in order for the skill to become a behavioral reality. It is one thing to recognize the golf swing of a particular professional, but quite another thing to reproduce that swing oneself. Learners who emulate using a model's task can master basic response elements before contending with new task variations, which enhances their chances of a successful performance. Emulation can be improved through individualized modeling and social support. For example, during participant modeling (Bandura, 1986), a model repeats selected aspects of a skill based on a learner's emulative accuracy. As the learner acquires rudimentary aspects of a skill, the model will introduce more difficult compo-

nents. However, once an advanced level of mastery is attained, the model's support will be reduced. Although some critics have criticized modeling as a form of instruction, because of fears that it fosters response mimicry during emulation, these fears are largely unjustified because mimicry represents only a small part of emulative learning (Zimmerman & Rosenthal, 1974). Instead of duplicating a model's exact responses, observers primarily emulate the strategic features and blend them into their own repertoire of responses (Rosenthal, Zimmerman, & Durning, 1970).

When attaining a *self-controlled level* of self-regulatory skill, the third signpost, learners must practice it in structured settings outside the presence of models. To optimize learning at this level, learners should regulate their practice using representational standards (e.g., verbal recollections) of an expert model's pronunciation rather than direct observation of that model (Bandura & Jeffery, 1973). For example, students might rewrite a vague essay provided by their teacher using a model's strategy of inserting concrete examples for all abstract nouns. Learners' success in matching a covert standard during practice will determine the amount of self-reinforcement they will experience. Self-instruction, such as self-praise or self-critical statements, can help students encode and retrieve the strategy sequences during self-controlled learning (Meichenbaum & Beimiller, 1990), such as when the students reread their examples to judge their effectiveness. During third level practice sessions, learners who focus on fundamental processes or technique rather than on task outcomes are more successful in achieving *automaticity* (Zimmerman & Kitsantas, 1997, 1999), which is defined as the mastery of a model's technique. This automaticity is the most salient behavioral manifestation of the attainment of the third level of regulatory control. By focusing their practice goals on the strategic processes of proven models initially, novice learners can circumvent the frustrations of trial-and-error learning and can instead reinforce themselves for increasing motoric correspondence to this behavioral standard. By contrast, novices who focus on outcomes (e.g., the vagueness of an essay) before mastering fundamental techniques (e.g., the literary components of a

compelling example) are expected to impair learning, because novices make ineffective process adjustments until they acquire self-evaluative expertise (Ellis & Zimmerman, 2001). Although regulation of a skill becomes covert at this level, it remains dependent on a representation of an external model's standard.

When acquiring a *self-regulated level* of task skill, the fourth signpost, learners should practice it in unstructured settings involving dynamic personal and contextual conditions. At this fourth level of skill, learners learn to make adjustments in their skill based on the outcomes of practice, such as whether an exemplification writing strategy reduces the vagueness of an essay. These mindful adaptations are made on the basis of self-monitored outcomes, such as the reaction of a reader, rather than on prior modeling experiences (Graham, Harris, & Troia, 1998). Learners' perceived efficacy in making these strategic adjustments influences their motivation to continue. At the fourth level, learners can practice with minimal process monitoring, and their attention can be shifted toward performance outcomes, without detrimental consequences, because the skill has become automatized at the prior level of self-regulation (LaBerge, 1981; Neves & Anderson, 1981). A self-regulated level of skill is acquired when learners can adapt their performance to changing personal conditions and outcomes. For learners to adapt their performance, they must discriminate key features of the transfer context, choose how to adapt their skill to that context, and monitor and evaluate the results. A behavioral manifestation of fourth level functioning is learners' development of their own distinctive styles of performing. Although social support is systematically reduced as learners acquire a self-regulatory level of skill, they continue to depend on social resources on a self-initiated basis, such as when they seek help from a coach (Murray, 1990). Because self-regulatory skill depends on context and outcomes, new performance tasks can uncover limitations in existing skills and require additional social learning experiences.

This multilevel formulation of self-regulation does not assume that learners must advance through the four levels in an invariant sequence, as developmental stage models as-

sume, or that the fourth level is used universally once it is attained. Instead, a multilevel model assumes that individuals who master each skill level in sequence will learn more easily and effectively. We next turn to the issue of effectiveness of this formulation in both academic and athletic functioning.

EVIDENCE OF LEVELS IN ACQUISITION OF ACADEMIC AND ATHLETIC SKILL

To test the sequential validity of the first and second levels in the hierarchy, we compared the two primary sources of regulation for each level: modeling for the observation level, and performance and social feedback for the emulation level. In a study of writing revision (Zimmerman & Kitsantas, 2002), college students were asked to revise a series of sentences from commercially available sentence-combining workbooks. These exercises involved transforming a series of simple and often redundant sentences into a single, nonredundant sentence. For example, the sentences "It was a ball. The ball was striped. The ball rolled across the room" could be rewritten as "The striped ball rolled across the room." The mastery model performed flawlessly from the outset of the training, whereas the coping model initially made errors but gradually corrected them. Coping models are viewed as a qualitatively superior form of observational learning, because they convey self-regulatory actions, such as self-monitoring and self-correction, as well as writing revision skill. By contrast, mastery models portray primarily writing revision skill. Both modeling groups learned initially by observing an adult demonstrate a multistep-process writing revision strategy, whereas the no-modeling group learned only by hearing the multistep process described. Some members of each of the three experimental groups were given social feedback.

Students in the two modeling groups that had the benefit of some form of observational learning significantly surpassed the revision skill of those who attempted to learn from only verbal description and performance outcomes. Students who observed the higher quality coping model outperformed students who observed the lower quality mastery model. In support of the theory, this

writing study demonstrated that self-regulatory skills, such as self-monitoring and self-correcting actions of the coping model, were learned vicariously. As was hypothesized regarding enactive learning, social feedback improved writing skill for both forms of modeling. Once again, social feedback was insufficient for students in the no-modeling group to make up for their absence of vicarious experience. Finally, students exposed to both forms of modeling displayed higher levels of self-motivation, such as self-efficacy beliefs, than did students who relied on discovery and social feedback. These academic writing results confirmed the sequential advantages of engaging in observational learning before attempting enactive learning experiences.

In a similar study of athletic functioning of high school girls, Kitsantas, Zimmerman, and Cleary (2000) studied a high-quality coping modeling group, a lower quality mastery modeling group, and a no-modeling (enactive learning) group. The girls were taught a three-step strategy for throwing darts using coping or mastery models, or by verbal description and direct practice. Social feedback was given to some students in each experimental group. The results were supportive of a multilevel view of self-regulatory development. Adolescent girls in the two modeling groups significantly surpassed the dart-throwing skill of those who attempted to learn from only verbal description and performance outcomes. The coping model was significantly more effective than the mastery model, which indicates that the quality of the girls' observational learning experience influenced their development of athletic skill. During emulation, girls who received social feedback learned better than those who practiced on their own. However, the impact of this social feedback was insufficient in the no-modeling group to make up for the absence of vicarious experience. These results support the sequential advantage of engaging in observational learning before engaging in enactive learning experiences. Finally, girls exposed to observational learning from either form of modeling also showed higher levels of self-motivation, such as self-efficacy beliefs, than did students in the control group.

To test the sequentiality of the third and fourth levels of skill (i.e., self-control and

self-regulation) in the multilevel hierarchy, the two primary sources of regulation for these levels (i.e., process standards and outcomes) were compared. Recall that process goals are hypothesized to be optimal during acquisition at the self-control level, but outcome goals are expected to be superior during the acquisition at the self-regulation level. Zimmerman and Kitsantas (1999) tested the sequentiality of the third and fourth levels of the multi-level model with high school girls using the same writing revision task that was described above (Zimmerman & Kitsantas, 2002). These girls were initially taught the three steps of the revision strategy through observation and emulation (regulatory levels 1 and 2) that was described previously. During a practice session following training, girls in the process goal group focused on strategic steps for revising each writing task, whereas girls in the outcome goal group focused on decreasing the number of words in the revised passage. Some of the girls in each goal group were asked to self-record. The theoretically optimal group shifted from process goals to outcome goals when automaticity was achieved. Girls in the process-monitoring group recorded strategy steps they missed on each writing task, whereas girls in the outcome-monitoring group wrote down the number words used in each writing task. Girls in the shifting-goal group changed their method of self-monitoring when they shifted goals. Thus, the experiment compared the effects of process goals, outcome goals, and shifting goals, as well as self-recording during self-directed practice.

The results were consistent with a multilevel hierarchical view of goal setting: Girls who shifted goals from processes to outcomes after reaching level 4 (i.e., having achieved automaticity) surpassed the writing revision skill of girls who adhered exclusively to process goals or to outcome goals. Girls who focused on outcomes exclusively displayed the least writing skill, and self-recording enhanced writing acquisition for all goal-setting groups. In addition to their superior writing skill outcomes, girls who shifted their goals displayed advantageous forms of self-motivation, such as enhanced self-efficacy beliefs.

Zimmerman and Kitsantas (1997) used the same dart-throwing athletic task de-

scribed earlier to examine the effectiveness of goal shifting during dart-throwing practice with high school girls. A process goal group focused on practicing the strategy steps for acquiring dart-throwing technique, whereas an outcome goal group focused on improving scores. The "bull's-eye" on the target had the highest numerical value, and the surrounding concentric circles gradually declined in value. The optimal goal-setting group from a multilevel perspective shifted from process goals to outcome goals when automaticity was achieved. Self-recording was taught to some girls in each goal group. Girls in the process-monitoring group recorded any strategy steps they may have missed on each practice throw, whereas girls in the outcome-monitoring group wrote down their target scores for each throw. Girls in the shifting-goal group changed their method of self-monitoring when they shifted goals. Before being asked to practice on their own, all of the high school girls were taught strategic components of the skill through observation and emulation (levels 1 and 2). The experiment compared the effects of process goals, outcome goals, and shifting goals, as well as self-recording during self-controlled practice. The results were supportive of a multilevel hierarchical view of goal setting: Girls who shifted goals developmentally from processes to outcomes surpassed classmates who adhered only to process goals or only outcome goals in posttest dart-throwing skill. Girls who focused on outcomes exclusively were the lowest in dart-throwing skill. Self-monitoring assisted learning for all goal-setting groups. In addition to their superior learning outcomes, students who shifted their goals displayed superior forms of self-motivation, such as self-efficacy beliefs.

CONCLUSIONS

Research on academic and athletic self-regulation reveals that an individual's development of optimal competence requires more than basic talent and high-quality instruction; it involves self-regulatory skill and accompanying self-motivational beliefs. This self-regulatory dimension of human competence, although often subtle, is pervasive in personal accounts of successful students, ex-

pert writers, and professional athletes. Donald Murray (1990) cautions novice writers about the hidden role of self-regulatory competence in successful writing: "Good writing does not reveal its making" (p. 5). "Getting writing done day in and day out, despite interruptions . . . is what separates the writer from the hope-to-be writer" (p. 15). In addition to anecdotal evidence from experts regarding the importance of key self-regulatory processes, there is extensive empirical evidence that learners' use of self-regulatory processes is highly predictive of their academic as well as athletic success. Furthermore, people's self-efficacy beliefs about their self-regulatory competence proved to be predictive of not only their use of self-regulatory processes but also their learning and performance outcomes.

The interrelation of various self-regulatory processes and self-motivational beliefs is explained in terms of three cyclical phases: forethought, performance, and self-reflection. Proactive learners, who engage in effective forethought, perform more effectively and experience more favorable self-reflections than reactive learners. Students' development of self-regulatory competence has been studied from a multilevel social cognitive perspective, and there is strong evidence that people who learn vicariously from self-regulatory models and adapt the model's techniques to their own personal functioning are more successful and better motivated than individuals who rely on a social self-discovery. We believe this is vital information for the development of intervention programs designed to assist poorly motivated learners who are at academic and athletic risk.

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CHAPTER 28



Engagement, Disengagement, Coping, and Catastrophe

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In 1992 Tom Pyszczynski and Jeff Greenberg published a book called *Hanging On and Letting Go*. That book was about processes behind depression. However, its title pointed to a fundamental and crucial division within human experience, with implications far broader than depression. On the one side of the division is a continuing engagement in the struggle to attain something desired, even when its attainment appears unlikely. It is easy to see this side as representing the exercise of motivation, a struggle for mastery in the short run, and for ever-greater competence in the long run. On the other side of the divide is giving up, ceasing the struggle, and releasing one's commitment to reaching the desired end.

Motivation, commitment, and the struggle for increased competence are a very important part of life. Little that is noteworthy has ever been accomplished without persistence in the face of setbacks, obstacles, and difficulties. Western society justifiably places great stock in hard work and the belief that

diligence (along with ingenuity) can overcome whatever obstacles arise.

Yet holding on, continuing to try, is not *all* of life. Letting go is also important (Carver & Scheier, 2003; Wrosch, Scheier, Carver, & Schulz, 2003). People all need to give up sometimes. A key decision in life, which is made over and over in a wide variety of contexts, is when to hang on and when to let go. That decision is made with regard to very broad and important areas of life (e.g., whether to give up an unreachable career aspiration or a failed relationship), and it is also made on a much smaller scale (e.g., whether to keep trying for an A in a course, or whether to keep trying to solve a particular word puzzle). The ability to make these decisions wisely and well represents another sort of competence.

The divergence between these two orientations to a goal—engagement in its pursuit versus disengagement and abandonment of it—is the subject of this chapter. Our view is that these are both necessary parts of life,

and that the forces inducing one or the other of these orientations are natural aspects of self-regulation. We begin with a brief overview of a broader conceptual framework within which we then address this distinction.

CONCEPTUAL OVERVIEW

We believe that intentional behavior is the attempt to make something occur in action that is already held in mind (Carver & Scheier, 1981, 1998). This view of behavior provides the basis for our use of the term "self-regulation." When we use this term, we intend to convey several things. One is that people's actions are purposive (even if the purpose is sometimes hard to identify by observers, or even by the actors themselves). Another is that self-corrective adjustments of the action occur as needed, to keep the action on track for the purpose being served. Yet another is that the corrective adjustments originate within the person. These ideas converge in the view that behavior is a continual process of moving toward (and sometimes away from) goal values, and that

this movement embodies the characteristics of feedback control.

Goals and Feedback Loops

This view converges in many respects with the interest in goal constructs in today's personality and social psychology (Austin & Vancouver, 1996; Elliott & Dweck, 1988; Emmons, 1986; Higgins, 1987, 1996; Markus & Nurius, 1986; Read & Miller, 1989; Pervin, 1982, 1989). Different theorists have their own distinct points of emphasis (for broader discussions, see Austin & Vancouver, 1996; Carver & Scheier, 1998, 1999a; Pervin, 1989), but they also have many similarities. All convey the sense that goals give direction to behavior, thus making the goal a key motivational concept. Indeed, in this view, the self is partly made up of the person's goals and the organization among them (cf. Mischel & Shoda, 1995).

How goals are used to produce behavior can be described in many ways. As indicated earlier, we think of the process in terms of feedback loops (Figure 28.1). A feedback loop (Miller, Galanter, & Pribram, 1960; MacKay, 1966; Powers, 1973; Wiener,

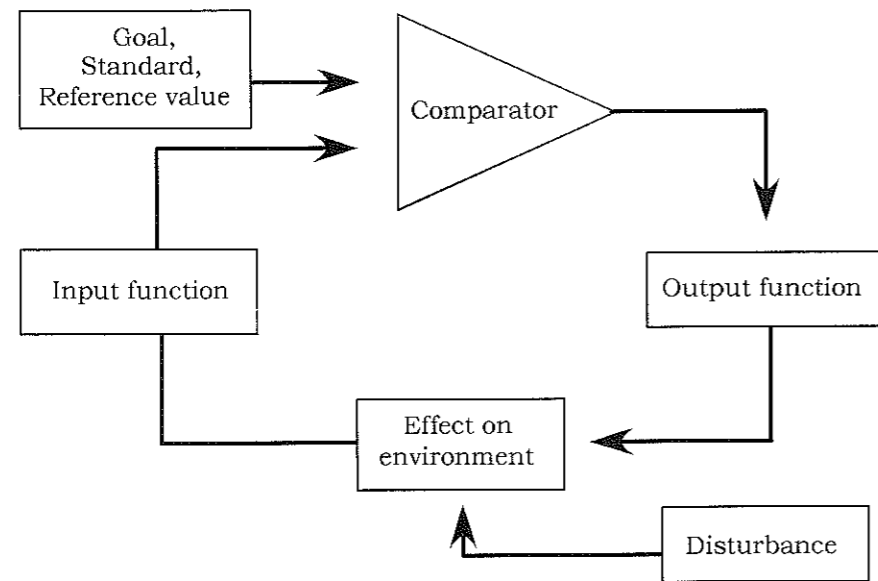


FIGURE 28.1. Schematic depiction of a feedback loop, the basic unit of cybernetic control. In a discrepancy-reducing loop, a sensed value is compared to a reference value or standard, and adjustments occur in an output function (if necessary) that shift the sensed value in the direction of the standard. In a discrepancy-enlarging loop, the output function moves the sensed value away from the standard.

1948) is an organization of four elements: an input function, a reference value, a comparator, and an output function. An input function (which we treat as equivalent to perception) brings information about an existing state into the system. A reference value is a second source of information, coming from within the system. We treat goals as a particular kind of reference value.

A comparator, the next element, is something that compares the input to the reference value. This yields one of two outcomes. Either the values being compared are discriminably different or they're not. (Either you're doing what you intended to do, or you're not.) The degree of discrepancy detected is sometimes referred to as an "error signal," with more error implying greater discrepancy. (The idea that error detection is fundamental to living systems is echoed in evidence that negative events [which imply discrepancies] draw attention; see Baumeister, Bratslavsky, Finkenauer, & Vohs, 2001.)

After the comparison comes an output function, which we treat as equivalent to behavior (though sometimes the behavior is internal). If the comparison yields "no difference," the output function remains as it was. If the comparison yields a judgment of "discrepancy," the output function changes. Change in the output changes the existing situation in some way. This in turn changes the input. The loop of information thus is closed, and the cycle continues.

There are two kinds of feedback loops, which differ in their overall function. In a *discrepancy-reducing* loop, the output function acts to reduce or eliminate any discrepancy noted between input and reference value. It keeps the error signal as low as possible. Such an effect is seen in human behavior in the attempt to attain a valued goal, or to conform to a standard. In a *discrepancy-enlarging* loop, the reference value is a value to avoid. It may be convenient to think of it as an "anti-goal." A discrepancy-enlarging loop senses existing conditions, compares them to the anti-goal, and acts to enlarge the discrepancy. Psychological examples of anti-goals are a feared or disliked possible self (Carver, Lawrence, & Scheier, 1999; Markus & Nurius, 1986; Ogilvie, 1987), interpersonal rejection, and a spoiled public image. Each of these is a condition to be avoided.

Enlarging a discrepancy thus is an avoidance process.

The action of discrepancy-enlarging processes in living systems is typically constrained by discrepancy-reducing processes. To put it differently, acts of avoidance often lead into compatible acts of approach (Figure 28.2). An avoidance loop tries to increase distance from an anti-goal. But there often is an approach goal (or even more than one) in nearby psychological space. If one is noticed and adopted, the tendency to escape from the anti-goal is joined by a tendency to move toward the goal. The approach loop pulls subsequent behavior into its orbit.

These two kinds of feedback processes have been found in many kinds of physical systems, ranging from physiological to social, ethological, and economic. The broad existence of such forces in multiple, diverse kinds of systems is one reason we have been drawn to the idea that the feedback concept has utility in thinking about behavior. For our present purposes, though, the main points are fairly simple. Discrepancy reduction is an approach process. Discrepancy enlargement is an avoidance process.

The idea that behavior is organized around approaching and avoiding is by no means novel. Approach and avoidance processes have been postulated on a variety of theoretical grounds over many years (cf. Miller, 1944; Miller & Dollard, 1941). These functions have recently come to the fore yet again, in a family of theories rooted in neuropsychology and conditioning. A system managing incentive motivation and approach has been postulated by a number of biologically oriented theorists, variously called the "Behavioral Activation System" (Cloninger, 1987; Fowles, 1980), the "Behavioral Approach System" (Gray, 1981, 1987, 1994), and the "Behavioral Facilitation System" (Depue & Collins, 1999). A system managing aversive motivation and withdrawal from or avoidance of aversive stimuli has been called the "Behavioral Inhibition System" (Cloninger, 1987; Gray, 1981, 1987, 1994), and "Withdrawal System" (Davidson, 1984, 1992a, 1992b, 1995).

These theories stand at a different level of abstraction than the ideas that were discussed just previously. These theories deal

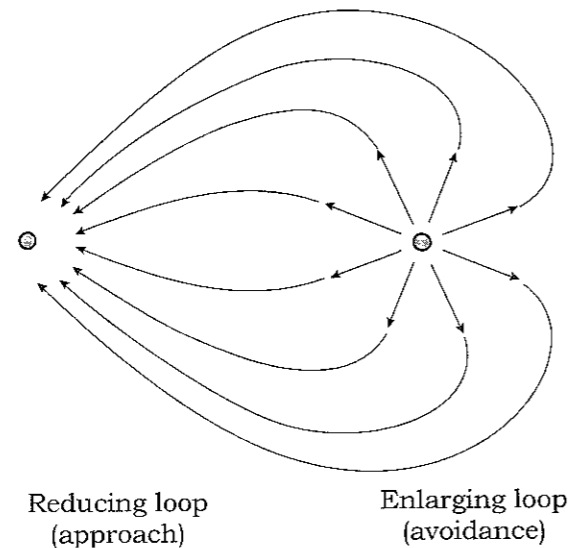


FIGURE 28.2. The effects of discrepancy-enlarging feedback systems are often bounded or constrained by discrepancy-reducing systems. A value moves away from an undesired condition in a deviation-amplifying loop, and then comes under the influence of a discrepancy-reducing loop, moving toward its desired value. Adapted from Carver and Scheier (1998). Copyright 1998 by Cambridge University Press. Adapted by permission.

with neurobiological structures and how those structures may be involved in behavior. However, the two sets of ideas seem very compatible. The feedback loop is a more abstract construct. It might be viewed as being, in effect, a metatheory that is applicable to both neurobiology and other domains in which feedback influences occur.

Another comparison is also instructive. Most of the chapters in this volume are organized around the idea that people are motivated by the desire for increased competence. The authors of those chapters move from that starting assumption to consider some of the issues that follow from it. We, in contrast, are describing here a way of viewing the self-regulation of behavior *in general*. Some behaviors surely represent efforts to extend competence, but not all do, except in a limited sense. That is, we assume that the human organism continuously strives to make better predictions of events in the world (Carver & Scheier, 1999b). We assume that this is an operating characteristic of the organism, an aspect of the workings of our cognitive machinery. We believe (consistent with Piaget, 1963) that these tendencies result in greater elaboration, organization (integration of simple processes into a

more complex whole), and adaptation. Do they therefore represent a striving for competence? Perhaps, but it is often an implicit rather than an explicit striving.

Affect

Overt behavior is important, but not all-important. Also important in human experience is affect. Just as behavior displays fundamental regularities, so does affect, or emotion. Affects serve as self-regulatory controls on what actions take place and with how much urgency (Carver & Scheier, 1990, 1998). Affect sometimes keeps people immersed in the actions they are now engaged in. Affect sometimes leads people to cease their actions.

What is affect, and where does it come from? It is widely held that affect pertains to one's desires and whether they are being met (e.g., Clore, 1994; Frijda, 1986, 1988; Ortony, Clore, & Collins, 1988). But what exactly is the internal process by which feelings arise? Answers to that question can also take any of several forms, ranging from neurobiological (e.g., Davidson 1984, 1992b, 1995) to cognitive (Ortony et al., 1988). We have suggested an answer (Carver & Scheier,

1990, 1998, 1999a, 1999b) that focuses on some of the functional properties of affect. Again we use feedback control as an organizing principle. But now the feedback control bears on a different quality than it did earlier.

We have suggested that feelings arise as a consequence of a feedback process that operates automatically, simultaneously with the behavior-guiding process, and in parallel to it. Perhaps the easiest way to convey what this second process is doing is to say that it's checking on how well the first process (the behavior loop) is doing *its* job. The input for this second loop thus is some representation of the *rate of discrepancy reduction in the action system over time* (we limit ourselves at first to discrepancy-reducing action loops).

Input by itself does not create affect (a given rate of progress has different affective effects in different circumstances). We believe that, as in any feedback system, this input is compared to a reference value (cf. Frijda, 1986, 1988). In this case, the reference is an acceptable or desired rate of behavioral discrepancy reduction. As in other feedback loops, the comparison checks for deviation from the standard. If there is a discrepancy, the output function changes.

We believe that the error signal in this loop is manifest phenomenologically as affect, a sense of positive or negative valence regarding the action taking place. If the rate of progress is below the criterion, negative affect arises. If the rate is high enough to exceed the criterion, positive affect arises. If the rate is not distinguishable from the criterion, no affect arises.

In essence, the argument is that positive feelings mean you are doing better at something than you intend to, and negative feelings mean you are doing worse than you intend to (for more detail, including a review of evidence on the link between this "velocity" function and affect, see Carver & Scheier, 1998, Chapters 8 and 9). One direct implication of this line of thought is that the affects that might potentially arise regarding any given action domain should fall along a bipolar dimension. That is, for a given action, affect can be positive, neutral, or negative, depending on how well or poorly the action is going.

Now consider discrepancy-enlarging action loops. The view just outlined rests on the idea that positive feelings occur when a behavioral system is making rapid progress in doing what it is organized to do. The systems considered thus far are organized to reduce discrepancies. There is no obvious reason, though, why the principle should not also apply to systems organized to enlarge discrepancies. If that kind of a system is doing well at what it is organized to do, there should be positive affect. If it is doing poorly, there should be negative affect.

The idea that affects of both valences can occur would seem applicable to both approach and avoidance systems. That is, both approach and avoidance have the potential to induce positive feelings (by doing well), and both have the potential to induce negative feelings (by doing poorly). But doing well at moving *toward an incentive* is not quite the same as doing well at moving *away from a threat*. Thus, the two positives may not be quite the same, nor the two negatives.

This line of thought, along with insights from Higgins (e.g., 1987, 1996) and his collaborators, has led us to argue for the existence of two bipolar affect dimensions (Carver, 2001; Carver & Scheier, 1998). One dimension relates to the system that manages the approach of incentives, the other to the system that manages the avoidance of, or withdrawal from, threat. The dimension pertaining to approach (in its "purest" form) includes affects such as elation, eagerness, and excitement on the positive side and frustration, sadness, and dejection on the negative side. The dimension related to avoidance (in its "purest" form) includes affects such as fear and anxiety on the negative side and relief, serenity, and contentment on the positive side.

The view we have taken implies a natural link between affect and action. If the input function of the affect loop is a sensed rate of progress in action, the output function must be a change in the rate of that action. Thus, the affect loop intrinsically has a direct influence on what occurs in the action loop. The latter controls what might be thought of as the person's "position," whereas the former controls what might be thought of as the person's "velocity." Action-managing loops handle the directional function of motivation (choosing specific actions from among

many options, keeping the action on track). Affect-related loops handle the intensity function of motivation (the vigor, enthusiasm, effort, concentration, or thoroughness with which the action is pursued).

Two Aspects of Approach-Related Negative Affect

We said a little earlier that affect sometimes keeps people immersed in the actions they are now engaged in, and that affect sometimes leads people to cease their actions. What did we mean by that? In answering this question, we focus on negative affects (for discussion of positive affects see Carver, 2003). Furthermore, for the sake of clarity, we restrict ourselves here to *negative affects that are tied to goal-seeking efforts*—approach processes (a parallel line of argument applies to avoidance processes, but we do not talk about avoidance here).

Our argument is that falling behind in a goal-seeking effort creates negative affect. More specifically, this experience gives rise to feelings such as frustration, irritation, and even anger (Carver, 2004). The lagging of progress, or the affect thereby created, prompts an increase in exertion, an effort to catch up. Thus, these negative feelings (or the mechanism that underlies them) keep the person immersed in the ongoing action and engage the person's effort more fully (for findings that fit this view, see Harmon-Jones, Sigelman, Bohling, & Harmon-Jones, 2003; Lewis, Sullivan, Ramsay, & Alessandri, 1992; Mikulincer, 1988). Such effort often allows the person to increase movement toward the goal and make attaining the goal seem likely again. Consistent with this view, Frijda (1986, p. 429) has argued that anger as an emotion implies a hope that things can be set right (see also Harmon-Jones & Allen, 1998).

Sometimes, however, continued efforts do not have the desired effect. Indeed, if the situation involves loss, movement forward is precluded. When there is a loss, the goal is gone. These cases are more extreme than those described in the preceding paragraph. When failure seems assured or a loss has occurred, the negative affect has a different tone than in the case described in the preceding paragraph. Here, the feelings are sadness, depression, dejection, and grief (in-

deed, Finlay-Jones & Brown, 1981, and others have linked loss to clinical depression). Accompanying behaviors also differ. Rather than continue to struggle, the person tends to disengage from further effort toward the goal (Klinger, 1975; Wortman & Brehm, 1975; for supporting evidence, see Lewis et al., 1992; Mikulincer, 1988).

At least two studies have found patterns of affective responses that are consistent with this portrayal (Mikulincer, 1994; Pittman & Pittman, 1980). In these studies, participants had varying amounts of failure, and their emotional responses were assessed. In both studies, reports of anger were most intense after small amounts of failure and lower after larger amounts of failure. Reports of depression were low after small amounts of failure and intense after larger amounts of failure.

Thus, these two kinds of situations create two different kinds of negative feelings, which relate to opposite shifts in behavior. Although the behavioral shifts are opposite to each other, we believe they both have adaptive properties. In the first case (when the person falls behind but the goal is not seen as lost), feelings of frustration and anger yield an increase in effort, a struggle to gain the goal despite the setbacks. This struggle is adaptive (and the affect is adaptive) because that struggle can foster goal attainment.

In the second, more extreme situation, when effort is futile, feelings of sadness and grief yield *reduction* of effort. Sadness and despondency imply that things cannot be set right, that further effort is pointless. Reduction of effort in this circumstance also has adaptive functions (cf. Wrosch et al., 2003). It serves to conserve energy rather than waste it in futile pursuit of the unattainable (Nesse, 2000). If it also helps diminish commitment to the goal (Klinger, 1975), it eventually readies the person to take up pursuit of another incentive in place of this one.

Continued Effort and Giving Up

These two functions that we believe correspond to two kinds of approach-related negative affect take us to the heart of the theme of this chapter. The first class of affect (frustration, anger) is a precursor to (or a concomitant of) continued or even increased ef-

fort toward goal attainment. The second class of affect (sadness, despondency) is a precursor to (or a concomitant of) giving up.

Our interest in the tension between effort and giving up is reflected in this analysis of affect. It did not begin there, however. We were interested in this issue much earlier, before our analysis of affect had been developed. Some of our earliest work examined influences on people's responses to adversity when they worked on difficult laboratory tasks (Carver & Scheier, 1981). We found that sometimes when things are going poorly people keep trying, continue to struggle. Sometimes when things are going poorly they stop trying, reduce their efforts.

We have long held that this difference in behavioral response rests on a difference in *confidence versus doubt* about reaching the desired goal. Our view thus is one of a long tradition of expectancy-value theories (e.g., Atkinson, 1964; Bandura, 1997; Feather, 1982; Klinger, 1975; Kuhl, 1984; Kukla, 1972; Lewin, 1948; Shah & Higgins, 1997; Snyder, 1994; Vroom, 1964; Wright & Brehm, 1989). Given enough confidence, a person will continue to try, even in the face of obstacles and setbacks. Given enough doubt, the person will stop trying. It is clear that there is a link between affect and confidence—indeed, they may both reflect the same error signal. But we suspect that the link is less than perfect.

Interest in how this more cognitive sense of confidence or doubt influences behavior was what first led us to think about the contrast between engagement and disengagement. We examined both naturally occurring and experimentally manipulated expectancies. For example, in one study we subjected everyone to an initial failure experience, and then let them work on another task. We led some to expect to be able to make up for that failure on a second task, and led others to expect more failure. These manipulated expectancies were reflected in participants' subsequent persistence at what actually was an impossible task. Those expecting to be able to perform well tried longer than those expecting to perform more poorly. Other studies found that expectancies influenced actual performances on tasks and the seeking out of information about the tasks (Carver & Scheier, 1981, 1998). In all cases, greater confidence related to more en-

agement, and doubt related to disengagement.

Our interest in confidence and engagement versus doubt and disengagement led us into several research literatures. We have explored this issue in focused domains, such as test anxiety, where some people have more difficulty than others performing in line with their wishes (Carver & Scheier, 1981). We found, for example, that people who are high in test anxiety are prone to disengage from their task efforts into off-task thinking, and therefore perform more poorly. They are also more likely to skip from item to item, in search of easy answers, and to be correspondingly less persistent at a given item. A similar pattern linking negative expectancies to decreases in effort has recently been found in university athletes (Hatzigeorgiadis & Biddle, 2001). We have also used the same line of reasoning to explore how people respond to health threats, in their coping efforts and their psychological well-being (Carver & Scheier, 2002; Scheier & Carver, 2003).

In this work on responses to health threats, we have also explored how this line of reasoning applies in people's broad orientation to the full range of life's experiences—their generalized sense of optimism versus pessimism (Scheier & Carver, 1992). Optimism and pessimism are confidence and doubt writ large, bearing on the person's entire life space. It appears that the same behavioral tendencies—engagement versus disengagement—flow from optimism and pessimism, just as they do from more focused confidence and doubt (Scheier & Carver, 2003; Scheier, Carver, & Bridges, 2001).

In particular, optimists appear to engage in coping responses that reflect a continued engagement with their goals, and with life more generally. A variety of research (reviewed in Scheier et al., 2001) has shown that people who are optimistic report more problem-focused coping (particularly when the situation is seen as potentially controllable), more acceptance of the reality of adverse circumstances, and more positive reframing of the situation, thereby maintaining their positive expectancies for being able to resolve the problems. In contrast, people who are more pessimistic report greater tendencies to deny the reality of the situation,

as though they can somehow escape its existence by wishful thinking. They are more likely to do things that provide temporary distractions but don't help solve the problem. Sometimes they even report giving up trying to cope. All of these responses look very much like disengagement.

Giving Up and Avoidance

Effort and giving up create the potential for great complexity. However, reality is even more complex. Before continuing, we must make one more distinction to avoid confusion. Then, we place a limit on what is discussed in the rest of the chapter.

The distinction is between disengagement and avoidance. Earlier in the chapter, we described avoidance as an active effort to increase the distance between oneself and an anti-goal. We want to be clear that we regard that process as different from what occurs when a failure of approach leads to giving up. Giving up is a sinking away from effort. It is not an active attempt to distance oneself from a reference value. The surface topography of the physical actions that these processes induce can (in some circumstances) be very similar. The underlying processes, however, are not the same.

Thinking of approach and avoidance together gets very tricky in many areas of discussion, such as achievement. As we noted earlier (Figure 28.2), avoidance processes sometimes lead into compatible approach processes. For example, one way to avoid failure is to approach success (Atkinson, 1957). For that reason, a person who is motivated mostly by the desire to avoid failure at an achievement task may display strong effort when engaged in that task. That behavior can look a lot like the behavior of a person who is interested only in attaining success and is totally unconcerned with avoidance. But the motivational situations for the two people are not the same. The emotions they experience are likely to differ (Higgins, Shah, & Friedman, 1997, Study 4), and some of the strategies they use may also differ (Elliot & McGregor, 2001).

In truth, it is likely that most human behavior involves blends of approach and avoidance motivations. Analysis of how the two motivational bases for the same action lead to different experiences is potentially

very important. However, that goal is beyond the scope of our undertaking here. For our present purposes, we disregard that complicating factor. Instead, from here onward, we focus exclusively on issues arising in approach processes.

Functions of Engagement and Giving Up

We said earlier that persistence in approach and giving up of approach are both important. Let us return to that assertion and expand upon it. It is easy to grasp that commitment, confidence, and persistence are keys to success. Expectancy-value models hold that people who are confident remain committed to their valued goals, remain engaged in attempts to move forward, even when effort thus far has been futile. Discussions framed in expectancy-value terms typically emphasize this idea: that continued effort can result in attainments.

That emphasis is quite reasonable, given that many of these theories have roots in analyses of achievement behavior. Much of the interest behind theories of achievement behavior is in the resulting achievement. Indeed, many who are interested in achievement behavior are interested more specifically in how achievement can be maximized. It is certainly true that a person who gives up whenever encountering difficulty will never accomplish anything. To accomplish things, people need to persist when confronting obstacles.

There are also reasons, however, why disengagement is sometimes a good idea. The simplest reason, described earlier, is that a person trying unsuccessfully to reach a goal experiences distress. This is true both in small-scale goal pursuit and in life's big picture (Wrosch et al., 2003). With respect to the big picture, lifespan development theorists point out that successful development inevitably requires people to make choices about which goals to continue pursuing and which to give up (Schulz & Heckhausen, 1996). A very basic reason why some goals should be abandoned concerns the biological resources available at different phases of the lifespan (Baltes, Cornelius, & Nesselroade, 1979; Heckhausen & Schulz, 1995). During early childhood, cognitive and physical abilities are limited. As the

child grows, so do the abilities. The growth plateaus; then there is a decline in old age. This cycle of growth and decline limits what goals are within reach at any given point in the life course. If the resources are lacking, the goal cannot be attained. In the same way, goal attainment is sometimes limited by genetic potential. For example, to become a professional athlete is very unlikely for someone who lacks the physical attributes required by a particular sport. More simply, some goals are out of reach no matter how hard you try.

Another constraint is the limit placed by the time available in a person's life. Whatever is to be achieved or experienced in life must be done in a finite period of time. The acquisition of skills, knowledge, and expertise takes time (Ericsson & Charness, 1994). Thus, the person is constrained in the extent to which functioning can be maximized in multiple domains. To be committed to attaining excellence in many diverse life domains thus can be a set-up for distress, because there are only so many hours in a day, and so many days in a life.

In both the short term and the long term,

then, disengagement from certain goals plays an important function. Yet despite this, people sometimes keep struggling for things that seem unattainable. When something is important to them, people often will struggle well past the point where the goal has been lost. Why? In order to address that question properly, we need one more idea, the notion of hierarchicality.

Hierarchicality

Actions can take place at many different levels of abstraction (Powers, 1973; Vallacher & Wegner, 1987). You can try to be a successful person in your chosen profession, but you can also try to make a paragraph you are writing make sense (which entails the even more concrete attempt to hit the right keys on the computer with just the right amount of pressure). Thus, it is often said that actions (and the goals to which they relate) form a hierarchy (Carver & Scheier, 1998; Powers, 1973; Vallacher & Wegner, 1987). Abstract goals are attained by attaining the concrete goals that help define them (Figure 28.3).

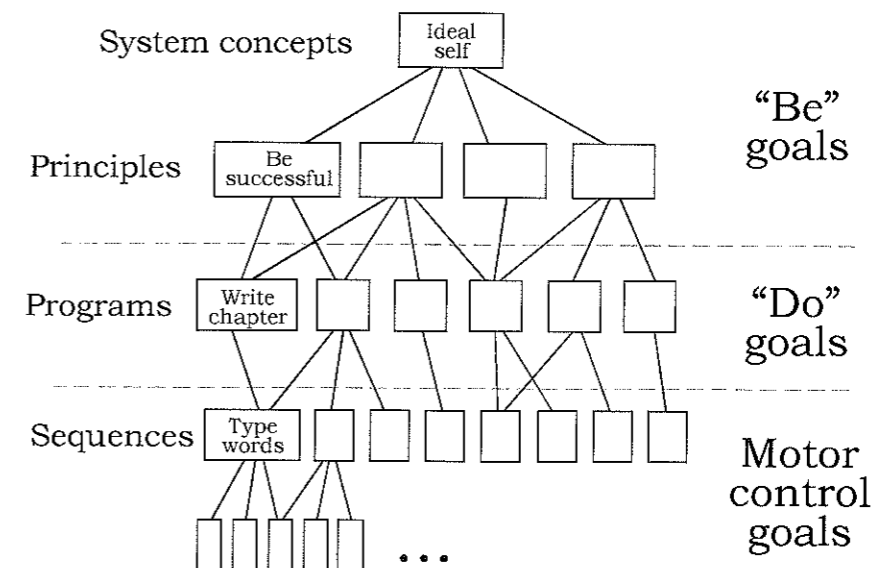


FIGURE 28.3. A hierarchy of goals (or of feedback loops). Lines indicate the contribution of lower level goals to specific higher level goals. They can also be read in the opposite direction, indicating that a given higher order goal specifies more concrete goals at the next lower level. The hierarchy described in text involves goals of "being" particular ways, which are attained by "doing" particular actions. Adapted from Carver and Scheier (1998). Copyright 1998 by Cambridge University Press. Adapted by permission.

What makes one goal matter more than another? Generally, the higher in the hierarchy a goal is, the more important it is—the more central to the overall sense of self. Concrete action goals (at lower levels) acquire importance from the fact that attaining them serves the attainment of broader, more abstract goals (Carver & Scheier, 1998, 1999a, 1999b; Powers, 1973; Vallacher & Wegner, 1985). The stronger the link between a given concrete goal and a deep value of the self, the more important is that concrete goal.

It is easy to disengage from unimportant goals. Important ones are hard to disengage from, for a very good reason. *Giving them up creates a disruption (an enlarging discrepancy) with respect to higher level core values of the self.* In light of the affect model described earlier, that disruption can be expected to create distress. Thus, if a concrete action goal is very important because of the nature of the self's organization, giving up on it is painful. For example, giving up the dream of becoming a surgeon after being unable to get into a medical school or being unable to do the required work successfully can shake one's self-image to its core. Indeed, giving up sometimes is even harder than that. Giving up the effort to combat a life-threatening illness means giving up on one's life.

It follows that one influence on engagement and persistence is likely to be the goal's importance. That is, all other things being equal, people are likely to struggle longer and harder to reach an important goal than to reach a goal that is less important. This greater persistence should occur despite the fact that the distress resulting from failing to approach an important goal should also be greater.

In some cases, it is possible to diminish the disruption that occurs at the higher level when giving up at a lower level, and thereby reduce the distress. This is because people often can satisfy the same higher order goal by engaging in diverse concrete activities. For an academic psychologist, many actions serve as pathways for making a contribution to one's profession, including doing and reporting original research, editing books that bring together several people's research, serving on committees in professional organizations, serving as a journal editor, serving

as a department chair, and writing textbooks.

The pathways to a given high order goal sometimes compensate for one another, so that if progress in one path is impeded, the person can shift efforts to a different one (Figure 28.4, Path 1). If one path is disrupted, another path may be taken instead, and indeed may become more important over time. By taking up an attainable alternative, the person remains engaged in progress toward the high-order goal. Although the process of switching pathways is not always free of distress, the end result is far less distress than if the person had remained committed to the initial pathway and been unable to move forward on it.

Sometimes people do not turn to alternative paths that are already in place. They step outside their existing framework and develop new paths, take up new activities they have never done before. There are many ways in which this can occur, but they may share a common element. We believe that the newly adopted activity is very likely to be one that contributes to the expression of some preexisting core aspect of the self (Carver & Scheier, 1999b). Thus, the effect of the new activity is to continue to foster the preexisting core value (Figure 28.4, Path 2).

Sometimes disengagement entails shifting from one concrete activity to another, but other times it involves something more subtle: scaling back from a lofty goal in a given domain to a less lofty one. This is a disengagement, in the sense that the person is giving up the first goal while adopting the lesser one (Figure 28.4, Path 3). It is more a limited disengagement than the cases already considered, in the sense that it does not entail leaving the behavioral domain. This shift keeps the person engaged in activity in the same domain that he or she had wanted to quit. By scaling back the goal (giving up in a small way), the person keeps trying to move ahead—thus *not* giving up, in a larger way. The person thereby retains the sense of purpose in activities in that domain.

It should be apparent from this discussion that some instances of specific goal disengagement serve the paradoxical function of helping the person to continue efforts toward higher order values. This is particularly obvious with regard to concrete goals

for which disengagement has little or no cost: People remove themselves from blind alleys and wrong streets, give up plans that have been disrupted by unexpected events, and go away and come back later if the store is closed.

The same is also true, however, with regard to goals that are deeply connected to the self. Distress is lessened if one responds to the loss of a close relationship by letting it go (Field, Gal-Oz, & Bonanno, 2003; Orbach, 1992; Stroebe, Stroebe, & Hansson, 1993), but especially if one has other ways to satisfy core relationship needs. Similarly, the adverse impact of a disrupted career path can be lessened if the person can isolate what made that career so appealing, and

find another career that also satisfies that desire. People need multiple paths to the core values of the self (cf. Linville, 1987; Showers & Ryff, 1996). That way, if one path becomes blocked or washed away, the person can jump to another one.

Not every disengagement serves this adaptive function, of course. In some cases, there appears to exist no alternative goal. In such a case, disengagement is not accompanied by a shift, because there is nothing to which to shift. This is the perhaps worst situation, where there is nothing to take the place of what is seen as unattainable. If the commitment to the unattainable goal wanes and there is no substitute, the result is simply emptiness (Figure 28.4, Path 4).

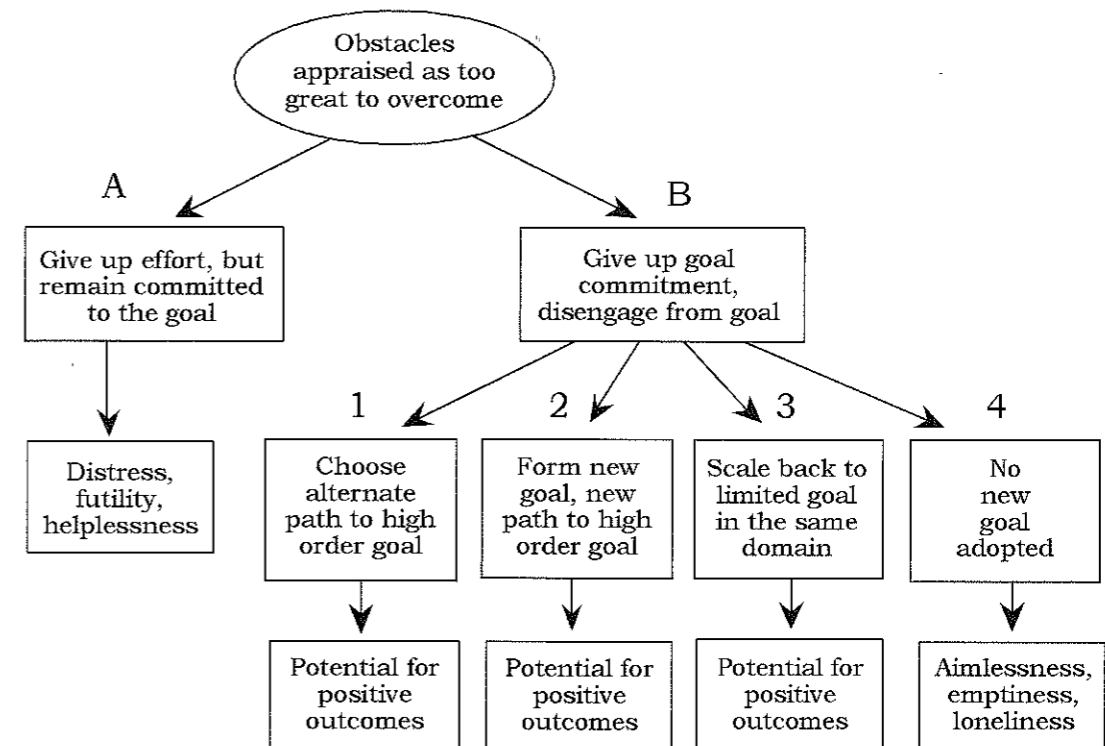


FIGURE 28.4. Responses to the perception that a goal is unattainable. The person (A) can remain committed to the goal and experience distress or (B) can dissolve the commitment and disengage from the goal. Disengagement has four potential patterns: (1) Choosing an alternative path to the same higher order value produces a situation in which positive outcomes and feelings are possible; (2) choosing a new goal yields a situation in which positive outcomes and feelings are possible; (3) scaling back aspirations while remaining in the same domain creates a situation in which positive outcomes and feelings are possible; (4) giving up commitment without turning to another goal, however, results in feelings of emptiness. From Carver and Scheier (2003). Copyright 2003 by the American Psychological Association. Reprinted by permission.

