



Sacred Heart
UNIVERSITY

Sacred Heart University
DigitalCommons@SHU

Psychology Faculty Publications

Psychology Department

2003

Self-Efficacy

Jennifer T. Gosselin

Sacred Heart University, gosselinj@sacredheart.edu

James E. Maddux

George Mason University

Follow this and additional works at: http://digitalcommons.sacredheart.edu/psych_fac

 Part of the [Cognition and Perception Commons](#), [Cognitive Psychology Commons](#), and the [Social Psychology Commons](#)

Recommended Citation

Gosselin, Jennifer T., Maddux, James E. "Self-Efficacy." *Handbook of Self and Identity*. Ed. Mark R. Leary and June Price Tangney. New York: The Guilford Press, 2003. Print.

This Book Chapter is brought to you for free and open access by the Psychology Department at DigitalCommons@SHU. It has been accepted for inclusion in Psychology Faculty Publications by an authorized administrator of DigitalCommons@SHU. For more information, please contact ferribyp@sacredheart.edu, lysobeyb@sacredheart.edu.

Self-Efficacy

JAMES E. MADDUX
JENNIFER T. GOSSELIN

“Self” and “identity” are concerned largely with the question, “Who am I?” So often people answer the question, “Who am I?” by asking, “What am I good at?” The study of self-efficacy is concerned with understanding this important aspect of self and identity—people’s beliefs about their personal capabilities and how these beliefs influence what they try to accomplish, how they try to accomplish it, and how they react to successes and setbacks along the way.

Since the publication of Albert Bandura’s “Self-Efficacy: Toward A Unifying Theory of Behavior Change” (1977), the term “self-efficacy” has become ubiquitous in psychology and related fields. Hundreds of articles on every imaginable aspect of self-efficacy have appeared in journals devoted to psychology, sociology, kinesiology, public health, medicine, nursing, and other fields. This research can be only summarized here and cannot be discussed in detail. Thus the goal of this chapter is breadth of coverage, not depth. The first section of this chapter discusses the definition and measurement of self-efficacy. The second section discusses how self-efficacy beliefs develop. The third section discusses the importance of self-efficacy and the application of self-efficacy the-

ory to a number of areas of human adaptation and adjustment.

We begin with some “big picture” information that may provide a context for a better understanding of self-efficacy. Understanding what self-efficacy beliefs are and how they develop requires understanding its theoretical foundation. Self-efficacy is best understood in the context of *social cognitive theory*—an approach to understanding human cognition, action, motivation, and emotion that assumes that people actively shape their environments, rather than simply react to them (Bandura, 1986, 1997, 2001; Barone, Maddux, & Snyder, 1997). Social cognitive theory has at least four basic premises.

First, people have powerful cognitive or symbolizing capabilities that allow them to create internal models of experience. Because of this capacity, people can observe and evaluate their own thoughts, behavior, and emotions. They also can develop new plans of action, make predictions about outcomes, test and evaluate their predictions, and communicate complex ideas and experiences to others.

Second, environmental events, inner personal factors (cognition, emotion, and bio-

logical events), and behaviors are reciprocal influences. People respond cognitively, emotionally, and behaviorally to environmental events. Also, through cognition, people can exercise control over their own behavior, which then influences not only the environment but also their cognitive, emotional, and biological states.

Third, self and identity are socially embedded. They are perceptions (accurate or not) of one's own and others' patterns of social cognition, emotion, and action as they occur in patterns of situations. Because they are socially embedded, self and identity are not simply what people *bring* to their interactions with others; they are created in these interactions, and they change through these interactions.

Fourth, the self-reflective capacities noted here set the stage for self-regulation. People choose goals and regulate their behavior in the pursuit of these goals. At the heart of self-regulation is the ability to anticipate or develop expectancies—to use past knowledge and experience to form beliefs about future events or states, one's abilities, and one's behavior. (The role of self-efficacy beliefs in self-regulation is addressed in greater detail in a later section.)

What Is Self-Efficacy?

Self-efficacy beliefs are beliefs about the ability to “organize and execute the courses of action required to produce given attainments” (Bandura, 1997, p. 3). Thus self-efficacy theory and research are concerned with people's beliefs about personal control and agency. Of course, notions about personal control and agency were not unknown before 1977 but had been discussed by philosophers and psychologists for many years. Spinoza, Hume, Locke, William James, and (more recently) Gilbert Ryle have all struggled with understanding the role of “volition” and “the will” in human behavior (Russell, 1954; Vessey, 1967). In psychology, effectance motivation (White, 1959), achievement motivation (McClelland, Atkinson, Clark, & Lowell, 1953), locus of control (Rotter, 1966), learned helplessness (Abramson, Seligman, & Teasdale, 1978), and other constructs are concerned with perceptions of personal competence

and the relationship between these perceptions and personal effectiveness, achievement, and psychological well-being (see also Skinner, 1995). Most of these models did not distinguish clearly between beliefs that specific behaviors will lead to specific outcomes and the belief that one will be able to perform successfully the behaviors in question, although this distinction had been alluded to before Bandura's 1977 article (Kirsch, 1985). One of the Bandura's major contributions in his 1977 article was that he offered relatively specific definitions of these familiar and commonsense notions and embedded them in a comprehensive theory of behavior. The essential idea of self-efficacy was not new; what were new were the concept's theoretical grounding and the empirical rigor with which it could now be examined.

Defining Self-Efficacy

One way to get a clearer sense of how self-efficacy is defined and measured is to understand how it differs from other concepts that deal with the self, identity, and perceptions of competence and control.