In general, disengagement appears to be an adaptive response *when it leads to—or is tied to—the taking up of other goals* (cf. Aspinwall & Richter, 1999; Wrosch, Scheier, Miller, Schulz, & Carver, 2003). By taking up an attainable alternative, the person remains engaged in activities that have meaning for the self, and life continues to have purpose.

Whenever one talks about disengagement and reengagement in a different pathway to a similar end, the issue of perceived competence emerges. People do not take up a particular pathway unless they feel they are competent to travel that path. Although there are many determinants of the choice of path, perceptions of the match between the demands of the path and the person's competencies play an important role. Thus, as an example, some psychologists serve their profession by serving as department heads, others by serving as editors.

GRADATIONS, BIFURCATIONS, AND CATASTROPHES

We turn now to a different issue. The dialectic between engagement and disengagement can be viewed in several different ways. The simplest way is to construe effort or even commitment as a linear continuum. In this view, task performance (or persistence, or effort) may be viewed as a reflection of the degree of the person's engagement with the task, with more engagement yielding better outcomes. This is the view that seems implicit, for example, in Bandura's model of the effects of self-efficacy (e.g., Bandura, 1997). People with a strong conviction that they can do something try harder at it than do people who lack that conviction, and the greater effort yields better outcomes. This linearly increasing view is readily applied to some contexts. However, there are also contexts in which it does not fit so well. In this section, we consider possibilities of greater complexity.

We have long held that there is a psychological watershed among responses to adversity—that is, that the responses diverge (Carver & Scheier, 1981) or (to use a currently more fashionable term) bifurcate, forming two categories. One class of responses reflects continued effort. The other

reflects disengagement of effort. Just as rain-water falling on a mountain ridge ultimately flows to one side of the ridge or the other, so do behaviors ultimately flow to one or the other of these classes. We took this position over two decades ago largely because of findings that self-focus has opposite effects on behavior as a function of confidence versus doubt. We are not the only ones to have emphasized a disjunction among these responses, however. Others have also done so, for reasons of their own.

One well-known model that bears on this issue is the integration between reactance and helplessness suggested by Wortman and Brehm (1975). Reactance and helplessness are virtual opposites. Both, however, appear to concern perceived problems with control. Wortman and Brehm argued that reactance and helplessness differ in the extent of the problem. Cases in which control is threatened, but not lost, are said to produce reactance and an attempt to reassert control. Perceptions that control is lost, in contrast, produce helplessness and giving up. Wortman and Brehm fit these ideas together by assuming a disjunction between two responses (reassertion and giving up) at the point where the perception of threat to control is becoming a perception that control is lost. This is a watershed model.

Brehm and his collaborators (Brehm & Self, 1989; Wright & Brehm, 1989) subsequently put forward an analysis of effort intensity, or task engagement, that appears to represent an extension or derivation from that earlier model. In this newer view, a person puts into behavior the effort that is needed to complete the behavior successfully. If a task is easy, thus requiring little effort, little effort will be expended. As the task becomes harder, more effort is needed to complete it, and more effort will be expended. In effect, the amount of effort expended grows to match the amount of effort needed.

At some point on the difficulty dimension, however, the person is exerting maximum effort. If the task gets any harder, the person will see it as beyond his or her capacity. At that point, the situation changes, and changes rather abruptly. There is no point in investing effort in an impossible task. Thus, at this point, the person stops trying. Once more, the result is an abrupt disjunction be-

tween two classes of response (see Wright, 1996, for a review of literature stemming from this theory). In simple terms, the principle behind this model is that you exert only as much effort as you need to succeed, and if no amount of effort will work, you quit.

As this brief sketch makes clear, there is at least some theoretical basis for the argument that there is a disjunction between two classes of response: effort and disengagement. The two responses do not necessarily shade gradually into one another. Rather, one appears to give way to the other, and in many cases, the giving way seems to entail some degree of abruptness.

Catastrophes

The idea that there is a disjunction between these two classes of response has resonances in other areas of thought (for a broader treatment, see Carver & Scheier, 1998). An example is what is called catastrophe theory. Catastrophe theory is a topological model that focuses on the creation of discontinuities, bifurcations, or splittings (Brown, 1995; Saunders, 1980; Stewart & Peregoy, 1983; Thom, 1975; van der Maas & Molenaar, 1992; Woodcock & Davis, 1978; Zeeman, 1976, 1977). A catastrophe occurs when a small change in one variable pro-

duces an abrupt (and usually large) change in another variable.

Many kinds of catastrophes exist (some of which are very difficult to visualize, because of the number of interacting variables involved). The kind that has been applied most frequently to human behavior is the *cuspl catastrophe*, in which two control parameters (roughly equivalent to predictor variables) influence an outcome. Figure 28.5 portrays its three-dimensional surface. The control parameters here are x and z , and the outcome is y . Figure 28.6 displays three cross sections of this surface, slices made at three different values of variable z (moving from back to front of the surface in Figure 28.5). At low values of z , the surface of the catastrophe expresses a roughly linear relationship between x and y . As x increases, so does y . As z increases, the relationship between x and y gradually becomes less linear, shifting toward something like a step function (Figure 28.6B). With yet further increase in z , the x - y relationship becomes even more discontinuous, with the upper and lower surfaces now overlapping (Figure 28.6C). Thus, changes in z cause a change in the way that x relates to y .

This overlap, called "hysteresis," is a particularly interesting feature of a catastrophe. There are several ways to characterize what this term measures and what it implies. The

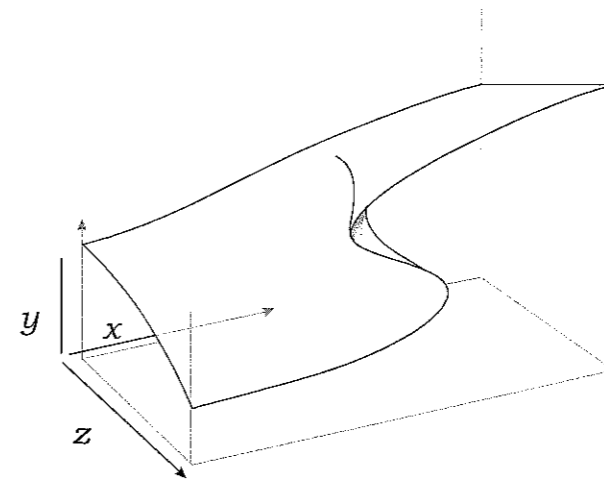


FIGURE 28.5. Three-dimensional depiction of a cusp catastrophe. Variables x and z are predictors; y is the system's "behavior," the dependent variable. From Carver and Scheier (1998). Copyright 1998 by Cambridge University Press. Reprinted by permission.

easiest way to start is to say is that at some range of z , there is a "foldover" in the middle of the x - y relationship. A region of x exists in which there is more than one value of y . This area is illustrated more precisely in Figure 28.7, which shows the same cross section as in Figure 28.6C.

Not all areas of the three-dimensional surface have the same properties. In particular, the dashed-line portion of Figure 28.7 that lies between values a and b on the x axis—the region where the fold is going "backward"—is different from the rest of the surface. It is generated by the mathematical function, but the behaving system that the function is modeling will never actually be there. The system will always be either at the surface above it or at the surface below it.

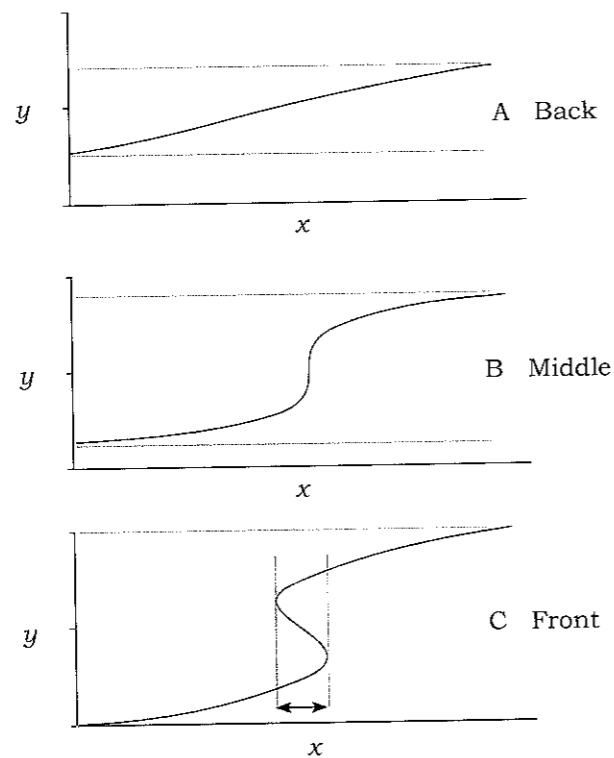


FIGURE 28.6. Three cross sections through a cusp catastrophe, illustrating relations between x and y from Figure 28.5: (A) Toward the back of the surface (relatively low values of z), the relation between x and y is relatively linear; (B) toward the middle of the surface (moderate values of z), the function spreads on the vertical axis and a nonlinear relation has begun to emerge between x and y , resembling a step function; (C) toward the front of the surface (larger values of z), the function spreads even farther on the vertical axis, and a region of overlap develops between upper and lower surfaces of the figure. From Carver and Scheier (1998). Copyright 1998 by Cambridge University Press. Reprinted by permission.

But which one? Interestingly, the behavior of the system that is being modeled depends on its recent history (Brown, 1995; Nowak & Lewenstein, 1994). Place yourself mentally on the surface (which you will recall is the outcome variable created by x and z). As you move into the range of variable x that lies between points a and b in Figure 28.7, a great deal depends on which side of the figure you are moving from. If the system (whatever it is) is moving from point c into the zone of hysteresis, it stays on the bottom surface until it reaches point b , where it shifts abruptly to the top surface. If it is moving from point d into the zone of hysteresis, it stays on the top surface until it reaches point a , where it shifts abruptly to the bottom surface. Thus, continuing move-

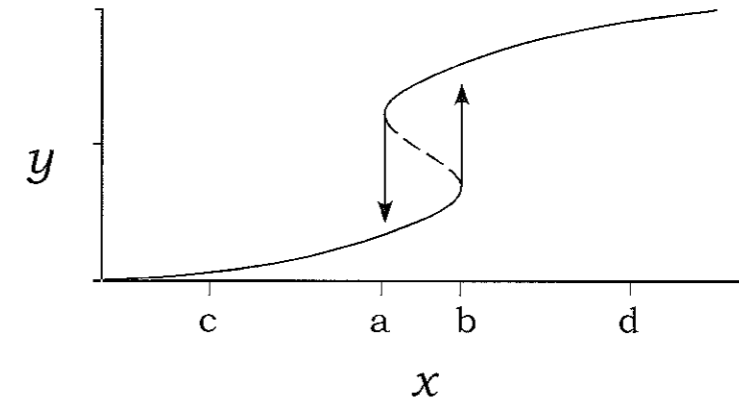


FIGURE 28.7. A cusp catastrophe exhibits a region of hysteresis (between values a and b on the x axis), in which x has two stable values of y (the solid lines) and one unstable value (the dotted line that cuts backward in the middle of the figure). Traversing the zone of hysteresis from the left of this figure results in an abrupt shift (at value b on the x axis) from the lower to the upper portion of the surface (right arrow). Traversing the zone of hysteresis from the right of this figure results in an abrupt shift (at value a on the x axis) from the upper to the lower portion of the surface (left arrow). Thus, the disjunction between portions of the surface occurs at two different values of x , depending on the starting point. From Carver and Scheier (1998). Copyright 1998 by Cambridge University Press. Reprinted by permission.

ment from either extreme of x toward the other extreme enters a region where either of two outcomes occurs, depending on the starting point.

How does catastrophe theory apply to human behavior? Several applications have been suggested (see Carver & Scheier, 1998, Chapter 15), one of which is of particular interest here: that confidence versus doubt as a partial determinant of effort versus disengagement may feed into a catastrophe (Figure 28.8). Thus, rather than always being linearly related to engagement, expectan-

cies may sometimes be involved in discontinuities in engagement. If there is actually a catastrophe here, there should be a region of hysteresis in the relation between expectancies and engagement.

We are unaware of behavioral evidence on this issue. There is, however, evidence that suggests a catastrophe in the perception of expectancies themselves. People's levels of confidence, once formed, tend to remain stable in the face of disconfirming evidence. A study making this point (though done for a different reason) was conducted some time

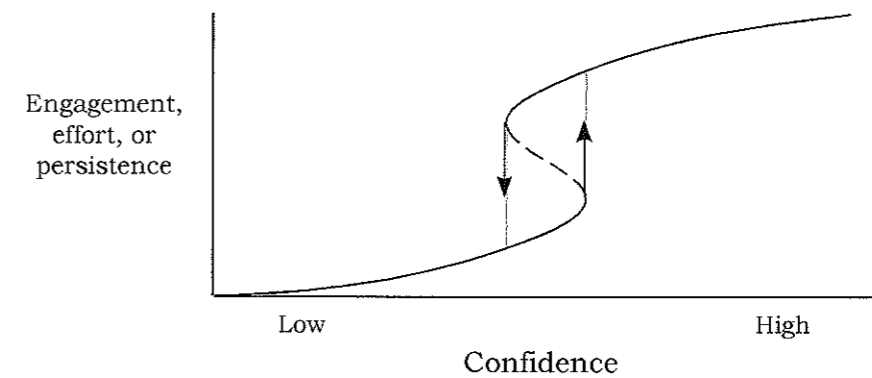


FIGURE 28.8. A catastrophe model of effort versus disengagement. From Carver and Scheier (1998). Copyright 1998 by Cambridge University Press. Reprinted by permission.

ago by Langer and Roth (1975). Participants received (or observed someone else receiving) false feedback of success or failure on each of 30 trials guessing (rigged) coin tosses. There were always 15 successes and 15 failures, but with different patterns. In one condition, the early part of the series was mostly failures, with a gradual shift to successes. In another condition, the early part of the series was mostly successes, with a gradual shift to failures (there was also a random condition that we ignore here).

After 30 trials, participants completed questionnaires, including items asking how often they (or the person they observed) had been correct on the 30 trials, and how many successes would have occurred if there had been 100 more trials. Participants who had started with mostly successes reported having more success than those who had started with mostly failures. A similar pattern, though weaker, emerged in expectations for the next 100 trials. Those with early success expected more success; those with early failure expected more failure. This pattern indicates that people tend to hold onto initial perceptions, even in the face of contradictory information.

In the same way, we suspect that a person who enters the region of hysteresis from the direction of high confidence (who starts out confident but confronts many contradictory cues) will continue to display efforts and engagement, even as the situational cues imply less and less basis for confidence (cf. Peterson et al., 2003). A person who enters that region from the direction of low confidence (who starts out doubtful but confronts contradictory cues) will continue to display little effort, even as the situational cues imply more and more basis for confidence.

This model helps indicate why it can be so difficult to get someone with strong and chronic doubts about success in some domain to exert real effort and engagement in that domain. It also provides a clearer sense of why a confident person is so rarely put off by encountering difficulties in the domain where the confidence lies. In terms of life in general, it helps show why optimists tend to stay optimistic and pessimists tend to stay pessimistic, even when their current circumstances are identical (i.e., are in the region of hysteresis; see also Aldwin, 1994, regarding divergent responses to stress).

The Wortman and Brehm (1975) model is reminiscent of the middle stage of the development of the catastrophe surface, where something resembling a step function has begun to emerge, but the region of hysteresis does not yet exist (Figure 28.6B). Does a region of hysteresis eventually develop? We suspect that there are cases in which a person who enters the situation with the strong belief of no control will continue to show little effort even when control begins to emerge. We also suspect that there are cases in which a person struggling with a threat to control will continue to struggle even when control disappears. Such effects of the person's behavioral history would yield hysteresis.

We think a case can be made for a region of hysteresis in the Brehm and Self (1989) model as well. A critical issue in this case may be the ambiguity of the situation the person faces. That theory tends to assume that the person knows the point at which maximum effort is required. But this will not always be true. A person who begins with a task that is far too hard to perform won't try seriously. If the task changes gradually, so that success is now possible, how will the person know, if only half-hearted effort is being exerted? Not knowing that success is now possible, why would the person try harder? A person who begins with a task that is challenging but attainable will exert strong effort. But how will this person know if the task demands increase to exceed his or her maximum potential effort, unless he or she continues to try? In short, it appears that there is good potential here for a region of hysteresis.

Two further points should be made here. First, we should be clear that however interesting these ideas are, evidence on them is lacking. Apparently the processes of effort and disengagement have not been studied in a parametric manner that would allow plotting effort across the full range of expectancies. The idea of a carryover as the task characteristics shift (i.e., a region of hysteresis) has not been around long, and it has not been the subject of any investigation of which we are aware.

A second point is that it is important to realize that catastrophe theory does not predict hysteresis all the time, but only under certain conditions. Farther back on the ca-

tastrophe surface, the relation of x to y looks more like a step function (Figure 28.6B). Farther back yet, it looks more like a linear function (Figure 28.6A). In order to see the hysteresis, it is critical to engage the control variable that is responsible for bringing out the bifurcation in the surface. If this variable is not at the appropriate level, the hysteresis would not emerge, even if the research procedures were otherwise suitable to observe it.

Inducing the Catastrophe

This raises an important question. What variable induces the bifurcation? We think that in the cases under discussion here, the variable is *importance*. Tesser (1980) pointed to social pressure as a potentially critical variable in another application of the catastrophe model. Our interpretation is that social pressure is only one of several forces that can make a behavior or a decision important. There are common threads among important events. In each case, the person preparing to act has something on the line. Important actions demand mental resources. We suspect that almost any strong pressure that demands resources (time pressure, self-imposed pressure, strong connection to a higher order value of the self) will induce similar bifurcating effects. When things are important, when there is a lot at stake, there seems to be a tendency toward polarization (see also Baron, Vandello, & Brunzman, 1996).

Earlier in the chapter, we suggested that people would continue their task efforts longer in the face of developing doubt when the goal was important than when it was not. Our argument there was based on the idea that it is hard to disengage from a value that is central to the self, because of the disruption it creates within the self. Thus, persistence should be greater for important than for unimportant goals.

It is of interest that the catastrophe principle makes the same point about persistence, and actually adds to it. The previous discussion implicitly assumed a behavioral history in which the person began with the belief that the goal was attainable. However, the catastrophe model adds the prediction that a person who begins with the belief that the goal is *not* attainable will stay in disengage-

ment mode longer (as doubt fades) when the goal is important than when it is not.

These ideas are intriguing but untested. They seem to us to be worth exploring in some depth. Essentially the same principle is already under investigation in the context of close relationships (Gottman, Murray, Swanson, Tyson, & Swanson, 2002; Gottman, Swanson, & Swanson, 2002) and in the context of alcohol relapse (Hufford, Witkiewitz, Shields, Kodya, & Caruso, 2003). We hope to see it explored as well in the years to come with regard to other kinds of motives.

COMPETENCE, PERSISTENCE, AND DISENGAGEMENT

This volume contains a set of chapters that present differing perspectives on competence and motivation. In closing, we return to that overarching theme and reiterate what we regard as our contribution to it. People are engaged throughout their lives in a continuing process of both using and expanding their competencies. Engagement in effortful action is based in part on the perception that one has the competence needed to potentially succeed at attaining the goal. The competence in question might be a particular skill that is needed for the activity; alternatively, it might be the more general ability to acquire the skill needed to perform the activity (cf. Dweck, 1996). In either case, without the relevant sense of competence, effort will be minimal or brief.

For successful negotiation of the challenges life provides, however, we believe yet another kind of competence is also important: the ability to know when to continue the effort to reach a goal, and when to disengage and let it go. This is an important competence, because misapplication of either of these choices creates what many would hold to be adverse outcomes. Giving up a goal that is attainable at a reasonable cost results in what some would see as a stunted life, a life in which challenges go unmet and accomplishments within reach are foregone. On the other side, continued commitment to an unattainable goal produces continued distress.

Whether either of these outcomes is bad for the person is a value judgment that var-

ies from one philosophical stance to another. For some people, there may be enough value in maintaining high aspirations to compensate for the negative feelings that result from the inability to move toward them adequately. For other people, there may be enough value in accommodating quickly to the intractability of a situation to compensate for the lost attainments that a demanding struggle might bring. For most people, however, the best path is somewhere between these two extremes. This intermediate path requires the competence to judge what kind of situation one is facing. Is this a situation where you should hang on, or a situation where you should let go?

ACKNOWLEDGMENTS

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CHAPTER 29



Defensive Strategies, Motivation, and the Self

A Self-Regulatory Process View

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“Who am I?” Most people respond to this question with a list of characteristics that includes dispositions, values, goals, and, most important, competencies. In fact, self-perceptions of competency touch on most every aspect of the self. A typical response to the “Who am I?” question might be, “I am charming (social competency), intuitive and insightful (intellectual competencies), and a golfer (athletic competency).” When asked about personal projects or goals, people report pursuing goals in which competency is either the means to, or the end state of goal attainment: “I am working on getting along better with people, learning to appreciate the Postimpressionists, and lowering my golf handicap.”

It is not surprising then, that our senses of competency, agency, and effectiveness undergird our global self-esteem. In fact, Tafarodi and Swann (1995) have provided evidence that global self-esteem is composed of the somewhat independent dimensions of

self-liking and self-competency. “Self-liking” refers to the extent to which people feel a sense of positive regard from others. “Self-competency,” in contrast, reflects self-esteem derived from an evaluation of what one can do.¹

Two implications of competency-based self-esteem are the focus of this chapter. First, because self-worth² is based, in part, on self-evaluations of competency in various domains, people should be highly motivated to display those competencies in relevant situations. The very definition of “competency” implies the *capacity* to produce effective, goal-directed behavior on demand. More specifically, given that their senses of competency are one critical basis of self-worth, people should be highly ego-involved in those situations in which their competency is on the line. The self-defined golfer should be more concerned about, and more emotionally involved in, a round of golf than should be the accidental

hacker, who is out for an afternoon of fun in the sun with friends.

Second, because competency presumes the ability to produce desired consequences, performance feedback, successes, and failures imply something about the degree to which one possesses the competency in question. Therefore, performance outcomes become linked to one’s self-worth via the diagnostic information that such outcomes provide about competency. None of this would be too complicated (1) if there were clear, objective, and unambiguous performance standards by which to measure competency; (2) if, relatedly, competency evaluation were not so often dependent on social comparison and interpersonal feedback; (3) if competencies, presumed to be a property of the individual, were not so context-dependent; and most important, (4) if people were always accurately confident about their skills, abilities, and capacities.

Unfortunately, for the purposes of clear and confident self-understanding, most competencies are defined socially and in circumscribed contexts. Consider, for example, intellectual competency. A young adult is believed to be intelligent based upon grades in college courses compared to other students who take the same courses at the same time. “Intelligence” in this case is defined as performance in specific contexts relative to others. However, our lay theories of competency in general and intelligence in particular assume generality across contexts and shifting comparison groups. The expectation is that the capable undergraduate will also be a successful graduate student or an accomplished businessperson.

For many people, self-assessments of competency, and their related feelings of self-worth, are inferred from personal histories that include ambiguous, inconsistent, or overly circumscribed experiences (see Jones & Berglas, 1978, for a similar argument). Although they may believe that they possess desired competencies, they are not confident in these assessments. This is not a problem so long as they are not called upon to perform or to provide evidence of their competency in a novel context, or for a new audience. It is only then that they are confronted with the possibility of disconfirmation, disrespect, or rejection. The stakes are high for these people. In addition to issues of compe-

tency, their self-esteem, because it is linked to competency, is also under siege.

In this chapter, we are concerned with what people do when they are threatened with the disconfirmation of a desired competency self-image. Specifically, we focus on the defensive cognitive, emotional, and behavioral responses that are in the service of competency-related self-image protection. We take the perspective that most defensive strategies can be understood in terms of self-regulatory processes that are internally coherent and, at least in the short term, adaptive or successful. Self-handicapping behavior (Jones & Berglas, 1978; Rhodewalt & Tragakis, 2002) is used to illustrate the self-regulatory processing approach to defensive strategies. Other defensive strategies are then interpreted in terms of our model. We conclude the chapter with a discussion of defensive behavior and accurate self-assessment of ability, competency, and self-worth.

Although we assume that all people’s self-esteem is anchored, in part, by their senses of competency and efficacy, there are broad individual differences in conceptions of competency, thresholds for experiencing threat, and the preferred strategies employed in response to threat. Consider two college seniors, both of whom believe that they are academically talented but who have yet to prove that talent in graduate school. For both students, the upcoming Graduate Record Examination (GRE) poses a potential threat to their competency and esteem. The night before the exam, one senior gets in some light studying, has a good meal, and gets a full night’s sleep, while the other stays out until very late, gets quite drunk, and wakes 30 minutes before the exam starts. The former set of behaviors would be nondefensive, since this student is approaching the upcoming threatening situation diligently, with behaviors clearly aimed at achieving the goal of doing well on the test. The latter behaviors are defensive, because they potentially mask the extent to which performance indicates the student’s “true” abilities (see the later section on self-handicapping). In the course of describing our model, we also address the psychological units and processes that give rise to these individual differences in the frequency of use and the preferred modes of defensive behavior.

CONCEPT OF DEFENSE WITHIN THE PROCESS OF SELF-REGULATION

Our core assumption is that people possess desired or valued self-images, including competency images. Moreover, they are motivated to produce outcomes that verify these competencies. Such confirmation sustains or boosts self-esteem, while confirmation failure threatens or damages self-esteem. There is wide agreement in the social-psychological literature that people are motivated to view themselves positively (Leary & Downs, 1995; Sedikides & Strube, 1995) and to have others view them in a way that is consistent with their self-views (Swann, 1983, 1985). Given the importance of competency to feelings of self-worth, it follows that people would develop ways of defending these self-views in the face of challenges to their veracity.

What is meant by defense? The concept of defense has had a long and often controversial history in psychology, in part because of its principal residency within psychodynamic psychology (see Paulus, Fridhandler, & Hayes, 1997, for a recent review). Paulus et al. (1997) noted that, traditionally, "psychological defense" has been defined as "the process of regulating painful emotions such as anxiety, depression, and self-esteem" (p. 543) and "defense mechanisms" have been viewed as "mental processes that operate unconsciously to reduce some painful emotion" (p. 543). Typically, these terms have been used to connote indirect, implicit, or otherwise unhealthy means of alleviating negative emotions.

Our approach to the discussion of defense is both narrower and broader than traditional conceptions of the construct. In our view, psychological defense reflects efforts to maintain desired self-images, including beliefs about one's competency in the face of threatening feedback. These defensive acts may be cognitively, affectively, behaviorally, or interpersonally based behaviors—or some combination—enacted by the individual in anticipation of, or as a reaction to threats to the self. Although the defenses differ in function, they share the common element of defending the self by changing or altering the interpretation of "psychological reality." Whether these defensive strategies are conscious or unconscious, automatic or controlled, is not the main focus of this perspec-

tive. Undoubtedly, self-deception is at that heart of most defensive behavior but, as we argue in a later section, individuals have some implicit or explicit awareness of their strategic behavior.

From this perspective, psychological defense is a special case of self-regulation. In our view, the maintenance and protection of competency self-images embody the constructs and processes described in the social intelligence model of personality (Cantor & Kihlstrom, 1987; see also Cantor, 1990, 1994). The social intelligence perspective is that people bring their social intelligence (self-conceptions, autobiographical memories, constructs, decision rules, and if-then contingencies) to bear on the problems that they are currently trying to solve. People set goals, define challenges to be met and problems to be solved, and then choose and shape situations in order to meet these goals and solve these problems. With specific reference to defensive acts, at the most abstract level of generalization, the problem to be solved is one of maintaining coherence between self-beliefs about competency and external contexts that may challenge those beliefs. The way that people define these beliefs, perceive threats, and select strategic responses to blunt or redirect those threats constitutes the essence of the defensive problem-solving cycle.

Figure 29.1 displays the competency-defense self-regulation cycle. The cycle includes both individual difference characteristics (distal motives) and situational factors, including transient goal states (proximal motives). Motivation in this model reflects chronic or acute orientations to protect competency images from threat or disconfirmation.

With regard to distal motivation, people may have had competency-related learning histories that were capricious and inconsistent, so that although they believe that they possess high ability or skill, confidence in these assessments is uncertain. People also differ in their contingencies of self-worth (Crocker & Wolfe, 2001). Some are more convinced than others that the display of competency is linked to love and acceptance by significant others. In addition, people's naive theories about the extent to which competencies are modifiable (Dweck, 1999; Dweck & Leggett, 1988) contribute to distal defensive motivation. Finally, people vary in

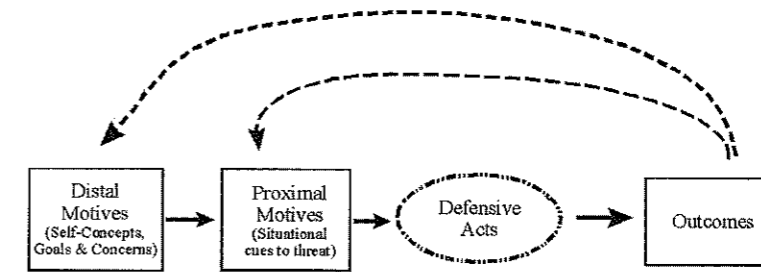


FIGURE 29.1. Competency/defense self-regulation cycle.

how central any given competency is to their sense of self-worth. Self-defining competencies are more vulnerable to threat than are more peripheral self-views. In short, distal defensive motivation is high when people's senses of competency are high but fragile, when the competency forms an important basis of self-worth, and when people believe that the competency in question is stable and unmodifiable. It is low to the extent that people are confident in their ability, view the competency as less important to self-worth, or believe that the competency can be modified through factors such as effort, practice, and instruction.

Proximal defensive motivation reflects current demands on the individual. Current demands take meaning in the context of chronic distal motives and concerns. For example, being called upon to demonstrate business acumen with a new corporate partner is more threatening for individuals who are unclear about the causes of their past successes than for those who are certain of their abilities in this domain. The primary contextual trigger is the demand to produce an ability-related outcome. However, other situational factors can exacerbate threat to one's competency beliefs. Situations that differ from past competency-relevant arenas contribute to the individual's uncertainty about displaying the ability or skill in the new context. For instance, graduate school provides a test of intellectual competency that calls upon similar competencies that produced success in college. Nonetheless, it is not clear that competencies that were sufficient for success in college will be equally sufficient for success in graduate school. Thus, the proximal situation presents a potential threat that should be experienced more intensely by those who possess chronic

defensive motivation than in those who do not. People have a vast array of defensive responses available that encompass both intrapersonal and interpersonal tactics. In general, people use these strategies to regulate emotions and thoughts about self-beliefs. The examples provided here are by no means exhaustive; rather, they provide a sample of the types of responses people enlist in defense of the self. The distinction between intra- and interpersonal defensive strategies is also somewhat arbitrary, in that many strategies are both. For instance, self-handicapping behavior is a defensive strategy that enables individuals to dismiss incompetence as an explanation for poor performance (an intrapersonal outcome) and also protect their self-images in the eyes of others (an interpersonal consequence).

Defensive strategies are intrapersonally based to the extent that they arise and proceed primarily within the head of the person, and involve interpretations and distortions of meaning. The purpose of these tactics is to allow interpretations of self and situation that preserve desired competency images. Defensive strategies are interpersonally based to the extent that the defensive person uses other people to bolster feelings and thoughts about the self. These strategies allow people to modify their thoughts or feelings about others, to alter perceived relationship closeness, or to use others as an audience that serves to verify the self, or at least the self as displayed for public consumption.

Intrapersonal Strategies

People's self-protective cognitive gymnastics can be quite remarkable. They have an uncanny ability to take self-relevant but

threatening information about the self (or the anticipation thereof) and turn it into something more benign. Attribution processes are perhaps the most fundamental and widely used intrapersonal defensive strategy; they are the "duct tape" in the defensive strategy toolbox. Greenwald's (1980) influential article on the totalitarian ego brought to light the point that people are generally biased to see themselves as good and competent. In this review of the literature, Greenwald coined the term "benefectance," a word that is a combination of the words "beneficence" (meaning to do good) and "effectance" (meaning to be competent), to reflect people's tendency to view themselves as producers of good but not bad outcomes. The self-serving attribution bias is one manifestation of *benefectance*. People persistently offer internal attributions for success and external attributions for failure (Miller & Ross, 1975; Weary, 1978).

Most important to this discussion, self-serving attributions are triggered or exacerbated by threats to the self. Self-serving attributions take the form of crediting the self for good outcomes but blaming others or the situation for bad outcomes. For instance, if a golfer has a particularly good round during a day on the course, he may think that the modification he made to his swing is to credit. Conversely, if on the next round, he has a particularly terrible score, he may blame the other people with whom he golfed for being too distracting during his shots.

Support for the idea that self-serving attributions are pronounced under conditions of threat is found in the Campbell and Sedikides (1999) meta-analysis of data from approximately 7,000 participants. The data revealed that self-threat exercised a considerable influence on the magnitude of self-serving attribution biases. More pertinent to this discussion, the association between self-threat and the self-serving bias was a function of not only the presence of threat-related situational factors (e.g., status differences) but also motivation-related individual differences (e.g., achievement motivation). Thus, from the perspectives of benefectance and the self-serving bias, people defensively call upon tried-and-true attributional defenses in times of threat, in order to alter their causal interpretations and protect the self.

A different intrapersonal defensive strat-

egy involves selective recall and editing of autobiographical memories. This work builds on Michael Ross's pioneering work on biased recall of personal histories (for a review, see Ross, 1989). This research has been termed "revising what you had to get what you want" (see Conway & Ross, 1984), which is an apt descriptor of what people do when they are motivated to justify or accommodate their current circumstances. There is evidence that such revisionist history can be called upon in response to threats to the self. Ybarra (1999) provided participants with positive feedback, negative feedback, or no feedback about their performance on an analogies test, then also provided positive and negative information about a target person. Results from an incidental recall task for the target's behaviors revealed that negative-feedback participants showed the misanthropy effect by recalling more negative than positive target behaviors. Although not directly tested, the implication of these findings is that memory distortions may result from the need for self-esteem protection. Rhodewalt and Eddings (2002) provide a more direct test of the self-esteem protection hypothesis in their study of narcissism and autobiographical memory distortion. High- and low-narcissistic men were interviewed by a woman, purportedly for the purposes of a possible date, and also reported their romantic histories. A week later, they learned that the woman had chosen or rejected them as her dating partner. Participants again recalled their history of romantic relationships. Narcissistic men who were rejected reported dating histories that were significantly more self-aggrandizing than the histories that they had reported prior to the rejection. Moreover, the more they inflated their romantic pasts, the more their self-esteem was protected from the effects of the rejection.

In summary, people construct and reinterpret their understandings of past events, as well as their personal attributes, feelings, and experiences, in order to bolster current self-views and self-beliefs. Whether they are cognitive gymnasts, totalitarian rulers, or reconstructive historians, people find a way to regulate intrapersonally relevant self- and social knowledge so as to preserve desired self-beliefs about who they were to aid them in thinking about who they are.

Interpersonal Strategies

The interpersonal arena also affords venues for defensive behavior, in that most defensive strategies involve public behaviors, social interactions, or interpersonal relationships. It stands to reason that if other individuals are often sources of threat, then they should also be potential implements in diffusing these threats. It is a special feature of *interpersonal* defensive behaviors that they create or manipulate the reactions of other individuals, or that the behaviors have clear and direct implications for the nature of an interpersonal relationship. The reactions of others, which are often not the ones intended by the actor, thus intensify rather than ameliorate the threat, requiring additional defensive reactions from the threatened individual.

Perhaps the best illustration of interpersonal defensive behavior may be found in research inspired by Tesser's self-evaluation maintenance theory (SEM; 1988). In essence, SEM involves manipulating interpersonal closeness for the purpose of self-esteem protection or enhancement. For instance, people feel threatened when someone close to them, such as a good friend, has outperformed them on a domain that is important and relevant to their self-concept.³ According to Tesser, the state of "comparison threat" triggers a number of possible self-evaluation maintenance responses. A person experiencing comparison threat from a close other may attempt to reduce the threat by decreasing either the perceived (or actual) closeness of the relationship or the relevance of the domain to the self-concept. In our framework, the former response would be interpersonal, and the latter would be intrapersonal. There is an abundance of findings supporting the SEM model. For example, Tesser demonstrated that the when siblings were outperformed by a brother or sister close in age (i.e., relevance of the comparison is high), participants decreased the closeness of the relationship by lowering the extent to which they identified with that sibling. Another SEM strategy is to sabotage the threatening individual, so that he or she is less likely to do well in the future. For example, students failed to give a friend the best help (as measured by the quality of hints that were given to the friend by the

participant to help him or her on a verbal test) when the friend had outperformed them on an earlier verbal test (Pemberton & Sedikides, 2001).

Consistent with an SEM perspective, interpersonal reactions of anger and hostility are frequent defensive reactions exhibited when people encounter a threat to their competencies. Along with anger and hostility, people also alter their views of others to become more denigrating (Morf & Rhodewalt, 1993). High self-esteem people may be particularly prone to this type of defensive response. For instance, high self-esteem people who are threatened by negative competency feedback respond by derogating others, namely, they decrease how favorably they rate generalized others and even personal friends (Brown, 1986; Brown & Gallagher, 1992). In another example, Fein and Spencer (1997) reported that high self-esteem people threatened by negative feedback about their intellectual competencies derogated outgroup members to a greater extent than did threatened low self-esteem participants. Furthermore, derogating others seemed to have served a compensatory function, in that those participants who played the derogation card also experienced a boost in self-esteem.

Strategic self-presentations are frequently used for interpersonal defensive purposes. For example, people respond with self-aggrandizing presentations when they feel threatened, and with approval seeking when they feel rejected. In one investigation, Baumeister and Jones (1978) found that people who believed that their interaction partner saw a "personality profile" of theirs that contained negative information about their abilities, responded with compensatory self-enhancement. Specifically, they evaluated more positively their skills in other, unrelated domains. A qualification to this finding is that it occurred primarily among high self-esteem people for whom negative feedback threatens a positive self-perception of abilities more so than for people with low self-esteem.

One question that is pertinent throughout this discussion of defensive behavior: Do these strategies work? The answer to this question within the domain of defensive self-presentations is complex, because self-presentational strategies rely on the responses of

others. Thus, their success may be considered in terms of interpersonal costs and benefits. In general these costs should be high given that threatened individuals (particularly those with high self-esteem) make more self-aggrandizing statements (Baumeister, 1982) and derogate the source of threat (Morf & Rhodewalt, 1993). Because of these characteristic responses to threat, Vohs and Heatherton (2003; Heatherton & Vohs, 2000) hypothesized that high self-esteem people would be seen as less likable after receiving information that their intellectual abilities are below average. This prediction was supported by the finding that threatened high self-esteem people received lower likeability ratings from previously unacquainted interaction partners (who had been given no information about the person's intellectual abilities and was thus unthreatened). Low self-esteem people, conversely, were liked more after being told that they possessed subpar intellectual abilities, a topic we discuss more fully when we consider individual differences in rejection sensitivity as a defensive strategy. Threatened high self-esteem participants were seen by their partners as arrogant, unfriendly, rude, uncooperative, and insincere. Apparently, they self-enhanced to their partners during the course of the interaction and, as a consequence, were less appealing. Additional studies showed there to be an explicit social comparison dimension to this effect, such that high self-esteem people who were told that their intellectual abilities were poor responded by boosting judgments of themselves relative to their interaction partner and generalized others (Vohs & Heatherton, 2003).

Research on self-verification processes (Swann, 1985) also supports the notion that people respond to threat with strategic self-presentations. When people engage in self-verification, they are choosing or eliciting from the environment feedback that conforms to their preestablished views of self. This desire to receive feedback consistent with self-beliefs has been found to hold across self-esteem levels and other personality traits. The purpose of self-verification is to increase control and predictability of outcomes in an uncertain world (Swann, Stein-Seroussi, & Giesler, 1992). There are two types of self- and other-perception discrepancies that threaten one's competencies: one

in which others' perceptions are more positive than one's self-view, and the other, in which one's self-perceptions are more positive than others' perceptions. In the former case, threat arises from the idea that others may be expecting better performance or outcomes than one can actually produce. In the latter, threat arises from the idea that others are underestimating one's likely performance. Both can therefore be problematic, because they set the stage for perceptions of one's abilities that will not match up to actual performance.

In this section, we have provided an overview of the cognitive, behavioral, and interpersonal responses that can be summoned in response to threats to the self. Each strategy was characterized as being primarily intrapersonal or interpersonal, and research demonstrating their defensive nature was reviewed. This selective list is offered only to illustrate the wide range of responses that can be enlisted in the service of preserving one's self-concept and sense of competency. We return now to the competency/defense self-regulation model by providing examples of how specific defensive strategies form the nucleus of a cycle of behavior that we characterize as defensive styles.

DEFENSIVE STYLES

People differ in the learning histories upon which their competency self-conceptions are built. Moreover, they vary in the extent to which competency defines self-worth, and they diverge in their theories about the underlying causes of competency. All of these factors, we have argued, underlie distal defensive motivation. The combination of these elements also shapes problem definition, so that challenges to competency images take on different meanings and suggest different solutions (defensive reactions) for different people. One conclusion of this reasoning is that there should be consistent individual differences in the employment of preferred defensive strategies; that is, there should be defensive styles. Self-handicapping behavior provides an excellent example of the competency/defense self-regulation cycle as manifested in a unique defensive style.

"Self-handicapping" is a defensive strategy in which people create, or at least claim, obstacles to successful performances when

they harbor doubts about their ability to be successful, and when failure would confirm that the ability is lacking (Jones & Berglas, 1978). According to Jones and Berglas, the person who arrives late for a job interview or who gets drunk the night before taking the bar examination to enter legal practice is manipulating in a self-serving way the attributions that one may draw about the actor's ability or competency. Tardiness and inebriation not only decrease the likelihood of receiving an offer of employment or passing the examination, but they also protect one's belief that he or she has the ability to do well. Jones and Berglas argued that the self-handicapper is capitalizing on the attributional principles of *discounting* and *augmentation* (Kelley, 1972); that is, conclusions about lack of ability are *discounted*, or downplayed, because the handicap offers an equally plausible explanation for the rejection or failure. In the unlikely event of success, attributions to ability are *augmented*, or accorded greater causal importance, because the good performance happened despite the handicap. The self-handicapper then is willing to trade the increased likelihood of failure for the opportunity to protect a desired self-image. It is important to point out that self-handicappers are willing to accept the label of slacker or drunkard in order to preserve a more central belief that they are competent. The label implied by the

handicap is almost always applied to a quality that is external to the individual or is believed to be under the individual's control, while the attribute that is being protected is believed to be fixed and unmodifiable, a point to which we return momentarily.

Over the past quarter-century, self-handicapping behavior has been extensively investigated (for reviews, see Arkin & Oleson, 1998; Rhodewalt & Tragakis, 2002). Collectively, this work illustrates the competency-defense model outlined in Figure 29.1. Research findings can be grouped into categories representing the distal and proximal antecedents of self-handicapping, the strategic behaviors enlisted in the service of self-handicapping, and the consequences of these behaviors for the individual. Figure 29.2 provides a schematic of this model for self-handicapping behavior. As in the generic Figure 29.1, self-handicapping is recursive in the sense that the consequences of self-handicapping feed back into the process and reinforce self-handicapping acts, while maintaining, or perhaps exacerbating, antecedent motives and concerns.

Distal Motives

In their original theoretical statement, Jones and Berglas (1978) proposed that self-handicapping is motivated by a desire to protect a positive but insecurely held competency im-

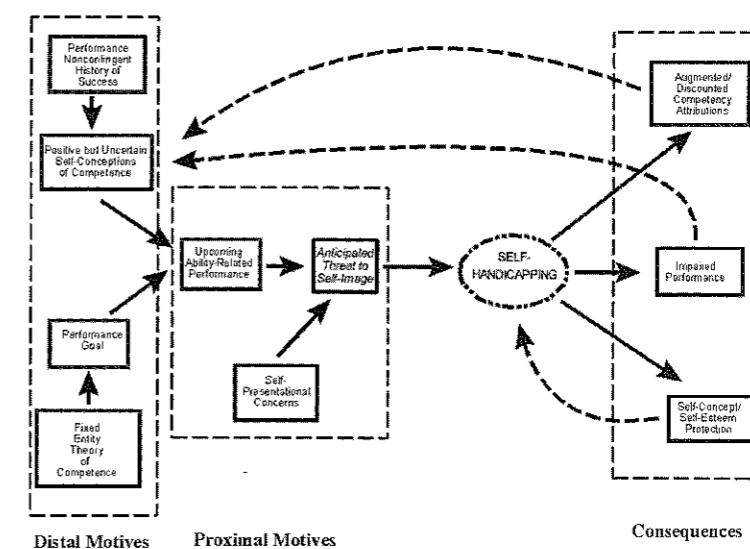


FIGURE 29.2. Self-handicapping self-regulation cycle. Adapted from Rhodewalt and Tragakis (2002). Copyright 2002. Reproduced by permission of Routledge/Taylor & Francis Books, Inc.

age. In fact, the standard experimental paradigm employed to elicit self-handicapping behavior in the laboratory provides participants with response-noncontingent success feedback on an important competency such as intellectual ability. This experimental manipulation is thought to mimic real-world situations in which people are uncertain of what they did to produce the success that is being attributed to their competency. For example, publication of scholarly papers in prestigious journals is evidence of the brilliance of the researcher. The introspective researcher need only think of all of the serendipity that went into the production of that scientific publication to be uncertain that he or she can replicate that brilliance in the future. The experimental evidence consistently shows that compared to individuals who receive response-contingent success feedback, participants who receive response-noncontingent success feedback subsequently opt to self-handicap prior to taking a second ability test. This experimental analogue is thought to reflect the real-world circumstance of people who have experienced success in the past and attributed that success to their ability, but are uncertain that the attribution is correct. In summary, one distal motivation to engage in self-handicapping behavior involves competency self-images derived from a capricious history of success. Consider two entering college freshmen who both wish to believe that they are academically gifted but differ in the past events that would support such a claim. One student may have attained an almost perfect high school grade point average (GPA), been a National Merit scholar, and earned an academic scholarship. This student studied conscientiously but did not spend every waking minute hitting the books. The second student may also have an almost perfect high school GPA, but here the comparison with the first student ends. The second student's mother was the high school principal; this student played sports and in fact had been awarded an athletic scholarship to college. This student studied very hard and at several times throughout high school received tutoring. Both students want to interpret their high grades as evidence of superb academic ability, but the former student should be more confident in this judgment than the latter, because this student experienced more ability-contingent academic successes than the

second student. The second student also experienced academic success, but it was unclear because of other plausible explanations whether these successes were attributable to ability. How much did the mother's power over the teachers, the teachers' concerns about the student's athletic eligibility, or extraordinary effort and exceptional preparation contribute to this student's high grades?