Self-efficacy beliefs are not *competencies*. Competencies are what people know about the world and what they know how to do in the world. They include “the quality and range of the cognitive constructions and behavioral enactments of which the individual is capable” (Mischel, 1973, p. 266) and the ability to “construct (generate) diverse behaviors under appropriate conditions” (Mischel, 1973, p. 265). Self-efficacy beliefs are beliefs (accurate or not) about one's competencies and one's ability to exercise these competencies in certain domains and situations.

Self-efficacy beliefs are not concerned with perceptions of skills and abilities *divorced from situations*; they are concerned, instead, with what people believe they can do with their skills and abilities under certain conditions. In addition, they are concerned not simply with the ability to perform trivial motor acts but with the ability to coordinate and orchestrate skills and abilities in changing and challenging situations.

Self-efficacy beliefs are not simply *predictions* about behavior. They are concerned

not with what people believe they *will* do but with what they believe they *can* do under certain circumstances, especially challenging and changing circumstances.

Self-efficacy beliefs are not *intentions* to behave or intentions to attain particular goals. Intentions are what people say they are committed to doing or accomplishing, not just expectations or predictions of future actions (Bandura, 2001). Intentions are influenced by a number of factors, including but not limited to self-efficacy beliefs (Maddux, 1999a; Maddux & DuCharme, 1997). In addition, self-efficacy beliefs can influence behavior both directly and through their influence on intentions (Bandura, 1997; Maddux & DuCharme, 1997).

Self-efficacy beliefs are not *outcome expectancies* (Bandura, 1997) or *behavior-outcome expectancies* (Maddux, 1999b). Self-efficacy is an evaluation of how well one can mobilize one's resources to accomplish goals. An outcome expectation is a "judgment of the likely consequence such performances will produce" (Bandura, 1997, p. 21). Thus, as people contemplate a goal and approach a task, they consider what behaviors and strategies are necessary to produce the outcome they want, and they evaluate to what extent they can perform those behaviors and implement those strategies.

Self-efficacy is not *perceived control*. The perception of control depends on the belief that (1) certain behaviors will allow one to control what one wants to control (behavior-outcome expectancies) and (2) that one can enact those behaviors (self-efficacy expectancies; Kirsch, 1999; Maddux, 1999b; see also Baumeister & Vohs, Chapter 10, this volume, and Ryan & Deci, Chapter 13, this volume).

Self-efficacy beliefs are not *causal attributions*. Causal attributions are explanations for events, including one's own behavior and its consequences. Self-efficacy beliefs can influence causal attributions and vice versa because beliefs about competencies can influence explanations of success and failure and because explanations for success and failure will, in turn, influence perceptions of competence. For example, people with low self-efficacy for an activity are more likely than people with high self-efficacy to attribute success in that activity to

external factors rather than to personal capabilities (Bandura, 1986, 1989; Schunk, 1995).

Self-efficacy is not *self-concept* or *self-esteem*. Self-concept is what people believe about themselves, and self-esteem is how people feel about what they believe about themselves. Self-efficacy beliefs are an important aspect of self-concept (e.g., Deci & Ryan, 1995), but self-concept includes many other beliefs about the self that are unrelated to self-efficacy, such as beliefs about physical attributes and personality traits. Self-efficacy beliefs in a given domain will contribute to self-esteem only in direct proportion to the importance one places on that domain. My (J. E. M.) self-efficacy beliefs for playing basketball are very low (and accurately so), but my self-efficacy for playing basketball rarely affects my self-esteem, because I usually care very little about whether or not I am good at playing basketball. My self-efficacy for teaching and writing chapters and articles, however, is an entirely different matter. The impact of self-efficacy beliefs on self-esteem also will depend on their accessibility under given circumstances (Showers, 1995). Take me out of the classroom and put me on a basketball court, and my self-esteem probably will be temporarily somewhat deflated (see also the chapters in Part II of this volume, on content, structure, and organization of the self).

Self-efficacy is not a *trait*. Most conceptions of competence and control—locus of control (Rotter, 1966), optimism (Carver & Scheier, 2002), hope (Snyder, Rand, & Sigmon, 2002), hardiness (Kobasa, 1979), learned resourcefulness (Rosenbaum, 1990)—are conceived of as traits or trait-like. Self-efficacy beliefs are important in all of these constructs, but self-efficacy is defined and measured not as a trait but as beliefs about the ability to coordinate skills and abilities to attain desired goals in particular domains and circumstances. Self-efficacy beliefs can generalize from one situation or task to another, depending on the similarities between the task demands and the skills and resources required to meet those demands (e.g., Samuels & Gibbs, in press), but self-efficacy in a specific domain does not emanate from a general sense of efficacy. Measures of traits, such as optimism and

perceived control, seem to predict behavior only to the extent to which they overlap with the measurement of self-efficacy (Cozzarelli, 1993; Dzewaltowski, Noble, & Shaw, 1990). In addition, measures of global efficacy beliefs have been developed (e.g., Schwarzer, Baessler, Kwiatek, Schroder, & Zhang, 1997; Sherer et al., 1982; Tipton & Worthington, 1984) and are used frequently in research, but they have not demonstrated predictive value above that of domain-specific self-efficacy measures (Martin & Gill, 1991; Pajares & Johnson, 1996).

Are There Different Types of Self-Efficacy?

The variety of ways in which self-efficacy beliefs have been measured by various researchers and the various domains and levels of specificity or generality with which self-efficacy has been measured might lead one to conclude that there are different “types” of self-efficacy (e.g., Cervone, 2000; Mone, 1994; Schwarzer & Renner, 2000). The confusion arises partly because the term “self-efficacy” has been used in at least two different ways in research: (1) as the perceived ability to perform a particular behavior, which Kirsch (1995) has called *task self-efficacy*; and (2) the perceived ability to prevent, control, or cope with potential difficulties that might be encountered when engaged in a performance, which Kirsch called *coping self-efficacy* (see also Schwarzer & Renner, 2000; Williams, 1995). Kirsch’s task self-efficacy is similar to Bandura’s original (1977) definition of self-efficacy as “the conviction that one can successfully execute the behavior required to produce the outcomes” (p. 193). Kirsch’s coping self-efficacy is more similar to Bandura’s more recent (1997) definition of self-efficacy as the ability to “organize and execute the courses of action required to produce given attainments” (p. 3).