Both students in the foregoing example should be equally comfortable until called upon to produce evidence of their academic ability. It is at this point that the student who is uncertain might be drawn to self-handicap. However, not all individuals who harbor concerns about their competency self-handicap when entering evaluative situations. There is a second set of distal factors that promote self-handicapping as the logical response. Past research has shown that people differ in their naive theories about the causes of ability. Specifically, Carol Dweck and her colleagues (Dweck, 1999; Dweck & Leggett, 1988; Elliot & Dweck, 1988) have discussed these "self-theories" with regard to mastery-oriented versus helpless behaviors in achievement contexts. According to this perspective, people fall into one of two camps with regard to their beliefs about the causes of ability and competency. "Fixed entity" theorists believe that ability is a fixed trait. Whatever one's capacity, it is relatively fixed and unmodifiable. In contrast, "incremental" theorists assume that ability can be cultivated through learning, that one's capacities are malleable. It is probably more accurate to say that most people entertain both theories and differ in the extent to which they favor one over the other as the predominant explanation for ability. Dweck also contends that "fixed-entity" and "incremental" self-theories are associated with different goals in achievement contexts. The "fixed entity" theorist pursues performance goals, that is, goals of receiving positive feedback and outcomes, such as a high grade or praise from the teacher. The "incremental" theorist, in contrast, pursues learning goals, characterized by learning something new or improving upon an existing skill.

We believe that the Dweck framework extends to an understanding of self-handicapping behavior. If individuals enter achievement settings with different beliefs about the

nature of their abilities, then competency feedback has different implications for self-worth. Our model specifies that the combination of a "fixed entity" view of competency and the pursuit of performance goals should also promote the tendency to self-handicap when the individual anticipates negative feedback about the "fixed entity." Returning to our college freshman who is uncertain about his or her academic ability, consider this student's possible reactions to the first set of course exams. If our hypothetical student embraces an "incremental theory/learning goal" orientation, this is clearly an unsettling situation. The evaluation is important, and the outcome is uncertain. However, the meaning of that outcome, while potentially disappointing, is not damning. A negative evaluation signals that more training and preparation are required before the student can move on. But what if our hypothetical student holds a "fixed entity theory/performance goal" orientation? Failure for this student does not mean that more preparation is required. Rather, it signals that ability is lacking, and this is a devastating message, because, according to the fixed-entity view, there is not much one can do to remedy the deficit. Thus, when situations require the demonstration of a certain competence, the performance goals and focus on ability of those who hold fixed theories of competence may also motivate strategic defensive behavior, especially self-handicapping.

Returning to Figure 29.2, one can see that the use of self-handicapping strategies is the product of two learning histories (Rhodewalt, 1994). First, the self-handicapper has had a set of socialization experiences that instill the belief that competency is fixed and can only be demonstrated rather than improved. Second, this person possesses ability self-conceptions that are based on a causally ambiguous and shaky history of success. Thus, self-handicappers enter many evaluative situations with the goal of demonstrating an ability of which they are uncertain. It is the confluence of these two learning histories and the more immediate performance demands that set the stage for self-handicapping. Evaluative situations that pose the threat of negative feedback about the self are to be avoided, because their implications are so damaging. In these contexts, people will embrace self-handicaps, because the trade-

off of increased risk of failure for the protection of an ability self-conception seems like a bargain.

Is it the case that people who display a tendency to self-handicap also hold "fixed entity" views of competency and pursue performance goals? This important question has not been extensively investigated, but existing data suggest that the answer is "yes." Rhodewalt (1994) devised several measures to probe respondents about their naive theories of competency. For example, individuals provided responses to a set of open-ended questions, such as "What does it mean to be intelligent (athletic, socially skilled)?" "What does it mean to be unintelligent (unathletic, not socially skilled)?" and "What could one do, if anything, to become more intelligent (athletic, socially skilled)?" A second measure required respondents to read a vignette about a bright and accomplished college student who had been accepted to medical school. They rated the person in the vignette for intelligence and then apportioned 100 points among possible causes of her academic achievement, including the factors "innate intelligence," "effort," and "privileged background." With respect to goals in achievement contexts, participants completed a measure of goals in school (Nicholls, 1984) that assessed both performance and learning goals.

Participants also completed the Self-Handicapping Scale (SHS; Jones & Rhodewalt, 1982). The SHS is a face-valid, self-report measure of people's tendencies to make excuses and use self-handicaps. In support of the hypothesis, the tendency to self-handicap was significantly related to the endorsement of fixed-entity theories of ability across both measures of assessment and all ability domains (intelligence, athleticism, and social skills). Also, as hypothesized, self-handicapping was associated with the pursuit of performance goals in academic settings. More recently, Elliot and Church (2003) conducted a motivational analysis of self-handicapping and reported that self-handicapping tendencies were positively related to performance approach goals and performance avoidance goals (avoidance of failure), and negatively related to mastery goals.

There are two points that merit mention at this point in our discussion. The first concerns the issue of defensive strategies and regulatory coherence. We have argued that

defensive behavior can be understood in terms of a logical problem-solving cycle. The relation between the distal motives and self-handicapping strategies illustrates this point. Given the underlying competency beliefs and concerns held by these individuals, self-handicapping makes sense, because it defends against the threat to competency as it is defined by the individual. Second, as we have noted elsewhere (Rhodewalt & Tragakis, 2002), although self-theories and their related goals form one branch of distal motivation, and positive but uncertain self-conceptions form a separate branch, as depicted Figure 29.2, the two factors are probably embedded in the same developmental history. They may connect at a developmental level that involves understanding of the contingencies between behavior and outcomes. Jones and Berglas (1978) argued that the self-handicapper simply does not understand the connection between past success and personal attributes. We suggest that the same sort of ambiguous understanding of ability is more compatible with a fixed-entity view than with an incremental view of competency; that is, an incremental theory implies an understanding of the contingencies among effort, practice, preparation, and performance. A fixed entity view of ability requires less attention to contextual and motivational influences on performance. Future research may reveal that the same developmental experiences that contribute to a positive but confused self-image also foster fixed entity beliefs about the characteristics of that self-image.

We would be remiss if we did not mention one additional distal factor. This factor is highlighted by our example of students about to enter college. For both students, academic ability is important to their self-worth. It is only those domains of competency that are important to the individual's self-esteem that comprise part of the distal constellation of self-handicapping motives.

Proximal Motives

Proximal motives are engendered by features of the situation that pose a potential threat to the individual's self-image of competency. The most frequent and immediate threat is being called upon to exhibit the valued attribute or competency. It is the fear that one cannot produce evidence of a competence,

skill, ability, or attribute that elicits acts of self-handicapping. This was the central focus of the Jones and Berglas (1978) formulation of self-handicapping; however, Snyder and Smith (1982) have argued more broadly that self-handicapping is a response to anticipated threats to the self. Thus, self-handicaps can be used both to hide feelings of inferiority and to protect a shaky self-concept. While some may object to this characterization of self-handicapping (Berglas, 1988), it does capture the wide array of research findings in the literature. Clearly, having a desired self-conception debunked by a poor performance is a threat to the self.

Because most acts of self-handicapping are enacted before an audience, a second set of proximal motives becomes relevant. Self-handicapping could be motivated by the desire to preserve competency images in the eyes of others (i.e., self-presentation motive), or it could be in the service of protecting the self from the realization that one is not as competent as one desires to be (i.e., self-deception motive). A number of researchers have examined this issue without providing conclusive results. Berglas and Jones (1978) attempted to address this question in their initial demonstration of self-handicapping by varying whether the experimenter would know of the participant's choice to self-handicap. Whether or not the experimenter was allegedly aware of the self-handicap did not make a difference, leading Berglas and Jones to conclude that self-handicapping was for self-protection. Others (see Kolditz & Arkin, 1982) have produced evidence that self-presentational concerns can increase the likelihood of self-handicapping. Rhodewalt and Fairfield (1991) found that self-handicappers who anticipated doing poorly on an IQ test stated that they were not going to try on the upcoming test (and actually withdrew effort) even when these response were ostensibly anonymous and could serve no self-presentational purpose. Certainly, both motives could be operating, and the pursuit of one does not preclude the other.

Consequences of Self-Handicapping

Much of our work has focused on the outcomes of self-handicapping behavior. Does it work? And if so, what are the costs to the self-handicapper? The view that self-handi-

capping is an example of defensive self-regulation would suggest that, to some extent, the strategy accomplishes the goal of preserving self-perceived competency, and in the short term, it does. The right side of Figure 29.1 illustrates the hypothesized direct effects of self-handicapping. Self-handicapping should have direct effects on the quality of the performance. It should also influence attributions for that performance. And it should buffer competency images and self-worth from the implications of failure.

Discounting and Augmentation of Competency Attributions

There is clear and consistent evidence that self-handicaps are recruited into the explanations people offer for their successes and failures. In both laboratory and field studies of self-handicapping, participants discount attributions to ability when the failure occurs in the presence of a handicap. On some occasions, they will augment attributions to ability following success when that success occurred despite the presence of a self-handicap. For example, there have been a number of "classroom studies" of the effects of self-handicapping on attributional responses to success and failure (Feick & Rhodewalt, 1998; McCrea & Hirt, 2001; Rhodewalt & Hill, 1995). The procedure was similar in all investigations. In our work, students reported their expected class performance and were assessed for individual differences in self-handicapping (SHS) and self-esteem at the beginning of the academic term. Prior to the first exam, they reported any "handicaps" they were undergoing that might affect their performance on the upcoming exam. As expected, high SHS students claimed more handicaps than did low SHS students. When the graded exams were returned, students were asked to make attributions for their performance and to report their state self-esteem at that moment. In the Rhodewalt and Hill study (1995), all students received exam grades that were one-third of a grade lower than the highest grade they said would dissatisfy them. In the Feick and Rhodewalt (1988) investigation, we categorized students' performances by comparing their grades on the exam with their grade expectations reported at the beginning of the term. Students were grouped into those who performed worse than they ex-

pected (failure), equal to their expectations (expected success), or better than their expectations (unexpected success). In both studies (and also in McCrea & Hirt, 2001), students who received failing grades, and who also had claimed handicaps prior to the test, discounted attributions to lack of ability; that is, students who failed reported that they possessed significantly higher ability if they had previously handicapped than if they had not. In fact, in the Feick and Rhodewalt (1988) study, the ability attributions of failing self-handicappers were no different than the ability attributions of students who had performed up to their expectations—clear evidence of discounting. Students who performed better than they expected claimed augmented ability if they achieved this success in the presence of a handicap. These students reported levels of ability that were significantly higher than those of students who had performed unexpectedly well but had not handicapped. McCrea and Hirt (2001) also found evidence of augmentation among those students who had self-handicapped and subsequently performed well on the exam. Collectively, these studies provide clear support for the attributional component of the model.

Competency and Self-Worth

Our main argument is that people employ defensive behavior in order to protect competency images, because our senses of competency form a cornerstone of our self-worth. Evidence from laboratory as well as field studies consistently documents that failure in the presence of a self-handicap preserves the self-handicapper's feelings of competency and self-worth. For example, Rhodewalt, Morf, Hazlett, and Fairfield (1991, Study 2) led participants to believe that they had performed well on an intelligence test and then administered a second form of the same test. Half of the students received feedback that they continued to be successful on the second test, and half received feedback that they were now failing. Independent of this feedback was the presence or absence of an experimenter-imposed handicap. Those students who failed but had a handicap reported levels of ability and self-esteem equal to those who succeeded on both tests. In contrast, students who failed

and did not have a handicap concluded that they had low ability and displayed lowered self-esteem.

Naturalistic studies described earlier also document the competency- and esteem-buffering effects of self-handicapping (Feick & Rhodewalt, 1998; McCrea & Hirt, 2001; Rhodewalt & Hill, 1995). All of these investigations found that students' claimed handicaps buffered perceptions of ability and self-esteem from the effects of failure—although this, too, was more consistently true for men than for women (McCrea & Hirt, 2001; Rhodewalt & Hill, 1995). Most important, these studies showed that the self-esteem of self-handicappers who failed was not significantly different from that of successful students and significantly higher than that of failing non-self-handicappers.

These findings return us to the question of motives. Specifically, are self-handicappers mainly concerned with self-protection or self-enhancement? Some findings suggest that high self-esteem individuals may self-handicap to seek opportunities to augment anticipated success (Rhodewalt et al., 1991; Tice, 1991). Our reading of the research suggests that most acts of self-handicapping are primarily in the service of self-concept protection. Although it is true that certain individuals, particularly high self-esteem, high self-handicappers, are quick to understand and accept augmented ability attributions, self-enhancement is unlikely to be the primary reason for their self-handicapping behavior. These individuals self-handicap only when they are uncertain about their ability. If the goal of self-handicapping for high self-esteem individuals were self-enhancement, then one would observe self-handicapping among individuals who are certain of their ability. There is no evidence to support this argument.

Self-Handicapping and Performance

The question of whether self-handicapping affects performance is complicated by the wide range of ways in which people can self-handicap. It appears obvious that behavioral handicaps such as drinking alcohol or failing to prepare should harm performance more than should claimed handicaps, such as reports of illness or effort withdrawal. The data are not so clear in this regard. For ex-

ample, in one study in our laboratory, we (Rhodewalt & Fairfield, 1991) asked students to state privately how hard they were going to try on an upcoming test of intelligence (with lack of effort being a claimed self-handicap). Unknown to the students, we had manipulated the difficulty of a set of practice items, so that half of the students expected to do well and half expected to do poorly. Students who were suspicious that they would not do well on the IQ test *claimed* prior to taking it that they did not intend to put forth as much effort as did students who expected to do well. All students were then administered the same test. What is striking about this experiment is that students who made the claim of low intended effort actually performed significantly worse than did students who did not make the claim. Given that the test was the same for everyone, we assume that stating that they were not going to try led them to try less hard, which accounted for their poorer performance. In the McCrea and Hirt (2001) "classroom study," prior to the exam, high self-handicapping men reported putting less effort and time into preparation than did all other groups of students. These students who reported poor preparation performed poorly on the test, averaging 71% compared to 79% averaged by their classmates. Nonetheless, as already reported, these self-handicapping students made nonability attributions for their poor performance and maintained high estimates of ability and self-esteem. Clearly, the relation between the mode of self-handicap and performance is complex and warrants additional research.

A second way to address the self-handicapping and performance question is to examine the long-term effects of self-handicapping. To the extent that an individual chronically self-handicaps, one would expect that there would be deleterious effects on achievement and accomplishment. We have evidence suggesting that this is true. We created an index of over- and underachievement by using students' Scholastic Aptitude Test (SAT) and American College Test (ACT) scores as a measure of aptitude, and their GPAs as a measure of achievement (Rhodewalt & Saltzman, reported in Rhodewalt, 1990). In samples from two different universities, the over- and under-

achievement index correlated negatively with scores on the SHS; that is, the more a student was a chronic self-handicapper, as evidenced by his or her SHS score, the less likely his or her grades were as high as what would be expected from his or her SAT/ACT scores.

Zuckerman, Kieffer, and Knee (1998) provided a follow-up examination of the relation between chronic self-handicapping and academic performance. In two studies, these researchers found that individual differences in self-handicapping, as measured by the SHS, were related to lower academic performance, as indexed by GPA. Moreover, the negative relation between the SHS and GPA was independent of verbal and quantitative SAT, and level of self-esteem. Zuckerman et al. also measured study habits and found that poor exam preparation seemed to drive the relationship between individual differences in the tendency to use self-handicaps and poor performance.

Recursive Effects of Self-Handicapping

Self-handicapping behavior also illustrates the cyclical aspect of our competency/defense self-regulation model. As depicted in Figure 29.2, short-term "positive" outcomes, such as preserved competency images and protected self-esteem, should reinforce the use of self-handicapping in the future. However, there are longer term consequences as well. The strategy works in the short-term, because it creates ambiguity about the causes of poor performance. If, as we have argued, uncertainty about competency is a distal motive, this uncertainty should be perpetuated, if not exacerbated, by a strategy that preserves or creates additional uncertainty. In addition, to the extent that self-handicapping actually undermines performance, self-handicappers should experience a higher base rate of competency-threatening outcomes. This last influence is compounded by the audience's willingness to give more harsh feedback to self-handicappers than to non-self-handicappers (Rhodewalt, Sanbonmatsu, Tschanz, Feick, & Waller, 1995). In brief, the self-handicapping cycle is self-perpetuating, because it maintains the positive but insecure competency images that motivated the defensive strategy in the first place.

Other Defensive Styles

Although most of our work on the competency/defense self-regulation model has focused on the antecedents and consequences of self-handicapping behavior, we believe our analysis may be expanded to other "defensive styles" as well. We illustrate this claim with the examples of defensive pessimism (Norem & Cantor, 1986) and rejection sensitivity (Downey & Feldman, 1996). According to Norem and Cantor (1986) certain people employ *defensive pessimism* as a motivational tool in competency-relevant situations. In their view, defensive pessimists have a demonstrated history of achievement in competency-relevant domains, yet harbor expectations of failure in the future. For these individuals, the demonstration of competency is very important, and much anxiety and negative affect is associated with such evaluative events. However, rather than being debilitated by anxiety, these individuals draw on it as a source of strength to prepare for the anticipated evaluation. Defensive pessimists set low expectations for themselves and play through negative (and oftentimes low base rate) possible outcomes for the future event. Defensive pessimists are often contrasted with optimists, who set high expectations for themselves and pursue promotion-focused strategies for achievement goal attainment. In terms of actual competency, however, the two groups do not differ in performance or achievement. The notion that defensive pessimism is strategic is evidenced by the fact that when blocked from being pessimistic by being provided with encouragement, these individuals perform poorly (Norem & Cantor, 1986). Defensive pessimism is cast as a motivational strategy designed to maximize performance in achievement settings. In Cantor's (1990) terms, defensive pessimism is an example of social intelligence, in that it is a functional and adaptive strategy employed by some individuals in achievement contexts. Although we have no empirical documentation, we suggest that defensive pessimists bring to achievement contexts concerns about their competencies (distal motives) that prime them to view situational demands to demonstrate competency as potentially threatening to the self. In this regard, we view defensive pessimists as being quite similar to self-

handicappers in their motivation to manage others' impressions of their abilities. Dwelling on the possibility of failure and expressing these self-doubts to others, defensive pessimists reduce others' expectations of them. In addition, by suggesting that failure, if it occurs, was the result of elevated emotional distress and not because of poor ability, they have established a self-protective attribution for the anticipated but unwanted outcome (cf. Smith, Snyder, & Handlesman, 1982). Consistent with this notion, Elliot and Church (2003) reported a significant positive correlation between defensive pessimism and self-handicapping. The distal motive of seeking to preserve a competent and able self-view is enabled by the strategy of defensive pessimism.

Relationship Defenses

There has been considerable recent interest in the extent to which one's significant relationships form a part of the self (Andersen & Chen, 2002). Importantly, a person's self-views and feelings when in particular significant relationships can be activated by current interaction partners (Hinkley & Andersen, 1996). Given the importance of significant interpersonal relationships to the self, it follows that responses from relationship partners can threaten the self. The threat of rejection, abandonment, exclusion, or ridicule not only threatens the self but also calls into question the person's competency and value as a relationship partner. Threats to one's sense of interpersonal competency should initiate defensive behaviors. Are there then relationship-specific individual differences in the way that people respond to potential interpersonal difficulties and the threats to the self that they imply? According to Downey and Feldman (1996), *rejection-sensitive* people are chronically anxious and expect to be rejected by their significant others. High rejection-sensitive people are more likely to respond to ambiguous behaviors by another as signaling rejection, and to perceive hurtful intentions from their partner, whereas low rejection sensitive people do not. Downey and Feldman also found that rejection-sensitive people have partners who are more dissatisfied with the relationship. Moreover, Downey, Freitas, Michaelis, and Khouri (1998) observed that

rejection-sensitive women were likely to turn their expectations into reality, such that their relationships were more likely to dissolve than relationships among women who were low in rejection sensitivity. Importantly, rejection-sensitive women's conflict-engendering interpersonal style was found to be a precipitating cause of the breakups. On the surface, rejection sensitivity appears to be self-defeating, in that it precipitates the unwanted outcome, rejection and relationship dissolution, that was feared in the first place. However, by conceiving of rejection sensitivity within the competency/defense self-regulation framework, such responses make sense. Rejection-sensitive people bring to relationships concerns about their attractiveness as a relationship partner and their abilities to maintain the relationship and avoid rejection. These distal concerns and motives make rejection-sensitive people vigilant for signs that their partners are losing interest or are discovering their weaknesses and negative characteristics. Perceived evidence of impending rejection serves as the proximal motivation to initiate the set of defensive interpersonal strategies characteristic of the style. Although the defensive strategies spawn rejection, they also allow individuals to preserve a sense of relationship competency and to guard their fragile self-esteem. After all, it was the partner who could not accept the truth about his or her flaws and shortcomings, and who lacked commitment to stay with the relationship. It is also likely that rejection sensitivity-related interpersonal strategies have the self-perpetuating effect of enhancing the person's sense of predictability in the social environment and fueling fears of rejection in future relationships.

Another form of rejection sensitivity is suggested by Sandra Murray and her colleagues (Murray, Rose, Bellavia, Holmes, & Kusche, 2002), one that clearly links such strategic behavior to the self. Murray et al. reported that self-esteem moderates the reactions to perceived rejection within close relationships. In a series of experiments, people with high and low self-esteem were made to believe that their partners complained about their faults or would dislike a "secret" aspect of their personality. After receiving this threat to their relationship value, low—but not high—self-esteem people overreacted to

their partner's response by seeing themselves as lacking in worth and believing that their partners were pulling away from the relationship. In response to this threat to their relationship competencies, low self-esteem people derogated the partner's traits and reported less closeness to the partner. In contrast, threatened high self-esteem people did not derogate the partner or suspect the partner's intentions with regard to the relationship; rather, they affirmed the partner in the face of possible acceptance threats. Despite their anxieties and differences in defensive (among low self-esteem people) or reaffirming (among high self-esteem people) responses, relationships partners viewed their threatened high and low self-esteem partners equally positively. As was the case with high rejection-sensitive women, the vulnerable self-concepts and doubtful feelings of acceptance among low self-esteem people may paradoxically set up relationship failures through their capriciousness and ill-behaved responses to a partner's (largely ambiguous) behavior. Relational insecurities thus produce a set of deleterious behaviors that allow the relationship to unfold as expected, thus preserving a limited sense of relationship competency for low self-esteem individuals.

No doubt there are any number of interpersonal orientations that embody interpersonal competency concerns and prescribe a set of defensive self-regulatory responses. Our intention here is not provide an exhaustive list but to suggest that the self- and competency concerns are embedded in our interpersonal relationships and, as a consequence, relationships provide threats to the self that, in turn, elicit strategic defensive reactions.

CONCLUSIONS

People embrace their self-perceived competencies as integral components of their self-concept and as cornerstones of their self-esteem. To the extent that people's competency images are positive and central to self-worth but also insecure, and to the extent that they believe that competence is stable and unmodifiable, competency/defense motivation will be chronically high. It is a unique feature of our competencies that they are frequently put

to the test. It is in such circumstances that the insecure individual will be threatened and respond with defensive behaviors intended to protect the competency self-image. Competency and defensive behavior are linked through their relation to the self. In this chapter, we have proposed the competency/defense self-regulation model to give coherence and meaning to defensive behaviors and illustrated our model with research on self-handicapping behavior. It is our position that defensive behavior can best be understood when it is placed within the context of self-regulatory processes. In this view, defensive strategies are neither illogical nor mysterious; rather, they are tools wielded by individuals whose sense of competency is in question. We suspect that many paradoxical behaviors will lend themselves to analysis within the competency/defense self-regulation framework.

NOTES

1. Throughout the chapter, we use the terms "self-esteem" and "self-worth" interchangeably.
2. Any discussion of self-esteem raises the issue of whether self-esteem is contingent (Crocker & Wolfe, 2001) or "optimal" (Kernis, 2003) or "true" (Deci & Ryan, 1995). Our interest is somewhat orthogonal to this concern; global self-esteem, in our view, is a composite of self-evaluations across personally important competencies and social relationships. In this sense, all self-esteem is contingent. Less relevant to our focus is the extent to which self-evaluations are contingent on the values and desires of others or the self, which is the crux of the more general debate.
3. When the topic is low in relevance to person's self-concept, the corresponding effect is that of feeling better about the self. We do not discuss this "reflection" process, because it is not central to the concept of self-defense, as is the former "comparison" process.

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CHAPTER 30



Social Comparison and Self-Evaluations of Competence

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Festinger (1954a, 1954b) was the first to advance a systematic formulation of the role of social comparisons on self-evaluations and behavior. His social comparison theory was cast in the form of nine hypotheses, eight corollaries, and eight derivations. For our purposes here, it can be reduced to the following: We need to have accurate appraisals of our opinions and abilities, and when we cannot get these appraisals through objective means, we try to get them through comparison with similar others (the similarity hypothesis). In the case of abilities, there is a unidirectional drive upward, so that we want to be slightly better than others.

Festinger did not specify clearly what he meant by "similarity." Early researchers (e.g., Wheeler, 1966) took it to mean similarity on the dimension of comparison. There is circularity involved in this, however, because one must have already compared with someone to know that he or she is similar. Wheeler neatly avoided this problem by giving participants information

about their position in a rank order. Thus, they knew that they were more similar to some people than to others, but they did not know *how* similar (in terms of scores) they were to anyone. The general result of this line of "rank-order paradigm" research was that participants compared themselves to those adjacent to them in the ranking, and much more with the person just better than themselves than with the person just worse than themselves. Thus, the research supported both the unidirectional drive upward and the similarity hypothesis.

An interesting exception to the usual results occurred when no information was given about the highest score in the group. In that case, most participants compared with the highest ranking person, a case of the unidirectional drive upward completely overwhelming the desire for a similar comparison other.

Goethals and Darley (1977) proposed the related attributes hypothesis (see Wheeler & Zuckerman, 1977), in which similarity was based upon characteristics related to and

predictive of the trait to be evaluated. If one swims better than a man of his age, physical condition, and swimming experience, then he is a good swimmer (better than he ought to be based on related attributes). It is easy to imagine a situation in which similarity on the attribute to be evaluated is distinct from similarity on related attributes. For example, a comparison target might have a score similar to that of another on the ability (attribute to be evaluated), and a different comparison target might have the same amount of practice (the related attribute) on the ability. When that occurs, both types of similarity influence choice of a comparison other (Wheeler, Koestner, & Driver, 1982).

Research beginning in the 1980s showed that people who feel the need for self-enhancement make comparisons resulting in affective and motivational outcomes that are different from those of people motivated by self-evaluation or the need for accurate evaluations of one's abilities. For example, a breast cancer patient might make predominantly downward comparisons in order to make herself feel better about her own state. See Wills (1981) and Wood, Taylor, and Lichtman (1985) for theory and research on self-enhancement. However, in everyday life, the line between self-evaluation and self-enhancement probably is fuzzy, because people should want both to acquire information about their standing (so they can make informed decisions about what things they can do) and to feel good about themselves (or at least not feel poorly). The question we consider in this chapter is how social comparisons contribute to an individual's personal sense of competence. For a greater breadth and depth of information about social comparison processes, see Suls and Wheeler (2000).

It is strange that social comparison theory has not been better integrated into the achievement motivation literature. Much of Festinger's work prior to social comparison was on level of aspiration (LOA), and that work was integral to the achievement motivation literature and clearly influenced social comparison theory. His first publication, based on undergraduate research done at City College of New York, dealt with social factors affecting LOA (Hertzman & Festinger, 1940), as did his Master's thesis done under Kurt Lewin (Festinger, 1942a,

1942b). The research showed that participants raised their LOA if they scored below other group members (particularly if they were high school students and therefore of lower status than the college participants), and lowered their LOA if they scored above others (particularly if these others were graduate students and therefore of higher status than the participants). Here, we see clear evidence for what was later to be called the related attributes hypothesis (Goethals & Darley, 1977): The college student participants felt that they *ought* to score higher than high school students and lower than graduate students because of the related attributes of age and education.

Tamara Dembo (1931) introduced the concept of LOA in her 1930 PhD thesis in Berlin, and the first experiment was published that same year (Hoppe, 1930), both influenced by Lewin. Throughout the 1930s and early 1940s, LOA was a thriving area for research and theory, including work by researchers such as Hilgard, R.R. Sears, P. Sears, and Rotter. Festinger went to Iowa to study with Lewin because he wanted to work on tension systems, boundaries, satiation, force fields, and related issues, but found that Lewin was by then interested more in practical social problems. The classic theoretical and review chapter, "Level of Aspiration" (Lewin, Dembo, Festinger, & Sears, 1944), which marks the end of this period of research and theory, was developed by Dembo, P. Sears, and Festinger from Lewin's conceptual system (see Patnoe, 1988). They followed the "resultant valence theory," presented by Escalona (1940) and elaborated by Festinger (1942b).

A fundamental puzzle with regard to LOA (and achievement motivation in general) is the apparent inconsistency between setting up higher and higher goals, and the notion that life appears to be governed by the tendency to avoid unnecessary effort. Looking at the psychological situation that individuals face as they make up their minds about the next goal can solve this problem. Experimental results have shown that with increasing difficulty level, the valence of success increases, and the valence of failure decreases. Therefore, given two levels of difficulty, the valence will always be greater at the higher level of difficulty (Valence = Valence of Success - Valence of Failure). The situation is

complicated by the necessity to take into account both the probability as well as the valence of future events. If success at the highest level of difficulty has very positive valence, but the probability of achieving success is zero, then there will be little resultant motivation to attempt that level of difficulty. The "weighted" valence of success is the product of the valence and of the probability of success. Motivation will tend to be highest at that level of difficulty at which there is a subjective 50-50 probability of success and failure.

All decisions about valence and the probability of success are made within existing frames or scales of reference. There are usually many coexisting frames of reference for a level of aspiration (e.g., task-referential, past-referential, and other-referential; Elliot, McGregor, & Thrash, 2002). One reference scale based, for example, upon the individual's past achievement might lead to one LOA, while another reference scale, based upon group standards, might lead to a different LOA. These two reference scales are combined according to the relative weight or "potency" of the two frames of reference. There are also different types of group standards. Given a college standard of a "Gentleman's C," the resultant valence is maximum at "C" and falls off rapidly in both directions. In other cases, the group standard might set a minimum level, and anything above that would have much success valence and little failure valence. Standards set from outside do not have to be related to another group but may come from a significant individual (friend, teacher, etc.) or from requirements of law or society. Lewin et al. (1944) also stressed that there are great differences between people in their relative tendencies to seek success and to avoid failure, so that the valence of success and failure will certainly not be the same for all people in the same situation (Elliot & Church, 1997).

The Lewin et al. (1944) paper had a major impact on the development of the achievement motivation literature. It also presaged much of social comparison theory. The unidirectional drive upward of social comparison theory comes directly from the resultant valence theory of Lewin et al., which also provides the basis for (McClelland, Atkinson, Clark, & Lowell (1953) influential achievement motivation framework.

Our task in the remainder of this chapter is to discuss how social comparison may influence achievement motivation and perceptions of competence.

PROXIES AND PERFORMANCE PREDICTION

There are many tasks that one might not want to attempt without prior knowledge that one has a very good chance of succeeding. Examples include swimming across a bay, pursuing graduate study, rebuilding a car engine, and getting married. Wheeler, Martin, and Suls (1997) proposed a proxy model of social comparison to deal with the issue of predicting one's own competence (see also Martin, 2000).

How would a woman know whether she might succeed in graduate school? She might extrapolate from her undergraduate performance. To the extent that she did well as an undergraduate, she should do well as a graduate student. However, she knows that all graduate students have done well as undergraduates, and that not all of them succeed as graduate students. She needs something more. She might well talk to another woman who attended her undergraduate school and subsequently succeeded brilliantly in graduate school. If she found that this proxy performed the same as she did as an undergraduate and that graduate school had not been a terrible challenge, she would feel more confident that she was competent enough to work toward her PhD; that is, on Task 1 (undergraduate education), she was similar to the proxy, so she should be similar to the proxy on Task 2 (graduate school). There is one complication to this, however. It is possible that the proxy exerted very little effort on Task 1. Perhaps she was a party girl, the social chairperson of her sorority, a member of the golf team, and a frequent visitor to tropical islands and European capitols. Our comparer, on the other hand, had to work hard for similar grades. The comparer and the proxy are quite different, then, on effort, a related attribute (Goethals & Darley, 1977), and it is unlikely that the proxy's performance on Task 1 was indicative of her maximal effort or true competence. Therefore, in this case, the comparer should not expect similar Task 2 performance.

Related attributes are important only when the proxy's Task 1 performance may not indicate maximal effort. If we know that the proxy exerted maximal effort, then the prediction from Task 1 performance to Task 2 performance is straightforward.

There is empirical support for the basic premises of the proxy model, using both physical strength and intellectual problem-solving tasks (Martin, Suls, & Wheeler, 2002). For example, when predicting performance on a grip strength task, participants paid attention to the related attribute, hand size, but only when the proxy's performance on Task 1 may not have been maximal. Participants' predictions factored in relative hand size in deciding whether they would perform better, worse, or the same as the proxy had. When the proxy's performance on Task 1 was clearly the best that the proxy could do, participants ignored hand size in predicting their own performance on the grip strength task. In this case, participants predicted that they would perform as well as the proxy had.

The Wheeler et al. (1997) theoretical paper argued that one of the most important questions that might be answered through social comparison is "Can I do X?" That question may be answered through comparison with a similar proxy who has already attempted X. If the similar proxy can do it, so, probably, can you. There is not a direct connection to motivation beyond the fact that knowing you *can* do something may indeed motivate you to do it. Basically, however, the proxy model assumes prior motivation. In the next section, we examine a similar line of research (Lockwood & Kunda [1997] on superstars) in which self-views and motivation rather than prediction are the major dependent variables. The superstar and proxy arguments are similar in one important way. In both cases, the comparer is comparing him- or herself to a target that has already had a chance to demonstrate competence. The comparer is not in direct competition with the target, as in many social comparison situations, because the comparer is about to undertake a task that the target has already performed and from which he or she has now moved away. Rather than competing with the target, the comparer is using the target as a source of information and/or inspiration.

SUPERSTARS AND SUPERFLOPS

In the original superstar research (Lockwood & Kunda, 1997), first-year and fourth-year accounting students were exposed to an article about an outstanding graduating student in accounting or to a no-target control. Participants then rated themselves on adjectives relevant to general career success. First-year students rated themselves considerably higher after exposure to the superstar, whereas fourth-year students rated themselves insignificantly lower. The superstar's success was attainable for the first-year students but not for the fourth-year students. First-year students rated the target as a more relevant comparison than did fourth-year students, and in open-ended explanations of their relevance ratings, often mentioned that the superstar inspired them, and that they were similar to the superstar on dimensions other than intended occupation. In a follow-up study, first-year students with a malleable view of intelligence gave higher self-ratings after exposure to a fourth-year superstar, but those with a fixed view of intelligence did not, again supporting the view that attainability is crucial.

The dependent variable in this research was self-ratings on adjectives generally related to career success (e.g., bright, competent, ambitious, intelligent), essentially a measure of self-esteem. In their next research, Lockwood and Kunda (1999) also included measures of motivation. One measure was objective estimates of how much time participants would devote to six activities that were related to areas in which the target excelled (e.g., "Next week I plan to spend _____ hours studying," "This year I plan to spend about _____ hours on volunteer work or charity-related activities." In the second measure, participants were asked to estimate the likelihood that they would engage in eight activities (e.g., making a special effort to study hard for exams, volunteering to do more community work). Each item on the two scales was standardized, and all items were combined to form a single index of motivation.

The purpose of the Lockwood and Kunda (1999) research was to demonstrate that increasing the salience of people's best selves would undermine the inspiration created by a superstar. The researchers increased the sa-

lience of participants' best selves (Study 1) by asking them, before exposure to the superstar, to describe a peak academic experience that had made them feel especially proud, or (Study 2) by asking them to describe the academic and career achievement they hoped to accomplish over the next 10 years. Both of these "success primes" were expected to ground participants in reality, thus reducing the inspirational impact of the superstar, both as measured by adjective self-ratings and by the motivation scale. However, this prediction was correct only for adjective self-ratings. For the motivation index, the only significant effect was a reduction in motivation in Study 1 by the addition of the superstar model in the success prime conditions. Neither the superstar nor the success prime in either study increased motivation.

So far, we have examined only superstars, or highly successful role models. It could be, however, that failing models, or "superflops" (our term) would increase motivation to avoid sharing their fate. Lockwood (2002) exposed first-year participants to a poorly coping, recent university graduate who could get a job only in a fast-food outlet. Participants in a simulation condition were asked to describe a realistic scenario about how they might become like the superflop, whereas students in a no-simulation condition described their typical daily activities. There was also a no-target control condition. Only when asked to simulate did the participants show any effect of being exposed to a superflop. It is important to note that when the comparison target is a superstar, participants readily assimilate to the target, but when the target is a superflop, participants require the stronger manipulation of being asked to describe how it could happen to them. Otherwise, they just shrug it off.

In a follow-up study in which all participants were asked to simulate, adjective self-ratings were lower in the superflop condition than in a control condition; in other words, participants assimilated their self-views to the superflop. A measure of avoidance goals was higher in the superflop condition, but a measure of approach goals was not lower in the superflop condition. A new motivation scale was added for this study (e.g., "I plan to spend more time at the li-

brary," "I plan to stop myself from procrastinating"). This scale showed motivation to be highest in the superflop condition. Moreover, motivation was correlated with avoidance goals but not with approach goals.

In summary, a superflop comparison target decreased adjective self-ratings but increased motivational plans and avoidance goals. Having seen that both superstars and superflops can have motivational effects, a reasonable question to ask is whether situationally induced approach and avoidance goals will determine whether superstars or superflops have the greater influence on motivation. The prediction is that superstars will be more effective when approach goals are induced, whereas superflops will be more effective at increasing motivation when avoidance goals are induced. Lockwood, Jordan, and Kunda (2002) investigated this question.

In two studies, approach and avoidance goals were primed in different ways. Participants then read about a recent graduate of their own academic program who was either a superstar or superflop. There was also a no-target control group. The dependent variable was the motivation scale described earlier. In both studies, participants were more motivated by a comparison target consistent with their primed motivation: approach-primed participants responded with greater motivation to a superstar, and avoidance-primed participants responded with greater motivation to a superflop. In Study 2 only, a target incongruent with the primed motivation actually decreased motivation (e.g., a superflop target with approach-primed participants). In a third study, participants completed new approach-avoidance scales containing items such as "I frequently imagine how I will achieve my hopes and aspirations," and "I frequently think about how I can prevent failures in my life," and then generated an example of a person whose success or failure had motivated them in the past. Participants with relatively higher approach scores were more likely to recall positive role models.

Lockwood and Kunda's research shows that exposure to a superstar can increase self-esteem and motivation, if the star is not a competitor. The achievements of the role model should appear attainable, however. Furthermore, learning about superflops does

not undermine personal self-esteem, unless people are encouraged to think about how it could happen to them. As others have suggested, comparison direction is not intrinsically tied to a particular affective outcome (Buunk, Collins, Taylor, Van Yperen, & Dakoff, 1990). Although there are conditions in which a comparison might be demoralizing, people have considerable flexibility under most circumstances to protect themselves from the undesirable implications of comparisons and perhaps gain a greater sense of competence or inspiration, even when the comparison is with someone who is exceptional. Exposure to people who fail might undermine self-concept (at least momentarily), but simultaneously strengthen an individual's resolve to avoid the state of the superflop.

UPWARD COMPARISON AND HIGHER GRADES

Researchers in educational environments have used different methods but further substantiate the importance of role models and comparisons as sources of motivation and information concerning perceived competence. Blanton, Buunk, Gibbons, and Kuyper (1999) conducted a longitudinal investigation of the effects of comparison on academic performance among ninth-grade students in the Netherlands. In each of seven different courses, participants nominated the student with whom they typically compared their exam grades. The grade of that nominated person was used to determine whether the comparison was an upward or a downward comparison, and how similar it was. That was in turn related to the participant's subsequent performance in the course.

The average comparison target was slightly upward, as predicted by Festinger (1954a) and as demonstrated by Wheeler (1966) and many subsequent researchers. The most important result, however, was that, controlling for prior grades, upward comparison predicted higher grades both cross-sectionally and longitudinally.

Huguet, Dumas, Monteil, and Genestoux (2001) replicated this research with ninth-grade students in French public schools, and several potential psychological moderators were also measured: (1) importance of the

academic domain; (2) closeness to the target, in terms of frequency of talking; (3) identification with the target, in terms of believing that grades will become more similar to those of the target; and (4) perceptions of academic control, in terms of believing that grades can be increased by increasing effort.

Consistent with Blanton et al. (1999), upward comparison predicted higher grades. Identification was increased by upward comparison, closeness, and perception of control. Unfortunately, none of the moderators interacted with comparison choice in predicting grades. The authors expected perceptions of control to moderate the effect of comparison choice on grades (e.g., Major, Testa, & Blysm, 1991). Upward comparison should not be motivating, unless there is a perception of control over the outcome. Similarly, the authors expected identification to moderate the effect of comparison choice on grades (e.g., Berger, 1977; Buunk & Ybema, 1997). Upward comparison should be motivating only to the extent that a person believes he or she will become more like the comparison target. What we are really left with, then, in the absence of interactions with these moderators, is the fact that students who report upward comparisons get better grades. We do not know why. It could easily be that a third variable, perhaps need for achievement, influences both comparison and grades independently. Or it could be, as the authors of these papers argue, that the actual upward comparison improves grades by giving information about how to improve, or by increasing motivation to improve. The lack of a moderation effect is not necessarily a problem for this explanation, because students may make upward comparisons *only if* they think they have academic control and/or identify with the comparison target.

In both the Blanton et al. (1999) and the Huguet et al. (2001) papers, another social comparison variable in addition to comparison direction was featured. It was "comparative evaluation" and refers to the evaluation of one's ability relative to others. It was measured by asking participants to rate how good they were "compared to most of your classmates" in each of the academic domains on a scale ranging from "much worse" to "much better." The expectation was that people with a high comparative

evaluation have a high sense of self-efficacy and performance expectation, which should lead to higher performance. Thus, the prediction of both Blanton et al. (1999) and Hugué et al. (2001) was that both upward comparison and high comparative evaluation would independently lead to better performance. There is a potential problem here, however, because upward comparison should lead logically to lower comparative evaluation. If individuals are comparing with people better than themselves, they should be less likely to claim that they are better than their peers. We return to this later.

Blanton et al. (1999) and Hugué et al. (2001) did indeed find that high comparative evaluation predicted high performance, independent of comparison choice and with prior grades controlled. They also found that comparative evaluation was not influenced by comparison choice but was influenced by participants' own grades; that is, comparing upward did not lower comparative evaluation, but having higher grades raised comparative evaluation. Again, however, comparative evaluation did not interact consistently with the moderator variables in Hugué et al. (2001), and we are left with the somewhat unsatisfactory conclusion that higher comparative evaluation increases performance regardless of moderators such as perceived academic control. Once again, however, it may be that higher comparative evaluation is based on a perception of academic control; thus, moderation would not be exhibited.

One possible psychological inconsistency found in both studies was that students compared upward (mentioning a student who had slightly better grades) but maintained that they were just as good as other people (on the comparative evaluation measure). This inconsistency may be more apparent than real, however. Comparing oneself with an individual who has slightly better grades does not preclude thinking that one is just as good as *most* of one's classmates; in fact, if the student identifies with a slightly superior peer, this may lead to the inference that one is better off than most students. Collins (2000) reviewed a considerable amount of research showing that people intentionally compare themselves with superior targets (e.g., Suls & Tesch, 1978; Wheeler, 1966),

and that such comparisons produce more favorable self-estimates (e.g., Pelham & Wachsmuth, 1995). Because people want and believe that they possess positive attributes, they perceive similarity with upward targets and conclude they are "almost as good as the very good ones" (Wheeler, 1966, p. 30). A similar kind of assimilation was also found in Lockwood and Kunda's research, and the expectation that one will perform like the proxy also is suggestive of assimilation (Wheeler et al., 1997).

SMALL FISH AND BIG PONDS

The focus of the contemporary social comparison literature has been on how people learn about their capabilities and maintain or enhance feelings of self-esteem and self-competence through the strategic selection and construal of upward and downward comparison targets. The general consensus of researchers is that people have the flexibility to select consciously or to construct comparison targets, so as to maximize various goals. But there are situations in which social comparisons are imposed and lasting negative or positive effects on self-concept result (Diener & Fujita, 1977; Marsh, Kong, & Hau, 2000). Research on the "small fish in a big pond effect" (SFBPE) illustrates this point. The SFBPE refers to a phenomenon in which a person acquires a negative self-concept as a function of being among high-ability peers—a result that appears to be the opposite of what Lockwood and Kunda (1997) found after exposure to superstars and the results of Blanton et al. (1999) and Hugué et al. (2001). Earlier, we emphasized the ways that self-evaluations can be displaced toward the comparison target (i.e., assimilation). In the SFBPE, we see that evaluations also can be displaced away from the target (i.e., a contrast). After we review SFBPE research and its implications for perceived competence, we attempt to identify why the SFBPE situation produces lower perceived competence, whereas the Lockwood-Kunda situation produces the opposite outcome. Identifying the variables responsible for inspiration or deflation of expectations is important for not only understanding sources of perceived competence but also evaluating educational practices.

The SFBPE

In a seminal study of the career aspirations of college men, Davis (1966) was the first to refer to the so-called "frog pond" phenomenon. He wanted to understand why the academic quality of a college apparently had little effect on career aspirations. He proposed that attending a high-ability college ("a big pond") would result in a poorer grade point average (GPA), independent of individual academic ability, because academic standards should be more stringent in elite institutions than in a less selective institution (i.e., "a small pond"). Lower GPAs would lead to students' lower self-evaluations of academic competence and, in turn, less ambitious career aspirations. Based on analysis of survey data, Davis concluded, "The aphorism, 'It is better to be a big frog in a small pond than a small frog in a big pond' is not perfect advice, but it is not trivial" (p. 31).

Marsh and his colleagues have produced some of the strongest evidence for the SFBPE from studies of grade school and high school students. The basic idea is that schools place great emphasis on social comparison and achievement levels of classmates. Schools also differ in average ability level, so that each school sets a particular frame of reference for academic achievement. This means that equally able students who attend schools in which school-average achievement differs will use correspondingly different frames of reference in evaluating their academic accomplishments, and this process will affect academic self-concept and subsequent academic outcomes. A consistent finding from several studies is an SFBPE in which equally able students have lower academic self-concepts when the average achievement level is higher than those in schools where the average achievement level is lower.

In a representative study, Marsh and Parker (1984) surveyed grade school classes from high and low socioeconomic status neighborhoods in the same geographical area. There were substantial differences in reading achievement and IQ scores between the two kinds of neighborhoods. When individual ability level was controlled, the correlation between school-average ability and academic self-concept was negative; that is,

being enrolled in a high average-ability school (vs. a low average-ability school) was associated with lower academic self-concept.

Marsh (1987) also reanalyzed data from the longitudinal Youth in Transition Study, which included standardized tests of academic aptitude, GPA, socioeconomic status, and academic self-concept (e.g., How intelligent do you think you are, compared with others your age?) in a large sample of high school students. Both at Time 1 and Time 2 (a year later), the association between school-average ability and academic self-concept was negative (-.23), consistent with the negative SFBPE. School-average ability also was negatively associated with GPA, which was positively associated with academic self-concept.

The SFBPE seems to result from two separate processes: Any given student in a low-ability school generally finds him- or herself with less able students, which leads to higher academic self-concept. Students in low-ability schools also should earn higher grades than equally able students in high-ability schools, and this, too, contributes to higher academic self-concepts. Path analysis also used Time 1 measures to predict Time 2 measures. Attending a high-ability school produced lower academic self-concept at Time 1, which produced poorer grades at Time 2. It also is worth noting that global self-esteem was measured in this sample, but there was no SFBPE for self-esteem or general self-concept. The effect was specific to academic self-concept.

In a subsequent study, Marsh (1991) assessed whether the negative effects of school-average ability extended to other academic outcomes. This is important, because educators and parents assume that selective schools (i.e., high average ability) provide academic benefits to their students; the SFBPE, however, suggests that this assumption is incorrect. Marsh measured academic self-concept, selection of advanced course work, and educational and occupational aspirations while the student attended high school and college, and occupational aspirations 2 years after high school graduation. Attending higher ability high schools appeared to have negative effects on almost all outcomes. Furthermore, these effects were mediated by the negative SFBPE on academic self-concept.

Apparently, if students compare their accomplishments with those of their classmates in academically selective schools, then their academic self-concept declines. As mentioned earlier, the SFBPE is based on a contrast effect. Of course, for students enrolled in an unselective or low average-ability school, the state of affairs is the opposite of that for students in an unselective school: The frame of reference will be lower (than in a high-ability school), so academic self-concept of students actually will be enhanced in an unselective school environment ("the big fish in the small pond effect").

Until recently, SFBPE research focused almost entirely on negative contrast effects; however, Marsh et al. (2000) noted that the effect is actually the net effect of two opposing forces: the negative contrast effects, described earlier, and positive reflected glory, or assimilation effects. The latter refers to a well-documented effect in which self-concept is enhanced by people associating with successful others (Cialdini et al., 1976; Tesser, 1988) or joining valued groups. For example, in the school context, students might gain more positive academic self-concepts merely by being enrolled in a highly selective program. Essentially, the student thinks, "If I am a student here I must be smart." If the positive assimilation effect conferred by reflected glory is as strong as the negative contrast effect, then there should be no net effect of school context or SFBPE. However, the consistency of the SFBPE found in prior research suggests that the contrast effect tends to be stronger than the assimilation effect.

Marsh et al. (2000) studied both the SFBPE and reflected glory in a large cohort of high schools in Hong Kong. Two characteristics of this school system are notable: It is one of the most highly achievement-segregated systems in the world—a feature that should heighten the contrast effect that forms the basis of the SFBPE. However, Hong Kong is a collectivistic society; one's reputation is of special concern in Chinese culture, and admission to a prestigious high school should represent a gain in status for the student and his or her family, resulting in a reflected glory effect, or assimilation. This naturalistic experiment permitted the researchers to evaluate whether the highly achievement-segregated system would in-

crease the negative contrast, or whether the cultural differences would reduce the contrast and magnify the reflected glory/assimilation effects.

Marsh et al. (2000) analyzed pretest achievement test scores (prior to start of high school), achievement scores during secondary school, and academic self-concept in a sample of nearly 8,000 secondary school students in Hong Kong. In addition, each student completed some questionnaire items to gauge perception of their school's status to test the effects of reflected glory. Consistent with previous research, students who attended schools with higher school-average achievement scores had lower academic self-concepts than predicted on the basis of their high levels of pretest achievement, and lower self-concepts than students with similar abilities in schools with lower school-average achievement scores. Hence, the SFBPE was replicated. However, when perceived school status was included in the statistical model, there was a positive, albeit weaker, effect of school status on academic self-concept, indicative of a reflected glory/assimilation effect: Students who rated their school higher in status tended to have higher academic self-concept.

Marsh et al. (2000) concluded:

The results imply that attending a school where school-average is high—particularly in Hong Kong—simultaneously results in a more demanding basis of comparison for students within the school to compare their accomplishments (the basis of the negative social comparison effect) and a source of pride for students within the school (the basis of the positive reflected glory effects). (p. 347)

The implication is that the negative contrast effect (SFBPE) would be even stronger if students' affiliation with the school did not serve as a source of pride.

EXPLAINING THE DISCREPANCY

We have seen from Lockwood and Kunda's (1997) research that superstars can be inspiring and buoy estimates of self-competence. Furthermore, naturalistic studies (Blanton et al., 1999; Huguet et al., 2001) demonstrate that upward comparison

choices appear to enhance academic performance and motivation. However, SFBPE research indicates that being in a selective school with smarter classmates, where there should be many upward comparisons, seems to have a negative effect on perceived competence. What accounts for the difference in results?

Although it is not possible to identify a single cause, there are some key differences in the situations examined by these researchers. Lockwood and Kunda (1997) demonstrated that it is essential that the superstar not be at the same stage in his or her career as the participants. In contrast, the students in the SFBPE studies were exposed to the academic accomplishments of their classmates (same-age peers). Lockwood and Kunda's subjects still have time, and can hope and strive to match the superstar, but Marsh's grade school or secondary school students were already aware that they had not attained the success of their classmates.

This argument does not appear to apply, however, to the studies by Blanton et al. (1999) and Huguet et al. (2001). The people with whom the ninth graders compared exam grades were same-age peers. But the results showed that upward comparisons were motivating. The important difference might be that students nominated a classmate with *slightly better* grades as a comparison target, and therefore attainable accomplishments, and not a superstar, whose accomplishments might be seen as unattainable. Unfortunately, a direct comparison between the SFBPE studies and Blanton et al. (1999) and Huguet et al. (2001) studies is impossible, because the latter researchers did not compare high- and low average-ability schools.

What may be happening is this: Some students in both low- and high-ability schools compare themselves with those who have slightly higher grades, and as a result do better, either by being more highly motivated, or by learning how to make better grades. Thus, assimilation is occurring for some students, as shown by Blanton et al. (1999) and Huguet et al. (2001), and these slightly upward comparisons should be encouraged. Simultaneously, and in opposition to the effects of slightly upward comparisons, students in high-ability schools are doing less well than students in low-ability

schools (holding aptitude constant) and thus suffer a decline in academic self-concept. Students in the high-ability schools are also involuntarily exposed to superstars, who are age peers and therefore evoke a contrasting academic self-concept. The net result of these factors is a lower academic self-concept in the high-ability schools.

This outcome might be avoided if students had the flexibility and cognitive manipulation of comparison information that has been demonstrated in some laboratory and field research (Wood et al., 1985). However, these devices are probably severely limited in the school environment. Marsh et al. (2000, p. 339) noted, "The school is a total environment in that there are so many inherent constraints and a natural emphasis on social comparison of achievement levels in a school setting." Under such circumstances, in which competition for grades is an integral element, it is scarcely surprising that negative contrast tends to be the dominant element.

MODELS AND MELODRAMA

In this chapter, we have focused on the role of comparisons for achievement and perceptions of personal competence. Another form of social comparison—the use of social models in drama—is being used to create large-scale social change. Population Communications International is a nonprofit organization specializing in "entertainment-education" radio and television programs created to bring social change (Smith, 2002). Miguel Sabido pioneered the technique in Mexico in the 1970s in his efforts to promote adult literacy and family planning.

Programs are now aimed at reducing unwanted pregnancies, reducing the spread of HIV, promoting literacy, and empowering women, and there are offices in China, Egypt, India, Kenya, Mexico, and Pakistan. The long-term radio-television programs are deliberately melodramatic, showing a clash between positive and negative values in an exaggerated way. Great care is taken with character development and the use of tension and conflict, cliffhangers, music, and various plots and subplots. The melodramas feature ordinary people who are positive role models, negative role models, or transi-

tional models, who start out negatively but turn into positive models over time. It is particularly important that the transitional models be very similar to the viewers, so that the viewers can see themselves changing in the same way. The melodrama should increase self-efficacy—the belief that one can change one's behavior and improve one's life. Rewards and punishments are always the natural outgrowth of the characters' behavioral choices; that is, someone with a drinking problem would be punished with a car accident but not by contracting cancer.

At the end of some episodes, someone, often a celebrity, summarizes the lessons and tells viewers where they can get further information or help. These programs are often more popular than the pure entertainment programs, and evaluation data show that they have strong effects on behavior. The technique has even been used with American soap operas. Two episodes of *The Bold and the Beautiful*, dealing with HIV and giving a number to call for more information, increased the number of calls by 16-fold over the normal volume.

The primary inspiration for the efforts of Population Communications International was Bandura's (1977) social learning theory. However, social comparison is a component of social learning theory and social cognitive theory (Bandura, 1986), and is, we believe, the most important part of the dynamics involved in the large-scale social change efforts. Seeing others obtain valued outcomes as a result of their efforts can instill a belief in observers that they, too, can obtain the valued outcomes, and thus motivates them to do so. Observers must believe that they have the efficacy to produce the modeled performances, and that similar behavior will bring them similar outcomes. People compare themselves with others to learn what they can and want to accomplish. Although such social comparisons do not constitute the sole source of information that underlies personal competence. They seem to be important.

CONCLUSIONS

Perceptions of competence and motivation are strongly influenced by social comparisons. However, as we have described, social comparison can produce assimilative and

contrastive effects (Mussweiler, 2001; Stapel & Koomen, 2000). We have described how superstars and persons (proxies) who have attempted tasks that we are contemplating can serve as role models, allowing us to identify or assimilate to them. Their successes can be an important source of knowledge and motivation, because they are not our direct competitors. These role models, however, do need to have some similarities (in related attributes) with us, as social comparison theory stipulates, to be meaningful and allow us to identify or assimilate with them.

Comparisons also can produce contrastive outcomes. Being exposed to a superflop may lower self-evaluations if people are forced to think about how the same thing could happen to them (assimilation), but it also prompts action to help them avoid such an outcome (contrast). In the school environment, the presence of many high-ability peers can reduce academic self-concept and academic aspirations via a contrast effect. We think that the contrast effect exceeds any effect of pride of identification with being in a selective school because of the inherent competition with same-age peers. However, in our view assimilation and contrast are not all-or-none outcomes. Probably every social comparison creates both the pull of assimilation and the push of contrast. Which process predominates depends on the person's degree of freedom and flexibility to make strategic comparisons. As we learn more about how social environments expand or constrain this comparison flexibility, we may be able to provide educators, developmentalists, and policymakers with tangible suggestions about how a person can acquire a sense of personal competence that strikes a balance between realistic appraisal and confidence.

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INTRINSIC MOTIVATION

CHAPTER 31



The Concept of Competence

A Starting Place for Understanding Intrinsic Motivation and Self-Determined Extrinsic Motivation

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During the first half of the 20th century, within both the empirical and the psychoanalytic approaches to psychology, the dominant theories of motivation focused on physiological drives as the source of energy for all motivated behavior. In both traditions, it had become clear by the 1950s that drive-based approaches could not provide adequate explanations for a wide range of phenomena, including exploration, achievement, and healthy development. Accordingly, a new motivational psychology emerged that uses cognitive concepts, differentiates intrinsic and extrinsic motivation, and views the innate psychological needs for competence, autonomy, and relatedness as an essential concept for understanding human behavior in social contexts.

In this chapter, we begin by briefly reviewing the early work that led to the emergence of this new approach. Then we focus on one strand of that new work by reviewing concepts and research on intrinsic

motivation, arguing that a differentiated analysis of extrinsic motivation is also essential. Finally, we discuss the importance of innate psychological needs for integrating the research on intrinsic and extrinsic motivation.

WITHIN THE EMPIRICAL APPROACH

The most prominent early empirical theory of motivation was Hull's (1943) drive theory, which posited that the motivation for all behaviors—learning, interacting with others, and performing in a game or concert—is reducible to a small set of drives (i.e., physiological deficit needs), namely, hunger, thirst, sex, and the avoidance of pain. According to the theory, behavior is regulated or directed by associative bonds, which involve a behavior being linked to an internal or external stimulus through either primary or secondary reinforcement. Pri-

mary reinforcement occurs when a behavior results in the direct reduction of one of the four drives in the presence of a stimulus, thus linking the behavior to the stimulus. Secondary reinforcement requires an initially neutral object to be paired with the reduction of one of the four drives, so that the neutral object will take on secondary reinforcing properties. Then an associative bond between a stimulus and behavior can develop when the behavior leads to the secondary reinforcer in the presence of the stimulus. Primary and secondary reinforcement are the mechanisms that, taken together, were said to explain how drives underlie all motivated behaviors.

Studies of exploration and play proved highly problematic within this tradition, because they contradicted a basic premise of drive theory. Animals were observed to engage in exploratory behaviors that induced rather than reduced drives. For example, Dashiell (1925) reported that rats who had not eaten would, under some conditions, forego food in order to explore novel territory. Furthermore, Nissen (1930) reported the even more problematic phenomenon of rats crossing an electrified grid, thus enduring pain, in order to explore novel territory on the other side of the grid. According to drive theory, rats that had not eaten should have been more enticed by the food than by the opportunity to explore, and rats should not have behaved in a manner that induced pain rather than avoided it. In short, these behaviors were in stark opposition to the predictions of the physiological drive reduction premise.

Subsequent studies demonstrated that opportunities to explore (Butler, 1953; Butler & Harlow, 1957; Montgomery, 1954; Myers & Miller, 1954; Zimbardo & Miller, 1958) and to manipulate novel objects (Harlow, 1950; Harlow, Harlow, & Meyer, 1950; Hill, 1956; Kagan & Berkun, 1954) could function as "reinforcers" to produce learning in both rats and monkeys, yet neither exploration nor manipulation reduced drives. Furthermore, there was no evidence of extinction after numerous trials, even if the exploration or manipulation had not been repaired with food or other primary reinforcers, which would have been required for exploration and manipulation to be second-

ary reinforcers. Thus, it appeared that these play-like behaviors acted as if they were primary reinforcers, even though they had no relation to drive reduction.

WITHIN THE PSYCHOANALYTIC APPROACH

In a manner parallel to Hullian theory, Freud's (1915/1925) theory of psychosexual development was built on the assertion that *all* behaviors are reducible to primary instincts, namely, sex and aggression, with sex being the more important. Operating largely unconsciously, the instincts (or drives) were theorized to become associated with objects in the environment through the process of cathexis, which in turn forms the basis for the regulation or direction of behavior. The process of neutralization is the means through which the energy of the instincts (based in the id) can be commandeered for the functions of the ego, such that behaviors that do not appear to be motivated by sex or aggression can nonetheless be considered derivative of those instincts.

In this approach, as in the empirical approach, careful consideration of developmentally important behaviors such as exploration and play led theorists to conclude that although an analysis of the libidinal instinct during the first three stages of psychosexual development provided a possible account of the development of neuroses, it did not work well as a basis for understanding healthy development (e.g., Hartmann, 1939/1958). Within the theory, normal development would require satisfactory resolution of the oral, anal, and phallic conflicts, yet the theory is structured in a way that makes that impossible (White, 1960). Specifically, the theory involves a set of conflicts between a child's libido and demands of the socializing agent that the child be weaned, toilet trained, and unsuccessful in his (or her) oedipal (or electra) desires. Socializing agents will, of course, ensure that children are weaned and toilet trained, and that they not win the desired parent, so the children will invariably lose each conflict. This would imply that no child would develop in a healthy way because no conflict could be satisfactorily resolved for the child, if one in fact as-

sumed, as the theory suggests, that the child is motivated only by the libido.

ATTEMPTS TO EXPLAIN EXPLORATION AND PLAY

Within both the empirical and psychoanalytic traditions, theorists attempted, with minimal change of orthodoxy, to explain the phenomenon of interested engagement with growth promoting activities. For example, empiricists proposed that exploration was motivated by the drive to avoid pain, arguing essentially that novelty produces anxiety, and exploration is the means for reducing the pain of anxiety. Fenichel (1945), a psychoanalytic theorist, similarly argued that the motivation of activities promoting normal development is based to a significant degree in managing anxiety. Yet such explanations were not satisfactory because, if novelty promotes anxiety, the likely response would be to flee the novelty rather than to charge headstrong into it. Furthermore, rats and humans alike frequently appeared to be experiencing excitement and joy rather than anxiety when playfully exploring new stimuli. As another approach to try to resolve the problem, writers within each tradition proposed new drives (or instincts) that would encompass playful or exploratory behaviors—for example, the exploratory drive within the empirical tradition (Montgomery, 1954) and the instinct to master within the psychoanalytic tradition (Hendrick, 1942)—yet these new "drives" did not fit the formal definition of a "drive" or "instinct" (e.g., they did not reduce a tissue deficit), so their use would have required a major change in the nature of the theories. As such, they did not represent a satisfactory solution to the problem of explaining the kinds of exploratory or playful behaviors that are necessary for normal development.

It thus seemed clear that for a meaningful motivational explanation of normal development, positing some other type of primary, though non-drive-based, motivation was essential. White (1959) was the first to make a definitive proposal for this new type of innate or primary motivation that would operate in addition to that based in the basic drives.

WHITE'S PROPOSAL

White (1959) used the term "competence" to connote people's capacity to interact effectively with the environment—to understand the effects they can have on the environment and the effects the environment has on them. According to White, to develop is to attain greater competence. Thus, he suggested that competence is attained over time and requires directed, selective, and persistent activity. Exploration and manipulation—the behaviors that were the most problematic for Hullian drive theory—fall under the rubric of competence-related behaviors, as do a wide array of other behaviors that underlie development.

White (1959) further proposed that competence must be thought of as a concept encompassing motivation, as well as capacity. He labeled this energizing force "effectance motivation" (although other writers frequently call it "competence motivation"), and he said that the subjective side of competence is the feeling of efficacy. This feeling is what provides "the reward" for behaviors that are energized by effectance motivation. Thus, competence refers to the structures through which effectance motivation operates, and the feeling of efficacy is the result. Simply stated, as people develop, they experience efficacy.

White (1959) emphasized that effectance motivation is not drive-derivative, that it is in no sense a deficit motivation. Rather, it is neurogenic; its energies are inherent to the living cells of the nervous system. He further stated that competence-promoting behavior "satisfies an intrinsic need to deal with the environment" (p. 318). Thus, White was proposing a new type of motivation, a motivation that is innate but not drive-based, that is persistent and "occupies the spare waking time between episodes of homeostatic crisis" (p. 321), that is the basis of healthy development, and that supplements the basic drives, which are essential for understanding consummatory behavior. This new motivation provided a solution to the problems encountered within the Hullian and Freudian approaches. It would clearly motivate exploration, manipulation, achievement, and play, which the empirical theories were unable to explain satisfactorily. Fur-

ther, having this new type of motivation allowed for the possibility that children could engage weaning, toilet training, and oedipal wishes as developmental challenges to be mastered, with effectance motivation providing the energy to do so. Thus, the children could "win" the conflict—or rather, their egos could win even though their ids did not—so healthy development could occur.

There are four important issues concerning White's formulation that require further discussion in order to present a more complete characterization of this new type of motivation. The first concerns the concept of "need."

A Need for Competence?

In his discussion of competence, White (1959) did not refer to a "need" for competence (or effectance). Rather, he referred simply to effectance motivation. Only once did he use the term "need" in discussing the concept, and that was in his comment about satisfying "an intrinsic need to deal with the environment" (p. 318). It is likely that the reason White tended to avoid the term "need" is that its most common usage in motivational psychology to that point had been to refer to the physiological needs that underlie drive, and one of White's central aims was to show the importance of a motivational concept that did not have deficit needs as its basis. White was talking about a motivation (a *need*, if you will) that was psychological, and that was based in the central nervous system rather than in non-nervous-system tissue deficits, so using the concept of need to describe it might have seemed to him to be too confusing. Furthermore, the concept of psychological needs, as it was being used at that time in personality psychology by Murray (1938) and by McClelland, Atkinson, Clark, and Lowell (1953), treated needs as learned, and thus as individual differences. White (1959), on the other hand, was referring to what might be called a *universal need*. In other words, he was not concerned with individual differences in people's effectance motivation, but was instead concerned with everyone's motivation to be effective in dealing with the environment.

Still, it is clear that White's (1959) conception of effectance motivation would satisfy

the definition of an innate psychological need (Deci & Ryan, 2000; Elliot, McGregor, & Thrash, 2002); that is, he described it as innate to all human beings, as directed and persistent, and as essential to health and well-being. Indeed, it was being proposed as the motivational basis of healthy development. Thus, had White referred to a need for competence, as subsequent researchers have done (e.g., Deci & Ryan, 1980), it would have been consistent with the criteria for a universal need, namely, a persistent motivator that, if satisfied, promotes health and, if thwarted, results in ill-being. In short, White was introducing the concept of a need for effectance (or competence) without using the term.

Intrinsic Motivation

The second issue requiring clarification concerns the concept of intrinsic motivation. White did not use the term "intrinsic motivation." As far as we know, that term had been introduced by Harlow (1950), when he discussed the fact that monkeys displayed great resistance to the extinction of manipulation behaviors, thus implying that the behaviors were intrinsically motivated and did not represent an instance of secondary reinforcement. It is nonetheless clear that the idea of effectance motivation, as described by White (1959), did indeed represent what Deci (1975) and others have referred to as intrinsic motivation. Specifically, it is not deficit-based, and it motivates activities in which the sole rewards are the spontaneous feelings of interest and enjoyment that occur when one engages in the activities.

The Goal of Effectance Motivation

The third issue concerns the goal of competence-promoting behaviors. White (1959) emphasized that play—for example, the behaviors of exploration and manipulation that were so problematic for drive theory—is serious business for children and, presumably, for adults as well, albeit to a lesser extent. However, he further stated that for children, play "is merely something that is interesting and fun to do" (p. 321). In other words, although children are busy building competencies, their goal is *not* to become more competent, it is to do what they find

interesting and fun. Competence is essentially a by-product in terms of people's intentions; it develops as they do what they find interesting and fun. Of course, developing greater competence could be the goal of behaviors that are energized by effectance motivation, such as when a high-school girl is interested in practicing free throws in order to improve her basketball game. But it is extremely important to note that in the conception of what has come to be called intrinsically motivated behaviors, although based at least in part in effectance motivation, one need not have the goal of becoming more competent. The goal may simply be to do an activity that one finds interesting.

Competence and Self-Determination

The fourth issue concerns the relation of competence to self-determination or autonomy. In White's (1959) discussion, he reviewed the work of Angyal (1941), who emphasized the fact that living organisms assimilate aspects of the environment, transforming them into aspects of the self. In other words, over time, organisms internalize and integrate aspects of their environment as part of the process of mastering that environment. This trend, Angyal argued and White concurred, is toward greater autonomy or self-determination. Organisms, by their nature, attempt to subordinate heteronomous forces of the environment in the service of their own developing autonomy. Throughout his writings, White steadfastly focused on effectance or competence, and he gave relatively little attention to autonomy or self-determination, but he was essentially saying that effectance-motivated behavior would have the characteristic of being autonomous. Thus, White was essentially including autonomy or self-determination within the purview of effectance motivation.

In a subsequent discussion, deCharms (1968) stated that "Man's primary motivational propensity is to be effective in producing changes in his environment. Man strives to be a causal agent, . . . to experience personal causation" (p. 269). Here we see the same two ideas—to be competent in dealing with the environment and to be personally causative or self-determined. However, deCharms's work, in contrast to White's,

emphasized personal causation or self-determination and essentially viewed competence as an aspect of personal causation. Thus, these two seminal thinkers focused on the same two elements, namely, competence and self-determination, but they placed different emphases on which was the more primary.

In line with White (1959) and deCharms (1968), who essentially treated the two needs as one, Deci (1971, 1975) referred to the human need to be "competent and self-determining." It was not until 1980 that Deci and Ryan made clear that these are two separate needs. They argued that it was essential to propose two universal psychological needs—one for competence and one for autonomy—in order to provide a meaningful interpretation of all the experimental findings that had emerged in the study of intrinsic motivation during the 1970s.

BASIC PSYCHOLOGICAL NEEDS AND INTRINSIC MOTIVATION

One of the most important reasons for postulating innate psychological needs is that they provide the basis for making predictions about the effects of social-contextual forces on natural, growth-oriented processes and psychological well-being. According to self-determination theory (Deci & Ryan, 1985, 2000), basic psychological needs are defined in terms of the nutrients that are essential for healthy development. Thus, those contextual factors that might be expected to satisfy psychological needs would be predicted to facilitate natural processes and psychological health, whereas those factors that might be expected to thwart psychological needs would be predicted to have negative consequences. For example, specifying a basic need for competence allows one to predict that the aspects of the social environment that promote competence would facilitate well-being, whereas those that undermine competence would diminish well-being.

Intrinsic motivation is posited to be a natural psychological process (Deci, 1975). It is a manifestation of the proactivity inherent in the nature of human life. When people are not blocked or discouraged from doing so, they engage their physical and social environments, doing what interests them and at-

tempting to master aspects of their world. This motivation is so persistent that, at times, it is more prepotent than drive-based motivation. According to self-determination theory, there are three innate psychological needs, those for competence, autonomy, and relatedness, but competence and autonomy are the more central for intrinsic motivation. Thus, the theory proposes that the needs for competence and autonomy must be satisfied for intrinsic motivation to be promoted and maintained, and a considerable amount of research has examined the question of whether satisfying these two needs is in fact positively related to the flourishing of natural processes and well-being, whereas thwarting the needs is negatively related to those outcomes. We turn now to a review of that experimental work, which concerns social-contextual influences on intrinsic motivation, and to the interpretation of the results based on the concept of basic psychological needs.

SOCIAL CONTEXTS AND INTRINSIC MOTIVATION

The study of social-contextual influences began with an exploration of the effects of extrinsic rewards on intrinsic motivation. Expectancy-valence theories (e.g., Porter & Lawler, 1968) had proposed that intrinsic and extrinsic motivation are additive, yielding total motivation. This led to the suggestion that activities (learning, work, etc.) should be designed to be as interesting as possible to stimulate intrinsic motivation, and that social contexts should be organized to provide extrinsic rewards that are contingent upon effective performance at the activities. That way, there would be maximal motivation, consisting of the sum of the intrinsic motivation from the interesting activities and the extrinsic motivation from the contingent rewards.

Attribution theory made a different prediction, however. deCharms (1968) suggested that when people perceive the locus of causality for their behavior to be within themselves, they tend to be intrinsically motivated, but when they perceive the locus of causality to be external, they tend to be extrinsically motivated. In line with Heider (1958) and Kelley (1967), deCharms further

suggested that when extrinsic motivators are present, there is a tendency to attribute the cause of a behavior to an external factor (e.g., a reward) and to discount the internal factor (i.e., intrinsic motivation). Thus, the addition of an extrinsic motivator to intrinsic motivation would produce a negative interaction, resulting in the diminishment of intrinsic motivation.

Effects of Extrinsic Rewards on Intrinsic Motivation

Initial experiments testing this reasoning involved participants' working on an interesting target activity within one of two groups. Participants in one group received a reward, whereas those in the other did not, and the subsequent level of intrinsic motivation of the two groups was assessed. The primary measure was the so-called "free-choice" behavioral measure, in which participants were provided a period of free play, when they could choose the target activity or alternatives, and the amount of time they spent with the target activity represented their intrinsic motivation for that activity. The secondary measure was participants' reports of how interesting they found the target activity.

Deci (1971) did the first of these experiments. In it, college students in one group received monetary rewards for working on interesting spatial-relations puzzles, and those in the other group did the same puzzles without rewards. Results indicated that participants in the reward condition showed decrements in intrinsic motivation relative to participants in the no-reward control group. A study by Lepper, Greene, and Nisbett (1973) found comparable results when preschool children doing an art activity were given good player awards, and dozens of subsequent studies have replicated the general result (see Deci, Koestner, & Ryan, 1999a).

It appears then that the addition of a tangible extrinsic reward does tend to undermine intrinsic motivation by shifting the perceived locus of causality from internal to external. However, Deci and Ryan (1985) argued that an attributional explanation does not provide a full account of this undermining. Although people might perceive the locus of causality to become more exter-

nal when they begin to receive a reward for doing an interesting activity, it is not clear why that alone should diminish people's interest, energy, and desire to do the activity. The authors argued, however, that if people have an innate need to be self-determining, to feel like the initiators of their own activities, then the addition of the external reward might leave them feeling controlled by the reward, thus thwarting their experience of autonomy or self-determination and resulting in the diminishment of the natural process of intrinsic motivation.

Positive Feedback (aka Verbal Rewards)

Along with the early studies of tangible rewards on intrinsic motivation were studies that examined the effects of positive feedback (referred to by some as "verbal rewards") on intrinsic motivation. These studies found that whereas tangible rewards tended to undermine intrinsic motivation, positive feedback tended to enhance it (Deci, 1971). Deci and Ryan (1980) argued that the positive feedback enhanced intrinsic motivation by satisfying participants' need for competence, and mediational analyses showed that perceived competence did in fact account for the changes in intrinsic motivation following feedback (Elliot et al., 2000; Vallerand & Reid, 1984). Thus, these various studies suggested that whereas tangible rewards undermine intrinsic motivation by thwarting people's need for autonomy, positive feedback enhances intrinsic motivation by supporting their need for competence.

The Rewards Controversy

The finding that extrinsic rewards undermine intrinsic motivation was controversial from the time it first appeared in the literature (e.g., Calder & Staw, 1975; Scott, 1975), and it continues to be so. For example, Eisenberger and Cameron (1996) discussed a meta-analysis that had been done by Cameron and Pierce (1994), concluding that there is no evidence for the undermining of intrinsic motivation by extrinsic rewards. However, it turned out that, as detailed by Deci et al. (1999a), the meta-analysis by Cameron and Pierce (1994) was fatally flawed, and the conclusions were wholly in-

valid. Subsequently, Eisenberger, Pierce, and Cameron (1999) argued, citing the work of investigators such as Harackiewicz and Manderlink (1984), that at least performance-contingent rewards do not undermine intrinsic motivation but instead enhance it. Performance-contingent rewards are those given for doing well at an activity—that is, for meeting or surpassing some standard. Again, it turned out that the claim by the Eisenberger group (1999) was invalid (see Deci, Koestner, & Ryan, 1999b). In fact, the meta-analysis showed quite clearly that, on average, performance-contingent rewards undermined intrinsic motivation, assessed with the behavioral measure, and did not affect enjoyment of the activity (Deci et al., 1999a). Thus, across all performance-contingent reward studies, there was no evidence for enhancement either of intrinsic motivation or enjoyment.

Performance-contingent rewards are more complexly related to intrinsic motivation than are most other reward contingencies because, like all tangible expected rewards, they not only have a strong controlling component but they also convey positive competence information to those who receive them; that is, the rewards tend to thwart the need for autonomy, while satisfying the need for competence. Ryan, Mims, and Koestner (1983) thus argued that the effects of performance-contingent rewards would depend on how they were administered—that is, whether they were administered so that the controlling component is more salient or the positive competence information is more salient. These investigators found that if the style of administration provided support for autonomy and emphasized the positive information, the rewards enhanced intrinsic motivation relative to a no-reward/no-feedback comparison group; however, they still undermined intrinsic motivation relative to a no-reward group that got positive competence information comparable to the information conveyed by the performance-contingent reward. It thus appears that although, on average, performance-contingent rewards decrease intrinsic motivation, if the style of administration is autonomy-supportive, performance-contingent rewards can enhance intrinsic motivation for the people who get them relative to no rewards and no feedback. This, presumably, is be-

cause they increase perceived competence. However, positive feedback is even more effective at enhancing intrinsic motivation relative to no rewards and no feedback than are performance-contingent rewards. Furthermore, for people who attempt to obtain performance-contingent rewards and fail to do so, the reward contingency is likely to be highly detrimental, because it diminishes feelings of both competence and autonomy.

Effects of Other External Factors on Intrinsic Motivation

If the general undermining of intrinsic motivation by tangible extrinsic rewards is really a function of its thwarting the need for autonomy, then other external motivators that might be expected to control behavior ought also to undermine intrinsic motivation. To test this, Deci and Cascio (1972) did a study in which participants in one group learned that they would receive an aversive event (a loud buzzer) if they did not solve puzzles within the allotted time. Comparison-group participants did the same puzzles with the same time allotments, but they had no expectation of a punishment if they failed to complete the puzzles in the allotted time. Results of this experiment showed that trying to solve the puzzles under the condition of avoiding a punishment decreased people's intrinsic motivation for the target activity relative to the comparison group. Thus, it appears that working to avoid a punishment decreased participants' intrinsic motivation relative to that of the participants not working under conditions of threat. Complementary findings by Elliot and Harackiewicz (1996) indicated that having the goal of trying to avoid failure in order to prove one's competence relative to others also undermined intrinsic motivation.

Additional studies showed that deadlines (Amabile, DeJong, & Lepper, 1976; Reader & Dollinger, 1982), surveillance (Lepper & Greene, 1975; Pittman, Davey, Alafat, Wetherill, & Kramer, 1980; Plant & Ryan, 1985), evaluations (Church, Elliot, & Gable, 2001; Smith, 1975), imposed goals (Mossholder, 1980), and competition (Deci, Betley, Kahle, Abrams, & Porac, 1981) can all undermine intrinsic motivation. These external factors are frequently used by one person to try "to motivate" others, so it is

reasonable to think that those others might experience these external factors as controls—that is, as pressures from someone else to think, feel, or behave in particular ways. Thus, presumably, the undermining of intrinsic motivation by these external events would have been due to a thwarting of the people's need for autonomy.

Enhancing Autonomy and Intrinsic Motivation

To the extent that external events such as rewards and deadlines undermine intrinsic motivation because they thwart satisfaction of the autonomy need, events that facilitate satisfaction of the need for autonomy should enhance intrinsic motivation. Zuckerman, Porac, Lathin, Smith, and Deci (1978) reasoned that providing participants choice about which of a set of puzzles to work on and how long to spend on each should allow them to feel more autonomous, thus enhancing their intrinsic motivation relative to participants who are assigned the puzzles and time allotments chosen by others. Indeed, the results did support this reasoning. Subsequent studies (e.g., Cordova & Lepper, 1996; Iyengar & Lepper, 1999) have shown that providing participants with choice rather than having the experimenter make choices for them enhanced intrinsic motivation, a result that was found for both European Americans and Asian Americans.

Koestner, Ryan, Bernieri, and Holt (1984) suggested that acknowledging people's perspectives—that is, relating to them from their internal frame of reference, while communicating with them—should also leave people feeling more self-initiating and volitional and should thus enhance their intrinsic motivation. An experiment by these researchers using late elementary school children as participants confirmed their reasoning. Participants whose feelings were acknowledged displayed greater intrinsic motivation for a task than those whose feelings were not acknowledged.

Competence and Intrinsic Motivation

Intrinsic motivation for an activity involves engaging it out of interest, and theorists (Csikszentmihalyi, 1975; Deci, 1975) have suggested that one important feature of ac-

tivities that will be intrinsically motivating is that they represent an optimal challenge given the person's capacities. Danner and Lonky (1981) did a study in which children were free to choose from various activities that differed in terms of difficulty. The researchers had pretested the children for cognitive ability relevant to the task, and they found that when the children were free to select which tasks to work on, they went to the ones that were somewhat more difficult than their pretested skill levels. These tasks were also rated by the children as most interesting.

Additional studies (e.g., Shapira, 1976) found comparable results emphasizing the importance of optimal challenge for intrinsic motivation. It makes sense that intrinsic motivation, which is a manifestation of the natural growth tendency within humans, would be facilitated by exposure to tasks that are optimally challenging, because these are the ones that could provide stimulation for developing greater competence, thus satisfying the basic human need for competence.

As mentioned earlier in the chapter, research (e.g., Deci, 1971) has found that positive feedback for doing well at an activity tends to enhance intrinsic motivation for interesting activities, and, as also noted, this was interpreted as indicating that the positive feedback promoted satisfaction of people's need for competence. In line with this interpretation, Deci, Cascio, and Krusell (1973) found that negative feedback decreased people's intrinsic motivation, presumably because it thwarted satisfaction of their need for competence (see also Vallerand & Reid, 1984). However, studies have shown that in order for positive feedback to have a positive effect on intrinsic motivation, the positive feedback must be experienced within a context of support for autonomy (Fisher, 1978; Ryan, 1982). Positive feedback statements such as "Good, you did just as you should on that one" were experienced as pressuring and controlling, thus thwarting the need for autonomy, and did not have a positive effect on intrinsic motivation even though they provided positive competence feedback (Ryan, 1982). Complementary results from Ryan, Koestner, and Deci (1991) showed that when people were ego-involved, thus being controlled rather

than autonomous, positive feedback did not enhance their intrinsic motivation.

Two additional findings about positive feedback are worth noting. First, studies by Deci, Cascio, and Krusell (1975) and Kast and Connor (1988) showed that although positive feedback enhanced the intrinsic motivation of male participants, it decreased the intrinsic motivation of females. To interpret this, Deci et al. (1975) used the distinction between the informational and controlling aspects of feedback. Whereas the informational aspect signifies competence, the controlling aspect pressures people to behave in ways that will yield further positive feedback. The researchers suggested that, for the males, the informational aspect was more salient, so they experienced the feedback as affirmation of their competence, whereas, for females, the controlling aspect was more salient, so they came to believe that they did the behavior in order to get the feedback. This, the authors speculated, could be a function of socialization, which traditionally has emphasized independent achievement for males and interpersonal sensitivity for females. Although several other studies of positive feedback did not report any sex differences, the results of the two studies do imply that females may be more susceptible than males to being controlled by positive feedback.

The second additional finding is that in a meta-analysis, Deci et al. (1999a) found that, across more than 30 studies, although positive feedback enhanced intrinsic motivation for college student participants, it did not have an enhancing effect on intrinsic motivation for children. It appears that, for children, the controlling aspect of positive feedback was salient enough to offset the competence affirmation, leaving no enhancement of intrinsic motivation. Presumably, with their greater cognitive capacity and independence, college students were more able to focus on the informational aspect of the positive feedback without feeling controlled by it.

To summarize, competence is an important element for intrinsic motivation. People need to develop competencies, and engagement with optimally challenging activities is the basis through which this occurs. Furthermore, feedback affects intrinsic motivation by affecting people's experience of satisfac-

tion versus thwarting of the need for competence. Positive feedback tends to increase intrinsic motivation by enhancing perceived competence, and negative feedback tends to decrease intrinsic motivation by diminishing perceived competence. However, for the positive feedback to promote intrinsic motivation, the feedback must be presented in a way that allows the person to feel volition in doing the activity and ownership of the performance. Furthermore the likelihood that positive feedback will have a positive effect on intrinsic motivation is less for women than for men and less for children than for adults.

Interpersonal Contexts and Intrinsic Motivation

Several studies have examined the general climate or ambience of a situation (e.g., a classroom) as it affects the intrinsic motivation of people in it. In one study, for example, Deci, Schwartz, Sheinman, and Ryan (1981) studied teachers in fourth- through sixth-grade classrooms, examining their relative endorsements of the ideas of controlling students' behavior versus supporting students' autonomy. Controlling behavior involves pressuring the students to think, feel, or behave in particular ways; whereas supporting autonomy involves understanding the students' perspective, providing choice, and encouraging self-initiation. The reasoning was that teachers who were oriented toward controlling behavior would tend to create a controlling climate in their classrooms, which would undermine intrinsic motivation, whereas those oriented toward supporting autonomy would create a more open and informational climate that would enhance intrinsic motivation. Results of the research supported this reasoning; within the first 2 months of a school year, students in the autonomy-supportive classrooms gained in perceived competence and intrinsic motivation relative to students in the controlling classrooms.

Ryan and colleagues (e.g., Ryan, 1982; Ryan et al., 1983) did a set of laboratory experiments in which they created an autonomy-supportive versus controlling climate within the laboratory and examined whether specific external events such as rewards or positive feedback would have different ef-

fects on intrinsic motivation, depending on the interpersonal climate within which they were administered. They found that, although tangible rewards that convey positive competence information tend to undermine intrinsic motivation in general, they maintain or enhance intrinsic motivation when administered in an autonomy-supportive context (Ryan et al., 1983). Furthermore, positive feedback, which tends, on average, to increase intrinsic motivation by enhancing perceived competence, had a negative effect on intrinsic motivation when administered in a controlling context (Ryan, 1982). Finally, competition, which tends to undermine intrinsic motivation, can also provide competence affirmation (Elliot & Moller, 2003). Reeve and Deci (1996) found that when the interpersonal context surrounding competition is less pressuring and controlling, the competition is less detrimental to intrinsic motivation. Thus, both the interpersonal context and the specific external events administered within them affect people's intrinsic motivation.

INTERNALIZATION OF MOTIVATION

When people are experiencing satisfaction of their basic psychological needs, they tend to do what interests them. In other words, they tend to be intrinsically motivated. Thus, intrinsic motivation requires experiencing an activity as interesting, while also feeling some support for one's basic needs. The fact that interest is so central to intrinsic motivation implies, of course, that if an individual did not find an activity interesting, he or she would not be intrinsically motivated for it. Under such circumstances, for the person to do the activity at all would require some type of extrinsic motivation—"extrinsic motivation" being defined as doing an activity for some operationally separable consequence.

The bulk of the research examining the relation of extrinsic to intrinsic motivation seemed to show that extrinsic and intrinsic motivation were negatively interactive, therefore suggesting that to be extrinsically motivated is to be controlled and thus not autonomous or self-determined. However, in most of the studies reviewed earlier, the extrinsic motivation involved a specific extrin-

sic contingency linking behavior to a tangible outcome that was implemented by one individual to motivate another.

Internalization

According to self-determination theory (Deci & Ryan, 1985), those external contingencies represent only one type of extrinsic motivation. Other types could be more autonomous, while also satisfying the needs for competence and relatedness. The theory maintains that this occurs through internalization of a regulatory process and the value implicit in it. However, self-determination theory uses a differentiated conception of internalization. Specifically, whereas many theories (e.g., Bandura, 1977; Mead, 1934) view internalization as a unitary concept, that is, a regulatory process and value are either external or they have been internalized, self-determination theory maintains that people can internalize behaviors and values to differing degrees, ranging from taking them in but not accepting them as their own, to internalizing them and integrating them into their sense of self (Ryan, Connell, & Deci, 1985).

Self-determination theory proposes that internalization is an active process through which people engage their social world, gradually transforming socially sanctioned mores or requests into personally endorsed values and self-regulations. When internalization processes function optimally, people identify with the value of an activity or regulation and make that an aspect of their integrated self. If, however, the internalization process is not adequately supported, so that identification does not occur, the regulation will be internalized but not integrated. According to self-determination theory, four distinct types of regulation are associated with extrinsic motivation, resulting from differing degrees to which the regulation and value have been internalized. Ranging from least to most internalized, the types of regulation are external, introjected, identified, and integrated.

External Regulation

When people's behavior is controlled by specific external contingencies, the regulation is said to be external. People behave with the

intent to attain a desired reward or to avoid a threatened punishment. This is the type of extrinsic motivation that has been extensively examined and found to undermine intrinsic motivation (Deci et al., 1999a). Within self-determination theory, externally regulated behaviors are considered contingency-dependent, and these behaviors tend not to persist once the contingency has been terminated (Deci & Ryan, 1985).

Introjection

When people take in an external regulation without making it their own, the regulation is said to be introjected. Behaviors are then controlled by internal contingencies—that is, by sanctions people administer to themselves. Prototypical examples of introjection are contingent self-worth and threats of guilt and shame, as well as ego involvement (Ryan, 1982) and public self-consciousness (Plant & Ryan, 1985). Introjection is a particularly interesting type of regulation, because it is internal to the person but is relatively external to the person's integrated self.

Identification

When people recognize and accept the underlying value of a behavior, they are said to have identified with it. This process is a much fuller type of internalization than is introjection, because identification indicates that the people have, to a substantial degree, made the regulation their own. As such, they will be relatively autonomous in carrying out the behavior. Still, the behavior will be extrinsically motivated, because it is instrumental to a separable outcome rather than being intrinsically motivated, which would require its being done solely as a source of spontaneous interest and enjoyment.

Integration

Finally, within the self-determination theory conceptualization of internalization, integration represents the fullest, most mature form of extrinsic motivation. It involves not only identifying with the importance of a behavior but also integrating that identification with other aspects of one's self. When the identification has been integrated, what had initially been an external regulation will

have been fully transformed into autonomous self-regulation.

Interpersonal Contexts and Internalization

Like the ongoing functioning of intrinsic motivation, internalization and integration are natural, growth-oriented processes that are inherent to the nature of life. Within people's nature is the tendency to internalize and integrate into themselves aspects of their world, and these processes allow people to be more effective in dealing with that world. Yet like all natural, human processes, these require nutriment to function effectively. From the perspective of self-determination theory, the essential nutriment is satisfaction of the basic psychological needs for competence, relatedness, and autonomy.

Internalization and Need Satisfaction

We mentioned earlier that the needs for competence and autonomy are the most important for maintaining and enhancing intrinsic motivation, and that the influence of relatedness is more distal. In other words, people can remain intrinsically motivated without having immediate satisfaction of the relatedness need while doing the activity, but people must experience satisfaction of the needs for competence and autonomy while doing the activity in order to remain intrinsically motivated. With the process of internalization, however, the need for relatedness (see, e.g., Baumeister & Leary, 1995) plays a more central role than it does with intrinsic motivation.