Of course, the names researchers give measures can be misleading. Just because two researchers use the term “self-efficacy” for two different measures does not mean that those measures are measuring two different “types” of self-efficacy or even that they are measuring self-efficacy at all. Self-efficacy should not be viewed as a construct with different “types”; rather, measures of self-efficacy are tailored for different types

of behaviors and performances in different domains and situations, ranging from relatively simple motor acts (Kirsch’s task self-efficacy) to complex and challenging behavioral sequences and orchestrations (Kirsch’s coping self-efficacy). For example, “hammering nails” and “sawing wood” may be simple (but not always easy) motor acts, but “building a house” is a complex undertaking that requires abilities beyond the effective manipulation of tools. One can have a self-efficacy belief for each of these motor acts, and one can have self-efficacy beliefs for building a house. Each requires some generative capability, although the generative capability required for hammering a nail is relatively small, whereas the generative capability required for building a house is relatively large. Likewise, “self-efficacy for condom use” could have two very different meanings—one trivial, one important. A person could have strong self-efficacy for slipping a condom over a penis but weak self-efficacy for “using a condom.” Convincing a resistant partner to wear a condom requires complex social skills and self-management skills that go far beyond the ability to slip a vinyl casing over a shaft of flesh (e.g., Siegel, Mesagno, Chen, & Christ, 1989). Beliefs concerning the ability to execute these different behaviors and sequences are not different types of self-efficacy; rather, they are self-efficacy beliefs for different types of performances.

Is the belief that one can attain one’s goal, as opposed to the belief that one can execute certain strategies for attaining goals, a type of self-efficacy, as some suggest (e.g., Cervone, 2000)? Should researchers use the term “self-efficacy” to refer to expectancies for attaining outcomes and goals and to expectancies for engaging in behaviors and performances to attain outcomes and goals (e.g., Bandura, 1995; Mone, 1994)? The answer depends on how the terms “performance,” “goal,” and “outcome” are defined. For example, getting an A in a course is neither a behavior nor a performance; it is an outcome that results from engaging in many behaviors and performances. Because a goal is a desired outcome, getting an A can certainly be a goal. Furthermore, getting an A is a marker of performance attainment (Bandura, 1995) because the A is the marker that indicates that one’s performances

were ultimately successful. The A, however, is a measure of the success of the performance, not the performance itself. Therefore, talking about "self-efficacy for getting an A" expands the meaning of self-efficacy from beliefs about performing behaviors and mobilizing resources to beliefs about attaining goals and outcomes. We should not use the term "self-efficacy" to refer to the expectancy for attaining an outcome (goal, performance marker) if we also use the term "self-efficacy" to refer to the expectancy engaging in the performances that lead to the goal. What we call this expectancy for attaining a goal is less important than acknowledging that it is not the same as the expectancy for performing behavior or mobilizing the resources that might lead to the goal. Kirsch's (1995) "personal outcome expectancy" and McClelland's (1984) "probability of success" are reasonable names for the former construct.

Measuring Self-Efficacy Beliefs

To be useful in research and practice, concepts need to be translated into operational definitions or measurement strategies. In addition, concepts will be most useful when their operational definitions are consistent across studies. Unfortunately, self-efficacy has been measured in such a variety of ways that comparing findings from one study with those of another often is difficult, as Forsyth and Carey (1998) point out regarding research on self-efficacy and safe sex behavior. For this reason, a few guidelines for measuring self-efficacy beliefs might be useful.

As noted previously, self-efficacy is not a trait and should not be measured as such. Instead, self-efficacy measures should be specific to the domain of interest (e.g., social skills, exercise, dieting, safe sex, arithmetic skills). Within a given domain, self-efficacy beliefs can be measured at varying degrees of behavioral and situational specificity, depending on what one is trying to predict. Thus the measurement of self-efficacy should be designed to capture the multifaceted nature of behavior and the context in which it occurs. Specifying behaviors and contexts improves the predictive power of self-efficacy measures, but such specificity can reach a point of diminishing returns if

carried too far. Therefore, the researcher must "know the territory" and have a thorough understanding of the behavioral domain in question, including the types of abilities called on and the range of situations in which they might be used (Bandura, 1997).

Self-efficacy measures can err in the direction of being not specific enough. For example, a poor measure of self-efficacy for dieting would be, "How confident are you that you will be able to stick to your diet when tempted to break it?" (Typically a scale of 1 to 7, 1 to 10, or 1 to 100 is used.) A good measure would be, "How confident are you that you will be able to stick to your diet when watching television?" (also "when depressed," "when someone offers you high fat food," "when eating breakfast at a restaurant"). These items should include a range of situations that offer a range of challenge from very easy to very difficult. Self-efficacy measures also can err in the direction of excessive specificity. For example, an assessment of self-efficacy for engaging in safe sex might include the item, "How confident are you that you could resist your partner's insistence that using a condom isn't necessary?" But an item that asks, "How confident are you that you could open the wrapper?" probably is neither necessary nor useful. Likewise, a good measure of self-efficacy for exercise might include an item concerning confidence in "your ability to fit a short walk or run into a busy day," but asking about confidence in "your ability to tie your running shoes" probably is going a little too far.