Specifically, self-determination theory proposes that people's tendency to internalize regulations is energized by their needs for relatedness and competence; that is, people's desires to belong within the social world and to be effective in negotiating that world prompt them to take in the regulation of activities that are not interesting in their own right. It is thus because of people's desires to maintain and enhance interpersonal relationships and to feel effective in doing a wide range of behaviors that they will both internalize ambient values, mores, behaviors, and attitudes, and learn to do things that are not interesting but are important for succeeding within society. However, although the needs for competence and relat-

edness are important motivators for internalization, satisfaction of these needs does not determine whether the internalizations will be merely introjected or more fully integrated. It is satisfaction of the autonomy need with respect to a target behavior that is necessary to promote integration. Thus, although feelings of competence and relatedness are necessary contributors toward integration, they are not sufficient to promote it. Satisfaction of all three needs is necessary. Thus, failure to satisfy the basic needs for competence, relatedness, and autonomy will interfere with full internalization. Chaotic and rejecting environments (i.e., those that thwart satisfaction of competence and relatedness) are likely to interfere with any internalization, and excessive pressure is likely to interfere with identification and integration, forestalling internalization at the level of introjection.

Studies of Internalization

Empirical support for this analysis of internalization has been provided by both field studies and laboratory experiments. In one study, Grolnick and Ryan (1989) did extensive interviews with the parents of fourth-through sixth-grade children. These interviews focused on the parents' approach to dealing with their children in regard to homework and chores around the house. The responses were used to characterize the parents in terms of the degree to which they (1) were involved with their children concerning these issues, (2) provided an optimal amount of structure for the children in relation to these activities, and (3) were autonomy supportive rather than controlling in these realms. Subsequently, the children's motivation was assessed by questionnaires in their regular classrooms. Results indicated that parents who were more involved, provided more optimal structure, and were more autonomy supportive had children who not only were more intrinsically motivated for schoolwork but had also internalized behavioral regulations and values more fully. These motivational factors were in turn positively associated with teachers' ratings of the children's competence, standardized achievement, and well-being. A follow-up study by Grolnick, Ryan, and Deci (1991) assessed children's perceptions of

their parents' autonomy support and involvement, and found that the children's perceptions were also related to greater internalization.

A field study done in two medical schools provided additional evidence concerning this issue (Williams & Deci, 1996). The course was for second-year students who were learning to interview patients. The investigators found that the instructors who were more autonomy supportive (vs. controlling) had students who more fully internalized the values and regulations emphasized in the course, and whose interviewing of patients done 6 months after the course ended was rated as more effective.

Deci, Eghrari, Patrick, and Leone (1994) did a laboratory experiment that focused on three specific external factors that were hypothesized to allow satisfaction of the basic needs and thus facilitate internalization. The factors were (1) a meaningful rationale that conveys why it is important to do the activity effectively, (2) acknowledgment of people's feelings about the activity, and (3) use of language that conveyed choice rather than control. Results showed that these three factors did facilitate internalization. Even more importantly, results indicated that when at least two of the facilitating factors were present, internalization tended to be integrated, as indexed by significant *positive* correlations between subsequent behavior and self-reports of valuing the activity and feeling free while doing it. In contrast, in conditions with at most one facilitating factor present, internalization was only introjected as reflected by *negative* correlations between subsequent behavior and the self-report variables. When there were fewer facilitating factors, people who did display more subsequent behavior felt less free and enjoyed the activity less. In short, conditions that promote greater satisfaction of the psychological needs tend not only to promote more internalization but also to ensure that the internalization will be more integrated.

A study by Assor, Roth, and Deci (2004) examined internalization under conditions in which parents create conflict within their children about being able to satisfy their needs. Specifically, the researchers assessed whether parents had provided conditional acceptance and regard to their children, dependent upon the children displaying com-

petence in particular domains such as schoolwork and sports. In other words, the parents provided attention and affection (thus satisfying relatedness) for the children's successes (thus satisfying competence), but by making their love contingent, they were undermining their children's autonomy. Results indicated that contingent regard from parents led the children to introject the regulations—that is, they subsequently engaged in the behaviors, but they felt a sense of inner compulsion to do it. Along with these feelings of inner compulsion, the children displayed contingent self-esteem, short-lived satisfaction after successes, shame and guilt after failures, and resentment of their parents. This, then, supports the hypothesis that satisfaction of the needs for competence and relatedness will facilitate internalization, but it will take the form of introjection, not integration, if support for autonomy is not also present.

Competence Valuation

Intrinsic motivation and integrated extrinsic motivation represent the two forms of self-determined behavior. Intrinsic motivation is based in people's interest in the activity itself, while integrated extrinsic motivation is based in the importance of the activity for people's self-selected goals. When people understand and accept the value of a behavior, they will internalize its regulation. Self-determination theory maintains, however, that internalizing an extrinsic motivation does not typically transform it into an intrinsic motivation, because intrinsic motivation is about interest in the activity, whereas extrinsic motivation is about the activity's instrumental value.

"Competence valuation" means that being competent at an activity is very important for people. Harackiewicz and Sansone (2000) proposed that when the value of being competent at an activity is emphasized, people will become more intrinsically motivated for the activity. The self-determination theory perspective maintains, however, that if the importance of doing a behavior well is emphasized, people may be more likely to identify with the activity and thus be more autonomous in their extrinsic motivation for it, but they will not be more intrinsically motivated. Intrinsic motivation is based in

interest rather than value, and there is little reason to expect that competence valuation will enhance intrinsic motivation for the behavior, although it could promote identification.

Summary

Internalization is the means through which people can deal with uninteresting behaviors in a way that allows satisfaction of their basic psychological needs. We have argued that the needs for competence and relatedness provide energy for internalizing behavioral regulations, and that the need for autonomy is the motivational basis for integrating, rather than just introjecting, behavioral regulations. The concept of basic needs for competence, relatedness, and autonomy has thus proven useful for interpreting results of research not only on intrinsic motivation but also on the internalization of extrinsic motivation.

HUMAN NEEDS AS UNIVERSALS

The fact that the concept of basic human needs has had great utility for interpreting a range of empirical phenomena has provided some support for the proposition that humans do indeed have these fundamental needs. However, additional lines of research have focused more directly on verifying that these are universal needs. There are two primary strands to this work. First, because needs are defined as essential nutrients, evidence that satisfaction of the needs is associated with well-being and that thwarting of the needs is associated with ill-being would represent important support for the postulate. Second, because the needs are assumed to be universal, comparability of phenomena across cultures would also provide critical evidence. Thus, we now review some relevant studies.

Relation of Need Satisfaction to Well-Being

"Well-being" concerns the experiences of psychological and physical health and life satisfaction. It has been variously defined, with emotional positivity being a central element in most definitions. Self-determination

theory emphasizes, however, that the concept of well-being must include a full sense of organismic functioning and wellness (Ryan & Frederick, 1997; Ryan, Deci, & Grolnick, 1995). Thus, for example, feeling negative emotions can be important and restorative under certain circumstances. Self-determination theory further proposes that need satisfaction over time will affect well-being at the level of individual differences, and also that fluctuations in need satisfaction will directly predict fluctuations in well-being over short periods of time.

Two studies have tested the relation of need satisfaction to well-being over time using a diary procedure that assessed both need satisfaction and well-being on a daily basis. The use of multilevel modeling with these data allowed examination of both between-person and within-person associations of experienced need satisfaction to indicators of well-being. Sheldon, Ryan, and Reis (1996) examined daily variations in people's experiences of autonomy and competence over a 2-week period. They found that at the between-person level, individual differences in perceived autonomy and perceived competence correlated significantly with 2-week aggregates of well-being indicators such as positive affect, vitality, and the inverse of negative affect and physical symptoms. Then, after removing between-person variance, daily fluctuations in satisfaction of needs for autonomy and competence were found to predict daily fluctuations in well-being. On days when people felt autonomous and competent, they reported feeling happy and well.

In the second study, Reis, Sheldon, Gable, Roscoe, and Ryan (2000) examined the three basic psychological needs for competence, autonomy, and relatedness. At the between-person level, they found that measures of autonomy, competence, and relatedness were all associated with aggregate indices of well-being, thus confirming the between-person predictions. As in the Sheldon et al. (1996) study, after person-level variance was removed, daily variability in satisfaction of the three needs independently predicted daily variability in well-being. Thus, the two studies showed a clear linkage between need satisfaction and well-being at both within-person and between-person levels of analysis. Furthermore, they

showed independent contributions from satisfaction of each basic need for each day's well-being.

Other studies have focused within domains to examine the relation of need satisfaction to well-being. In one such study, Ilardi, Leone, Kasser, and Ryan (1993) found that the reports of factory workers about the satisfaction of their autonomy, competence, and relatedness needs in the workplace were related to their self-esteem and general health. Another study in a banking company related satisfaction of the basic needs to vitality and to the inverse of both anxiety and somatization (Baard, Deci, & Ryan, 2004). Studies by Kasser and Ryan (1999) and by Vallerand and O'Connor (1989) showed that ongoing need satisfaction in the lives of aged residents in institutional settings predicted their well-being and perceived health.

To summarize, after determining that the postulate of three basic psychological needs served a very useful function in providing a meaningful integration of experimental results concerning intrinsic motivation and the internalization of extrinsic motivation, subsequent research showed that the experienced satisfaction of these three needs was directly related to psychological health and well-being among a range of participants in varied settings.

Need Satisfaction across Cultures

Several recent studies have examined the importance of basic need satisfaction in various cultures, in part to provide evidence consistent with the self-determination theory hypothesis that the needs for competence, autonomy, and relatedness are universal. For example, in one study of workers in America and Bulgaria, Deci et al. (2001) related managers' styles to employees' experiences of need satisfaction on the job and, in turn, to well-being. The Bulgarian workers were from state-owned companies that operated primarily by central planning principles, whereas the American workers were recruited from a privately owned data management company that operated by market-economy principles. Analyses revealed that the various constructs being examined were comparable across the two cultures and, importantly that, in both cultures, managers'

being more autonomy supportive predicted greater satisfaction of the competence, autonomy, and relatedness needs among employees, which in turn predicted greater vitality, less anxiety, and fewer physical symptoms in the employees. These results thus complemented those reviewed earlier from the studies by Baard et al. (2004) and Ilardi et al. (1993). In short, in these two disparate cultures with different economic systems, social-contextual supports predicted satisfaction of the basic needs, which in turn predicted greater psychological and physical adjustment.

A study by Chirkov, Ryan, Kim, and Kaplan (2003), involving data from Turkey, South Korea, Russia, and the United States, concerned internalization of the values of individualism (a strongly endorsed Western value) and collectivism (a strongly endorsed Eastern value). As we have seen, internalization functions most effectively under conditions of satisfaction of all three basic needs and, as would therefore be expected, the degree of integration of the values for participants across the four cultures did predict enhanced psychological health and well-being.

SUMMARY AND CONCLUSIONS

During the 1950s, psychology was still focused primarily on drives such as hunger and sex as the energizing basis for all motivated behaviors. White (1959) argued, however, that a set of phenomena had been identified with humans, as well as with rats and monkeys, that vitiate this claim. Specifically, people and other animals were observed engaging in behaviors such as play and exploration that did not appear to reduce drives; indeed, they appeared to induce them. White thus proposed a new type of motivation that would supplement the drives as an energizing force. Maintaining that it is implicit in the natural tendency to master people's internal and external environments, White named it "effectance motivation" and posited that its effective functioning is the basis for healthy development. White's description of effectance motivation fit the definition of a "need for competence" (Deci & Ryan, 1980), although he refrained from using that term.

deCharms (1968), in discussing this new type of motivation, emphasized that people strive to master their environment and thus to feel like causal agents. In making this statement, deCharms was emphasizing what has come to be called the "need for autonomy or self-determination" as an important motivational force.

The idea of fundamental psychological needs for competence and self-determination (Deci & Ryan, 1980) proved useful in interpreting the results of experiments on intrinsic motivation. For example, social-contextual conditions, such as optimal challenge and positive feedback, tended to enhance intrinsic motivation by promoting perceived competence. Similarly, rewards tended to decrease intrinsic motivation, and choice tended to enhance it, because the former left people feeling controlled, while the latter left them feeling more autonomous. Research on the internalization of extrinsic motivation made clear that, while satisfaction of the needs for competence and autonomy are important for internalization, the basic need for relatedness is also critical for this process. In part, people are inclined to internalize the behaviors and values in their social environment in order to feel both a sense of belonging within that environment and a sense of competence and autonomy. Thus, the concept of the three basic psychological needs proved essential for integrating research results related to both intrinsic and extrinsic motivation.

Subsequent research has been more directly concerned with providing evidence that the new type of motivation is indeed based in psychological needs. For example, studies have shown that when people experience satisfaction of the basic needs, they also evidence greater well-being, whereas when satisfaction of the needs is thwarted, there are negative psychological consequences. Finally, studies in several cultures have now yielded results indicating that satisfaction of the needs for competence, autonomy, and relatedness is associated with greater psychological health—results that are consistent with the assertion in self-determination theory that competence, autonomy, and relatedness are universal psychological needs. Thus, the theorizing begun by White (1959), and supplemented by Harlow (1958) and deCharms (1968), has provided a founda-

tion for our contemporary understanding of people's motivation for functioning competently in their social and physical environments.

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CHAPTER 32



Flow

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A GENERAL CONTEXT
FOR A CONCEPT
OF MASTERY MOTIVATION

What makes people want to go on with the effort required from life? Every epistemology of behavior must sooner or later cope with this basic question. The question is not so mysterious for nonhuman organisms, which presumably have built-in genetic programs instructing them to live as long as their physical machinery is able to function. But our species has a choice: With the development of consciousness, we have the ability to second-guess and occasionally override the instructions coded in our chromosomes. This evolutionary development has added a great deal of flexibility to the human repertoire of behaviors. But the freedom gained has its downside—too many possibilities can have a paralyzing effect on action (Schwartz, 2000). Among the options we are able to entertain is that of ending our lives; thus, as the existential philosophers remarked, the question of

why one should not commit suicide is fundamental to the understanding of human life.

In fact, most attempts at a general psychology also start with the assumption that human beings have a “need” or a “drive” for self-preservation, and that all other motivations, if not reducible to, are then at least based on such a need. For example Maslow’s hierarchy assumes that survival takes precedence over all other considerations, and no other need becomes active until survival is reasonably assured.

But where is this will to live located? Is it nothing but a variation of the survival instincts all living organisms share, chemically etched into our genes? The last try for a comprehensive human psychology, that of Sigmund Freud, posited *Eros* as the source of all behavior—a force akin to the *élan vital* of the French philosopher Henri Bergson (1931/1944) and to similar concepts of life energy proposed by a long list of thinkers going back to the beginnings of speculative thought.

Eros, which originally referred to the need of the organism to fulfill its physical potential, was soon reduced in Freud’s writings, and even more so in those of his followers, to the libidinal pleasure that through natural selection has become attached to the sexual reproductive act and to the organs implicated in it. Thus, “erotic” eventually became synonymous with “sexual.”

This reduction of the concept of vitality to the reproductive function rested on a reasonably sound logic. The Darwinian revolution highlighted the role of sexual selection in evolution; thus, it made sense to see sexuality as the master-need from which all other interests and motives derive. A species survives as long as its members reproduce. If the drive to reproduce became well entrenched in a species, its survival would be enhanced. Following Ockham’s principle of parsimony, one might expect that as long as sexual drives are well established, other motives become secondary. Whatever men and women do, from making songs to mapping the heavens, is just a disguised expression of Eros, a manifestation of the reproductive drive.

On closer examination, however, this single causality seems much less convincing. A species needs to take care of many other priorities besides reproduction in order to survive. At the human stage of evolution, where adaptation and survival depend increasingly on flexible responses mediated by conscious thought, members of the species had to learn how to master and control a hostile and changing environment. It makes sense to assume that natural selection favored those individuals, and their descendants, who enjoyed acts of mastery and control—just as survival was enhanced when other acts necessary for survival, such as eating and sex, became experienced as pleasurable.

The various behaviors associated with control and mastery—such as curiosity, interest, exploration; the pursuit of skills, the relishing of challenges—need not be seen as derivatives of thwarted libidinal sexuality. They are just as much a part of human nature, just as necessary for our survival, as the drive to reproduce. The ancients understood this when they coined the aphorism *Libri aut liberi*: “Books or sons.” As humans, we have the option of leaving a trace of our existence by writing books (or shaping tools,

raising buildings, writing songs, etc.) and thus leaving a cultural legacy, as well as leaving our genes to our progeny. The two are not reducible to each other, but are equally important motives that have become ingrained in our natures.

The idea that the ability to operate effectively in the environment fulfills a primary need is not new in psychology. In Germany, Karl Groos (1901) and Karl Bühler (1930) elaborated the concept of *Funktionlust*, or “activity pleasure,” which Jean Piaget (1952) included in the earliest stages of sensorimotor development as the “pleasure of being a cause” that drove infants to experiment. In more recent psychological thought, Hebb (1955) and Berlyne (1960) focused on the nervous system’s need for optimal levels of stimulation to explain exploratory behavior and the seeking of novelty, while White (1959) and deCharms (1968) focused on people’s need to feel in control, to be the causal agents of their actions. Later Deci and Ryan (Deci, 1971; Deci & Ryan, 1985) elaborated on this line of argument by suggesting that both competence and autonomy were innate psychological needs that must be satisfied for psychological growth and well-being.

Theories that provide explanations for why people are motivated to master and control tend to be *distal*. In other words, they provide sensible explanations, typically based on an evolutionary framework, for why such behaviors should have become established over many generations, in order to support the reproductive success of the individual. However, for an activity pattern to become established in a species’ repertoire, it has to be experienced as enjoyable by the individual. To explain how this happens, a *proximal* theory of motivation is needed.

Such a theory must rely on at least four complementary lines of explanation. In the first place, it is likely that mastery-related behavior has become personally rewarding because it has evolved, through literally millions of years of trial and error, as an effective strategy to achieve other goals, such as mates and material resources. Overcoming challenges and excelling is therefore adaptive and increases chances for reproductive success.

Second, one may adopt a more Freudian line and see mastery-related behavior as an

internalized drive that could serve either the purposes of the id (in the case of tyrants or robber barons) or of the superego (in the case of creative, prosocial individuals). In this, as in the previous case, the behavior does not serve an independent function but is a disguised manifestation of other forces seeking their own aims.

Third, the person may seek out such behaviors because of innate or learned psychological needs, such as competence and autonomy. According to this explanation, the enjoyment one experiences during intrinsically motivated behavior is largely a result of the satisfaction of these basic psychological needs.

This chapter deals with a fourth kind of explanation, which we call the "phenomenological account." It tries to look very closely at what people actually experience when they are involved in activities that involve mastery, control, and autonomous behavior, without prejudging the reasons for why such experiences exist. This line of explanation assumes that the human organism is a system in its own right, not reducible to lower levels of complexity, such as stimulus-response pathways, unconscious processes, or neurological structures.

These four kinds of explanations are not incompatible with each other. In fact, they are likely to be all implicated in the genesis and maintenance of mastery behavior at the individual level. Quite often, they support each other, driving the organism in the same direction. But it is also often the case that the genetically programmed instructions may come into conflict with the learned ones, or that the unconscious forces press in a direction contrary to what the phenomenological reality suggests.

THE NATURE OF FLOW

The fourth of these lines of explanation, focused on events occurring in the consciousness of the individual, is the one here identified with the study of the flow experience. This experience emerged over a quarter-century ago as a result of a series of studies of what were initially called *autotelic activities*; that is, things people seem to do for the activity's own sake.

Why do people perform time-consuming,

difficult, and often dangerous activities for which they receive no discernible extrinsic rewards? This was the question that originally prompted one of us into a program of research that involved extensive interviews with hundreds of rock climbers, chess players, athletes, and artists (Csikszentmihalyi, 1975; Nakamura & Csikszentmihalyi, 2002). The basic conclusion was that, in all the various groups studied, the respondents reported a very similar subjective experience that they enjoyed so much that they were willing to go to great lengths to experience it again. This we eventually called the "flow experience," because in describing how it felt when the activity was going well, several respondents used the metaphor of a current that carried them along effortlessly.

Flow is a subjective state that people report when they are completely involved in something to the point of forgetting time, fatigue, and everything else but the activity itself. It is what we feel when we read a well-crafted novel or play a good game of squash, or take part in a stimulating conversation. The defining feature of flow is intense experiential involvement in moment-to-moment activity. Attention is fully invested in the task at hand, and the person functions at his or her fullest capacity. Mark Strand, former Poet Laureate of the United States, in one of our interviews, described this state while writing as follows:

You're right in the work, you lose your sense of time, you're completely enraptured, you're completely caught up in what you are doing. . . . When you are working on something and you are working well, you have the feeling that there's no other way of saying what you're saying. (in Csikszentmihalyi, 1996, p. 121)

The intense experiential involvement of flow is responsible for three additional subjective characteristics commonly reported: the merging of action and awareness, a sense of control, and an altered sense of time.

The Merging of Action and Awareness

The default option of consciousness is a chaotic review of things that one fears or desires, resulting in a phenomenological state we have elsewhere labeled "psychic entropy" (Csikszentmihalyi & Csikszentmihalyi,

1988). During flow, however, attentional resources are fully invested in the task at hand, so that objects beyond the immediate interaction generally fail to enter awareness.

One such object is the self. Respondents frequently describe a loss of self-consciousness during flow. Without the required attentional resources, the self-reflective processes that often intrude into awareness and cause attention to be diverted from what needs to be done are silenced, and the usual dualism between actor and action disappears. In the terms that George Herbert Mead introduced (1934/1970), the "me" disappears during flow, and the "I" takes over. A rock climber in an early study of flow put it this way:

You're so involved in what you're doing you aren't thinking about yourself as separate from the immediate activity. You're no longer a participant observer, only a participant. You're moving in harmony with something else you're part of. (in Csikszentmihalyi, 1975, p. 86)

A Sense of Control

During flow, we typically experience a sense of control—or, more precisely, a lack of anxiety about losing control that is typical of many situations in normal life. This sense of control is also reported in activities that involve serious risks, such as hang gliding, rock climbing, and race car driving—activities that to an outsider would seem to be much more potentially dangerous than the affairs of everyday life. Yet these activities are structured to provide the participant with the means to reduce the margin of error to as close to zero as possible. Rock climbers, for example, insist that their hair-raising exploits are safer than crossing a busy street in Chicago, because, on the rock face, they can foresee every eventuality, whereas when crossing the street, they are at the mercy of fate. The sense of control respondents describe thus reflects the possibility, rather than the actuality, of control.

Worrying about whether we can succeed at what we are doing—on the job, in relationships, even in crossing a busy street—is one of the major sources of psychic entropy in everyday life, and its reduction during flow is one of the reasons such an experience becomes enjoyable and thus rewarding.

Altered Sense of Time

William James (1890, Ch. 15, Sec. 4) noted that boredom seems to increase when "we grow attentive to the passage of time itself." During flow, attention is so fully invested in moment-to-moment activity that there is little left over to devote toward the mental processes that contribute to the experience of duration (Friedman, 1990). As a result, persons deeply immersed in an activity typically report time passing quickly (Conti, 2001).

Exceptions occur in certain sports or jobs that require precise knowledge of time, but these are exceptions that prove the rule: Basketball players must learn not to dribble the ball in their own side of the court for more than 10 seconds; football players must learn to "manage the clock" in a close game. Awareness of time in these situations is not extraneous information signifying boredom, but a challenge that the person has to overcome in order to perform well.

THE CONDITIONS OF FLOW

Flow experiences are relatively rare in everyday life, but almost everything—work, study or religious ritual—is able to produce them, provided certain conditions are met. Past research suggests three conditions of key importance. First, flow tends to occur when the activity one engages in contains a *clear set of goals*. These goals serve to add direction and purpose to behavior. Their value lies in their capacity to structure experience by channeling attention rather than being ends in themselves.

A second precondition for flow is a *balance between perceived challenges and perceived skills*. This condition is reminiscent of the concept of "optimal arousal" (Berlyne, 1960; Hunt, 1965), but differs from it in highlighting the fact that what counts at the phenomenological level is the *perception* of the demands and abilities, not necessarily their objective presence.

When perceived challenges and skills are well matched, as in a close game of tennis or a satisfying musical performance, attention is completely absorbed. This balance, however, is intrinsically fragile. If challenges begin to exceed skills, one typically becomes

anxious; if skills begin to exceed challenges, one relaxes and then becomes bored. These subjective states provide feedback about the shifting relationship to the environment and press the individual to adjust behavior in order to escape the more aversive subjective state and reenter flow.

Finally, flow is dependent on the presence of *clear and immediate feedback*. The individual needs to negotiate the continually changing environmental demands that are part of all experientially involving activity (Reser & Scherl, 1988). Immediate feedback serves this purpose: It informs the individual how well he or she is progressing in the activity, and dictates whether to adjust or maintain the present course of action. It leaves the individual with little doubt about what to do next.

Because flow takes place at a high level of challenge, the feedback one receives during the course of an activity will inevitably include "negative" performance feedback. From a phenomenological viewpoint, this negative feedback will not necessarily be detrimental to task involvement. Provided the individual perceives that he or she possesses the skills to take on the challenges of the activity, the valence of the feedback is of less consequence for activity enjoyment than the usefulness of the feedback in suggesting appropriate corrective measures. Indeed, it is not difficult to think of situations in which we intentionally elicit negative feedback in order to direct attention and behavior (e.g., a pianist practicing with a metronome).

To summarize, clear goals, optimal challenges, and clear, immediate feedback are all necessary features of activities that promote the intrinsically rewarding experiential involvement that characterizes flow. Of course, this is not to say that these are the only factors that affect the degree to which one becomes involved in an activity. Research on task involvement suggests that the importance an individual places on doing well in an activity (i.e., "competence valuation") predicts the individual's involvement in that activity (Greenwald, 1982; Harackiewicz & Elliot, 1998; Harackiewicz & Manderlink, 1984), as does the congruence between task-specific, behaviorally based goals (e.g., "I want to attach a flag to my car's antenna") and higher level, more abstract goals (e.g., "I want to show my pa-

triotism"), with greater congruence leading to greater involvement (Harackiewicz & Elliot, 1998; Rathunde, 1989; Sansone, Sachau, & Weir, 1989). Furthermore, the personal implications an individual attributes to success or failure at an activity can affect his or her interpretation of performance feedback, which in turn has consequences for task involvement (Mueller & Dweck, 1998). With respect to individual differences, Wong (2000) found that autonomy orientation (Deci & Ryan, 1985) was positively related to involvement in school-related activities; absorption (Tellegen & Atkinson, 1974), a trait construct used to measure hypnotic susceptibility, and conceptually related to openness to experience, has been shown to be positively associated with experiential involvement (Glisky, Tataryn, Tobias, Kihlstrom, & McConkey, 1991; Levin & Fireman, 2001; Wild, Kuiken, & Schopflocher, 1995).

FLOW AND MOTIVATION

Theories of motivation generally neglect the phenomenology of the person to whom motivation is being attributed. They explain the reason for action in functional terms, that is, by considering outcomes rather than processes (Sansone & Harackiewicz, 1996). How the person feels while acting tends to be ignored. Yet individuals constantly evaluate their quality of experience and often will decide to continue or terminate a given behavioral sequence based on their evaluations. Our research suggests that the phenomenological experience of flow is a powerful motivating force. When individuals are fully involved in an activity, they tend to find the activity enjoyable and intrinsically rewarding. Whatever the original motivation for playing chess or playing the stock market, or going out with a friend, such activities will not continue unless they are enjoyable—or unless people are motivated by extrinsic rewards.

Flow and Competence Motivation

Perceived competence has traditionally played a central part in theories of motivation (Bandura, 1982; Deci, 1975; Harter, 1978; White, 1959). These theories gener-

ally argue that intrinsic motivation is promoted by feelings of competence and efficacy. In support of this, several researchers have found that positive competence feedback is positively related to subsequent motivation to perform an activity (Deci, 1971; Elliot et al., 2000; Fisher, 1978; Harackiewicz, 1979; Ryan, 1982; Vallerand & Reid, 1984).

These findings are consistent with past research on flow. Our studies have found that actors who perceive that they lack the skills to take on effectively the challenges presented by the activity in which they are participating experience anxiety or boredom, depending on how much they value doing well in the activity (Csikszentmihalyi & LeFevre, 1989; Csikszentmihalyi & Nakamura, 1989; Csikszentmihalyi, Rathunde, & Whalen, 1993). Simply put, if an actor feels incompetent in a given situation, he or she will tend not to be motivated. However, our research also suggests that although perceived competence seems to be an important precondition for intrinsic motivation, it is often not a predominating characteristic of the phenomenological experience associated with intrinsically motivated behavior. More specifically, much of the reward of intrinsically motivated behavior is derived from the experience of absorption and interest, the epitome of which is flow.

Consider the following example: A person picks up a novel to read. As she begins reading it, she senses that her abilities are not up to the task, that the material is too complex for her to appreciate fully. Feeling unable to take on the challenges of the book because her skills are lacking, she will experience anxiety or boredom, and will probably opt for a less demanding novel or activity. However, if she feels that the complexities of the book are within her capacities and is able to digest the material, her decision either to continue reading the novel or to put it down will be based primarily on her quality of experience while reading the book, namely, the extent to which she finds the book involving and interesting.

Emergent Motivation

The phenomenology of flow further suggests that we may enjoy a particular activity because of something discovered through the

interaction. It is commonly reported, for instance, that a person is at first indifferent or bored by a certain activity, such as listening to classical music or using a computer. Then, when the opportunities for action become clearer or the individual's skills improve, the activity begins to be interesting and, finally, enjoyable. It is in this sense that the rewards of these types of intrinsically motivating activities are "emergent" or a priori unpredictable.

The phenomenon of *emergent motivation* means that we can *come to* experience a new or previously unengaging activity as intrinsically rewarding, if we find flow in it. The motivation to persist in or return to the activity arises out of the experience itself. What happens next is responsive to what happened immediately before, within the interaction, rather than being dictated by a preexisting intentional structure located within either the person (e.g., a goal or drive) or the environment (e.g., a tradition, script, or set of rules). The flow experience is thus a force for expansion in relation to the individual's goal and interest structure, as well as for the growth of skills in relation to an existing interest (Csikszentmihalyi & Nakamura, 1999).

Certain technologies become successful at least in part because they provide flow, thus motivating people to use them. A good example is the Internet, developed with funds made available by the U.S. Department of Defense for purposes of national security. This technology has been adapted to all sorts of unexpected uses and has made possible an enormous variety of unpredicted experiences. It partly accounts, for instance, for the spectacular success of the Linux open system software, where tens of thousands of amateur and professional programmers work hard to come up with new software for the sheer delight of solving a problem, and for being appreciated by respected peers. In the process, Linux has been making headway against much more formidable competitors, such as Microsoft, who have to pay their programmers to write software—a clear example of emergent intrinsic rewards actually trumping extrinsic rewards.

In summary, quality of experience is the proximal cause of intrinsically motivated behavior. When an individual begins, continues, or ends an activity that is not motivated

by extrinsic rewards, such decisions are based primarily on the current or anticipated enjoyment accompanying the activity. In this context, both motivation and goals are emergent, in the sense that they are determined by the actor's moment-to-moment experience.

Is deep experiential involvement a prerequisite for intrinsically motivated behavior? Clearly, it is not. As past research on the structure of affect has demonstrated, positive affect can be in the form of both high- and low-activation positive affect (Tellegen, Watson, & Clark, 1999). Whereas flow represents a state of high-activation positive affect, it contrasts sharply with low-activation positive affect, which is associated with states such as relaxation and contentment. It is consistent with current understandings of evolution to suppose that both of these strategies for coping with the environment, one conservative and the other expansive, were selected over time as important components of the human behavioral repertoire, even though they motivate different—in some sense, opposite—behaviors. Yet because it is only during states of high activation that we are pushed to expand our existing capacities, flow is particularly important to understand given the implications it has for personal growth.

FLOW AND COMPETENCE-RELEVANT OUTCOMES

High levels of both mental and physical performance usually depend on goal-directed attention produced by specific challenges and clear feedback (Locke, Shaw, Saari, & Latham, 1981). It is therefore not surprising that a host of studies have found a strong positive relationship between flow and performance. For example, flow is positively associated with artistic and scientific creativity (e.g., Perry, 1999; Sawyer, 1992), effective teaching (Csikszentmihalyi, 1996), learning (Csikszentmihalyi et al., 1993), and peak performance in sports (Jackson, Thomas, Marsh, & Smethurst, 2002; Stein, Kimiecik, Daniels, & Jackson, 1995).

Perhaps more compelling than situationally based positive outcomes, however, are the developmental implications of the flow

model. As individuals master challenges in an activity, they develop greater levels of skill, and the activity ceases to be as involving as before. To continue experiencing flow, they must identify increasingly greater challenges. Thus, over time, the balance between challenges and skills enhances competence. Experiential goals thus introduce a principle of selection into psychological functioning that fosters growth and stretches a person's existing capacities (cf. Vygotsky, 1978).

This positive relationship between flow and skill development has been demonstrated in a number of studies that have used the experience sampling method (Csikszentmihalyi & Larson, 1984) to examine the phenomenological experience of students within school settings. In longitudinal research with talented adolescents, students still committed to pursuing their talent area at age 17 were compared to peers who had already disengaged. Four years earlier, those who were still committed had experienced more flow and less anxiety than their peers while engaged in school-related activities; they were also more likely to have identified their talent area as a source of flow (Csikszentmihalyi et al., 1993). In a longitudinal study of students talented in mathematics, Heine (1996) showed that those who experienced flow in the first part of the course performed better in the second half, controlling for their initial abilities and grade point average (GPA). Also controlling for initial abilities, Wong and Csikszentmihalyi (1991) found that immediate, experience-based motivation was a better predictor of the difficulty level of classes that students subsequently chose than their motivation to achieve long-term academic goals.

Longitudinal research on resilience suggests that, in addition to enhancing positive outcomes, a subjectively optimal matching of challenge and skill in daily life may protect against negative outcomes (Schmidt, 1999). In a national sample of American adolescents, teenagers who had experienced high adversity at home and/or at school but had access to extracurricular and other challenging activities, and who were involved in these activities and felt successful when engaged in them, were much less likely to have problems years later.

FLOW AND SPECIES-LEVEL DEVELOPMENT

Flow and the Evolution of Consciousness

Consciousness is the complex system that has evolved in humans for selecting, processing, and storing the profusion of information provided by the senses. Consciousness gives us a measure of control, freeing us from complete subservience to the dictates of genes and culture, by representing alternative courses of action in awareness, thereby introducing the alternative of rejecting rather than enacting them. It thus serves as a clutch between programmed instructions and adaptive behaviors (Csikszentmihalyi & Csikszentmihalyi, 1988). Alongside the genetic and cultural guides to action, it establishes a *teleonomy of the self*, a set of goals that have been freely chosen by the individual (cf. Brandstadter, 1998; Csikszentmihalyi & Massimini, 1985; Deci & Ryan, 1985). It might, of course, prove dangerous to disengage our behavior from direct control by the genetic and cultural instructions that have evolved over millennia of adapting to the environment. On the other hand, doing so may increase the chances for adaptive fit with the present environment, particularly under conditions of radical or rapid change.

In order for consciousness to be used for such positive ends, however, a person must learn to enjoy being conscious. People value in principle but seldom resort to free choice, reflection, and the weighing of alternatives. As Dostoevsky eloquently described in his tale of the Grand Inquisitor, it is much easier to act in terms of habit and convention, relying on genetic and cultural programs, than to decide in terms of one's own experience. This is in part due to the fact that the skills for being conscious need to be cultivated, or the task will seem too daunting and thus produce anxiety.

Our schools are geared to teach cognitive skills, but these do not necessarily develop the skill for being conscious. A young person needs to exercise freedom in the allocation of attention, the pursuit of interests, and the mastering of challenges; only then will he or she begin to enjoy being conscious. This opportunity is rarely present in the normal school environment—or even

earlier, in the family environment of the young child. But unless we learn to enjoy using the mind freely, yet in an orderly fashion, the evolution of consciousness is going to be hampered.

Flow and the Evolution of Culture

Flow is not only an important mechanism in the development of the person, but it also plays an important role in the development of culture. As we mentioned earlier in discussing the successful spread of the Linux open software system, new technologies, beliefs, lifestyles—and even political systems—are often adopted or rejected on the basis of whether they enhance or diminish the probability of producing flow.

Professor Fausto Massimini of the University of Milan was the first scholar to realize the potential of flow to explain the selection of new cultural artifacts, or "memes" (Csikszentmihalyi & Massimini, 1985; Inghilleri, 1999; Massimini, Csikszentmihalyi, & Delle Fave, 1988). Essentially, the likelihood that a new idea, product, or process will survive over time is a function of the attention it attracts. A song, a scientific theory, or a religious system will be remembered and transmitted to the next generation only if some people pay attention to it. And people will pay attention in large part because the new meme provides an enjoyable challenge.

This is clearly the case in the advancement of science. Thomas Kuhn (1970) describes how by focusing attention upon a small range of relatively esoteric problems, scientists are able to delve in greater depth and detail into their investigations, and thereby advance their field. Yet such focused attention cannot be sustained unless there are interesting problems that challenge the scientist. If there are none, the paradigm becomes boring, and the field disappears for lack of young recruits who are attracted to a different field by more interesting problems.

The same holds true for art, according to Collingwood (1938) and Martindale (1990). More generally, any field of creative accomplishment requires concentrated attention, to the exclusion of all other stimuli, which temporarily become irrelevant (Csikszentmihalyi, 1975; Getzels & Csikszentmihalyi,

1976; Nakamura & Csikszentmihalyi, 2001). Yet one does not need to look at great accomplishments to realize this basic function of attention. More mundane work is just as dependent on it. In describing the workers that made industrialization possible at the dawn of capitalism, Max Weber (1930, p. 71) commented on the relationship between puritanical religious beliefs and training on the one hand, and productivity on the other: "The ability of mental concentration . . . is here most often combined with . . . a cool self-control and frugality which enormously increase performance. This creates the most favorable foundation for the conception of labor as an end in itself."

The late Roman Empire, the last decades of Byzantium, and the French court in the second half of the 18th century are only a few of the most notorious examples of what can happen when large segments of society fail to find enjoyment in productive life. To provide such experiences, the rulers of society had to resort to increasingly elaborate and expensive means of control and repression, or else artificial stimulations—circuses, chariot races, balls, and hunts—that drain the attention of a passive population without leaving any useful residue. Whenever a society is unable to provide flow experiences in productive activities, its members will find flow in activities that are either wasteful or actually disruptive.

CONCLUSIONS

The ability to enjoy challenges and then master them is a fundamental metaskill that is essential to individual development and to cultural evolution. Yet many obstacles prevent individuals from experiencing flow. These range from inherited genetic malfunctions to forms of social oppression that reduce personal freedom and prevent the acquisition of skills.

But even in the most benign situations, flow may be difficult to attain. For instance, in our society at present, most parents are determined to provide the best conditions for their children's future happiness. They work hard, so that they can buy a nice home in the suburbs, get all the consumer goods they can afford, and send the children to the best schools possible. Unfortunately, none of

this guarantees that the children will get what they need to learn in order to enjoy life. In fact, a growing number of studies suggests that excessive concern for safety, comfort, and material well-being is detrimental to optimal development (Csikszentmihalyi & Hunter, 2003; Kasser & Ryan, 1993; Schmuck & Sheldon, 2001). The sterile surroundings of our living arrangements, the absence of working parents and other adults who could initiate young people into the joys of living, the addictive nature of passive entertainment and the reliance on material rewards, and the excessive concern of schools with testing and with disembodied knowledge all militate against learning to enjoy mastering the challenges that life inevitably presents.

Thus, understanding how flow works is essential for social scientists interested in improving the quality of life at either the subjective or objective level. Transforming this knowledge into effective action is not easy. But the challenges this presents promise almost infinite opportunities for enjoyment to those who are willing to develop the skills necessary to master them.

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CHAPTER 33



Motivation, Competence, and Creativity

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Creative potential is one of the most important forms of human capital. The benefits for both individuals and societies are easy to see. It contributes to advances in science and technology, for instance, and provides us with many kinds of pleasure and satisfaction (e.g., the arts and entertainment). *Creativity* is, however, a slippery concept. It takes different forms in different domains, for example, and at different points in the lifespan. It appears that different paths can each lead to creative work; none of them is always necessary or always guarantees creative results. Those studying creativity capture these variations by defining creativity as a "complex" or syndrome (MacKinnon, 1965; Mumford & Gustafson, 1988; Runco & Albert, 1990). But briefly, creativity is a blend of cognitive, metacognitive, emotional, and motivational components.

Motivation is recognized in virtually all contemporary definitions of creativity. In fact, it has long been recognized: Galton (1869) emphasized the incredible persistence of the geniuses he studied, as did Cox (1926). Creativity does differ in some ways

in the arts and sciences, and in various other domains, but motivation is a factor in each. Creative potential is not fulfilled unless the individual (and his or her social support) is motivated to do so, and creative solutions are not found unless the individual is motivated to apply his or her skills.

This chapter explores the role of motivation in creative efforts. This is in some ways not only a review of the literature on motivation and creativity but also an examination of how competence can play a role in creative work, and how creative competence may differ from the motivations that characterize most other human behaviors. Many human behaviors—and especially those of older and mature individuals—are directed toward the conservation of resources (e.g., energy) and, thus, toward efficiency. We develop routines, for example, to make our lives easier. Creative behavior is typically very different. Frequently, creative inventions make our lives easier, but the discovery of the necessary technologies may require a huge amount of effort and avoidance of routine. Creative behavior is not necessarily efficient behavior, nor is it even always adap-

tive (Richards, 1990; Runco, 1994a), and the motivations to act in a creative fashion or develop competencies for creative work are similarly unique.

WHAT MOTIVATES THE CREATIVE PERSON?

What motivates the creative person? Certainly it depends to some extent on the person, the context, and the domain in which the person is interested and perhaps working. There is some evidence that extrinsic incentives can influence creative work. That influence can work both ways, sometimes encouraging creative efforts, and sometimes undermining them. Useful research on extrinsic factors is summarized in the next section of this chapter. After that, the research on intrinsic motives is reviewed, along with the theories that take both intrinsic and extrinsic factors into account. Throughout the discussion, connections to the achievement motivation and competence are explored.

EXTRINSIC INCENTIVES AND REWARDS

Operant theorists have addressed the question of motivation and creativity, and they emphasize extrinsic and environmental factors. They also insist on operationalizing the terms such that everything is overt and highly objective. Creativity per se is not the typical target here, for it is not entirely objective, so the focus is usually on related behaviors, such as novelty or variation, or perhaps insight (Epstein, 1990; Skinner, 1939). Each of these is indeed clearly related to originality and creativity, so the results are interesting and pertinent. The emphasis is on the environment; it is the environment that motivates (or at least elicits and controls) creative behavior.

It may be difficult to see how creative and original things can be controlled, in part because the target behavior must change. After all, if one specific behavior is targeted, it will not be original for very long! It will only be original the first time it is displayed. For this reason, these efforts use shaping and contingencies and target behavioral *variation*

(Ryan & Winston, 1978; Stokes, in press; Stokes & Balsam, in press). The organism is thus reinforced only when it emits a behavior that has not been displayed previously. The organisms in this research are not always humans. Pryor, Hoag, and O'Reilly (1969), for example, reinforced the leaping and swimming of porpoises. They targeted responses that were novel for any one particular training session. Findings indicated that the porpoises emitted novel behaviors in each new session, and did so earlier and earlier in the session. Goetz and Baer (1973; Holman, Goetz, & Baer, 1977) used analogous procedures with children. The work of Holman et al. (1977) demonstrated that novel behaviors can not only be controlled with extrinsic consequences but also that they generalize across tasks.

Epstein (1990) held a similar perspective but was interested in new insights rather than continued variation. Seemingly creative solutions to problems are often labeled "insightful," the idea being that trial and error was not used, and that the individual seemed to have jumped all at once to a solution—the "Aha!" or insight (Gruber, 1981). Epstein (1990) demonstrated that insightful problem solving can be shaped. The shaping focuses on specific and discrete behaviors, and when the organism is placed in the problem situation, it tends to "integrate spontaneously" the previously learned discrete behaviors, the result being a new composite that may appear to be insightful.

In this line of work, the behavior is emitted in order to (1) earn a reinforcer or to (2) avoid a punisher. The implication is that some behaviors, including insightful and creative, may be efforts to approach a goal or reinforcer, and some may be efforts to avoid an aversive situation or punisher (Elliot, 1997). I have more to say later about the distinction between approach and avoidance behaviors. First it is useful to consider the psychoeconomic theory of creativity and motivation, because it in some ways parallels the operant view.

Rubenson and Runco (1992, 1995) relied on the concept of investments in their explanation of why creative persons work to develop competencies. Many creative persons invest heavily in their creative potentials and competencies, with some investing in tradi-

tional competencies, and others investing in competencies that no one else will notice or appreciate. If creative talent is defined such that it depends on original contributions to a field, then it is likely that traditional competencies have been developed, perhaps in addition to creative competencies. This applies to some fields—especially the highly technical ones—more than others. It explains why we do not see prodigies in some fields, such as physics, but we do see them regularly in others (e.g., music). If traditional competencies must be mastered before high-level performance is possible, and if the field has a large amount of material to be mastered, it is impossible for there to be prodigies. Time is necessary to develop the relevant competencies, and after that time has been invested, the individual is no longer a child (thus, not a prodigy).

Investments in traditional competencies can facilitate creative work. Most eminent creators have invested huge amounts of time and energy in their fields, and as a result, are able to see where gaps exist and to know a good problem or creative solution when they see one. Hayes (1978) went so far as to estimate that 10,000 hours must be invested to develop *expertise* (also see Simon & Chase, 1973). The 10,000-hour estimate may not apply to all domains, however; in fact, it certainly is a generalization. Importantly, expertise does not guarantee creative performance, and sometimes experts actually become rigid and inflexible, thus losing the capacity for creativity. They are competent in a traditional fashion but not in a creative fashion. Such is the cost of expertise. (A parallel with the operant view is apparent: Behavior in the psychoeconomic perspective responds to costs and benefits; much operant behavior responds to reinforcers and punishers.)

Significantly, the more the individual has invested, the more he or she has to lose. If an individual invests a dollar in something, and then loses it, it may not seem very tragic. If, on the other hand, a million dollars is invested instead of one dollar, the individual will certainly feel more strongly about the investment. A loss would be much more costly. Similarly, if an individual invests a few hours in developing a competence but that competence becomes obsolete, not

much will have been lost. But when one's entire career is devoted to (invested in) some specific expertise or field, losses are extremely costly, and strong resistance to criticisms of that field or competence are likely. This would apply to the scientist who devotes (invests) all of his or her career into one topic. If people criticize it after the scientist has invested 30 years, the scientist is likely to resist suggestions of an alternative perspective. This is very relevant, because resistance implies a lack of flexibility, and flexibility is characteristic of creative work (Hofstadter, 1986; Runco, 1995). Many individuals do indeed become more rigid and less flexible as they get older (Chown, 1961).

The most interesting implication of this psychoeconomic theory is that individuals who have invested greatly in one style or perspective (e.g., a scientist who has spent years developing one theory or model) will be motivated to justify its usage. If his or her pet model were replaced, the scientist's investment (temporal and psychical) would depreciate. Note that it is essentially linear: the greater the investment, the higher the motivation to avoid depreciation. Experts would thus be highly motivated in a particular fashion, as would anyone who has devoted years to a topic or model or perspective. Note also that this prediction about experts' motives is not necessarily consistent with the idea of competence. The expert may reject new data or opportunities, or anything that is contrary to his or her investment, even if objectively they seem to lead in a useful direction.

The inflexibility of some older adults makes it very difficult for them perform in a creative manner. Not all older adults become rigid, however. As a matter of fact, many famous creative individuals have demonstrated outstanding flexibility late in life. The "old-age style" of certain famous painters, for example, involves flexibility, in that the painter changes his or her painting technique, often repeatedly. As a result, there are dramatic changes in the work, and often renewed creativity. Very likely these changes reflect a change not only in perspective but also in competence. New competencies are no doubt required each time the painter changes his or her technique.

CREATIVE WORK AND PERSONAL STANDARDS

It is critical to distinguish between personal and traditional competencies, or between competencies that reflect personal versus social standards. As Elliot (1999) wrote:

Competence must be evaluated according to a standard, and three primary standards may be identified: an absolute standard inherent in a task, skill, or characteristic; an intrapersonal standard implicating a pattern observed in the past or that could be observed in the future; and an interpersonal standard implicating normative comparison. (p. 183)

Sometimes a conflict in standards occurs. Apparently the standards encouraged in the school, for instance, conflict with those (intrapersonal standards) held by the student. Creative children do not share many traits with what teachers tend to consider "the ideal student" (Raina & Raina, 1971; Torrance, 1963). The conflict may be between the standards encouraged in the home and those required in the schools (Roe, 1963). Sadly, traditional education does often encourage noncreative competencies. Rubenson and Runco (1995) explained this in terms of the different manifest benefits of the different competencies. Suppose an employer interviews someone who has a Master's degree in the most relevant field. That employer will have a pretty good idea about what that job applicant knows and can do. There would be a fairly certain "return" if that applicant were hired. What if the applicant had invested the same amount of time as that required for a Master's degree in the study and practice of creative skills? In many fields, creativity is appreciated, but the return on the investment is much less certain. The interviewer may not be willing to take a risk on this applicant, and the risk would be greater. It is not unlike the risks that characterize "guaranteed interest" stocks versus, say, "aggressive stocks." This difference can in turn influence what decisions will be made by applicants and students. They know there is a likely payoff if they stay in school. They do not know what the payoff will be if they invest instead in any sort of creativity development program. Rubenson and Runco (1995) concluded that the United

States is very likely underinvesting in the creative competencies of its students.

INTRINSIC MOTIVATION FOR CREATIVE EFFORT

Most theories of creativity emphasize intrinsic rather than extrinsic motivation. This in part reflects a tendency in the creativity literature to focus on the individual. The preponderance of theories of creativity assumes that creativity is a result of individual effort. There are theories that also acknowledge, or even emphasize, social and historical context (e.g., Amabile, 1990; Csikszentmihalyi, 1990; Montuori & Purser, 1999; Simonton, 1984), and in fact this may be a trend in the creativity literature toward social and contextual theories. But for most of its history as a scientific field, the focus in creativity literature has been on the individual.

The more precise focus is usually personality. Barron (1972, 1995) and MacKinnon (1960/1983, 1970), for instance, administered a number of personality (and intelligence) tests to several different samples of creative individuals (including writers and architects); they identified intrinsic motivation as what is now often called a "core characteristic" of creative people. Not long ago Dudek and Hall (1991) reported results from a longitudinal study involving many of the same research participants who had been involved 40 years earlier. Dudek and Hall used the Adjective Checklist and also found that intrinsic motivation characterizes the more creative individuals.

Amabile and her colleagues (1990; Amabile, Goldfarb, & Brackfield, 1990; Hennessey, 1969) examined the relationship between intrinsic motivation and creativity using more experimental procedures and looking more at actual performance rather than at personality traits. They reported both (1) value in allowing individuals to rely on intrinsic motivation and (2) an inhibitive effect of extrinsic rewards. The inhibitive factors included evaluations by others and expected evaluations by others. They took the next logical step and identified the means to "immunize" individuals to the "deleterious effect of extrinsic incentives." Obviously, this line of research is of huge practical value.

Amabile (1990) defined "intrinsic motivation" as "the motivation to do an activity for its own sake, because it was intrinsically interesting, enjoyable, or satisfying. In contrast "extrinsic motivation" was defined as "the motivation to do an activity primarily to achieve some extrinsic goal, such as a reward" (p. 62). Intrinsic motivation comes from within the individual; extrinsic motivation is imposed or offered by the environment. The latter may include rewards, reinforcers, punishers, incentives, feedback, and so on.

In Amabile's (1990) words,

Intrinsic motivation is conducive to creativity, but extrinsic motivation is detrimental. In other words people will be most creative when they feel motivated primarily by the interest, enjoyment, satisfaction, and challenge of the work itself—and not by external pressures. (p. 67)

Amabile supported this conclusion in various ways, including examination of biographies, autobiographies, interviews, journals, and personal letters (e.g., Gertrude Stein, Isaac Asimov, John Irving, Albert Einstein, James Watson, Mozart, Pablo Casals, Ansel Adams, Margaret Mead, Woody Allen, Anne Sexton, Sylvia Plath, D. H. Lawrence, Joyce Carol Oates, and Thomas Wolfe). Her experimental evidence was most impressive. Here, she cited earlier research on "overjustification." Overjustification occurs when individuals who are initially intrinsically motivated lose that intrinsic interest when given an extrinsic reason for behaving in a particular fashion or performing in a particular way. It is as though the individuals stop attributing interest to the task and start attributing their activity to the incentives and the rewards. Again, by way of a conclusion, Amabile felt that her research as a whole supported the following conclusions: Expected evaluation is detrimental to creativity; actual evaluation is detrimental to creativity; surveillance is detrimental to creativity; reward, or what she called "contracted for" reward, is detrimental to creativity; bonus rewards, which are not contracted for, have a positive influence on creativity; competition has a detrimental effect on creativity; and a restricted choice, particularly about how to proceed with an

activity, has a detrimental affect on creativity. Notice that these factors are social in nature. Amabile's work has a connection to and clear implications for a social psychology of creativity.

In one early study, Amabile (1990) presented research participants with a questionnaire that led half of the sample to think about the intrinsic reasons for a particular task. The other half of the sample received a questionnaire that led them to think of the extrinsic reasons. The questionnaire was used for a kind of priming. Participants each had experience and interest in creative writing. Most of them were graduate and undergraduate students in the Boston area. Apparently none were professional writers, or at least the self-reported amount of time spent each week writing only ranged from 3 to 18 hours. This is an important point, because the biographical evidence for intrinsic motivation, mentioned briefly earlier, dealt with well-known and professional individuals. The evidence would add to the credibility and validity of the intrinsic motivation principle if it were also found to characterize the creativity of noneminent and nonprofessional individuals. Participants who received the questionnaire that emphasized intrinsic interest were later asked to write a haiku-style poem. The poems were subsequently judged, using a consensual assessment technique, to be much more creative than those written by a control group. (The control group had not received a questionnaire; they had simply written the haiku.) This difference apparently was not statistically significant. The dramatic finding was between the experimental group, who had received the intrinsic interest questionnaire, and the participants who had received the questionnaire that emphasized extrinsic motives and goals, including selling their work, making money, and public recognition. The haikus of this group were significantly less creative than those of the experimental or control group. In addition to demonstrating that intrinsic motivation is important for nonprofessionals, this study is noteworthy in that the manipulation is quite simple. Apparently, the questionnaire, though quite brief, was sufficient to change the quality of the subjects' haikus.

Amabile (1990) suggested that the value of intrinsic motivation depends on the task

at hand. Consider her distinction between algorithmic and heuristic tasks. Algorithmic tasks have clear solution procedures (the algorithms), which, if used, always lead to a correct solution. Heuristic tasks allow exploration. Sometimes that exploration does not lead to the correct solution. Because there is opportunity for individual input, exploration, and creativity in a heuristic task, intrinsic motivation plays a larger role than it does in algorithmic tasks.

Amabile (1990) also cited Csikszentmihalyi's (1975) work on enjoyment as influencing her thinking about creativity and intrinsic motivation. Csikszentmihalyi also found that individuals became highly involved in creative tasks. He described the experience of flow as a kind of peak involvement. When experiencing flow, an individual would not be thinking about rewards, objectives, or anything extrinsic. It is a very intrinsically meaningful experience. Individuals can experience flow in a variety of settings, although some—rock climbing for example—are more conducive to flow than others. These ideas about flow are entirely consistent with other reports of the psychic underpinnings of creative moments (e.g., Hoppe & Kyle, 1991), though flow is a description of peak experiences and not necessarily tied to creativity.

Still, data from both personality and laboratory experimental research support the importance of intrinsic motivation in the creative process. There is also a cogent logic behind this perspective. It is easy to see how creativity, by its very nature, would depend on intrinsic motivation, and how it can be adversely influenced by extrinsic factors. Put briefly, creativity depends on originality. Creative behaviors and products are always original; originality is necessary but not sufficient. It is not sufficient because sometimes original endeavors are bizarre, inappropriate, and do not solve the problem at hand (if the creative work is an attempt to solve a problem). Sometimes endeavors are original precisely because they are inappropriate! Creative behaviors and products (including works of art, publications, performances, or simply ideas) are both original and useful. They fit, sometimes in the sense of solving a problem, but other times in the sense of their aesthetic appeal.

Originality is the key here, because it is the only aspect of creativity on which every-

one agrees. It also ties creativity to intrinsic motivation, that is because original things are different, unique, unusual, or novel. And being unique, unusual, or novel in turn assumes that the individual is capable, or even interested in, being unconventional. As a matter of fact, creative persons are often described as unconventional (Runco, 1993a), oppositional (Ludwig, 1995), nonconforming (Crutchfield, 1962), eccentric (Weeks & James, 1995), or contrarian (Runco, 1993a). Each of these suggests an independence of thought and motivation.

Creative individuals do seem to be highly motivated, and some are interested in some sorts of extrinsic goals. Moreover, creative persons do sometimes achieve great things, and achievement can be a powerful goal and influence motivation. Yet the term "achievement motivation" is not very often found in the creativity literature. This may reflect the typical conception of "achievement" as tied to public recognition (or at least recognition in some overt way). Achievement motivation defined in that fashion has not contributed much to the understanding of creative efforts, which tend to be *intrinsically motivated* instead (Amabile, 1990; MacKinnon, 1970; Runco, 1994a). The creative individual very likely is motivated more by intrapersonal standards than by social achievement. Creative persons are notorious for ignoring the social implications of their actions or work; many of them are rebellious, nonconforming, eccentric, contrarian, or at least unconventional. Some blatantly ignore acclaim, success, or any sort of objective or public result. There is not much on creativity and achievement motivation in the research literature; but a great deal can be found if "achievement" is defined in intrapersonal terms. Achievement implies the attainment of some goal or goals, but those goals may be intrinsic rather than extrinsic. Similarly, achievement may be gauged against certain standards, but these may be personal rather than social standards.

This is actually quite consistent with current views of competence and motivation. Elliot and McGregor (2001), for example, raised the possibility that achievement motivation can sometimes be best understood in terms of task-based intrapersonal and intrapersonal goals. This definitely applies to creativity. Elliot and McGregor (2001)

further distinguished between task-based/"self-defining" intrapersonal accomplishment and normative accomplishment. This helps bring creativity under the umbrella of behaviors that might be tied to certain achievement motivations. The research on creativity indicates that we must allow for self-defined goals. Creative work is rarely directed to normative accomplishments.

At least one empirical study of creative talent distinguished between social and individual achievement motivation. Albert and Runco (in press) studied exceptionally gifted boys and their parents. One of the ways that the participants in this research—both the boys and the parents—differed from norms was in "achievement through independence." Actually, the boys and their parents had much higher scores than are usual on the "achievement through independence" scale of the California Psychological Inventory (CPI), and they had significantly lower scores than the normative groups in terms of "achievement through conformity." This fits extremely well with the creativity literature, for creative persons are usually independent. It is difficult to be creative without being independent, because creativity requires originality, and originality can be found through independent thoughts and actions. Originality cannot be found through conformity. As a matter of fact, originality is just about the opposite of the normative. This research demonstrates that we can identify the motivational characteristics of talented persons, but we should focus on the kind of motivation that is required for creative behavior. At the very least, we need to distinguish between achievement through independence and achievement through conformity. Additional support for this was given by Gough and Bradley (1999), who found that achievement through independence scores correlated with Barron Welsh Art Scale scores.

DOMAINS OF PERFORMANCE

Here, I must revisit the concept of domains. Differences among domains have been recognized in the creativity literature for as long as it has existed. Patrick (1935, 1937), for example, studied poets, and earlier in this chapter, Barron (1972, 1995), Mac-

Kinnon (1960/1983, 1970), and the research with writers and architects were each cited. More recently Albert (1980) and Runco (1987) identified domain differences among gifted children, and, at this point, researchers are looking not only at general domains but also subdomains (e.g., writers of fiction vs. journalists, composers vs. performers). There is a minor controversy about domains (Baer, 1991; Plucker, 2000), with some believing that there is a general capacity that applies to all expressions of creativity, across all domains, and others (the majority) believing that creative skills vary from one domain to the next.

Elliot and Dweck (Chapter 1, this volume, p. 4) addressed the domain issue when they described how

most research in the achievement motivation literature has emerged from Western, individualistic societies. . . . As a result, more often than not, research in the achievement motivation literature has focused on individual, self-defining, normative accomplishment in the domains of school, sports, and work.

Creativity often occurs outside of the prototypical domains. The achievement motivation of a creative person, then, may be directed at goals in some marginal domain, or in some domain that is not popular or conventional.

This makes it difficult to judge competence. Similarly, it may be a competence that has value only to the individual. Others may see neither the value nor the creativity. Creativity is frequently difficult to judge, and errors in judgment abound (Runco, 1999a). Decca Records apparently refused to sign the Beatles in 1963; Capitol Records did the same in 1964. Alfred Harcourt, of Harcourt Brace Jovanovich, told the publisher of *The Sound and the Fury* that he was "the only damn fool in New York that would publish it" (Cerf & Navasky, 1984, p. 160). The author, William Faulker, won a Nobel Prize for literature in 1949. Jan Lievens and Adrien van der Werff were much more respected than Rembrandt in their era. Picasso's painting was described in 1907 as "the work of a madman" by Vollard, a highly reputable art dealer. The list of misjudgments is extensive (see Runco, 1999a) and it has even been said that truly creative things, be they works of

music, the visual arts, or science, can never be recognized at first. They are creative, and thus original and difficult to judge. There are no standards if something is new.

Again, quoting Elliot and Dweck (2004):

Competence is a flexible construct that may be conceptualized at different levels (e.g., specific outcomes, patterns of skills or abilities), using different standards (intrapersonal, interpersonal), with different loci (individual, collective), and in relation to different domains (e.g., academic, athletic).

This works well for creativity, with the recognition of the intrapersonal and individual standards and loci, and the allowance for domain differences. Creative people, for example, sometimes focus on one topic or technique, producing a series of very similar works. These works may even appear to be identical to observers, the revisions are so subtle. Gruber (1988) referred to this as "deviation amplification" and described the benefits to the creative person. The point is that a creative individual could spend years refining his or her ability at capturing "reflections on a pond" in watercolor—and only feel competent once that particular skill was perfected (to his or her own liking). In summary, the skill in question, or the topic and project in question, or even the domain that determines the creative person's sense of competence may not be appreciated by anyone else, at least at first.

PRODUCT VERSUS PROCESS

This description of the intrapersonal nature of competence is consistent with existing assumptions in the field of creative studies. If the last phrase in the previous section, "at least at first," were omitted, on the other hand, the description would be very controversial. Studies of creativity have become extremely objective and product-oriented, and the more rigorous theories do not label personal efforts "creative." They reserve that for actual products that have impressed some qualified audience.

There are problems with this product-oriented perspective, and implications for theories of creative motivation. Process-oriented perspectives of creativity and the recent the-

ory of "personal creativity" are much more amenable to the view of achievement motivation, which allows individualistic goals.

The most influential theory of the creative process is an old one. In this theory, the creative process begins with a *preparation* stage, then moves to *incubation*, *illumination*, and *verification* stages. Although quite old by the standards of behavioral science, this theory has been supported and is still very widely used (see Runco, 1994b). It does not, however, include any extracognitive influences on creative work. Runco and Chand (1995) presented a somewhat different theory of the creative process that does include motivational influences. This has been called a "componential model," of which there are several in the creativity literature (Amabile, 1990; Chand & Runco, 1992; Runco & Chand, 1995; Sternberg, 2000). Runco and Chand (1995), for example, outlined what they call a two-tiered model. On the first tier are three primary components involved in the creative process. The first of these involves what is commonly called "problem finding," which is a general label for several subprocesses. Of particular importance are problem identification and problem definition. Problem *identification* is involved when an individual simply recognizes that there is a challenge, hurdle, or problem at hand. Problem *definition* occurs later and involves actually changing or altering the problem to make it workable. It is often obvious when someone has a problem, but the problem is not in a form that allows solution. That is where problem definition (and redefinition) comes in.

These skills—problem identification and problem definition—could easily interact with various kinds of motivation. A problem might motivate an individual, or an individual might be disturbed, even in an ambiguous "free floating" fashion, and be motivated to identify exactly what the problem is or be motivated to define the problem in such a way as to facilitate its solution. This is the most important aspect of problem finding: It sets the stage for problem solving. It has been said a number of times that a high-quality and creative solution depends upon a high-quality problem. Empirical demonstrations of the distinctiveness of problem finding from problem solving and

individual differences in problem finding were summarized by Runco (1994b).

The second primary component in the two-tiered model involves ideation. Here again, it is important to subdivide: Ideation can vary in terms of fluency, originality, flexibility, and apparently in several other ways as well (Runco 1991, 2003). Fluency, originality, and flexibility are the most commonly used indices of ideation. "Fluency" is defined in terms of productivity; high ideational fluency indicates that the individual generates many ideas. These ideas frequently represent the options and alternatives that are involved in problem solving. The ideas may represent alternative definitions of the problem, for example, or they may represent possible solutions. "Originality" is operationally defined in terms of the unusualness or uniqueness of ideas. Here, again, there are clear individual differences, and, of course, ideational originality would be the part of this model that is most directly related to creativity per se. This is because originality is a prerequisite for creativity. Creative things are often much more than original; they tend to be somehow fitting or aesthetically appealing; but originality is necessary for creativity even if it is not sufficient in and of itself. Motivation is necessary in that only a motivated individual will persist with a problem or problem-solving efforts. This is sometimes vital, especially when the problem solving efforts are *protracted* and extend over a long period of time (Gruber, 1988).

As noted earlier in this chapter, originality is necessary but not sufficient for creativity. This is because original ideas may not be creative. They may be bizarre and irrelevant to the task at hand. In this case they are original, yet are not solutions, and they will certainly lack aesthetic appeal. What else is necessary for creativity besides originality? Again, aesthetic appeal and some sort of fit and appropriateness help, but this just begs the question. Where and why does an individual invest the effort in finding ideas and solutions that are both original and fitting? One answer to this question is given in the two-tiered componential model, and, in particular, in the third primary component. It involves a kind of judgment, evaluation, or appraisal. It is this skill that works with ide-

ation to ensure that ideas are both original and fitting. This skill can be expressed in several ways, so it is not really one skill, but, again, that was true of problem finding and ideation, and would be no surprise here. One relevant kind of judgment involves evaluation and is probably closest to traditional forms of critical thinking. But too often this kind of judgment leads an individual to unoriginal ideas. The critical thinking is directed at criticism per se, and the focus is on what is wrong with an idea and how it is inadequate as a solution to a given problem. Creative thinking sometimes requires valuation rather than evaluation. This is because original ideas are appreciated. But because they are original, they may be surprising, or their adequacy and fit may be initially difficult to determine. The easy judgment would be to conclude that the ideas are inappropriate, but with persistent valuation, an individual may determine that the ideas are useful, or at least have potential. If they have potential, the individual might persist with the individual ideational path and eventually find highly creative ideas. Note again that all of this assumes that the individual is motivated to persist. Research suggests that the judgmental and evaluative processes involved in creative thinking are distinct from traditional forms of critical thinking, as well as from IQ and similar measures of traditional intelligence (Runco & Smith, 1992). This same research demonstrates clearly that IQ and traditional intelligence are by no means synonymous with creative thinking skills (Runco & Albert, 1986).

The two-tiered componential model of the creative process posits motivation as an influence on creative thinking and problems solving. Both intrinsic and extrinsic motivation are included. The other secondary component in this model is knowledge. Knowledge can be declarative, which is conceptual and factual, or it can be procedural, which is strategic and tactical. Knowledge, of course, interacts with each of the other components. When generating ideas, for example, an individual often draw from long-term memory and his or her knowledge base, although the ideas may be generated through associative processes as well. Knowledge interacts with motivation in several ways. Motivated individuals may be interested in learning new procedures, as well as new factual informa-

tion, especially if they realize that they need to be better informed in order to solve a problem. The interaction works the other way as well: An individual's work may lead to the recognition that there is some sort of deficiency or gap, and this gap in turn motivates the person to learn something new or think creatively.

PERSONAL CREATIVITY AND INTENTIONS

A second process view suggests an even closer relationship between achievement motivation and creativity. This is the recent theory of "personal creativity." Like componential theory, extracognitive influences are recognized. More specifically, the theory of personal creativity emphasizes the *intentions* of the creative person. Intentions represent one of the three parts of personal creativity, the other two being transformational capacity and discretion.

Transformations are key in the sense that objective experience is interpreted by the individual, and, as is the case with all interpretations, there is a difference between subjective and objective experience. Objective experience is assimilated, or transformed, into something that is meaningful to the individual, which is why two individuals may have entirely different interpretations of one shared (objective) experience. Motivation may actually result from this process. This does represent yet another controversy: It is possible that understanding of experience is developed only if the individual is motivated to attend to details and assimilate the relevant information, but it is also possible that motivation is a result of a cognitive "appraisal" (Lazarus, 1991a, 1991b; Runco, 1994a; Zajonc, 1990). The controversy, then, is over which comes first, motivation or cognition (understanding). Piaget (1970, 1976) offered a very reasonable perspective and concluded that individuals are intrinsically motivated by the need to understand their experience. In other words, when we have an experience we do not understand, we are motivated to do something about it, and we often put effort into formulating a new interpretation or reinterpreting the experience, until we understand. Note that this occurs on a personal, individual basis. It is,

then, intrinsic motivation. This is a critical point, because it means that the theory that uses transformation and interpretation is consistent with the various, numerous empirical demonstrations of the role of intrinsic motivation in creative work (Amabile, 1990; Barron, 1972, 1995; Runco, 1993b, 1994a).

Personal creativity also emphasizes intentions. The definition of "intention" assumed here is exactly the same as is implied by the expression, "I intend to mow the lawn." It is intentions that distinguish between creative accomplishments that are original and original things that are not creative. Originality is necessary but not sufficient for creativity, and sometimes things are original but lacking, unappealing, and uncreative. Psychotic individuals can be highly original, but they are rarely, if ever, truly creative in the sense of producing worthwhile ideas (Eysenck, 1999). Their originality is unintentional. The view that intentions play a role in creative work is also compatible with the corpus of research showing that creative individuals are highly strategic and tactical (Root-Bernstein, 1988; Runco, 1999b). The individual will not employ some tactic unless he or she is trying to (i.e., intending to) accomplish something. Tactics are by definition intentional.

Not everyone agrees that intentions are important. Hofstadter (1986), for example, argued that creators can "exploit serendipity," but that most of the action is beyond control. In this view, intentions do not account for much. All an individual can do is "playfully explore a serendipitous connection" (p. 252). The connections themselves are out of the individual's control. Díaz de Chumaceiro (in press) has also described serendipity as a part of creative work. Intentions are also inconsistent with theories of creativity that emphasize the workings of the unconscious and the impact of psychic tension, conflict, trauma, or discontent (reviewed by Runco, 1994a, 1999c). This takes us to the role of psychological need.

CREATIVITY AND PSYCHOLOGICAL NEED

The theory of personal creativity just outlined assumes that we are intrinsically motivated to understand our experience. We con-

struct interpretations of our experiences, and sometimes these may lead to creative solutions and insights. And, again, we put the effort into constructing interpretations, because it is adaptive to do so. Piaget (1970, 1976) suggested that understanding is a universal need. There may also be a psychological need to create, to behave in an autonomous and original fashion, and to express oneself. Indeed, Maslow (1971) and Rogers (1961) both reported that self-actualized individuals are creative, as well as spontaneous and self-accepting. In fact, toward the end of their careers, they both gave up trying to separate self-actualization from creativity. Maslow concluded that the two might be "inextricable." Runco, Ebersole, and Mraz (1991) reported correlational support for this view to complement the observational and clinical observations of Rogers and Maslow.

Creative self-expression is also strongly related to physical health. Pennebaker, Kiecolt-Glaser, and Glaser (1997), for instance, found that the immune efficiency of student who were required to write several times each week (as part of a college course), and asked to write about their own lives, improved significantly (also see Eisenman, 1997). Members of a control group was also allowed to write, but they were given mundane assignments that precluded self-expression, or what Pennebaker et al. (1997) called "disclosure." The immune efficiency of the control group did not improve.

There are, then, data that show that creative persons are healthy, both psychologically and physically. There are also data that suggest that creative persons have a tendency toward affective disorder and even suicide (Andreasen, 1997; Jamison, 1997). Perhaps there is one causal pathway leading from ill-health to creativity, and a second pathway leading from creativity to health. The former apparently can occur when there is excessive openness to preconscious material that frightens or depresses the person but at the same time provides him or her with original insights (Rothenberg, 1990). The latter may occur when creative insights and projects result from self-expression, and such self-expression provides the vent or catharsis that maintains health (Pennebaker et al., 1997). If it is cathartic, the motivation may be a result of trauma experienced early

in life. Csikszentmihalyi (1988) described this as "cathartic originality." He also described "abreactive creativity," which is the result of traumatic experiences from childhood. It can thus be difficult to ascertain what actually motivates creative work, because the result may be symbolic and temporally far removed from the cause. Even artists who are experiencing this abreactive creativity may themselves be uncertain of their motives (Jones, Runco, Dorinan, & Freeland, 1997). The creative person may appear to be motivated by competence *per se*, but may actually be motivated to develop that competence in order to deal effectively with the trauma. Competence in this light is not an end in and of itself, but is instead a means to an ends.

The kind of creativity that is self-expressive is functionally tied to both psychological and physical health (Pennebaker et al., 1997; Runco et al., 1991). Perhaps there is a need for creative expression that represents a basic human need, and when this need is unfulfilled, problems of various sorts (e.g., health) may result. That need for expression can lead to competence, but it is not a need for competence; it may instead be a need for expression. This is not too far from what Maslow (1971) and Rogers (1961) said about human need, self-actualization, and creativity.

CONCLUSIONS

Elliot and Dweck (Chapter 1, this volume, p. 6) proposed that "the need for competence . . . [is] a fundamental motivation [in all individuals] that serves the evolutionary role of helping people develop and adapt to their environment." I would add that adaptations and meaningful evolution will be especially likely if it is motivation specifically for creativity. Creativity provides the variations that are necessary for cultural evolution (Campbell, 1960; Simonton, 1988; Runco, in press). The motivation specifically for creativity may be among the most useful for humans, at least in terms of evolution, progress, and adaptability.¹

I have also suggested that the "motivation specifically for creativity" is indeed specific. It probably differs from "achievement through conformance," for example, and

from similar motives that are directed toward socially acknowledged accomplishment. Along the same lines, there seem to be different motives that can each lead to creative effort. Creativity may be tied to the motivation to express oneself, to maintain or improve health, to construct meaningful interpretations of experience, or to retain a sense of autonomy and rely on one's own (intrinsic) standards and goals.

When the focus is on creative *accomplishment* (and not just creative effort), there may be a need to recognize motivation independent of competence—or at least as an antecedent to competence. Admittedly, models such as the two-tiered componential one (Chand & Runco, 1992) suggest that the greatest benefit results when the person is both motivated and competent. There is also the possibility that competence is so highly developed that it takes the form of an expertise that can inhibit the individual (Rubenson & Runco, 1995). Earlier, I described this as rigidity or inflexibility of thought. Still, many creative achievements do require competence and skill. Motivation may be an antecedent of this, though, of course, it can sometimes take time for the skill to develop. The Wright brothers, just to name one example, were highly motivated to fly but did not succeed until their persistence paid dividends in the form of technical skill and competence.

Great care should be taken if parents, educators, or organizational specialists attempt to manipulate the goals and incentives that motivate children's creative efforts. Recall that incentives and other extrinsic contingencies may actually undermine the autonomous thinking that is a part of the creative process. Additionally, goals are as difficult as problems to operationalize. Consider the issues surrounding the definitions of "problem." Many creative insights are the result of a problem-solving effort (Mumford, Baughman, & Sager, 2003; Runco, 1994b), and some people view creativity as one kind of problem solving. The assumption is that all creativity is an effort to solve a problem. This view is frequently criticized, however, for many creative efforts seem to be more self-expressive and playful, and not reactions to a problem. The complication arises because it may be that self-expression is an effort to solve the problem of how best to

express something. An artist might say, "No, I am not painting to solve any problem; I am simply trying to find the best way to capture that starry night." What if the artist then adds, "I just can't decide if this method is best, or that one." That artist has a problem: Which method is best? Goals may similarly depend on one's perspective. The Wright brothers may have persisted because they wanted fly, but someone else might have said that their goal was to build an airplane.

At the very least, parents, and teachers, or managers and supervisors in an organizational setting, should take great care with the expectations they hold for their charges. It would be inappropriate for any of these individuals to expect a moderately skilled individual to, through enhanced motivation, perform beyond the limits of his or her capacities. Motivation does not compensate for deficient skills, but instead allows the individual to fulfill his or her potential and to perform at the highest level. Not all of us have what it takes to develop a new method for flying, like the Wrights, but each of us has creative potential, and a better understanding of motivation will allow each of us to best use our creative talents.

NOTE

1. Additionally, creativity can be proactive, and this means that problems do not even need to be encountered (Heinzen, 1994). Problems can be avoided, and not merely solved, if we are creative. We may not even need to experience the problems. To be proactive, however, requires that there be an interest in monitoring and maintaining the status quo. This is very different from the motivation to solve problems, which is reactive rather than proactive.

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CHAPTER 34



Automaticity in Goal Pursuit

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The intersection of competence and motivation involves the ability to attain one's goals, to accomplish what one sets out to do. Both modern and classic theory and research on goal pursuit have focused mainly on the conscious and deliberate ways that people strive toward desired end states. In this chapter, we focus on the role played by automatic or unconscious motivations in the competent pursuit of one's important goals. How can such unconscious goal pursuit add to a person's competencies in a given domain? We show that unconsciously pursued goals are especially effective in keeping a person "on task" and moving in thought and action toward the desired goal, even when the conscious mind is distracted or focused elsewhere. Automatic or unconscious motivations respond immediately and effortlessly to environmental conditions (triggers) that promote or support the goal in question, such as in recognizing and acting upon opportunities that otherwise might have been missed. And the efficient nature of unconscious motivation makes it an especially effective means of goal pursuit in complex and busy social environments in which con-

scious attention is divided and in short supply.

Two main forms of unconscious goal pursuit have been featured in our research: one (automatic motivations) a long-term, chronic form that develops out of extended experience; the other (implementation intentions) a temporary and strategic form by which one sets up intended actions in advance, so that they later unfold in an automatic fashion. Before describing these two lines of research, we begin with some historical background on the concept of unconscious motivation as it has come and gone within psychology over the past century.

HISTORY OF THE UNCONSCIOUS MOTIVATION CONCEPT

The unconscious has had a long and bumpy ride through the history of psychology. Few, if any, other psychological concepts have instigated this much contention and polarization of opinion. William James considered it "a tumbling ground for whimsies," and Jean-Paul Sartre railed against it as a way to

abdicate personal responsibility for one's actions. Sigmund Freud, of course, championed the unconscious as a causal force in human thought and behavior, yet his medical and therapeutic perspective led him to focus as well on the unconscious's negative effects. Many modern-day motivational psychologists continue to hold this negative opinion (Bandura 1986; Locke & Latham, 1990; Mischel, Cantor, & Feldman, 1996). In their treatments, unconscious influences are characterized as rigid, undesirable habits of thought or behavior that must be overcome by conscious acts of will.

Freud's dynamic unconscious was primarily motivational in nature, driving behavior to express and fulfill deep-seated needs and wishes, and guarding and defending conscious experience from unpleasant memories of the past or threatening stimuli of the present. Following Freud's lead, the early work on unconscious influences within experimental psychology also focused on the motivational properties of the unconscious. This was the classic "New Look" perception research by Bruner and Postman and their colleagues (see reviews by Allport, 1955; Bruner, 1957; Erdelyi, 1974). The idea of perceptual defense involved motivational influences on the initial perception and awareness of environmental stimuli. Many studies showed, for example, that significantly longer tachistoscopic presentation times were needed for a participant to recognize taboo words or other stimuli (e.g., swastikas, spiders) likely to produce negative emotional reactions, compared to the recognition of emotionally neutral or positive stimuli.

But the New Look ideas concerning motivational influences on perceptual recognition and identification had difficulty gaining acceptance into the then-mainstream of psychological science. Erdelyi's (1974) historical analysis and review of the New Look indicates that 1950s psychology was just not ready for the idea of preconscious influences on stimulus recognition. But this all changed with the so-called "cognitive revolution" in psychology of the 1960s. Neisser's (1967) influential book, *Cognitive Psychology*, for example, reviewed experimental evidence of preattentive or preconscious perceptual analysis (e.g., pattern recognition, figural synthesis). Most notably, the classic research and theory on attention allocation of

Broadbent, Treisman, Norman, and others, which showed how stimuli could be analyzed for meaning prior to the person's conscious awareness of them, made the idea of early motivational screening of environmental stimuli much more plausible than it had been in the 1950s (see review by Lachman, Lachman, & Butterfield, 1979).

Thus, the idea of unconscious influences on perception gained a great deal of traction from the cognitive revolution and soon flourished in social and clinical psychology as well. It is now completely uncontroversial in mainstream psychology. But what happened to the concept of unconscious motivation? It did not reap the benefits of the cognitive revolution; rather, within social psychology, one of the consequences of that revolution was an attempt to eliminate motivational explanations for as many phenomena as possible (e.g., Nisbett & Ross, 1980).

Unconscious motivation, as a scientific concept within social psychology, thus had to overcome two separate historical resistances—the long-standing one to the unconscious as an explanatory variable, and the more recent one to motivational explanations as well. But just as research on the unconscious snuck back into respectability through the sheep's clothing of "attention research" (Broadbent, 1958), motivation research made its comeback under the cover of "task goals" (Srull & Wyer, 1986; Anderson & Pichert, 1978). Social cognition researchers had shown that the outcome of information-processing activities—such as organization of material in memory and ease of retrieval—varied as a function of the particular task goals assigned to participants (e.g., memorizing behavioral information vs. forming an impression based on it; Hamilton, Katz, & Leirer, 1980).

Accordingly, by about 1990, it had become clear that any complete model of social cognition had to take into account the individual's task or processing goals. The goal concept began to be included in social cognition models, mainly by assuming that goals were represented mentally in a similar way as was known for other classes of social stimuli, such as types of social behavior, roles, and groups (Bargh, 1990; Kruglanski, 1996). The auto-motive model (Bargh, 1990; see below) grew out of this idea: If goals were represented mentally just like

other varieties of social concepts (e.g., stereotypes), then the same properties that had been found to hold for other social representations—such as the capability of becoming activated outside of conscious awareness—should hold for goals as well. And so the concept of unconscious motivation made its return to scientific psychology: It was “unconscious” because it was automatic in the sense of being triggered and guided by external stimuli instead of an act of conscious choice and subsequent conscious control (Bargh, 1994), and it was “motivation” because goal representations were the particular cognitive concepts being automatically activated.

AUTO-MOTIVE THEORY: AUTOMATIC ACTIVATION AND PURSUIT OF PERSONAL GOALS

The auto-motive model of unconscious social motivations built upon the research of the 1970s, and especially the 1980s, that demonstrated the automatic activation capability of social mental representations, such as trait concepts (e.g., honest, aggressive), attitudes, and group stereotypes (see reviews by Bargh, 1989; Brewer, 1988; Wegner & Bargh, 1997). This research showed that frequently used mental representations will, over time, become active upon the mere presence of relevant information in the person's environment. For stereotypes, this would be easily identifiable group features such as skin color, gender, speech accent, and so on. For attitudes, the environmental trigger would be the mere presence of the attitude object in the environment (Fazio, 1986). For trait concepts, it would be features of observed social behaviors corresponding to the trait in question (Uleman, Newman, & Moskowitz, 1996).

The principle underlying all of these cases of automatic process development was that automatic associations are formed between the representations of environmental features (e.g., attitude objects, or common situations and settings) and other representations (e.g., evaluations or stereotypes, respectively) to the extent that they are consistently active in memory at the same time (Hebb, 1948). If one repeatedly and consistently thinks of members of a particular social group in stereotypical ways, for in-

stance, then the stereotype eventually would become active automatically upon the mere presence in the environment of a member of that group (Bargh, 1989; Brewer, 1988).

Under the assumption that goals, too, are represented mentally, and become automatically activated by the same principles, then goal representations should be capable of automatic activation by features of the contexts in which those goals have been pursued often and consistently in the past. If a given individual always competed with his or her siblings, then the goal of competition should become automatically activated upon just the mere presence of a sibling. In other words, it should become active even though the person may not intentionally and consciously choose to compete at that time and in that situation.

The auto-motive model further assumes that, once activated in this unconscious manner, the goal representation would then operate in the same way as when it is consciously and intentionally activated; that is, the model predicts that an automatically activated goal would have the same effects on thought and behavior as when the person consciously pursues that same goal (i.e., as when the goal is activated by an act of conscious will). In essence, then, the original auto-motive model (Bargh, 1990) derived the historical notion of unconscious motivation from the basic principles of modern-day cognitive psychology.

Such theoretical derivations are all well and good, but more was needed to establish the mundane reality of unconscious motivations in social life than logical or theoretical arguments. Accordingly, experimental research was conducted to test the model empirically. This research focused on three main questions: Can we observe goal attainment effects on thoughts, feelings, and behaviors by implicitly activated (primes) goals? Once activated, can unconscious goals keep operating outside of conscious awareness? And is automatic goal pursuit characterized by the same features as is conscious goal pursuit?

Goal Attainment Effects of Implicitly Activated Goals (Goal Priming)

The first question to be addressed was whether goals could be activated outside of conscious awareness. The standard method

used within social cognition research to test such a hypothesis is the priming or unrelated-studies paradigm (Bargh & Chartrand, 2000). In this design, the concept under study is first primed by causing the participant to think about or use it in some way that is unrelated to the focal task that comes next in the experiment. For example, to prime or passively activate the concept of honesty, the participant might be exposed to some synonyms of honesty in the course of working on a sentence construction task, such as the scrambled sentence test developed by Srull and Wyer (1979). The use of the concept in this first task should cause the concept to become activated. It is assumed that such activation persists for some time after the use of the concept, even though participants do not realize it (Higgins, Bargh, & Lombardi, 1985). Thus, the still-active concept can have an influence on information processing in the next experimental task (e.g., forming an impression of a target person), without the person being aware of this influence.

Chartrand and Bargh (1996) used this paradigm to test whether goal representations could be primed in the same manner. In one study, participants completed a scrambled sentence test that contained either some words related to the goal of impression formation (e.g., “judge,” “evaluate”) or to the goal of memorization (e.g., “retain,” “absorb”). When this task had been completed, participants were given a second, ostensibly unrelated task to complete: to read each of a series of 16 behaviors performed by a target person and then answer some questions about them. After participants had read all of the behaviors, they were given a surprise recall task.

Previous research (Hamilton et al., 1980) had used the same procedure, but with explicit (conscious) instructions to participants either to memorize the presented information, or to form an impression of the person based on the behaviors. That study had found significantly better recall, and also greater thematic organization of the behavioral information in memory, for participants in the impression-formation condition. But in our study, no such explicit instructions were given; instead, all participants were given the same (generic) instructions about answering some questions later on. Nonetheless, the results were the same as

those in the previous study: participants in the impression-formation goal-priming condition both recalled more behaviors and showed greater thematic organization of them in memory compared to those in the memorization-goal-priming condition.

These findings suggest that goals can indeed be primed, and then produce the same outcomes as when consciously pursued. Subsequent studies found similar effects with a variety of other goals. For example, priming the goal of achievement (i.e., to perform well) causes participants to score higher on verbal tasks than do control group participants (Bargh & Gollwitzer, 1994; Bargh, Gollwitzer, Lee-Chai, Barndollar, & Trötschel, 2001), and priming the goal of cooperation causes them to make more cooperative responses in a negotiation task in which they were free to compete or cooperate (Bargh et al., 2001, Study 2).

Although these studies primed goal concepts rather directly, by presenting participants with words synonymous with the goal, goals can also become automatically activated indirectly, through their strong association with certain situational features that are primed instead. Indeed, this is closer to the way that the auto-motive model assumes that goals become automatically activated in the real world—that is, by the presence of situational features within which the goal has been frequently pursued in the past. Situational power is one such feature: priming the concept of power causes participants with sexual harassment tendencies to become more attracted to a female confederate than they otherwise would have been (Bargh, Raymond, Pryor, & Strack, 1995). It also causes people to behave more in line with their own self-interest, and against the interests of their fellow experimental participants (Chen, Lee-Chai, & Bargh, 2001). These findings support the model's assumption that strong, automatic associations develop between situational and goal representations, to the extent that the goal is pursued frequently and consistently within that situation.

Another important and common situational trigger for goal pursuit is the presence of a significant other. These are people such as our parents, siblings, children, dating partners, or spouses, friends, and close colleagues—people whom we think about a lot, and interactions with whom yield outcomes

that substantially impact on our moods and life satisfaction. Fitzsimons and Bargh (2003) assumed that our mental representations of these close others contain within them the goals that we frequently and consistently pursue when with them. For instance, a person might have the chronic and long-standing goals of making her mother proud of her, competing with her brother, and relaxing and having fun when with her best friend. Even though there may be people who share such goals with respect to these significant others, other people may want to avoid their mothers, to have fun with their brothers, and to look up to and emulate their best friends. Thus, there should be not only commonalities in goal pursuit across people but also some degree of individual variation in goals, given the same significant other (e.g., one's mother). This was confirmed in a preliminary survey of college undergraduates, in which they were asked to list the goals they pursued with five different types of significant others.

Next, in several laboratory experiments and one field experiment, participants' mental representations of a given type of significant other (e.g., a best friend) were primed without their awareness, and then participants were given an opportunity to pursue the goal chronically associated with that partner. In every case, participants did behave in line with this goal, even though their significant other was not, of course, physically present in the experimental situation. For instance, in participants who usually try to make their mothers proud of them, priming the representation of the mother caused them to outperform control participants on measures of verbal ability. In line with the auto-motive model's predictions, priming the mother had no effect on the verbal ability task performance of participants who pursued other goals with their mothers (e.g., friendship, helping her). Also, those who did have the goal of making their mothers proud, but who were not primed with the mother, did not perform any better than did the control group. Both ingredients were necessary: the priming or preactivation of the representation of one's mother, and the chronic, automatic association of one's mother with the goal of high performance. In practice, then, thinking about or being reminded of a certain significant other—which

can be prompted easily and innocently by merely glancing at their photograph on our wall or desk—is sufficient to put into motion those goals one chronically pursues when with that person. So even when they are not present, one starts to behave as if he or she were in their company.

A further real-life, implicit activation of goals may occur when we observe the goal-directed actions of others, even non-significant others. By perceiving other people's goal pursuits, the respective mental goal representations should become activated in ourselves, with the effect that we start to act on them as well. This goal-contagion hypothesis, according to which individuals automatically take on a goal that is implied by another's behavior, has recently been examined in a series of studies (Aarts, Gollwitzer, & Hassin, 2004). Participants were briefly exposed to behavioral information about another person, implying a specific goal (e.g., making money), and were then given the opportunity to act on this goal in a different way and context. Participants' own actions started to serve the same goal, and they acquired features of goal-directedness in the sense that they were affected by goal strength (i.e., were in line with the participants' personal need for money), showed persistence over time, and were more readily engaged when the given situation clearly lent itself to meeting the goal at hand. Most interestingly, participants were immune against the automatic adoption of the goals of others if these were pursued in an inappropriate, socially unacceptable way. Apparently, goal contagion will not occur if the observed goal pursuits of others are perceived to be unattractive and undesirable.

Unconscious Operation of Primed Goals

It is one thing to claim that goals can be activated automatically, but quite another to argue that once activated, goals continue to operate outside of conscious awareness. But this is indeed the strong form of the auto-motive model, and there is now evidence consistent with this claim. For one thing, in all such automatic goal studies, participants are carefully questioned and debriefed following the experiment, to make sure they were not aware of pursuing that goal during

the experimental task. Very few if any participants show this awareness (the data of those who do are removed prior to analyses); most are surprised, if not skeptical, that we, the experimenters, had caused them to pursue a goal without their knowledge. For example, in the Chartrand and Bargh (1996) study, impression-primed participants were no more likely to report having tried to form an impression of the target person than were memorization-primed participants, who in turn were no more likely to report having tried to memorize the information than were the impression-primed participants. More than that, very few participants reported having pursued either goal while reading the target's behaviors. In the Fitzsimons and Bargh (2003) research, participants in the field experiment at a major international airport, who were approached to participate while waiting for their flight to depart, largely did not believe the experimenter's explanation that they had been induced to volunteer to help the experimenter (or not) by first answering some questions about their friend (vs. coworker). People's personal theories about what causes them to do things just do not include the idea (and thus allow for the possibility) of unconscious motivations or causes (Wilson & Brekke, 1994).

Perhaps stronger evidence as to the unconscious operation of goals is furnished by Experiment 2 of Bargh et al. (2001), in which people were either primed (or not) to cooperate with their opponent in a negotiation task, or were told explicitly (or not) by the experimenter to cooperate. These two factors were crossed in the design of the study, in order to compare the conscious versus unconscious operation of the same goal. As in the other goal-priming studies, those who were primed to cooperate did so more than did nonprimed participants. Also, not surprisingly, those who were explicitly (consciously) told to cooperate did so more than those who were not. After the experimental task had been completed, all participants were then asked to rate how much they had tried to cooperate while performing the negotiation task with their opponent.