The information about behaviors and situations that is essential for constructing good self-efficacy measures can be acquired through interviews and surveys with people for whom the problem domain at hand is relevant, such as people who are trying to lose weight or engage in regular exercise (Bandura, 1997). (For additional guidelines, see Bandura, 1997, pp. 42-50, and Bandura, 1995.)

How Self-Efficacy Beliefs Develop

Major Sources of Self-Efficacy Beliefs

Self-efficacy beliefs are the result of information integrated from five sources: performance experience, vicarious experience,

imaginal experience, verbal persuasion, and affective and physiological states.

One's own *performance experiences* are the most powerful source of self-efficacy information (Bandura, 1977, 1997). Successful attempts at control that one attributes to one's own efforts will strengthen self-efficacy for that behavior or domain. Perceptions of failure at control attempts usually diminish self-efficacy.

Self-efficacy beliefs also are influenced by *vicarious experiences*—observations of the behavior of others and the consequences of that behavior. People use these observations to form expectancies about their own behavior and its consequences, depending primarily on the extent to which a person believes that he or she is similar to the person he or she is observing. Vicarious experiences generally have weaker effects on self-efficacy expectancy than do performance experiences (Bandura, 1997).

People can influence their self-efficacy beliefs by *imagining* themselves or others behaving effectively or ineffectively in hypothetical situations. Such images can be inadvertent ruminations, or they can be an intentional self-efficacy enhancement strategy. These images may be derived from actual or vicarious experiences with situations similar to the one anticipated, or they may be induced by verbal persuasion, as when a psychotherapist guides a client through imagination-based interventions such as systematic desensitization and covert modeling (Williams, 1995). Simply imagining oneself doing something well, however, is not likely to have as strong an influence on self-efficacy as will an actual success experience (Williams, 1995).

Self-efficacy beliefs are influenced by *verbal persuasion*—what others say to one about one's abilities and probability of success. The potency of verbal persuasion as a source of self-efficacy beliefs is influenced by such factors as the expertness, trustworthiness, and attractiveness of the source, as suggested by decades of research on verbal persuasion and attitude change (e.g., Eagly & Chaiken, 1993). Verbal persuasion is a less potent source of enduring change in self-efficacy than are performance experiences and vicarious experiences.

Physiological and emotional states influence self-efficacy when people learn to asso-

ciate poor performance or perceived failure with aversive physiological arousal and success with pleasant emotions. Thus, when people become aware of unpleasant physiological arousal, they are more likely to doubt their competence than if their physiological states are pleasant or neutral. Likewise, comfortable physiological sensations are likely to lead people to feel confident in their ability to deal with the situation at hand. Physiological indicants of self-efficacy expectancy, however, extend beyond autonomic arousal. For example, in activities involving strength and stamina, such as exercise and athletic performances, perceived efficacy is influenced by such experiences as fatigue and pain (Bandura, 1997).

Self-efficacy beliefs for a given performance in a given situation will be the result of the confluence of proximal (current) and distal (past) information from these five sources. For example, social self-efficacy during an ongoing interaction, such as a job interview or conversation with someone to whom one is attracted, will be determined by a variety of proximal and distal sources of information about one's social self-efficacy. Distal sources include past perceived successes and failures in similar interactions, evaluations about one's social skills made by important others, and recollection of one's physiological and emotional states during these similar interactions. Thus the person enters the new situation with well-formed beliefs about his or her ability to negotiate the situation successfully—beliefs that can lead to emotional comfort or to distress. Proximal sources of social self-efficacy might include one's physiological and emotional states (e.g., relaxed vs. anxious, happy vs. sad); one's own evaluation of one's ongoing performance; comments from others in the interaction; and interpretations of the reactions of others, which together may suggest, on a moment-to-moment basis, whether or not one is moving toward achieving one's goals in the situation, including self-presentational goals (Leary & Kowalski, 1995; Maddux, Norton, & Leary, 1988). Just as proximal consequences usually exert greater control over behavior than distal (future) consequences, proximal information about self-efficacy is likely to have a more powerful immediate effect on current self-efficacy

and performance than distal past sources (see Kihlstrom, Beer, & Klein, Chapter 4, this volume).

Developmental Aspects of Self-Efficacy Beliefs

Self-efficacy beliefs develop over time through experience and through the interactions among the factors and forces noted previously. The process begins in infancy and continues throughout life. The early development of self-efficacy beliefs is influenced primarily by the development of the capacity for symbolic thought; the development of a sense of a "self" that is separate from others; and the reciprocal interaction of one's own behavior, the environment's responsiveness to one's behavior, and self-appraisal of one's performance (Bandura, 1997).

Infants who are only a few months old show some understanding of cause-and-effect relationships (Leslie, 1982; Mandler, 1992). As the infant's capacity for symbolic thought and memory increase, she comes to realize that she is distinct from others and from objects. He learns that biting his teddy bear's hand does not hurt but that biting his own hand does. She develops a sense of personal agency by performing the few actions of which she is capable, such as flailing her arms and legs, cooing, and grabbing and shaking objects. With repeated observations of actions and their consequences, he learns that he can affect his environment. As it becomes increasingly clear that outcomes are contingent on her behavior, the infant will attempt novel actions and examine their outcomes. These observations give her an understanding of the control she has over her surroundings.

On the other hand, if the infant repeatedly experiences delays in or absence of behavior-outcome contingency, such as observing a mechanical mobile that moves regardless of his behavior, he is less likely to come to understand and employ cause-and-effect relationships (Watson, 1977). Parents' responses to a child's attempts at exercising agency can influence greatly the development of efficacy beliefs (Bandura, 1997; Maxwell, 1998).