For each participant, then, we could compare these ratings of how much they had consciously tried to cooperate with their actual cooperative behavior during the negotiation (measured in terms of the

relative numbers of cooperative moves they had made during the task). For those in the explicit, conscious cooperation condition, these ratings correlated significantly with actual behavior: Those who had reported having tried harder to cooperate actually had cooperated more than other participants. In other words, self-reports accurately reflected the actual behavior. But for those in the unconscious (primed) cooperation condition, self-reports of how much they had tried to cooperate did not correspond at all (correlations near zero) with how much cooperation actually occurred. This is our strongest evidence to date that, for automatically activated goals, people are not consciously aware of the operation of these goals, even while they are successfully pursuing them.

Similarities of Unconscious to Conscious Goal Pursuits

Thus far, the evidence shows that unconscious goal pursuit produces the same effects (in terms of goal attainment) on thought, memory, and behavior as are known for conscious goal pursuit. Whether the goal has to do with how incoming social information is to be processed, how well an intellectual task is to be performed, or how one is to interact with another person, significant performance differences emerge between groups primed to unconsciously pursue different goals, just as they did in previous studies between groups explicitly told (or not) to pursue such goals. As Bargh and Chartrand (1999) noted, exactly how a given goal is put into play (i.e., consciously or unconsciously) does not seem to matter with respect to goal attainment. Regardless of how it became activated, the active goal operates on the available information that is relevant to its purposes, and guides thought and behavior toward the desired end state.

Thus, on outcome measures (i.e., how well the person attains the goal), the findings to date show high similarity between conscious and unconscious goal pursuit. However, the classic literature on conscious goal pursuit has also documented various content-free features of conscious goal pursuit; thus, one wonders whether unconscious goal pursuits also carry these features.

Consequences of Goal Attainment

Whenever goals are attained, people are said to experience positive self-evaluative consequences (e.g., succeeding on a given goal leads to feelings of pride, expecting to be praised by others; Atkinson, 1957; Heckhausen, 1977) that should put them in a positive mood. Moreover, succeeding on a given goal is said to lead to striving for more challenging goals (i.e., proactive goal striving; Bandura, 1997). To test whether the similarity of conscious and unconscious goal operation extends to these aftereffects of goal attainment, Chartrand (1999; Chartrand & Bargh, 2002) conducted several studies in which participants were induced to unconsciously pursue a goal (via a priming manipulation), which they then succeeded on or failed to meet. In one experiment, for example, a high-achievement goal was primed or not, and then all participants were given a set of anagrams to solve. Critically, the anagrams were either very easy to solve or impossible to solve. In this way, Chartrand manipulated whether participants succeeded or failed at their unconscious goal to perform well. Following the anagram task, participants completed either a mood measure or a test of verbal ability. The mood measure was intended to tap the predicted emotional consequences of a positive self-evaluation following goal attainment; the verbal ability test was intended to tap the predicted proactive goal striving.

The results confirmed that unconscious goal pursuit is characterized by the same goal attainment effects as have been found for conscious goal pursuit. Take first the findings in the no-goal condition, in which no high-achievement goal had been primed; whether the anagram task was easy or difficult made no difference to mood or performance on the verbal ability test. This was expected, because participants in the no-goal condition had no high-achievement goal activated on which they could succeed or fail.

For participants in the unconscious high-achievement goal condition, however, their moods and subsequent task performance were markedly affected by whether they had just completed the easy versus difficult anagram task. On the mood measure, those in the easy anagram condition were significantly happier than were participants who

had just worked on the difficult anagrams; and the easy anagram participants also outperformed the difficult anagram participants on the subsequent verbal ability test. Because the high-achievement goal was unconscious, and operating without the participant's awareness, these findings indicate that one's mood and also subsequent pursuit of relevant, more challenging goals can be affected by whether one succeeds or fails at a goal one does not even know one has. Chartrand's findings therefore suggest that unconscious goal striving leads to goal attainment consequences (positive self-evaluations; proactive goal striving) similar to those of conscious goal pursuit.

Goal Projection

It has always been assumed that people project not only their traits but also their goals onto others. Holmes (1978) referred to more than just traits when he defined "projection" as a "process by which persons attribute personality traits, characteristics, or motivations to other persons as a function of their own personality traits, characteristics, or motivations" (p. 677). He even suggested that projection should be more easily observed with motivational impulses than with traits (Holmes, 1968). Accordingly, we recently tested whether the projection effects postulated for explicit goals also hold true for implicit goals (Kawada, Oettingen, Gollwitzer, & Bargh, 2004).

In one study, the experimenter explicitly assigned the goal to compete to some participants (i.e., explicit goal condition) and then asked them to rate the competitive orientation of a presumed partner participant, with whom they expected to play a Prisoner's Dilemma game. In the implicit goal condition, the goal to compete was activated using a scrambled sentence technique that exposed participants to words such as "compete," "win," and "succeed." Compared to control participants, who entered the presumed Prisoner's Dilemma game without any assigned or activated competition goal, both implicit and explicit competition participants expected the presumed partner to act more competitively throughout the game. These results indicate that goal projection occurs regardless of whether the goal is unconscious or consciously held.

In a follow-up experiment, the goal to compete was implicitly activated by subliminally presenting competition-related words; in the explicit goal condition, participants were again asked to take a competitive stand in the upcoming Prisoner's Dilemma game. Moreover, the experimenters weakened the goal to compete by allowing some participants to meet this goal in an alternative competition task (Wicklund & Gollwitzer, 1982), prior to performing the Prisoner's Dilemma game. First, we could replicate the goal projection effect (as compared to a no-goal control group) with implicit and explicit competition goal participants whose goals had not been weakened. Second, however, when the goal to compete had been weakened, goal projection effects were no longer observed in both the implicit and the explicit goal condition. This finding supports the claim that it was indeed the participants' goal to compete that was being projected onto others, and not just the trait concept of competitiveness. Moreover, it demonstrates that implicitly activated (primed) goals and explicitly assigned goals are both readily projected onto others, and that both seem to have the property of losing strength after having been served successfully.

Motivational Qualities: Sustained Goal Activation, Persistence, and Resumption

Since the time of Kurt Lewin, motivational states and processes have classically been distinguished by features and qualities different from those of nonmotivational, purely cognitive processes. These qualities include behavioral features, such as persisting in attempting to reach the goal when facing difficulties and returning to the goal activity after being disrupted, as opposed to giving up at the first obstacle or walking away from the interrupted activity (Lewin, 1935). Atkinson and Birch (1970) identified a further signature of motivational states: the tendency to stay activated or even increase in activation strength over time, until the desired outcome is reached or one has gone through an active, effortful process of disengagement from wanting to attain it. Cognitive (nonmotivational) representations, in contrast, tend to decrease quickly in activation strength over time since last use (e.g., Higgins et al., 1985).

Because much of the research that has tested and supported the auto-motive model has relied on the same priming techniques and manipulations as those previously used to study unconscious social perception and cognition (Bargh, 1989; Bargh & Chartrand, 2000), the following question arises: Could the same perceptual, nonmotivational social representations (e.g., trait concepts) that had been primed in those previous studies be responsible for the so-called "motivational effects" described earlier? Why should the same or very similar priming manipulations be said to produce perceptual or nonmotivational effects in some studies, but motivational effects in others?

This is an important and complex question for which we do not yet have a complete answer, but some additional findings shed light on what that answer might eventually be. At present, it appears that the same priming manipulation can activate qualitatively different concepts or processes at the same time (Bargh, 1997). Thus, stimuli related to the concept of achievement activate or prime the perceptual construct of achievement, the category used to identify achievement behavior in someone else, as well as the motivational or goal representation of achievement, which is used to energize and guide our own strivings for high performance on a task.

The best evidence to date for this proposition comes from Study 3 by Bargh et al. (2001), in which participants were first primed (or not) with achievement-related stimuli. Next, there was either a 5-minute delay before the participant worked on the next task, or he or she worked on it right away, with no interpolated delay. The final factor in the design was the type of task participants worked on: They either read a story about a target person who behaved in a somewhat ambiguous achievement-oriented manner (the social perception task), or they worked on a verbal task, in which they tried to find as many different words as they could in a set of Scrabble letter tiles (the performance task). Note that the achievement-priming manipulation was the same for all participants in that condition, whether they subsequently worked on the social judgment or the verbal performance task.

The expected priming effects were obtained on both tasks in the no-delay condi-

tion, with those primed with achievement-related stimuli either judging the target person as more achievement-oriented (in the judgment task condition), or finding significantly more words (in the verbal performance task condition), than did the non-primed participants. However, as predicted, the time delay differentially impacted the priming effect on the perceptual versus the motivational task. On the perceptual task, the significant priming observed under no-delay condition disappeared after the 5-minute delay; this is consistent with previous studies of the time course of priming effects on social-perceptual tasks (Higgins et al., 1985). But on the motivational word-search task, the priming effect actually increased significantly in strength over the 5-minute delay. This is what would be expected, following Atkinson and Birch's (1970) dynamic theory of action, if a motivational state were driving the verbal task performance.

These findings help to establish that our goal-priming manipulations are indeed activating a motivational state, as opposed to the same perceptual and nonmotivational constructs as in prior research. Other recent experiments provide additional supportive evidence. In another experiment by Bargh et al. (2001, Study 4), participants' goal of achievement or high performance was primed (or not), and they then worked on the same Scrabble word-search task. The experimenter told participants that she had to see to another study in a different room but would give them the signal to stop working on the task over an intercom when the time came. Unknown to the participants, a hidden video camera recorded their behavior when and after the stop signal had been given. The dependent variable was whether the participant would keep working on the word-search task, trying for even higher scores, after the experimenter gave the stop signal, or whether they would stop working when faced with this obstacle to better performance. The results were clear: Over 50% of the participants in the achievement-primed condition continued to search for words after the stop signal had been given, compared to just over 20% of the nonprimed participants.

Thus, when one places an obstacle in the way of an unconsciously motivated person, a hindrance to attaining the goal (in this

case) of the highest possible score on the task, the person will act to remove or bypass that obstacle if at all possible. Experimental participants for whom this unconscious goal is not operating show much less of a tendency to keep working on the task; for them, it is just an experiment, and not a very involving task at that. It is the activation and operation of the unconscious high-achievement goal in this experiment that makes participants care enough about their performance to persistently strive for an ever-higher score, even though they have to do so secretly and surreptitiously (they believe) after the stop signal has been given.

We have also tested goal-primed participants' motivational tendency to resume an interrupted goal, even in the face of more attractive behavioral options. In this study (Bargh et al., 2001, Study 5), participants were told that they would complete two different tasks. Participants were first primed (or not) to activate the achievement goal, and then all participants worked on a word-search task. Halfway through that task, a staged power outage forced everyone to stop work. After a 5-minute delay, the power was restored, but now (as the experimenter informed participants) there was no longer enough time during the session for them to complete both of the tasks. They were given the option of going back to the first task, or moving on to the second task, in which they would rate each of a series of cartoons as to how funny they were. Pretesting had shown that this cartoon-rating task was greatly preferred over the word-search task.

The dependent variable was the percentages of participants in the goal-primed versus not-primed conditions who went back and completed the word-search task, forgoing the opportunity to view and rate the cartoons. As would be expected if our goal-priming manipulation had produced a strong motivational state, significantly more participants in the goal-primed condition (66%) returned to the incomplete first task, compared to 35% of the no-goal participants.

Summary of Goal Priming Research

Our research has demonstrated, first, that goals can be triggered without an act of will or conscious choice on the part of the indi-

vidual, simply by the presence of relevant situational cues. Moreover, once activated, the goal continues to operate in an unconscious fashion, with people unable to report or recognize immediately afterward that they have just pursued that goal, even though they have given every indication (on our dependent measures) of having done so. On several different types of commonly held goals—achievement, cooperation, impression formation, and memorization, the unconscious operation of the goal produced the same effects that others have observed when that goal is pursued with full conscious awareness and intent. These effects are not restricted to the outcome of the goal pursuit, but extend to content-free characteristics, such as self-evaluation, proactive goal striving, projection, sustained goal activation, persistence, and resumption. It appears, then, that successful goal pursuit does not require consciously held goals and conscious instigation and monitoring of respective goal striving. Rather, goals can be pursued and attained regardless of their status in consciousness.

STRATEGIC AUTOMATION OF GOAL PURSUIT: IMPLEMENTATION INTENTIONS

Classic theories of motivation (e.g., Atkinson, 1957, Fishbein & Ajzen, 1975; Heckhausen, 1977, McClelland, 1985; see reviews by Gollwitzer, 1990; Gollwitzer & Moskowitz, 1996; Oettingen & Gollwitzer, 2001) see the implementation of consciously set goals in direct relation to the strength of the goal, which in turn is a product of expected utility (desirability) of goal attainment and the likelihood that the goal can be attained (feasibility). However, even though (self-set or assigned) goals to do more good and less bad have been found to be reliably associated with actual efforts in the intended directions (Ajzen, 1991; Godin & Kok, 1996; Sheeran, 2002), these intention-behavior relations are modest. This is largely due to the fact that people, despite having formed strong intentions on the basis of high desirability and feasibility beliefs, fail to act on them (i.e., people are inclined but still abstain; Orbell & Sheeran, 1998).

The gap between intentions and behavior is largely due to the fact that the successful translation of goals (intention) into respective behaviors requires solving numerous problems of self-regulation, many of them having to do with being burdened by thoughts, feelings, and actions that are irrelevant to the goal pursuit at hand (Gollwitzer, 1996). In order to meet their goals, people often have to seize quickly viable opportunities to initiate relevant actions, a task that becomes particularly difficult when attention is directed elsewhere (e.g., when one is absorbed by competing goal pursuits, wrapped up in ruminations, gripped by intense emotional experiences, or simply tired). But even if the person has successfully started to act on a set goal, the ongoing goal pursuit needs to be shielded from getting derailed by negative influences from outside (e.g., temptations, distractions) and inside (e.g., self-doubts).

With all of these problems of goal pursuit, automatic control of goal-directed action should come in handy, because established routines linked to a relevant context would release the critical goal-directed behavior immediately, efficiently, and without a conscious intent. Often, however, such routines are not established, and the goal-directed behavior is not yet part of an everyday routine. Research on implementation intentions (Gollwitzer, 1993, 1999) suggests that—as a substitute—ad hoc automatic action control can be achieved by forming implementation intentions that take the format, "If Situation X is encountered, then I will perform Behavior Y!" In an implementation intention, a mental link is created between an anticipated future situational cue and an intended instrumental goal-directed response.

Implementation intentions need to be distinguished from goals or goal intentions. Goal intentions have the format ("I intend to reach Z!"), whereby Z may relate to a certain outcome or behavior to which the individual feels committed. Both goal intentions and implementation intentions are acts of willing, wherein the first specifies an intention to meet a goal, and the second refers to an intention to perform a plan. Commonly, implementation intentions are formed in the service of goal intentions, because they specify the when, where, and how of goal-directed responses. For instance, a

possible implementation intention in the service of meeting the health goal of eating vegetarian food would link a suitable situational cue (e.g., one's order is taken at a restaurant) to an appropriate goal-directed behavior (e.g., asking for a vegetarian meal).

The mental if-then links created by implementation intentions are expected to facilitate goal attainment on the basis of various psychological processes that relate to both the anticipated situation and the linked behavior (Gollwitzer, 1999). Because forming implementation intentions implies the selection of a critical future internal or external cue (i.e., a viable opportunity), it is assumed that the mental representation of this situation becomes highly activated, hence more accessible. This heightened accessibility should make it easier to detect the critical situation in the surrounding environment and to attend readily to it even when one is busy with other things. Moreover, once the critical cue is encountered, the response specified in the then part of the implementation intention should be triggered in an automatic fashion that is immediate, efficient, and without necessitating a conscious intent. In summary, the formation of implementation intentions is a strategy of regulating goal pursuit that switches conscious control of goal-directed action to automatic control.

Research on action control via implementation intentions to date has focused on the following three questions: Are implementation intentions of help in overcoming the various problems of goal pursuit? Do implementation intentions indeed allow for the automatic control of goal-directed action? And what kind of price do people pay when self-regulating their goal pursuits by forming if-then plans?

Implementation Intentions Help Overcome Classic Problems of Conscious Goal Pursuit

The conscious self-regulation of goal pursuit often runs aground. This is true, whether the problems at hand are related to getting started, staying on track in the face of internal or external disturbances, keeping up motivation in the face of difficulties, or switching from ineffective to more effective means. However, research on the effects of forming

implementation intentions on translating goal intentions into behavior shows that all of these problems benefit from the strategic automation of goal pursuit provided by implementation intentions.

Getting Started

This problem of goal pursuit embraces three different issues, each of which militates against effectively getting started on one's goals. The first has to do with remembering one's goal intention (Einstein & McDaniel, 1996). When acting on a given goal is not part of one's routine, or when one has to postpone acting on it until a suitable opportunity presents itself, one can easily forget to do so. Dealing with many things at once, or becoming preoccupied by a particular task, can make this even more likely, especially when the given goal is new or unfamiliar. Empirical support of this reason for the intention-behavior gap comes from retrospective reports by inclined abstainers. For example, 70% of participants who had intended to perform a breast self-examination but failed to do so offered forgetting as their reason for nonperformance (Milne, Orbell, & Sheeran, 2002; Orbell, Hodgkins, & Sheeran, 1997). Also, meta-analysis has shown that the longer the time interval between measures of goal intentions and goal achievement, the less likely it is that intentions are realized (Sheeran & Orbell, 1998). These findings suggest that remembering one's goal intentions does not come easy to people.

But even if one remembers what one is supposed to do, there is another problem that may need to be resolved, namely, seizing the opportunity to act. This problem is likely to be especially acute when there is a deadline for performing the behavior, or when the opportunity to act is presented only briefly. In these circumstances, people may fail to initiate goal-directed responses because they fail to notice that a good time to get started has arrived, they are unsure how they should act when the moment presents itself, or they simply procrastinate. Oettingen, Hönig, and Gollwitzer (2000, Study 3) showed that considerable slippage can occur even when people have formed strong goal intentions to perform a behavior at a particular time. Participants were pro-

vided with diskettes containing four concentration tasks and formed goal intentions to perform these tasks on their computers at a particular time each Wednesday morning for the next 4 weeks. The program on the diskette recorded the time that participants started to work on the task from the clock on participants' computers. Findings indicated that the mean deviation from the intended start time was 8 hours, that is, a discrepancy of 2 hours on average for each specified opportunity. Similar findings were obtained by Dholakia and Bagozzi (2003, Study 2) when participants' task was to evaluate a website that could be accessed only during a short time window. Here, only 37% of participants who formed a respective goal intention were successful at accomplishing the task. In summary, people may not get started with goal pursuit, because they fail to seize good opportunities to act.

There are also many instances in which people remember their goal intentions (e.g., to order a low-fat meal) and recognize that an opportune moment is upon them (e.g., it is lunchtime at one's usual restaurant) but nonetheless fail to initiate goal-directed behaviors, because they start to reflect anew on the desirability of the goal intention (i.e., start to have second thoughts). This problem has to do with overcoming an initial reluctance to act that is likely to arise when people have decided to pursue a goal that involves a trade-off between attractive long-term consequences versus less attractive short-term consequences (Mischel, 1996). For example, a strong goal intention to order low-fat meals is commonly formed on the basis of long-term deliberative thinking, according to which eating low-fat food is perceived as highly desirable; however, once the critical situation is confronted, short-term desirability considerations are triggered that occupy cognitive resources at the moment of action (e.g., the low-fat meal is perceived as tasteless at the critical juncture). Such dilemmas between the head and the heart should thus also get in the way of readily acting on the respective goal in the face of good opportunities (Loewenstein, Weber, Hsee, & Welch, 2001; Metcalfe & Mischel, 1999; Trafimow & Sheeran, in press).

So the question arises: Does forming implementation intentions that plan out in ad-

vance when, where, and how one wants to move toward goal attainment ameliorate the problems of action initiation spelled out earlier. Various studies on the effects of implementation intentions on the rate of goal attainment suggest a positive answer to this question given the type of goals that have been found to benefit from forming implementation intentions. For instance, Gollwitzer and Brandstätter (1997) analyzed a goal intention (i.e., writing a report about how one spent Christmas Eve) that had to be performed at a time (i.e., during the subsequent Christmas holiday) when people were commonly busy with other things. Similarly, Oettingen et al. (2000, Study 3) observed that implementation intentions help people to act on their task goals (i.e., taking a concentration test) on time (e.g., at 10 A.M. in the morning of every Wednesday over the next 4 weeks). Other studies have examined the effects of implementation intentions on goal attainment rates with goal intentions that are somewhat unpleasant to perform. For instance, the goal intentions to perform regular breast examinations (Orbell et al., 1997), cervical cancer screenings (Sheeran & Orbell, 2000), resumption of functional activity after joint replacement surgery (Orbell & Sheeran, 2000), and engaging in physical exercise (Milne et al., 2002), were all more frequently acted on when people had furnished these goals with implementation intentions. Moreover, implementation intentions were found to facilitate the attainment of goal intentions when it is easy to forget to act on them (e.g., regular intake of vitamin pills, Sheeran & Orbell, 1999; the signing of work sheets with the elderly, Chasteen, Park, & Schwarz, 2001).

The results of these studies suggest that implementation intentions indeed facilitate the initiation of goal-directed behaviors by simplifying this process (i.e., making it less effortful). This conclusion is also supported by the finding that the beneficial effects of implementation intentions are commonly more apparent with difficult-to-implement goals compared to easy goals. For instance, implementation intentions were more effective in helping people to complete difficult, compared to easy, personal projects during Christmas break (Gollwitzer & Brandstätter, 1997, Study 1). And forming implementation intentions was more beneficial to fron-

tal lobe patients, who typically have severe problems with executive control, than to college students (Lengfelder & Gollwitzer, 2001, Study 2).

Staying on Track

Many goals cannot be accomplished by simple, discrete, one-shot actions but require continuous striving and repeated complex behavioral performances to be attained. Once a person has initiated these more complex goal pursuits, bringing them to a successful ending may be very difficult when certain internal (e.g., being anxious, tired, overburdened) or external stimuli (e.g., temptations, distractions) are not conducive to goal realization but instead generate interferences that could potentially derail the ongoing goal pursuit. Thus, one wonders whether implementation intentions can facilitate the shielding of such goal pursuits from the negative influences of interferences from inside and outside the person.

There are two major strategies in which implementation intentions can be used to shield an ongoing goal pursuit: (1) directing one's implementation intentions toward the suppression of negative influences, and (2) directing one's implementation intentions toward spelling out the ongoing goal pursuit, so that it becomes sheltered from these negative influences. For example, in the realm of social competence: If a person wants to avoid being unfriendly to a friend who is known to make outrageous requests, she can protect herself from showing the unwanted unfriendly response by forming suppression-oriented implementation intentions. Suppression-oriented implementation intentions can take different formats. The person may focus on reducing the intensity of the unwanted response by intending not to show the unwanted response: "And if my friend approaches me with an outrageous request, then I will not respond in an unfriendly manner!" But the person may also try to reduce the intensity of the unwanted response by specifying the initiation of the respective antagonistic response: "And if my friend approaches me with an outrageous request, then I will respond in a friendly manner!" Finally, suppression-oriented implementation intentions may even focus a person away from the

critical stimulus: "And if my friend approaches me with an outrageous request, then I'll ignore it!"

Two sets of experiments analyzed the effects of suppression-oriented implementation intentions. The first looked at the control of unwanted spontaneous attention to tempting distractions (Gollwitzer & Schaal, 1998). Participants had to perform a boring task (i.e., a series of simple arithmetic tasks) while being bombarded with attractive distracting stimuli (e.g., video clips of award-winning commercials). Whereas control participants were asked to form a mere goal intention ("I will not let myself get distracted!"), experimental participants in addition formed one of two implementation intentions: "And if a distraction arises, then I'll ignore it!" or "And if a distraction arises, then I will increase my effort at the task at hand!" The ignore implementation intention always helped participants to ward off the distractions (as assessed by their task performance), regardless of whether the motivation to perform the tedious task (assessed at the beginning of the task) was low or high. The effort-increase implementation intention, in contrast, was effective only when motivation to perform the tedious task was low. Apparently, when motivation is high to begin with, effort-increase implementation intentions may create overmotivation that hampers task performance. It seems appropriate therefore to advise motivated individuals who suffer from being distracted (e.g., ambitious students doing their homework) to resort to ignore implementation intentions rather than to implementation intentions that focus on the strengthening of effort.

The second set of experiments analyzing suppression-oriented implementation intentions studied the control of the automatic activation of stereotypical beliefs and prejudicial evaluations (Gollwitzer & Schaal, 1998). In various priming studies, with short stimulus-onset asynchronies of less than 300 ms between primes (presentations of members of stigmatized groups) and targets (adjectives describing relevant stereotypical attributes or neutral positive-negative adjectives), implementation intentions helped to inhibit both the automatic activation of stereotypical beliefs and the prejudicial evaluations relative to women, the elderly, and the

homeless. These implementation intentions (i.e., if-then plans) specified being confronted with a member of the critical group in the if part, and either "Then I won't stereotype" (respectively, "Then I won't evaluate negatively") or "Then I will ignore the group membership" in the then part. Regardless of which then parts were used, both types of suppression-oriented implementation intentions were effective.

The research presented in the preceding two paragraphs used implementation intentions that specified a potential interference in the if part. The specified interference was linked to a then part that described an attempt at suppressing the unwanted negative influence of this interference on one's goal pursuit. Self-regulation by this type of implementation intention implies that one has to be in a position to anticipate these potential interferences on the way to the goal; one even needs to know what kind of unwanted responses these interferences elicit, if one prefers to specify not showing this response in the then part of the implementation intention (rather than showing a goal-directed response or simply ignoring the interfering event). Fortunately, a simpler way to use implementation intentions to protect an ongoing goal pursuit from getting derailed is also available. Instead of gearing one's implementation intentions toward anticipated potential interferences and the disruptive responses they trigger, one may form implementation intentions geared at stabilizing the ongoing goal pursuit at hand. We again use the example of a tired person who is approached by her friend with an outrageous request, and who will likely respond in an unfriendly manner: If this person has stipulated in advance in an implementation intention what she will converse about with her friend, the critical interaction may simply run off as planned, and being tired should thus fail to affect the person's relating to her friend. As is evident from this example, the present self-regulatory strategy should be of special value whenever the influence of detrimental self-states (e.g., being tired, irritated, anxious) on derailing one's goal-directed behavior has to be controlled. This should be true whether or not such self-states and/or their negative influences on one's goal-directed behavior reside in consciousness.

Gollwitzer and Bayer (2000; Gollwitzer, Bayer, & McCulloch, 2005) tested this hypothesis in a series of experiments in which participants were asked (or not) to make if-then plans regarding the implementation of an assigned task goal. Prior to beginning work on the task, participants' self-states were manipulated, so that the task at hand became more difficult (e.g., a state of self-definitional incompleteness prior to a task that required perspective taking; Gollwitzer & Wicklund, 1985; a good mood prior to a task that required evaluation of others nonstereotypically; Bless & Fiedler, 1995; and a state of ego-depletion prior to solving difficult anagrams; Baumeister, 2000; Muraven, Tice, & Baumeister, 1998). The induced critical self-states negatively affected task performance only for those participants who had not planned out in advance how they wanted to perform the task at hand (i.e., had only set themselves the goal to come up with a great performance). Implementation intention participants were effectively protected from the negative influences associated with the induced detrimental self-states.

This research provides a new perspective on the psychology of self-regulation. Commonly, effective self-regulation (Baumeister, Heatherton, & Tice, 1994) is understood in terms of strengthening the self, so that the self can meet the challenge of being a powerful executive agent. Therefore, most research on goal-directed self-regulation focuses on strengthening the self in such a way that threats and irritations become less likely, or on restoring an already threatened or irritated self. All of these maneuvers are targeted in the end on changing the self, so that the self becomes a better executive. Instead, the findings of Gollwitzer and Bayer (2000) suggest a perspective on goal-directed self-regulation that gets around changing the self by facilitating action control via linking it to situational cues.

People's goal pursuits, however, are threatened not only by detrimental self-states but also by adverse situational conditions. Many situations have negative effects on goal attainment, unbeknownst to the person who is striving for the goal. A prime example is the social loafing phenomenon, in which people show reduced effort in the face of work settings that produce a reduction of account-

ability (i.e., performance outcomes can no longer be checked at an individual level). Because people are commonly not aware of this phenomenon, they cannot form implementation intentions that specify a social loafing situation as a critical situation, thereby rendering an implementation intention that focuses on suppressing the social loafing response as an unviable self-regulatory strategy. As an alternative, people may again resort to forming implementation intentions that stipulate how the intended task is to be performed, thus effectively blocking any negative situational influences.

Supporting this contention, when Endress (2001) performed a social loafing experiment that used a brainstorming task (i.e., participants had to find as many different uses for a common knife as possible), she observed that implementation intentions ("And if I have found one solution, then I will immediately try to find a different solution!"), but not goal intentions ("I will try to find as many different solutions as possible!"), protected participants from social loafing effects. Findings reported by Trötschel and Gollwitzer (2004) also support the notion that goal pursuits planned by forming implementation intentions become invulnerable to adverse situational influences. In their experiments on the self-regulation of negotiation behavior, loss-framed negotiation settings failed to unfold their negative effects on fair and cooperative negotiation outcomes when the negotiators had in advance planned out their goal intentions to be fair and cooperative, with if-then plans. Finally, in further experiments, Gollwitzer (1998) observed that competing goal intentions activated outside of a person's awareness (by using goal-priming procedures described in the first part of this chapter) failed to affect a person's ongoing goal pursuit, if this goal pursuit was planned out in advance via implementation intentions.

It appears, then, that the self-regulatory strategy of planning out goal pursuits in advance via implementation intentions allows the person to reap the desired positive outcomes, without having to change the environment from an adverse to a facilitative one. This is very convenient, because such environmental change is often very cumbersome (e.g., it takes the costly interventions

of mediators to change the loss frames adopted by conflicting parties into gain frames), or not under the person's control. Moreover, people are often not aware of the adverse influences of the current environment (e.g., a deindividuated work setting or a loss-framed negotiation setting), or they do not know what alternative kind of environmental setting is actually facilitative (e.g., an individualized work setting or a gain-framed negotiation setting). In such performance situations, the self-regulatory strategy of specifying critical situations in the if part of an implementation intention and linking them to a coping response in the then part does not qualify as a viable alternative self-regulatory strategy. Rather, people need to resort to the strategy of planning out their goal pursuits in advance via implementation intentions, thereby protecting them from adverse situational influences.

Motivation Control

Ideally, people set themselves goals in line with their beliefs that the goal can actually be attained (i.e., goal strength reflects perceived feasibility; Oettingen, 2000; Oettingen, Pak, & Schnetter, 2001). Such beliefs may take the form of high-outcome expectations or more specific high self-efficacy expectations (i.e., beliefs that one possesses what it takes to reach the goal; Bandura, 1997). In any case, a person who has decided to strive for a certain goal on the basis of high expectations should be highly motivated to strive for the chosen goal. Still, one wonders what happens when people run into difficulties in trying to implement the goal. Will they simply adjust their outcome expectations and self-efficacy beliefs downwards, thus losing motivation to strive for the goal? As Kuhl (1984) has pointed out, people can and do push back by keeping up their motivation to pursue the goal at hand (i.e., they engage in motivation control).

Because overcoming the self-doubts originating from difficulties and failures is a rather complex affair for which some people may be better equipped than others (Dweck, 1999; Elliot & Thrash, 2002), Gollwitzer and Bayer (2004) wondered whether the self-regulatory strategy of forming implementation intentions could be used to facilitate such motivation control. In a first ex-

periment, high school students were asked to perform a very challenging math test composed of 10 individual problems. In the mere goal intention condition, the students had to take the test with the assigned goal of excelling on it (i.e., correctly solve a very large number of problems). In the implementation intention condition, participants had to furnish this goal intention with the following if-then plan: "And as soon as I start to work on a new problem, then I tell myself: I can do it!" Even though the mean number of problems solved was very low in the whole sample (i.e., 3.5 problems), implementation intention participants solved significantly more problems (4.3 problems) than mere goal intention participants (2.8 problems). Apparently, the simple plan of assuring themselves of their high self-efficacy when taking on a new, individual problem helped participants to perform well.

In a follow-up experiment, we asked college students to solve a series of Raven Matrices that became increasingly more difficult. We again established a mere goal intention group (i.e., correctly solve a very large number of matrices) and an implementation intention group (i.e., "As soon as I start working on a new matrix, I'll tell myself that I can do it"). In addition, there was also a group of goal intention participants who had to tell themselves right after having received the goal intention instruction that they could meet this goal (i.e., "I can do it!"). As it turned out, only the implementation intention group achieved a superior performance on the test. This finding suggests that again, implementation intentions allow for effective motivation control, and that this is achieved by linking self-assuring statements to distinct critical cues.

Switching to More Effective Means

There is a further self-regulatory problem with successfully moving toward goal attainment: switching to better means when the chosen means turn out to be unproductive (Carver & Scheier, 1999; Gollwitzer, 1990). People often fail readily to disengage from a chosen failing strategy or means because of a strong self-justification motive (Brockner, 1992). Such escalation effects should be reduced effectively, however, by the use of implementation intentions that specify exactly

when to switch to a different strategy or means, because action control is then delegated to this specified cue. The self-regulatory strategy of simply setting goals (e.g., to avoid the escalation of commitment by always pursuing the best strategy) should be comparatively less effective, because it demands effortful deliberation of the instrumentality of the chosen strategy or means *in situ* (i.e., when failure experiences are mounting), which—to make things worse—will likely be biased by self-defensiveness.

Henderson, Gollwitzer, and Oettingen (2004, Study 1) tested the hypothesis that furnishing disengagement goals with implementation intentions should help people to relinquish a failing strategy of goal pursuit more effectively. For this purpose, a classic paradigm was used that creates a strong escalation tendency (Bobocel & Meyer, 1994): Participants had to choose and subsequently justify their choice among four different strategies of performing an assigned test measuring an important aptitude (i.e., general academic knowledge). Prior to working on the test with the chosen strategy, participants in the mere goal intention condition repeated the statement, "I will always pursue the best strategy!" Participants in the implementation intention condition repeated this goal intention to themselves, along with the plan, "And if I receive disappointing feedback, then I'll switch to a different strategy!" In line with our expectations that implementation intentions facilitate switching to a different strategy, 19 out of 29 participants (66%) in the goal intention group, and 27 out of 29 participants (93%) in the implementation intention group, disengaged from their initial strategy when false failure feedback was given on participants' quality of test performance.

The Psychological Mechanisms Underlying Implementation Intention Effects

It is assumed (Gollwitzer, 1993) that implementation intentions manage to switch the conscious and effortful mode of the control of goal-directed action to the automatic mode of action control (i.e., direct control by specified internal or external cues). To empirically test such a shift, it does not suffice to show that many of the problems of

goal pursuit that are difficult to master by conscious and effortful self-regulation are more easily mastered by forming implementation intentions (as has been extensively demonstrated in the studies reported earlier). One would also like to see experiments that more directly assess whether the action control achieved by implementation intentions does indeed carry features of automaticity: immediate, efficient, and not requiring conscious intent.

*Implementation Intentions:
The Specified Situation*

Swift and efficient responding to the critical situation specified in the if part of an implementation intention implies that this situation is readily attended to and easily detected (Gollwitzer, Bayer, Steller, & Bargh, 2002). One study, using a dichotic-listening paradigm, demonstrated that words describing the anticipated critical situation were highly disruptive to focused attention in implementation intention participants compared to goal intention participants (i.e., the shadowing performance of the focused attention materials decreased). In another study using an embedded figures test (Gottschaldt, 1926), where smaller a-figures are hidden within larger b-figures, enhanced detection of the hidden a-figures was observed with participants who had specified the a-figure in the if part of an implementation intention (i.e., had made plans on how to create a traffic sign from the a-figure). Similarly, Aarts, Dijksterhuis, and Midden (1999) used a lexical decision task and found that the formation of implementation intentions led to subjects' faster lexical decisions for those words that described the critical situation.

*Implementation Intentions:
The Specified Goal-Directed Behavior*

The postulated automation of action initiation has also been supported by the results of various experiments that tested immediacy, efficiency, and the presence-absence of conscious intent. Gollwitzer and Brandstätter (1997, Study 3) demonstrated the immediacy of action initiation in a study in which participants had been induced to form implementation intentions that speci-

fied viable opportunities for presenting counterarguments to a series of racist remarks made by a confederate. Participants with implementation intentions initiated counterarguments sooner than did participants who had formed the mere goal intention to counterargue.

The efficiency of action initiation was further explored in two experiments using a go-no-go task embedded as a secondary task in a dual-task paradigm (Brandstätter, Lengfelder, & Gollwitzer, 2001, Studies 3 and 4). Participants formed the goal intention to press a button as fast as possible if numbers appeared on the computer screen, but not if letters were presented. Participants in the implementation intention condition additionally made the plan to press the response button particularly fast if the number three was presented. Implementation intention participants showed a substantial increase in speed of responding to the number three compared to the control group, regardless of whether the simultaneously demanded primary task (a memorization task in Study 3 and a tracking task in Study 4) was either easy or difficult to perform. Apparently, the immediacy of responding induced by implementation intentions is also efficient, in the sense that it does not require much in the way of cognitive resources (i.e., can be performed even when demanding dual tasks have to be performed at the same time).

Two experiments by Bayer, Moskowitz, and Gollwitzer (2002) tested whether implementation intentions lead to action initiation even in the absence of conscious intent. In these experiments, the critical situation was presented subliminally, and immediacy of initiation of the goal-directed response was assessed. Results indicated that subliminal presentation of the critical situation led to a speed-up in responding in implementation participants but not in goal intention participants. These effects suggest that, when planned via implementation intentions, the initiation of goal-directed behavior becomes triggered by the presence of the critical situational cue, without the need for further conscious intent.

Additional process mechanisms underlying the effects of implementation intentions on action control have been explored. For instance, furnishing goals with implementa-

tion intentions might produce an increase in goal commitment, which in turn cause heightened goal attainment. However, this hypothesis has not received any empirical support. For instance, when Brandstätter et al. (2001, Study 1) analyzed whether heroin addicts suffering from withdrawal would benefit from forming implementation intentions to submit a newly composed curriculum vitae before the end of the day, they also measured participants' commitment to do so. While the majority of the implementation intention participants succeeded in handing in the curriculum vitae in time, none of the goal intention participants succeeded in this task. These two groups, however, did not differ in terms of their goal commitment ("I feel committed to compose a curriculum vitae" and "I have to complete this task") measured after the goal intention and implementation intention instructions had been administered. This finding was replicated with young adults who participated in a professional development workshop (Oettingen et al., 2000, Study 2), and analogous results were reported in research on the effects of implementation intentions on meeting health promotion and disease prevention goals (e.g., Orbell et al., 1997).

*Potential Costs of Action Control via
Implementation Intentions*

Given the many benefits of forming implementation intentions, a question of any possible costs arises. Two issues have been analyzed empirically so far: First, forming implementation intentions may be a very costly self-regulatory strategy if it produces a high degree of ego depletion and consequently handicaps needed self-regulatory resources. Second, even though implementation intentions can successfully suppress unwanted thoughts, feelings, and actions in a given context, these very thoughts, feelings, and actions may rebound in a temporally subsequent, different context.

The assumption that implementation intentions subject behavior to the direct control of situational cues (Gollwitzer, 1993) implies that the self is not implicated when behavior is controlled via implementation intentions. As a consequence, the self should not become depleted when task performance is regulated by implementation intentions.

Indeed, using different ego-depletion paradigms, research participants who used implementation intentions to self-regulate in one task did not show reduced self-regulatory capacity in a subsequent task. Whether the initial self-regulation task was controlling emotions while watching a humorous movie (Gollwitzer & Bayer, 2000) or performing a Stroop task (Webb & Sheeran, 2003, Study 1), implementation intentions successfully preserved self-regulatory resources, as demonstrated by greater persistence on subsequent difficult or unsolvable tasks.

To test whether suppression-oriented implementation intentions create rebound effects, Gollwitzer, Trötschel, and Sumner (2004) ran two experiments using research paradigms developed by Macrae, Bodenhausen, and Jetten (1994). In both studies, participants first had to suppress the expression of stereotypes in a first-impression formation task that focused on a particular member of a stereotyped group (i.e., homeless people). Rebound was measured in terms of either subsequent expression of stereotypes in a task that demanded the evaluation of the group of homeless people in general (Study 1), or a lexical decision task that assessed the accessibility of homeless stereotypes (Study 2). Participants who had been assigned the mere goal of controlling stereotypical thoughts while forming an impression of the given homeless person were more stereotypical in their judgments of homeless people in general (Study 1) and showed a higher accessibility of homeless stereotypes (Study 2) than participants who had been asked to furnish this lofty goal with relevant if-then plans. Rather than causing rebound effects, implementation intentions appear to be effective in preventing them.

Although implementation intentions seem to achieve their effects without much cost, this does not mean that the regulation of goal pursuit via implementation intentions is foolproof. In everyday life, people may not succeed in forming effective implementation intentions for various reasons. For instance, in the if part of an implementation intention, a person may specify an opportunity that hardly ever arises. Or in the then part of an implementation intention, people may falsely specify behaviors that have zero instrumentality with respect to reaching the

goal, or behaviors that turn out to be outside of people's control.

There is also the question of how concretely people should specify the if and then parts in their implementation intentions. If the goal is to perform well on a given task goal, one can form an implementation intention that holds either this very behavior in the then part or a more concrete operationalization of it. The latter seems appropriate whenever a whole array of specific operationalizations is possible, because planning in advance which type of goal-directed behavior is to be executed, once the situation specified in the if part of the implementation intention is encountered, prevents disruptive deliberation *in situ* (with respect to choosing one behavioral strategy over another). An analogous argument applies to the specification of situations in the if part of an implementation intention. People should specify the situation in the if part to such a degree that a given situation will no longer raise the question of whether it qualifies as the critical situation. Finally, simply concretizing a goal intention by putting more context-related information into the description of the desired behavior (e.g., "I will solve math problems at my desk each Wednesday at 10 P.M.!") will not achieve the same beneficial action control effects as a goal intention ("I will solve math problems!") that is furnished with a implementation intention ("And if it is 10 P.M. on Wednesday, then I will sit down at my desk!"; Oettingen et al., Study 3).

Summary of Research on Automating Goal Pursuit by Forming Implementation Intentions

The benefits of the self-regulation strategy of forming implementation intentions is evident in the numerous studies documenting the effects of implementation intentions in helping people overcome the various problems of goal pursuit. Whether getting started, staying on track in the face of interferences, holding up motivation, or switching to more effective means, research participants who formed implementation intentions were better in solving these problems than research participants who operated on the basis of mere goal intentions. This research also indicates that people may

want to adjust the type of implementation intention formed to the self-regulation problem at hand. For instance, while suppression-oriented implementation intentions are viable when certain distractions, temptations, and unwanted responses are anticipated, plans that bolster the ongoing goal pursuit are needed in situations in which goal pursuit is threatened by detrimental self-states and adverse situational influences of which the individual is not aware.

Research on the potential costs of using implementation intentions indicates that they do not drain self-regulatory resources (i.e., produce ego depletion), and suppression-oriented implementation intentions are not associated with rebound. Thus, forming implementation intentions suggests itself as an effective and quite cost-free self-regulatory strategy of goal pursuit; people can achieve strong effects by making simple plans.

CONCLUSIONS

The idea of unconscious motivation has a long intellectual history but has only recently become integrated into mainstream psychological science. Theoretical advances in cognitive psychology over the past quarter-century have made the notion of unconscious motivation much more plausible than before, enabling researchers to generate models of unconscious motivational influences that are in harmony with basic cognitive principles. By thinking about goals as another form of mental representation, subject to the same rules and principles as are known to hold for other mental representations, researchers have established the effects of unconsciously operating information-processing, achievement, and interpersonal goals. And by testing the effects of making if-then plans (i.e., forming implementation intentions that specify an anticipated critical situation and link it to an instrumental goal-directed response) on overcoming classic problems of goal pursuit, researchers have discovered that people may strategically (i.e., by a conscious act of will) automate their goal pursuits by setting up action plans in advance.

All of this implies that competent performances may come about not only by con-

scious goal setting and conscious guidance of the respective goal pursuits but also by relying on the automatic activation and pursuit of goals one has been striving for in the past. And if people cannot fall back on such positive past experiences, there is still the option of automating goal pursuit strategically by preparing it ahead of time in the form of making if-then plans.

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CHAPTER 35



Fantasies and the Self-Regulation of Competence

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Competence may be studied not only in terms of whether people behave in competent ways when solving certain problems (e.g., academic, professional, and social), but also in terms of how they think and feel about their competencies. Such subjective or perceived competence has predominantly been conceptualized as beliefs or expectations. Examples are efficacy expectations (Bandura, 1977, 1997), competence expectancies (Elliot & Church, 1997), agency beliefs (Little, Oettingen, Stetsenko, & Baltes, 1995; Oettingen, Little, Lindenberger, & Baltes, 1994; Skinner, Chapman, & Baltes, 1988), control beliefs (Skinner, Wellborn, & Connell, 1990), perceived control (Skinner, 1996), and control appraisals (Jensen & Karoly, 1991). Construing perceived competence as beliefs or expectations, however, ignores that people conceive of their competencies also in other forms of thought. In this chapter, we focus on such other forms of thought in the form of fantasies and daydreams about the future, in which people

mentally depict themselves solving given problems in a competent way. We investigate people's daydreams and fantasies about how wonderful it will be to have realized their competencies, and how gloriously they will behave on the way to attaining such positive outcomes.

Fantasies about future competencies should have different motivational consequences than competence beliefs and expectations. In the first part of the chapter, we analyze perceived competence in terms of expectations of the future on the one hand, and in terms of daydreams and fantasies about the future on the other. We show that the motivational impact of competence expectations dramatically differs from that of competence fantasies. Specifically, competence expectations facilitate motivation and successful performance, whereas competence fantasies turn out to be an impediment. However, competence fantasies do not always hurt motivation. When they are mentally contrasted with the reality that stands in the way of at-

taining them, they merge with competence expectations to result in binding competence goals with subsequent goal striving and goal attainment. Experimental studies support these ideas in various life domains (academic, professional, and interpersonal). They also attest to the benefits of the mental contrasting procedure under critical conditions, such as when people are confronted with strong negative feedback or need to perform in front of a highly evaluative audience.

SUBJECTIVE COMPETENCE: EXPECTATIONS VERSUS FANTASIES

Competence Expectations

Subjective competence has been conceptualized as competence beliefs or competence expectations. These are judgments about one's present or future competencies that are based on past behavior. Expectations are thus informed by one's experiences and thereby represent a person's performance history (Bandura, 1977, 1997; Mischel, 1973; Mischel, Cantor, & Feldman, 1996; Olson, Roese, & Zanna, 1996). Observed performances of others, persuasive messages received by respected others, and experienced levels of arousal during performance are also known to influence expectations (Bandura, 1977, 1997; Bandura & Locke, 2003).