Thus the development of a sense of personal agency begins in infancy and moves

from the perception of the causal relationship between events to an understanding that actions produce results to the recognition that one can produce actions that cause results (Bandura, 1997). As children's understanding of language increases, so does their capacity for symbolic thought and, therefore, their capacity for self-awareness and a sense of personal agency (Bandura, 1997; see also Harter, Chapter 30, this volume).

With each subsequent developmental period, the individual faces new demands and challenges that can build or diminish self-efficacy in the major domains of life. For example, in childhood, social self-efficacy beliefs are related to greater prosocial coping and less antisocial coping with interpersonal difficulties, and they predict how children manage or regulate their emotions (Denham, 1998). With adolescence comes the need to manage the demands of academics and peer relationships, physiological changes that result in sexual urges, and demands for increasing autonomy and responsibility—such as making decisions about sex and substance use. Making responsible decisions requires self-regulatory skills, whereby individuals guide their own actions by comparing what they are about to do with self-standards and develop plans and strategies to meet these standards (Bandura, 1997). For adolescents, an important aspect of self-regulation is the ability to think and act independently of others and to balance this ability with strong needs to affiliate. Thus adolescents who have a strong enough sense of self-efficacy to overcome peer pressure are less likely to abuse substances or to engage in unsafe sexual or in delinquent behavior (Caprara et al., 1998; Ludwig & Pittman, 1999).

Adulthood brings additional concerns and demands, primarily in the domains of work and relationships. Beliefs about personal abilities influence occupational choices, career paths, job-seeking behavior, and job performance (Bandura, 1997). Following job loss, job-seeking behavior can be enhanced by improving self-regulatory behavior and developing effective coping and problem-solving techniques (Vinokur, van Ryn, Gramlich, & Price, 1991). Individuals who have low self-efficacy in the area of vocational skills discourage themselves from

applying for more appealing jobs (Wheeler, 1983).

Emerging adults also develop beliefs about their ability to fulfill certain roles, such as parenthood, and these beliefs influence how these roles are carried out (Bandura, 1997). For example, parents with higher goals for their children and who feel highly efficacious about their ability to advance their children's intellectual growth produce children with greater academic achievement (Bandura, Barbaranelli, Caprara, & Pastorelli, 1996). Efficacy beliefs can influence emotions experienced while performing adult roles. For example, mothers with higher parenting self-efficacy report less distress about parenting (Halpern & McLean, 1997). Parenting efficacy is influenced by a number of factors, such as the child's temperament and physical health and the social support available to the parent. Hence, the reciprocal interplay of a variety of factors influences the development of parental self-efficacy, which in turn influences parenting behaviors and the child's responses (Bandura, 1997).

In later life, self-efficacy often diminishes in a wide array of major life domains, including health, relationships, and cognitive tasks such as memory (McAvay, Seeman, & Rodin, 1996; McDougal, 1995). Self-efficacy for memory in older adults is malleable through experimental induction, and these induced positive changes in memory self-efficacy can facilitate recall of information (Gardiner, Luszcz, & Bryan, 1997). Although age-related declines in efficacy beliefs may reflect actual declines in ability, providing incentives to exercise one's memory might enhance subsequent memory performance. Among the infirm aged, the structure and organization of institutions (e.g., nursing homes) may actually diminish self-efficacy in important domains by limiting mastery experiences (Welch & West, 1995).

How and Why Self-Efficacy Beliefs Are Important

Self-efficacy plays a crucial role in our everyday lives in countless ways. Seven important areas that have received considerable attention from researchers are (1) self-

regulation, (2) psychological well-being and adjustment, (3) physical health, (4) psychotherapy, (5) education, (6) occupational choice and performance, and (7) collective efficacy among groups and organizations. We begin by describing the role of self-efficacy beliefs in self-regulation because it is from self-efficacy's effect of self-regulatory ability that all of its other effects flow.

Self-Efficacy and Self-Regulation

One of the most important consequences of the development of self-efficacy beliefs (either strong ones or weak ones) is the development of capacity for self-regulation. Like self-efficacy, the capacity for self-regulation is not a fixed and generalized personality trait; instead, it is a set of skills that, like self-efficacy beliefs, develop in particular domains. As we have all seen in our own behavior and that of others, people can be relatively good self-regulators in some aspects of their lives and relatively poor self-regulators in others. Witness the highly disciplined athlete or the driven and committed public servant who makes a mess of his or her personal life or finances through careless, impulsive behavior. Yet studies of otherwise unexceptional people who have overcome difficult behavioral problems without professional help provide compelling evidence for people's capacity for self-regulation under even highly challenging circumstances (e.g., Prochaska, Norcross, DiClemente, 1994). Research on self-efficacy has added greatly to our understanding of how people guide their own behavior in the pursuit of their goals and how they sometimes fail to do so effectively.

Self-regulation (simplified) depends on four interacting components (Bandura, 1986, 1997; Barone, Maddux, & Snyder, 1997): goals or standards of performance; feedback; self-evaluative reactions to performance; and self-efficacy beliefs (see also Baumeister & Vohs, Chapter 10, this volume).

Goals are essential to self-regulation because people attempt to regulate their actions, thoughts, and emotions to achieve desired outcomes. The ability to envision desired future events and states allows people to create incentives that motivate and guide their actions. Goals also provide peo-

ple with personal standards against which to monitor their progress and evaluate both their progress and their abilities.

Feedback is information about progress toward or away from a goal. This information can be provided by the physical environment, by other people, or by oneself. Feedback is essential to the effectiveness of goals (Locke & Latham, 1990).