The content of competence beliefs and expectations depends on the content of the objective competence on which the person is focusing. Objective competence in turn may be described by successful learning (Schunk, 1989), by achieving high grades and test scores, or simply by demonstrating a strong performance on a given task (Elliot & McGregor, 2001; Pajares & Miller, 1994; Shell, Colvin, & Bruning, 1995). Finally, both subjective and objective competence may be conceived in terms of how they are anchored (i.e., defined in absolute, intrapersonal, or normative standards; Butler, 1998; Elliot & McGregor, 2001; Rheinberg, 1998; Ruble & Frey, 1991), their regulatory focus (i.e., promotion vs. prevention; Higgins, 1997), their valence and means by which they are approached (i.e., framed as success vs. failure and as approach vs. avoid-

ance; Atkinson, 1957; Elliot & McGregor, 2001; Elliot & Thrash, 2002; McClelland, 1980; Murray, 1938), and in terms of the strategies used to achieve them (eager vs. vigilant strategies; Higgins, Idson, Freitas, Spiegel, & Molden, 2003).

Because high-competence beliefs are based on successful performance in the past, on observational learning, and on persuasion by informed sources, they can be taken as a valid signal that behavioral investment will pay off in the future. Thus, it comes as no surprise that investigations of the predictive value of high-subjective competence in the form of beliefs or expectations have yielded a large number of findings consistently pointing in the same direction: High-subjective competence predicts strong behavioral investment and, thus, the accumulation of objective competence. These findings hold true (Lent, Brown, & Hackett, 1994; see meta-analysis by Multon, Brown, & Lent, 1991) whether competence expectations are operationalized as self-efficacy beliefs (beliefs on whether one can implement a specific behavior necessary for a specified desired outcome; Bandura, 1997; Pietsch, Walker, & Chapman, 2003; Schunk, 1989) or as more global agency or control beliefs (beliefs on whether one generally behaves in a way that leads to desired outcomes; Little et al., 1995; Oettingen et al., 1994; Skinner et al., 1988). Strongest relations between subjective and objective competence have been observed when both variables match in level of specificity (Lent, Brown, & Gore, 1997).

Findings that attest to the predictive power of competence expectations not just amass for academic and professional achievement. Positive competence expectations predict objective competence also in the athletic and in the health domains (McAuley, 1985, 1993). High-competence expectations facilitate the initiation and maintenance of health-promoting and disease-preventing behaviors (McAuley, 1993; Wilcox & Storandt, 1996), warding off health damaging and risky activities (O'Leary, 2001), and recovery after surgery (Scheier et al., 2003). In addition, by increasing objective competence, competence expectations have benefited further variables such as mental health (Bandura, Pastorelli,

Barbaranelli, & Carprara, 1999) and well-being (Christensen, Stephens, & Townsend, 1998; Lachman & Weaver, 1998).

Competence Fantasies

Subjective competence, however, does not need to be conceptualized in the form of beliefs or expectations. As noted earlier, competence might occupy our thoughts also in the form of mental images or fantasies. Beliefs and images were first distinguished by William James (1890/1950, Vol. I): "Everyone knows the difference between imagining a thing and believing in its existence, between supposing a proposition and acquiescing in its truth" (p. 283). James's differentiation between believing and imagining pertains to events of the past and present. Following his reasoning, we differentiate two kinds of thinking about the future: expectancy judgments (beliefs) that assess the probability of occurrence of future events (behaviors and outcomes), and fantasies (images) that depict such future events per se. Consequently, positive competence expectations are beliefs that a desired competence is likely to be reached; positive competence fantasies about the future, to the contrary, are positively experienced images of future competencies that emerge in the stream of thought.

In such fantasies about the future, people can embellish events and scenarios regarding their own competencies regardless of their past behavior and performance, and regardless of how likely it is that they will ever attain these competencies. People might see themselves as Harry Potter on the broom, as elegant figure skaters spinning pirouettes and getting ready for high jumps, as speaking Chinese fluently, or as being celebrated for having authored a brilliant play. People usually know very well that these fantasies are disconnected from what they believe will come true, and that the chances of successfully obtaining these futures are minute.

Glorious competence fantasies, however, might not necessarily come in the form of such *Zauberdenken* (i.e., thoughts depicting actions and events that violate natural laws or social norms; Lewin, 1926; Mahler, 1933). People also fantasize about not yet realized but principally possible competen-

cies. For example, they may fantasize of their competence to combine work and family life, to attain a longed for job, to regularly practice health behavior, or to shake off the squeeze of time. In this sense, fantasies are similar to daydreams (i.e., thoughts pertaining to immediate or delayed desires, including instrumental activities to attain the desired outcomes; Klinger, 1971). However, even if daydreams or fantasies about one's future competencies obey natural and social laws, they still can be disconnected from expectations or probabilities of successfully reaching these competencies, due to the fact that daydreams and fantasies are not constrained by the cognitive mechanisms that make people appraise factual information (Klinger, 1971, 1990; Singer, 1966). In short, people can experience future blessings in their fantasies, without considering the probabilities that these blessings will actually occur.

THE MOTIVATIONAL FUNCTION OF SUBJECTIVE COMPETENCE: EXPECTATIONS VERSUS FANTASIES

Competence expectations, by applying past facts to predict future events (Bandura, 1977; Mischel, 1973), promise that future investment is worthwhile. To the contrary, competence fantasies fail to be a valid signpost for action. Rather, they tempt the person to mentally enjoy desired competencies in the present moment, concealing the necessity to still realize them in actuality. Therefore, fantasizing about one's future competencies should trigger little motivation to actually attain the mentally enjoyed abilities. Moreover, fantasies about a trouble-free path to accumulate competencies should hinder the preparation for upcoming obstacles and the hammering out of effective plans specifying how to overcome such obstacles. Lacking preparatory action and careful planning should further compromise motivation and attaining objective competence.

Positive competence fantasies may focus on having successfully achieved competence, moving smoothly toward achieving it, or both. Regardless of whether such competence fantasies are outcome- or process-

based, they should produce little motivation and weak performance. If, however, individuals question a future of unlimited competence and its smooth attainment, the desired future should no longer be experienced as merely enjoyable but as something to be achieved in actuality. People can now lay out the road to achieving competence successfully, prepare for setbacks and hindrances, exert effort, and show persistence. In summary, whereas positive expectations about future competence should predict effortful action and the achievement of objective competence, positive fantasies should predict the reverse.

The following two studies test this idea of a differential relation between competence expectations and competence fantasies, and actually achieved competence. In each study, we assessed competence expectations and competence fantasies at least 1 week before we measured effort and success in building objective competence. We operationalized competence expectations by the perceived probability of building competence, and we measured competence fantasies by using idiographic techniques tapping participants' thoughts and images about their achieving respective competencies in the future.

Building Academic Competence

Right before their midterm examination, college students enrolled in an introductory psychology class were asked to indicate the grade they would like to obtain in the course. To measure expectations, we asked participants to indicate the likelihood that they would actually receive this course grade (Oettingen & Mayer, 2002; Study 3). We then assessed their course grade-related fantasies. Participants completed a scenario in writing that depicted them as already having taken all the exams and being on their way to the building in which the course grades are posted. Immediately thereafter, participants rated the experienced positivity-negativity of the reported thoughts and images. Objectively achieved competence was measured by the change of course grades from the midterm (when expectations and fantasies were assessed) to the final exam.

Previous research has amply documented that high competence expectations build ac-

ademic competence. This is true for students of different ages and educational backgrounds, and with respect to a variety of indicators (e.g., standardized tests, course grades, solving intellectual tasks, application of learning strategies; Lent et al., 1997; Schunk, 1982, 1989; Zimmerman & Martinez-Pons, 1992; see summaries by Bandura, 1997; Multon et al., 1991). The predictive power of positive fantasies for achieving academic competence, however, has not been analyzed. Following the ideas presented earlier, we hypothesized and observed that students entertaining positive competence expectations put in much study effort and achieved comparatively well, while students entertaining positive competence fantasies failed to study hard and achieved comparatively low course grades from the midterm to the final exam.

The predictive relation between positive fantasy and low performance was mediated by a lack of effort, as measured by the number of hours students had spent studying, by their reported study effort, and by the amount of extracredit work they had been handing in between their midterm and their final exam. Thus, positive fantasies led to less studying than more negatively toned fantasies, and this in turn produced lower levels of objective competence, as measured by course grades.

This study investigated the role of expectations versus fantasies in building intellectual competence. In the next study, we addressed the role of the two ways of thinking about the future in building physical competence (Oettingen & Mayer, 2002, Study 4). The building of physical competence becomes a particularly pressing concern when frailty sets in, that is, in older adulthood.

Building Physical Competence

Participants in our study were older adults admitted to a hospital to undergo total-hip-replacement surgery, which is a commonly performed surgery in patients with osteoarthritis of the hip, the most frequent joint disorder and a particular problem in the elderly (Gogia, Christensen, & Schmidt, 1994). In surgery, affected bone and cartilage are removed and replaced with an artificial joint made from metal and plastic. Func-

tional disability and pain in the absence of primary and secondary preventive measures are the two predominant indications for total-hip-replacement surgery (Verbrugge, 1990).

The day before surgery, we assessed participants' expectations and fantasies regarding their future physical competence. Two exemplary items measured expectations: "How likely do you think it is, that 2 weeks after surgery you will be able to go for a brief walk using an assistive cane?" and "How functionally able do you think will you be 3 months after surgery?" To assess competence fantasies, we asked participants to imagine in writing five scenarios to their completion, and then to rate their own thoughts and images. The scenarios pertained to various points in time after surgery (i.e., immediately after, end of hospital stay, and 3 months later). For example, one of the scenarios read: "At the end of your hospital stay, you want to buy a newspaper in the hospital's newspaper stand. As you are getting out of bed . . ." After imagining a story to completion and writing down the respective thoughts and images, participants indicated how positively and how negatively they had experienced their thoughts and images. As a response to the scenario just described, one participant fantasized: "I am walking on the stairways without help, and I walk easily and quickly to the newspaper stand." However, another participant imagined herself as less competent: "I am trying to walk to the door first, using my cane. But how shall I open the door? Uh, and then walking to the elevator? How will I ever get there?"

Two weeks after surgery, while participants were still in the hospital, each physical therapist mainly responsible for a particular patient indicated the functional status of that patient's hip (Gogia et al., 1994). Physical therapists used classic indicators, such as degree of hip joint motion (i.e., abduction, extension, and flexion) and competence to walk on stairs (Dekker, Boot, van der Woude, & Bijlsma, 1992). In addition, they evaluated patients' general recovery (e.g., in terms of muscular strength and degree of pain).

Competence expectations and competence fantasies differentially predicted actually

achieved competence also in the physical domain. While competence expectations were precursors of objective competence, competence fantasies were a hindrance, and this was true whether patients' physical competence was measured via specific criteria (i.e., hip joint motion or walking on stairs) or via more general measures (i.e., general recovery). These findings stayed unchanged after controlling for presurgery hip condition (as assessed by the doctors), weight (70% of the sample was overweight), and gender.

Subsequent content analyses of the patients' fantasies revealed that participants had idealized their future physical competence with respect to both outcome (they imagined possessing or having achieved competence) and process (they imagined an easy and effortless way to achieve competence). Though idealization of outcome was more frequent than idealization of process, both were positively related to the subjective measure of the positivity of competence fantasies. Thus, positively experienced fantasies contain both outcome and process in its idealized form, that is, the possession of high competence, as well as effortless and unencumbered progress toward attaining competence. Most importantly, however, it was the subjectively experienced competence fantasies rather than the expressed idealization, as picked up by the raters, that predicted low objective competence (i.e., functional status of the hip and successful recovery). This finding implies that the personal affective involvement in the created fantasies produces their motivational and performance consequences.

Process Simulations and Illusory Optimism

The previous studies support the notion that positive fantasies about future competencies, whether pertaining to the achieved outcome or to the process leading there, are a motivational burden, because they reduce effort to build competence and conceal the steps that are needed to develop it. Thus, this research differs from research on outcome versus process simulations (Taylor, Pham, Rivkin, & Armor, 1998). Taylor and colleagues found that process simulations (rehearsing the cumbersome steps needed to reach a set

goal; e.g., getting an A) lead to more effort and superior performance than outcome simulations (rehearsing the enjoyment of reaching the goal) via reduced anxiety and heightened planning. This approach, to the contrary, focuses on the experienced affective tone of fantasies about the future and postulates that positive competence fantasies (both outcome and process) are a motivational hindrance.

Furthermore, positive competence fantasies need to be distinguished from illusory optimism (Schneider, 2001; Taylor & Brown, 1988; Taylor, Kemeny, Reed, Bower, & Gruenewald, 2000). Because competence fantasies do not pertain to facts or likelihoods of occurrence, they cannot be taken as an indicator of illusory optimism. Only competence expectations can be illusory-optimistic, because they assess the future events' reality. This assessment of reality, then, can be more or less realistic (accurate) or illusory (inaccurate).

Summary

Subjective competence, depending on how it is conceptualized, predicts objective competence in differential ways. Assessed by expectancy judgments, subjective competence positively predicts improvement of objective competence, whereas, measured by affective tone of fantasies, it negatively predicts the development of objective competence. Effort and persistence mediate the negative relation between positive competence fantasies and the building of objective competence.

We replicated this pattern of results in further areas of the health domain (e.g., chronic illness, Oettingen & Mayer, 2003, Study 4; weight loss, Oettingen & Wadden, 1991), as well as in different life domains such as the interpersonal domain (e.g., starting a romantic relationship, Oettingen & Mayer, 2002, Study 2) and the professional domain (e.g., obtaining a desired job, Oettingen & Mayer, 2002, Study 1). In all of these studies, expectations and fantasies were measured long before we assessed the final measure of actual competence (up to 4 years).

Given the results of these studies, positive fantasies about future competencies appear to be problematic when it comes to the motivational question of realizing these fantasies in actuality. However, positive compe-

tence fantasies have a beneficial function, when it comes to the setting of goals. Specifically, they produce binding goals that are based on high competence expectations. For this purpose, competence fantasies about the future need to be contrasted with reflections on impediments of present reality.

MERGING EXPECTATIONS AND FANTASIES INTO COMPETENCE GOALS: MENTAL CONTRASTING

In his theory on proactive goal setting, Bandura (1991) argues that people who have successfully attained a goal will set themselves an even more aspiring goal due to their strengthened efficacy expectations. Social cognitive theory thus postulates two self-regulatory systems in attaining competence: A proactive discrepancy production system and a discrepancy reduction system (Bandura & Locke, 2003). Arguing that humans are motivated by foresight relative to where they want to be, rather than only by hindsight relative to what they did wrong, Bandura and Locke posed the following question:

Discrepancy reduction is only half of the story and not necessarily the more interesting half. The greater challenge is to explain why people inflict on themselves high standards that demand hard work and beget a lot of stress, disappointments, and failures along the way rather than to explain why they should seek tranquility by matching a standard. (p. 91)

Bandura and Locke maintain that people whose efficacy expectations have been strengthened by previous goal attainment will set themselves more aspiring goals. However, not every heightened efficacy expectation will be turned into a challenging goal. Thus, the question remains as to how people whose efficacy has been strengthened manage to set themselves binding goals. We provide an answer to this question by referring to the model of fantasy realization (Oettingen, 2000; Oettingen, Pak, & Schnetter, 2001), which specifies how fantasies about the future can be used to turn high expectations into aspiring goals that in turn lead to persistent goal striving and effective goal attainment.

The Model of Fantasy Realization

The model of fantasy realization specifies three routes to goal setting that result from how people deal with their fantasies about a desired future (Oettingen, 1999, 2000; Oettingen et al., 2001). The first route to goal setting originates from solely fantasizing about a desired future. The second entails merely reflecting on the negative reality standing in the way of attaining these fantasies. The third route, finally, entails contrasting one's fantasies about the desired future with reflections on the negative impeding status quo.

Three Routes to Goal Setting: Proposed Mechanisms

The first route to goal setting is based on indulging in thoughts, fantasies, daydreams, and images about a desired future (e.g., becoming a lawyer, excelling in math, learning a language). Such fantasizing seduces a person into mentally enjoying the positive future in the here and now, because no reflections on reality point to the impediments of attaining the desired future. Therefore, goal commitment to realize the desired future (i.e., determination and effort to reach the goal, and persistence in pursuing it over time; Locke & Latham, 1990) should solely result from the implicit pull triggered by the positivity of the imagined future events.

The second route to goal setting is based on dwelling on negative aspects of present reality that stand in the way of realizing the desired future (e.g., having not yet graduated, being distracted, and feeling lazy, respectively). Such reflections remain recurring ruminations, because no fantasies about the future designate the direction in which to act. Therefore, goal commitment to realize the desired future should solely reflect the implicit push triggered by the negativity of the reality events about which the person is thinking.

The third route to goal setting entails mentally contrasting the desired future with negative aspects of impeding reality, such as contrasting thoughts of excelling in math with thoughts about being distracted from working on math improvement. Such mental contrast between a positive future and negative reality instigates a more complex goal-setting

mechanism. Conjoint mental elaboration of the desired future and the present reality creates heightened simultaneous accessibility of cognition about both the desired future and the negative reality. In addition, the negative reality is viewed as an obstacle, or as "standing in the way" of realizing the desired future, thereby emphasizing a necessity to attain the desired future. This necessity to attain the future activates expectations, which then will be applied in goal setting. Thus, individuals engaging in mental contrasting should display flexible and strategic behavior, in that they refrain from setting themselves binding goals when expectations of success are low, but fully commit themselves to the attainment of the desired future when expectations of success are high.

Because a necessity to attain the desired future only emerges after mental contrasting, but not after indulging or dwelling, indulging and dwelling should not activate relevant expectations. Thus, indulging and dwelling will make people fail to draw on expectations when setting themselves goals. The implicit pull and push should lead to moderate goal commitment that is independent of perceived chances of success.

A series of experiments studying goal setting via the different modes of thought support these hypotheses. In the following sections we present two exemplary studies that pertain to attaining high competence in the academic and health domains. Specifically, the two studies investigate the role of indulging, dwelling, and mental contrasting in setting goals to attain competence in mathematics and in reducing cigarette consumption.

Setting Competence Goals in the Academic Domain

The fantasy theme of the study was excelling in mathematics (Oettingen et al., 2001; Study 4). Participants were male adolescents, freshmen enrolled in two vocational schools for computer programming. The curriculum entailed full-day training to become media or computer specialists, and mathematics was the critical subject in the first year of studies. Thus, accumulating competence in math was a most important desire in the lives of these adolescents concerned about their professional education.

We first measured participants' expectations to improve their competence in mathematics, and then asked them to name four positive aspects of improving in math and four negative aspects that impeded their improvement in math. We then established the three experimental groups, a fantasy-reality contrast (mental contrast) group, a fantasy-only (indulging) group, and a reality-only (dwelling) group. In the fantasy-reality contrast group, participants had to mentally elaborate in writing two positive aspects of improving their competence in math, and two negative aspects of impeding reality in alternating order, beginning with a positive aspect of the future. In the fantasy-only group, participants only had to mentally elaborate four aspects of improving in math, and in the reality-only group, participants only had to mentally elaborate four aspects of impeding reality.

Directly following these mental exercises, all participants reported how energized they felt (e.g., energetic, active, eventful). Moreover 2 weeks after the experiment, we asked teachers to evaluate each student's effort for the past fortnight (e.g., how much persistent effort the student showed in studying math, and how intrinsically interested he or she was). In addition, to measure actual achieved competence, we asked teachers to give a course grade to each student.

In mental contrast participants, we noted that feelings of energization, exerted effort, and achieved grades were more in line with competence expectations than in the indulging and dwelling participants. High-expectancy participants in the mental contrast group felt most energized, exerted most effort, and were given the highest course grades by their teachers. Low-expectancy participants, however, felt least energized, exerted least effort, and achieved the lowest course grades. To the contrary, indulging and dwelling participants felt moderately energized, independent of their expectations. Similarly, teachers rated them as showing moderate effort and gave them mediocre course grades, whether the students believed in their own competence or not.

For the participating adolescents who are beginning their vocational training and still have career options available, mental contrasting seems beneficial. Those who have high chances to excel invest their time and

effort in a promising career, while those with minor chances to excel do not invest in vain and thus can move on and use their energies otherwise (Carver & Scheier, 1998). The pattern of goal commitment for indulging and dwelling participants seems less beneficial. Being implicitly pulled by the future or pushed by the reality, respectively, those with high expectations do not invest enough and thus suffer from failing to realize their potential. Those with low expectations, on the other hand, invest too much and thus waste their energies in a lost case; that is, both indulging and dwelling put people at risk in terms of being out of touch with their potential.

Setting Competence Goals in the Health Domain

The previous study described how expectations and fantasies can be merged to set goals geared at building academic competence. We now turn to an experiment that describes how mental contrasting can be used to set goals geared toward improving competence in the health domain (Oettingen, Mayer, & Thorpe, 2005a). Students who smoked were asked for their expectations relative to reducing their cigarette consumption or to stop smoking. Thereafter, all participants were asked to name four positive aspects of a future in which they had reduced their cigarette consumption and four aspects of impeding reality. As desirable aspects of the future, participants named, for example, physical fitness, self-respect, and pretty skin. As impeding aspects of present reality, they named stress, partying, and peer pressure. We then established the three experimental groups in the same way as in the experiment on developing math competence. Specifically, in the mental contrast group, participants had to elaborate two aspects of a future with fewer cigarettes and two aspects of impeding reality, in alternating order, beginning with a positive future aspect; in the positive future (indulging) group, participants elaborated four aspects of the positive future, and in the negative reality (dwelling) group, four aspects of negative reality. Thereafter, participants received a 14-day diary, in which they were to record in writing every cigarette they had smoked. Finally, 2 weeks after the experiment, we

asked participants to indicate the exact date when they had actually started to reduce their cigarette consumption.

Participants in the mental contrast group reduced their cigarette consumption in line with their competence expectations, while those in the indulging and dwelling groups acted independently of their expectations to successfully resist cigarettes. In light of high expectations, contrasting participants tried to reduce their smoking right after the experiment, and tended to light fewer cigarettes per day than those in the indulging and dwelling groups, while the reverse was true for participants with low expectations.

Summary

Mental contrasting translated adolescents' high competence expectations into good mathematics grades and built competence even in participants showing addictive behaviors (smoking). For participants with low competence expectations, it prevented the setting of respective goals. Indulging and dwelling, to the contrary, led to goal setting that is disconnected from competence expectations, and thus from participants' past performance and experience.

We replicated these results in further studies. In the academic domain, for example, experiments pertained to studying abroad (Oettingen et al., 2001, Study 2), to combining work and family life (Oettingen, 2000, Study 2), and to acquiring a second language (Oettingen, Hönig, & Gollwitzer, 2000, Study 1). In the interpersonal domain, experiments focused on solving interpersonal conflicts (Oettingen et al., 2001, Studies 1 and 2), on getting to know an attractive stranger (Oettingen, 2000, Study 1), and on successfully seeking help (Oettingen et al., 2005b, Study 3).

In most of these studies, we used the salience paradigm described earlier; that is, participants rated their expectations of achieving the competence in question, generated positive aspects of having reached that competence and negative aspects potentially impeding such an achievement, then (depending upon condition) either mentally elaborated both future and reality, future only, or reality only. Another paradigm based on ignoring either reality (indulging), future (dwelling), or neither future nor reality (mental contrasting)

by reinterpreting the reality and the future through minimizing or maximizing their validity, respectively, generated the same pattern of results (Oettingen, 2000, Study 2; Oettingen, Mayer, Thorpe, Janetzke, & Lorenz, in press, Study 1).

The results hold for goal commitment assessed by cognitive, affective, and behavioral indicators (e.g., planning, anticipated disappointment in case of failure, financial investment) via self-report and observations, measured directly after the experiment or weeks later, and for samples of different cultural contexts (Europe and the United States). Mental contrasting turned out to be an easy to apply self-regulatory tool to increase objective competence, because the described effects were obtained even when participants elaborated the future and the reality only very briefly (i.e., were asked to imagine only one positive aspect of the desired future and one obstacle standing in the way of realizing the desired future; Oettingen et al., 2000, Study 1).

Taken together, these findings indicate that perceiving the acquisition of competence as desirable (positive attitude or high incentive value; i.e., the person values mastery and competence) and feasible (perceived control or efficacy expectations; i.e., the person sees a high likelihood of achieving objective competence) is an important prerequisite for the emergence of strong goal commitments to excel (Ajzen & Fishbein, 1980; Ajzen & Madden, 1986). To create binding goals to excel in competence, however, people need to mentally contrast fantasies about the desired future with impeding reality; only then will high expectations be translated into respective goal commitments.

So far we have shown that positive fantasies contrasted with negative reality help people to translate their high expectations into binding goal commitments geared toward achieving competence. In the study reported below, we explored whether negative fantasies contrasted with positive aspects of reality instigate goals that are geared toward avoiding incompetence.

SETTING COMPETENCE GOALS: APPROACH VERSUS AVOIDANCE

The distinctions between approach motivation and hope for success versus avoidance

motivation and fear of failure have long been considered critical for decision making and action (Atkinson, 1957; Heckhausen, 1963; McClelland, 1980; Murray, 1938). In addition, Elliot and Thrash (2002) have pointed out that approach and avoidance temperaments meaningfully correlate to different types of achievement goals. Furthermore, there are life domains in which people have a hard time generating positive fantasies about the future and should thus be reluctant to form approach goals. For example, people who adhere to health-damaging behavior (e.g., excessive alcohol consumption) might not readily generate positive fantasies about stopping such behavior. Thus, it is important to ask whether mental contrasting can also regulate the setting of avoidance goals.

To create relevant avoidance goals, we took advantage of the fearful images and daydreams that befall people when thinking about undesirable futures. Specifically, we made people generate fantasies about their continued giving in to behaviors known to be detrimental to their future health. Such fearful fantasies about a future of incompetence that are mentally contrasted with a positive reality potentially endangered by such incompetence (e.g., fantasies about failing to reduce cigarette consumption contrasted with reflections on one's current healthy body) should produce goals directed at avoiding this incompetence.

The previously described study on smoking reduction tested these ideas by containing three further conditions that referred to negative fantasies about a feared future. Participants in these three conditions, instead of listing positive aspects of a future of reduced smoking and negative aspects of impeding reality, listed negative aspects of a future in which they continued to smoke at the present level (e.g., participants listed getting cancer, being a bad model for children, and lifelong addiction), then named positive aspects of present reality that they might lose if they continued to smoke at the present level (e.g., participants listed healthy lungs, pretty skin, physical endurance). We then established the three experimental groups. In the negative future-positive reality contrast group, participants alternated in their mental elaborations between negative fantasies about con-

tinued smoking and positive aspects of reality that they might lose if they continued smoking at the present level. In the negative future group, participants only fantasized about the negative future of continued smoking. Finally, in the positive reality group, participants only reflected on positive aspects of the endangered reality. As described earlier, dependent variables included the number of cigarettes smoked, as recorded in the subsequent 14-day diary, and the immediacy of trying to reduce cigarette consumption (in days after the experiment).

Participants in the negative fantasy-positive reality contrast group acted according to their competence expectations. High-expectation participants tended to smoke fewer cigarettes and started earlier to exert respective effort, while the reverse was true for low-expectation participants. To the contrary, those who indulged in their fearful fantasies and those who dwelled on their still-healthy body did not use their expectations as a guide for reducing their cigarette consumption. Only after mental contrasting did participants with high expectations form the goal to avoid the feared future of continued smoking.

Summary

Future fantasies, be they positive or negative, merge with competence expectations to form approach and avoidance goals, respectively. They only need to be contrasted with the relevant reality (i.e., with the negative reality when creating approach goals, and with the positive reality when creating avoidance goals). Indulging in the future, or dwelling on reality, whether the future and reality images are positive or negative, lead to the setting of goals that are independent of competence expectations.

Because mental contrasting in light of high competence expectations produces the strong goal commitments we have observed (e.g., promoting course grades across a period of weeks and months; Oettingen et al., 2000, 2001), the question arises whether mental contrasting not only fosters goal setting but also benefits processes of goal striving. Critical processes of goal striving pertain to how people respond to negative feedback that they encounter on their way to

successful goal attainment. Furthermore, in her work on implicit theories about the nature of intelligence and the emergence of respective achievement goals, Carol Dweck and her colleagues have repeatedly pointed out that the pivotal issue in achieving competence is how people respond to negative feedback (Dweck, 1999; Dweck & Leggett, 1988; Grant & Dweck, 2003). Therefore, in the following section, we investigate how the three routes to goal setting influence responses to negative feedback.

MENTAL CONTRASTING AND GOAL STRIVING: RESPONDING TO NEGATIVE FEEDBACK

Mental contrasting in light of high expectations should foster the effective processing of negative feedback, because such negative feedback provides relevant clues on how best to achieve the desired competence (Gollwitzer, 1996; Gollwitzer & Bayer, 1999). Appraising negative feedback as useful information for goal striving rather than as a sign of incompetence should, in addition, guarantee that it does not diminish one's self-view of competence (Dweck, 1999; Dweck & Leggett, 1988). Therefore, mental contrasting in light of high expectations should allow for effective processing of goal-relevant information, as well as for maintaining a robust self-view of competence, even after obtaining strong negative feedback. In two studies using the same paradigm, we tested whether mental contrasting would indeed serve such a dual purpose when it comes to responding to negative feedback.

Mental Contrasting and the Processing of Negative Feedback

In a simple cued recall experiment, we investigated whether mental contrasting in light of high expectations facilitates the processing of relevant negative feedback (Pak, 2002, Study 1). Students participated in two supposedly independent experiments. In the first experiment, which used a procedure similar to that in the experiments described earlier, students first named their most important current interpersonal concern. They

listed, for example, "to get to know someone," "to solve the problems with my partner," and "to get along with my roommate." Then they indicated their expectations of competently solving their concern, and listed four positive aspects of having solved it, as well as four aspects that might impede their solving this concern.

As part of the second experiment, participants were asked to complete two different competence tests, one of which supposedly measured social competence. In the social competence test, students were asked to study a variety of art portraits and then to fill out semantic differential-type questionnaires about their impressions of the people depicted in these paintings. Finally, participants received 12 statements providing feedback; among them, the following three statements contained negative feedback relevant to their social competence: "In socially challenging situations, you are *tense*," "When communicating with other people, you are *reserved*," and "In stressful social situations, you react *impulsively*." Thereafter, the three experimental groups were established: the mental contrast group, the indulging group, and the dwelling group, as in the experiments described earlier. Finally, participants had to report on the feedback they had received using a cued recall procedure.

Recall performance was best in the high-expectancy mental contrast group, while the worst recall was observed in the low-expectancy mental contrast group. Indulging and dwelling participants recalled a medium number of words, independent of their competence expectations. This pattern of data implies that only mental contrasting participants with high competence expectations were eager to process information that was relevant to achieving the desired future competence; mental contrasting participants with low competence expectations failed to process the bothersome information that they did not deem important anymore. Finally, indulging and dwelling participants processed the negative feedback independently of their competence expectations. Whether they perceived their chances of solving the interpersonal problem as high or low (thus, whether the information was valuable or not), they always processed the same medium amount of negative feedback.

Apparently, the three modes of self-regulatory thought not only differentially affect goal setting but also impact goal striving. Processing negative information with respect to one's goal pursuit should only be beneficial, however, if it does not create insecurities that undermine using the negative information to improve one's moving toward the goal. Accordingly, we wondered whether mental contrasting in light of high competence expectations protects a person from experiencing such insecurities due to negative feedback. Negative feedback should not force these individuals to diminish their relevant positive self-view of competence.

Mental Contrasting and Self-View of Competence after Negative Feedback

In this experiment (Pak, 2002, Study 2), using the same paradigm and design as the previous experiment, we measured change in self-view of social competence as a dependent variable. Specifically, participants again named an interpersonal concern, and indicated expectations of competently solving the concern. For a baseline measure regarding self-view of social competence, we asked the following two questions: "How would you estimate your social competence?" and "How would you estimate your interpersonal intelligence?" Participants then listed four positive future aspects of competently solving their interpersonal concern, and four negative reality aspects that stand in its way. Thereafter, in a supposed second experiment, they took a social competence test, similar to the test in the last experiment.

We had established the three groups: mental contrasting fantasies of competently solving the interpersonal problem, indulging in those fantasies, and dwelling on impeding reality. In subsequent false-negative feedback, we told participants that their performance on the social competence test was very weak (i.e., they only had achieved 18 out of 60 points, which they were told was a very low performance in their age group), and that people with such test results would be plagued by conflicted and disharmonious relationships.

While high-expectancy mental contrasting participants remained unaffected by this detrimental personal feedback, low-expectancy mental contrasting participants suffered

from a dramatic loss in their self-view of social competence. Again, participants in the indulging and dwelling groups fared in between, independent of their expectations. It appears, then, that mental contrasting protects participants with high competence expectations from having their self-view shattered by negative feedback.

Summary

The findings so far suggest that mental contrasting influences objective competence by two different mechanisms. First, it causes people to set themselves feasible goals, and second, it facilitates goal striving through beneficial responses to negative feedback. These beneficial responses encompass processing goal-relevant negative feedback (thereby unveiling clues for effective goal striving) and preserving a stable positive self-view of competence even in the face of massive negative feedback (norm-oriented and person-oriented; Elliot & McGregor, 2001; Kamins & Dweck, 1999). People profit in their goal striving from both processing negative feedback (Bandura & Cervone, 1983; Carver & Scheier, 1998; Dweck, 1999; Dweck & Leggett, 1988) and holding a positive self-view of competence (even illusory positive; Gollwitzer & Kinney, 1989; Taylor & Brown, 1988; Taylor & Gollwitzer, 1995; Taylor, Lerner, Sherman, Sage, & McDowell, 2003). Accordingly, these findings suggest that mental contrasting provides access to the major tools of successful goal striving and goal attainment.

By allowing appraisal of one's weaknesses, along with keeping a strong sense of overall competence in the face of offensive feedback, mental contrasting equips people for stressful situations. However, mental contrasting might also shelter people from stressful situations by other mechanisms. It might be even used to form goals explicitly geared toward competently coping with stress.

MENTAL CONTRASTING AND SETTING GOALS TO COPE WITH STRESS

Coping with stress has been widely studied in psychology. The literature largely considers coping as emerging from an interaction

between the environment and the individual. For example, Lazarus and Folkman (1984) conceptualize the coping process as consisting of primary appraisal, in which the individual appraises the features of the situation, and secondary appraisal, in which the individual appraises the resources available for dealing with the situation. The kinds and number of resources that people possess for altering or overcoming the stressor at hand are critical.

We argue that individuals who have set themselves binding goals to deal with a stressful situation will more effectively maximize their resources (e.g., plan, exert effort, and persist) than individuals who are less committed to such goals. Indeed, Lazarus (1993) conceives of coping as a goal-directed process in which people direct their thoughts and actions toward the goal of mastering the stressor. Carver, Scheier, and Weintraub (1989), based on the model of behavioral self-regulation (Carver & Scheier, 1981), also have conceptualized effective coping with stress in terms of goal pursuit. In the COPE Inventory, they specified various scales capturing successful coping, some of which are synchronous with aspects of successful goal pursuit (e.g., planning, shielding against distractions, delay of gratification, and persistence; Carver et al., 1989). These goal-related scales predict effective coping (Carver et al., 1989), as do scales in further questionnaires that also focus on goal-related features (see summary by Compas, Connor-Smith, Saltzman, Thompson, & Wadsworth, 2001). Accordingly, we hypothesized that setting binding goals to change or overcome a stressor should be an effective way to maximize one's coping resources, and to guarantee effective coping with stress.

Mental contrasting should be a beneficial strategy to form goals geared at overcoming a stressor. When competence expectations to overcome the stressor are high (i.e., resources are plentiful), mental contrasting should translate these expectations into binding coping goals, with subsequent mastery of the stressor. When competence expectations to overcome the stressor are low, however, mental contrasting should lead people to turn their back to this stressor, thus conserving their resources for mastering less overwhelming stressors. Three exem-

plary studies that tested these hypotheses are now described.

Mental Contrasting and Coping with Chronic Stress

In a pilot study, pediatric intensive care nurses indicated that their most disturbing and troublesome chronic everyday stressor was communication with patients' relatives. Therefore, we chose this aspect of the pediatric nurses' patient-provider communication as the topic of our experiment (Oettingen et al., 2005b, Study 1). Participants first indicated their competence expectations of being able to improve communication with patients' relatives. Subsequently, they listed aspects of a future in which they had competently mastered this stressor, and aspects of the negative reality that potentially impeded successful coping. The three experimental conditions were established in the same way as described earlier. In the mental contrast group, nurses had to generate both fantasies of effectively coping with the stressor and reflections on impeding obstacles, while in the indulging and dwelling groups, they had to come up with only future fantasies or only reality reflections, respectively. Two weeks later, as indicators of commitment to improve the relationship to the patients' relatives, we assessed respective effort (in number of steps taken; Oettingen et al., 2001), and willingness to take remedial action (readiness to participate in a workshop providing relevant information; Hong, Chiu, Dweck, Lin, & Wan, 1999).

In light of high competence expectations (i.e., to be able to improve communication with patients' relatives), nurses in the mental contrast group showed the greatest effort to improve the relationship with patients' relatives and the greatest willingness to take remedial action, whereas the opposite held true for those whose competence expectations were low. Nurses who indulged or dwelled showed a moderate amount of effort and remedial action, irrespective of their beliefs in how much they could do for the patients' relatives. Thus, we have shown that mental contrasting influences coping with chronic stress. In the next study, we analyzed the role of mental contrasting in setting goals to cope with acute stress.

Mental Contrasting and Coping with Acute Stress

Economics students were told that they were participating in a study trying out a new recruitment tool for senior students entering the job market (Oettingen et al., 2005b, Study 2). Therefore, they had to give a presentation in front of a video camera, so that their talk could be evaluated by a group of human resources experts. Giving a presentation in front of a camera has been frequently used as an acute stressor (e.g., Britt, Cohen, Collins, & Cohen, 2001). Because the stressor is standardized and applied in the laboratory, it allows us to measure participants' appraisal of the stressor, as well as their *in situ* persistence and coping performance.

Participants first noted how well they wanted to do in their presentations. To measure their competence expectations, we asked them how likely they thought it would be that they actually achieved their desired performance. As in the previous studies, participants named positive aspects of doing well (e.g., participants listed "Feeling good about myself," "Knowing I can cope with an interview situation," "Becoming confident about the application process") and negative aspect of impeding reality (e.g., participants listed "Not having enough time for preparation," "Feeling shy," "The stupid camera"). Finally, we established a mental contrast and an indulging condition (due to the complexity of the data collection, we did not include a dwelling condition) in the same manner as described in the previous studies.

We observed a stronger link between competence expectations and coping effort (measured by length of presentation), as well as the quality of coping performance (assessed by independent raters blind to conditions), in the mental contrast condition than in the indulging condition. Thus, mental contrasting can be seen as a self-regulatory tool that makes people adjust their immediate coping responses to their available resources. In addition, mental contrasting and indulging predictably affected how participants appraised the impending stressor, how they felt about the stressor in the aftermath, and how well they considered themselves to be coping.

These findings are important, because prospective appraisal of a situation has been

found to influence the coping strategies people use (Carver & Scheier, 1994; Lazarus & Folkman, 1984). Moreover, retrospective appraisal of a stressor, as well as positive self-evaluations of one's coping efforts, will benefit appraisal of and responses to future stressors. Thus, by creating competence-based coping goals, mental contrasting fosters not only active and constructive coping responses toward the current stressor but also benefits coping responses toward similar stressors in the future. In summary, the results show the usefulness of mental contrasting for mastering acute stress and demonstrate its role for both coping cognition (i.e., appraisal and self-evaluation) and coping behavior (persistence and actual coping performance).

The previous two studies suggest that mental contrasting in light of high competence expectations creates strong goals to cope with chronic and acute stress; in light of low competence expectations, it leads people to abstain from setting coping goals and to save resources for more promising coping endeavours. In other words, mental contrasting reveals which stressors one should overcome or change, and which stressors one should avoid. These considerations suggest that inducing mental contrasting as a metacognitive strategy that can be applied to diverse everyday problems should facilitate making up one's mind and effectively managing precious resources (e.g., time and money), thereby alleviating the accumulation of chronic and acute stress.

Inducing Mental Contrasting as a Metacognitive Strategy

To test the idea that mental contrasting taught as a metacognitive strategy prevents stress by improved decision making and superior resource management, one group of health care managers was instructed in mental contrasting, while a control group of managers was taught to fantasize positively only (Oettingen et al., 2005b, Study 4). The interventionist then explained to participants in both groups how to apply these strategies to their most cumbersome everyday problems or stressors.

Specifically, depending on condition, we first asked participants to do the mental contrasting versus indulging exercise in writing

with respect to their current most important problem. In order to practice further the respective procedures of mental elaboration (i.e., mental contrasting vs. indulging), participants were then asked to imagine as many pressing professional and personal everyday stressors and problems as possible that were relatively controllable but made them feel clearly uneasy (e.g., participants named "Being assertive in a staff meeting," "Visiting my mother," "Terminating the job contract of a coworker," "Inviting people for dinner"). Depending on experimental condition, either mental contrasting or indulging procedures were then used for the first six of the named problems. Finally, all participants received a 14-day diary and were asked to do their mental exercise in writing with respect to the stressor that made them feel most uneasy on a given day. They were encouraged also to use the mental exercise with respect to any other problem or concern that would appear during the day, and to apply the exercise whenever they felt there was a good opportunity to do so (e.g., while waiting for the bus).

Two weeks after the intervention, we asked participants how they fared in their daily decision making and time management since the intervention. In comparison with participants in the indulging group, those in the mental contrast group reported having experienced greater ease in their decision making and having organized their time in a more efficient way. Moreover, they were more successful both in completing some projects and in relinquishing others. Apparently, mental contrasting can be successfully taught and readily applied in self-instructions to the various professional and private problems and stressors people face in their daily life. Furthermore, mental contrasting can be seen as a self-regulatory strategy that guides people to improve their ease in decision making, their time management, and their readiness to relinquish some projects in favor of completing others.

Based on the findings of our past studies that mental contrasting leads to setting strong coping goals in light of high competence expectations but to relinquishing coping goals in light of low competence expectations, we speculate that by applying mental contrasting, participants relinquish those projects and stressors in which they

felt they had little competence or resources available, thus avoiding psychological distress stemming from pursuing pointless endeavors. To the contrary, when competence expectations were high, mental contrasting should have led people to pursue vigorously and complete ongoing projects. Teaching how to apply mental contrasting to everyday problems and stressors rather than indulging in their successful solution helped the managers to deal with their daily lives in a way that prevented the cumulative stress of having to deal with unpromising and too many projects.

Summary

We have observed the benefits of experimentally induced mental contrasting for coping with chronic and acute stressors. The findings also suggest that mental contrasting, taught as a metacognitive strategy in a simple intervention and applied to various daily problems (e.g., organizing a dinner party, being assertive in meetings), prevents longstanding stress by fostering the completion of feasible tasks and by refraining from tackling unfeasible ones. Indulging, on the other hand, causes people to be halfheartedly engaged in too many, often unpromising projects.

Our findings are in line with the literature on denial and wishful thinking, in which these ways of thinking are observed to impede effective coping with stress, especially when the stressors do not dissolve by themselves but require attention and effortful action to be overcome (Carver et al., 1989). Based on these considerations, we speculate that even though the present studies show that the consequences of indulging are maladaptive when the individual has a choice to face or not to face the stressor at hand, indulging may be beneficial for coping with stressors that are characterized as being inescapable, in the sense that they can neither be mastered nor relinquished. For example, elementary school children with low competence expectations of excelling in math should benefit from indulging in future fantasies about their math successes. Mental contrasting, in this case, would only focus them on their low competence, thus, leading them to relinquish efforts to improve in math. Indulging, to the contrary, should pre-

vent them from taking their bleak prospects into consideration, thus fostering at least moderate problem-focused coping and thereby development of unnoticed resources and potentials. In addition, while students are kept moderately engaged through indulging, the teacher can strengthen their efficacy expectations. Once efficacy expectations are strong (Bandura, 1977, 1997; Bandura & Schunk, 1981), mental contrasting procedures can be fruitfully applied.

CONCLUSIONS

Based on William James's (1890/1950) distinction between beliefs and images, we observed that thinking about the future in terms of competence expectations fosters motivation and objective competence, while thinking about the future in terms of competence fantasies is detrimental to motivation and performance. Competence fantasies, however, can be merged with high competence expectations to form binding competence goals. They only need to be contrasted with reflections on impeding reality. This simple procedure of mental contrasting also benefits goal striving: It guarantees that critical feedback is processed in terms of valuable information instead of self-damaging criticism. Moreover, mental contrasting can be used to create goals geared at coping with chronic and acute stress, and when taught as a metacognitive strategy, to prevent long-term stress by fostering ease of decision making and effective resource management.

"The person who is aware of the past knows about the future!" This slogan captures the benefits of mental contrasting, because mental contrasting fosters action according to experiences of the past. The slogan also alludes to the conditions in which mental contrasting is beneficial: whenever one needs to be aware of one's past performance in order to predict the future.

The findings may also be interpreted from a sociocultural perspective. For example, it might be argued that in modern, rather than in more traditional societies, past experience needs to inform future action, because myths and norm-oriented rituals are fading in modern societies and thus cannot guide action anymore. Few norm-oriented rituals

provide assurance and boundaries for acting (by determining who interacts with whom, when, where, and how; Boesch, 1982). What, then, provides the basis for action in modern societies? We suggest that in modern societies, expectations are taking over the function of norms and rituals (Oettingen, 1997). Specifically, by reflecting experiential histories, expectations provide the necessary assurance to act and show the boundaries of acting.

As expectations gain a pivotal role in guiding action, and mental contrasting activates expectations, self-regulatory thought in terms of mental contrasting should be important in modern societies, allowing us to be agents of our own development and change (Bandura, 1989; Brandtstädter & Lerner, 1999). In traditional cultures, to the contrary, where normative rituals rather than expectations guide action, there is less need for mental contrasting. Hence, indulging in the future and dwelling on reality can flourish. Indulging in a desired future has the additional advantage that it helps people to overlook pessimistic expectations about continued hardships of normative constraint, thus providing hope for a better future. Engaging in such hopeful pessimism will prevent disengagement and should yield more positive affect and well-being than mental contrasting.

Although we have pointed at the perils of indulging in a desired future and of dwelling on negative reality throughout this chapter, the latter considerations imply that the benefits of mental contrasting versus indulging and dwelling are context-dependent. Only when expectations need to guide action, and the person can be the agent of his or her own development, should mental contrasting be the beneficial strategy. Under normative constraints, to the contrary, indulging in positive fantasies may well prove to be the more comforting solution.

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