People do not simply perceive information; they *interpret* it. Likewise, feedback about progress toward or away from a goal is interpreted, and different people will interpret the same feedback in different ways and react to it in different ways. Thus *self-evaluative reactions* are important in self-regulation because people's beliefs about the progress they are making (or not making) toward their goals are major determinants of their emotional reactions during goal-directed activity. These emotional reactions, in turn, can enhance or disrupt self-regulation. The belief that one is inefficacious and making poor progress toward a goal produces distressing emotional states (e.g., anxiety, depression) that can lead to cognitive and behavioral ineffectiveness and self-regulatory failure. Strong self-efficacy beliefs and strong expectations for goal attainment, however, usually produce adaptive emotional states that, in turn, enhance self-regulation.

Self-efficacy beliefs influence self-regulation in several ways. First, they influence the tasks people decide to tackle. The higher one's self-efficacy in a specific achievement domain, the loftier will be the goals that one sets for oneself in that domain.

Second, self-efficacy beliefs influence people's choices of goal-directed activities, expenditure of effort, persistence in the face of challenge and obstacles (Bandura, 1986, Locke & Latham, 1990), and reactions to perceived discrepancies between goals and current performance (Bandura, 1986). In the face of difficulties, people with weak self-efficacy beliefs easily develop doubts about their ability to accomplish the task at hand, whereas those with strong efficacy beliefs continue their efforts to master a task when difficulties arise. Perseverance usually produces desired results, and this success then strengthens the individual's self-efficacy beliefs. Motivation to accomplish difficult tasks and accomplish lofty goals is en-

hanced by overestimates of personal capabilities (i.e., positive illusions; Taylor & Brown, 1988), which then become self-fulfilling prophecies when people set their sights high, persevere, and surpass their previous levels of accomplishments. People with strong efficacy beliefs in a given domain will be relatively resistant to the disruptions in self-regulation that can result from difficulties and setbacks. As a result, they will persevere. Perseverance usually produces desired results, and this success then increases one's sense of efficacy.

Through the monitoring of their behavior and the situation, people develop beliefs not only about their current level of competence but also about the *rate* of improvement in competence and the rate of progress toward their goals. Motivation is not static, and at any given time, self-efficacy, affect, and behavior will be influenced not only by beliefs about one's current level of competence but also by the expected rate of change in competence or movement toward a goal. For example, a person learning a new skill will be concerned not just with whether or not he or she will attain a certain level of proficiency but also with how quickly he or she will attain that level of proficiency. People are more likely to persist in developing a skill or persist in efforts toward a goal if they believe that proficiency in the skill or attainment of the goal will come sooner rather than later.

Third, self-efficacy for solving problems and making decisions influences the efficiency and effectiveness of problem solving and decision making. When faced with complex decisions, people who have confidence in their ability to solve problems use their cognitive resources more effectively than do those people who doubt their cognitive skills (e.g., Bandura, 1997). Such efficacy usually leads to better solutions and greater achievement. In the face of difficulty, a person with high self-efficacy is more likely to remain *task-diagnostic* and continue to search for solutions to problems. Those with low self-efficacy, however, are more likely to become *self-diagnostic* and reflect on their inadequacies, which distracts them from their efforts to assess and solve the problem (Bandura, 1997).

Most of the research on the effect of self-efficacy on self-regulation suggests that

“more is better”—that is, the higher one’s self-efficacy, the more effective one’s self-regulation in pursuit of a goal. But can self-efficacy be too high? Perhaps so, in at least two ways. First, as Bandura (1986) has suggested, “a reasonably accurate appraisal of one’s capabilities is . . . of considerable value in effective functioning” and people who overestimate their abilities may “undertake activities that are clearly beyond their reach” (p. 393). Certainly, an important feature of effective self-regulation is to know when to disengage from a goal because one’s efforts are not paying off. Although strong self-efficacy beliefs usually contribute to adaptive tenacity, if these beliefs are unrealistically high, they may result in the relentless pursuit of an obviously (to observers) unattainable goal. Thus high self-efficacy beliefs that are not supported by past experience or rewarded by positive goal-related feedback can result in wasted effort and resources that might be better directed elsewhere. As of yet, however, we have no way of determining when self-efficacy is “too high” and at what point people should give up trying to achieve their goals.

Second, the way in which strong self-efficacy beliefs develop can be important. Strong self-efficacy beliefs that are attained too quickly and easily may lead to complacency and diminished effort and performance. People who develop strong efficacy beliefs without effort and struggle may set lower goals than do those who attain strong efficacy beliefs through hard work. In addition, those who too easily attain strong efficacy beliefs may alter their performance standards and be too easily satisfied by performance feedback, including declining performance (Bandura & Jourdan, 1991). As a result, progress toward a goal may be hindered.

Psychological Well-Being and Adjustment

The belief that one has good self-regulatory skills is an important contributor to good psychological health and adjustment. Most philosophers and psychological theorists agree that a sense of control over one’s behavior, one’s environment, and one’s own thoughts and feelings is essential for happiness and a sense of well-being. When the world seems predictable and controllable,

and when behaviors, thoughts, and emotions seem within their control, people are better able to meet life’s challenges, build healthy relationships, and achieve personal satisfaction and peace of mind. Feelings of loss of control are common among people who seek the help of psychotherapists and counselors.

Self-efficacy beliefs play a major role in a number of common psychological problems. Low self-efficacy expectancies are an important feature of depression (Bandura, 1997; Bandura, Pastorelli, Barbaranelli, & Caprara, 1999; Kavanaugh, 1992; Maddux & Meier, 1995). Depressed people usually believe they are less capable than other people of behaving effectively in many important areas of life. They usually doubt their ability to form and maintain supportive relationships and therefore may avoid potentially supportive people during periods of depression. Dysfunctional anxiety and avoidant behavior are often the direct result of low self-efficacy expectancies for managing threatening situations (Bandura, 1997; Williams, 1995; Williams, Kinney, Harap, & Liebmann, 1997). People who have strong confidence in their abilities to perform and manage potentially difficult situations will approach those situations calmly and will not be unduly disrupted by difficulties. On the other hand, people who lack confidence in their abilities will either avoid potentially difficult situations or approach them with apprehension, thereby reducing the probability that they will perform effectively. Thus they will have fewer success experiences and fewer opportunities to increase their self-efficacy. People with low self-efficacy also will respond to difficulties with increased anxiety, which usually disrupts performance, thereby further lowering self-efficacy, and so on. Stressful events often result in physical symptoms (e.g., headache), as well as psychological symptoms, and self-efficacy beliefs influence the relationship between stressful events and physical symptoms (Arnstein, Caudill, Mandl, Norris, & Beasley, 1999; Marlowe, 1998). Self-efficacy beliefs also predict effective coping with traumatic life events such as homelessness (Epel, Bandura, & Zimbardo, 1999) and natural disasters (Benight, Swift, Sanger, Smith, & Zeppelin, 2000).

Among people recovering from substance abuse, self-efficacy for avoiding relapse in high-risk situations and for recovery from relapse play a powerful role in successful abstinence (Bandura, 1999; DiClemente, Fairhurst, & Piotrowski, 1995; Mudde, Kok, & Strecher, 1996; Oei, Fergusson, & Lee, 1998). The same is true in the successful treatment of people with eating disorders (Goodrick et al., 1999) and of male sex offenders (Pollock, 1996).

Self-Efficacy and Physical Health

Health and medical care in our society gradually has been shifting from an exclusive emphasis on the treatment of disease to an emphasis on the prevention of disease and the promotion of good health. Most strategies for preventing health problems, enhancing health, and hastening recovery from illness and injury involve changing behavior. In addition, psychology and physiology are tightly intertwined such that affective and cognitive phenomena are influenced by physiological phenomena and vice versa (e.g., Bandura, 1986). Thus beliefs about self-efficacy influence health in two ways—through their influence on the behaviors that affect health and through their direct influence on physiological processes.

First, self-efficacy influences the adoption of healthy behaviors, the cessation of unhealthy behaviors, and the maintenance of behavioral changes in the face of challenge and difficulty. Research on self-efficacy has greatly enhanced our understanding of how and why people adopt healthy and unhealthy behaviors and of how to change behaviors that affect health (Bandura, 1997; Maddux, Brawley, & Boykin, 1995; O'Leary & Brown, 1995). All of the major theories of health behavior, such as protection motivation theory (Maddux & Rogers, 1983; Rogers & Prentice-Dunn, 1997), the health belief model (Strecher, Champion, & Rosenstock, 1997), and the theory of reasoned action—planned behavior (Ajzen, 1988; Fishbein & Ajzen, 1975; Maddux & DuCharme, 1997) include self-efficacy as a key component (see also Maddux, 1993; Weinstein, 1993). In addition, self-efficacy beliefs are crucial to successful change and maintenance of virtually every behavior cru-

cial to health: exercise, diet, stress management, safe sex, smoking cessation, overcoming alcohol abuse, compliance with treatment and prevention regimens, and detection behaviors such as breast self-examinations (AbuSabha & Achterberg, 1997; Bandura, 1997; Bryan, Aiken, & West, 1997; Dawson & Brawley, 2000; Ewart, 1995; Holman & Lorig, 1992; Maddux et al., 1995; Schwarzer, 1992).

Second, self-efficacy beliefs influence a number of biological processes that, in turn, influence health and disease (Bandura, 1997). Self-efficacy beliefs affect the body's physiological responses to stress, including the immune system (Bandura, 1997; O'Leary & Brown, 1995) and the physiological pathways activated by physical activity (Rudolph & McAuley, 1995). Lack of perceived control over environmental demands can increase susceptibility to infections and hasten the progression of disease (Bandura, 1997). Self-efficacy beliefs also influence the activation of catecholamines, a family of neurotransmitters important to the management of stress and perceived threat, along with the endogenous painkillers referred to as endorphins (Bandura, 1997; O'Leary & Brown, 1995).

Self-Efficacy and Psychotherapy

The term "psychotherapy" refers to professionally guided interventions designed to enhance psychological well-being, although it must be acknowledged that the client's *self-regulation* plays an important role in all such interventions. In fact, most professionally guided interventions are designed to enhance self-regulation because they are concerned with helping people gain or regain a sense of efficacy over important aspects of their lives (Frank & Frank, 1991). Different interventions, or different components of an intervention, may be equally effective because they equally enhance self-efficacy for crucial behavioral and cognitive skills (Bandura, 1997; Maddux & Lewis, 1995).

Self-efficacy theory emphasizes the importance of arranging experiences designed to increase the person's sense of efficacy for specific behaviors in specific problematic and challenging situations. Self-efficacy theory suggests that formal interventions should not simply resolve specific problems

but should provide people with the skills and sense of efficacy for solving problems themselves. Some basic strategies for enhancing self-efficacy are based on the five sources of self-efficacy previously noted.

Performance Experience

In facilitating self-efficacy, few things are more important than having people provide themselves with tangible evidence of their success. When people actually can see themselves coping effectively with difficult situations, their sense of mastery is likely to be heightened. These experiences are likely to be most successful when both goals and strategies are specific. Goals that are concrete, specific, and proximal (short range) provide greater incentive, motivation, and evidence of efficacy than goals that are abstract, vague, and set in the distant future (Locke & Latham, 1990). Specific goals allow people to identify the specific behaviors needed for successful achievement and to know when they have succeeded (Locke & Latham, 1990). For example, the most effective interventions for phobias and fears involve *guided mastery*—*in vivo* experience with the feared object or situation during therapy sessions, or between sessions as “homework” assignments (Williams, 1995). In cognitive treatments of depression, clients are provided structured guidance in arranging success experiences that will counteract low self-efficacy expectancies (Hollon & Beck, 1994).

Verbal Persuasion

Most formal psychological interventions rely strongly on verbal persuasion to enhance a client’s self-efficacy by encouraging small risks that may lead to small successes. In cognitive and cognitive-behavioral therapies, the therapist engages the client in a discussion of the client’s dysfunctional beliefs, attitudes, and expectancies and helps the client see the irrationality and self-defeating nature of such beliefs. The therapist encourages the client to adopt new, more adaptive beliefs and to act on these new beliefs and expectancies. As a result, the client experiences the successes that can lead to more enduring changes in self-efficacy beliefs and adaptive behavior (see Hollon & Beck, 1994; and In-

gram, Kendall, & Chen, 1991, for reviews). People also rely daily on verbal persuasion as a self-efficacy facilitator by seeking the support of other people when attempting to lose weight, quit smoking, maintain an exercise program, or summon up the courage to confront a difficult boss or loved one.

Vicarious Experience

Vicarious learning strategies can be used to teach new skills and enhance self-efficacy for those skills. For example, modeling films and videotapes have been used successfully to encourage socially withdrawn children to interact with other children. The child viewing the film sees the model child, someone much like himself, experience success and comes to believe that he too can do the same thing (Conger & Keane, 1981). Modeling can be particularly effective if models demonstrate or describe their struggle and success with managing difficult task demands rather than model a seemingly effortless, flawless performance (Bandura, 1997). *In vivo* modeling has been used successfully in the treatment of phobic individuals. This research has shown that changes in self-efficacy beliefs for approach behaviors mediate adaptive behavioral changes (Bandura, 1986; Williams, 1995). Common everyday (nonprofessional) examples of the use of vicarious experiences to enhance self-efficacy include advertisements for weight-loss and smoking cessation programs that feature testimonials from successful people. The clear message from these testimonials is that the listener or reader also can accomplish this difficult task. Formal and informal “support groups”—people sharing their personal experiences in overcoming a common adversity such as addiction, obesity, or illness—also provide forums for the enhancement of self-efficacy.

Imaginal Experience

Live or filmed models may be difficult to obtain, but the imagination is an easily harnessed resource. Imagining oneself engaging in feared behaviors or overcoming difficulties can be used to enhance self-efficacy. For example, cognitive therapy for anxiety and fear problems often involves modifying visual images of danger and anxiety, including

images of coping effectively with the feared situation. Imaginal (covert) modeling has been used successfully in interventions to increase assertive behavior and self-efficacy for assertiveness (Kazdin, 1979). Systematic desensitization and implosion are traditional behavioral therapy techniques that rely on the ability to image coping effectively with a difficult situation (Emmelkamp, 1994). Because maladaptive distorted imagery is an important component of anxiety and depression, various techniques have been developed to help clients modify distortions and maladaptive assumptions contained in their visual images of danger and anxiety. A client can gain a sense of control over a situation by imagining a future self that can deal effectively with the situation.

Physiological and Emotional States

People usually feel more self-efficacious when calm than they do when aroused and distressed. Thus strategies for controlling and reducing emotional arousal (specifically anxiety) while attempting new behaviors should increase self-efficacy and increase the likelihood of successful implementation. Hypnosis, biofeedback, relaxation training, meditation, and medication are the most common strategies for reducing the physiological arousal typically associated with low self-efficacy and poor performance.

Enhancing the Impact of Success

Success is subjective, and accomplishments that are judged "successful" by observers are not always judged so by the performer. People often discount self-referential information that is inconsistent with current self-views (Barone et al., 1997; Fiske & Taylor, 1991). Thus, when people feel distressed and believe they are incompetent and helpless, they are likely to ignore or discount information from therapists, family, friends, and their own behavioral successes that is inconsistent with their negative self-beliefs (Barone et al., 1997; Fiske & Taylor, 1991). Therefore, therapists need to make concerted efforts to increase success experiences, but they also must encourage clients to interpret that success *as success* and as the result of their own efforts. Success experiences can be made more effective in two ways.

First, people who view competence as a set of skills to be performed in specific situations rather than as a trait and as *incremental* (acquirable through effort and experience) rather than *fixed* are more likely to persist in the face of obstacles (Dweck, 2000). The development of an incremental view of competence can be encouraged by the comparison of recent successful behaviors with past ineffective behaviors. Therefore, therapists need to teach clients to be eternally vigilant for success experiences and to actively retrieve past successes in times of challenge and doubt.

Second, changes in *causal attributions* can result in changes in self-efficacy. Self-efficacy can be enhanced by attributing successes to one's own effort and ability rather than to environmental circumstances or to the expertise and insights of others (Forsterling, 1986; Goldfried & Robins, 1982; Thompson, 1991). In addition, an individual who holds strong self-efficacy beliefs will be more resilient when setbacks occur and will be more likely to attribute failure to inadequate effort rather than to personal inability. Therefore, therapists should encourage clients to attribute successful change to their own efforts and abilities, not to the therapist's power or expertise.

Education

Children's educational efficacy beliefs are powerful predictors of their educational achievements (e.g., Schunk, 1995; Schunk & Zimmerman, 1997), although the pathways through which efficacy operates are diverse and complex (Bandura et al., 1996). Measures of academic self-efficacy are more powerful predictors of educational achievement than are global measures of academic self-concept (Bong & Clark, 1999).

A stronger sense of academic self-efficacy is associated with a greater likelihood of seeking help from teachers (Ryan, Gheen, & Midgley, 1998). The unfortunate paradox here is that the students with the least confidence in their abilities—the ones who may be most in need of help—are the least likely to seek help, an avoidance strategy that can only serve as a barrier to both skill acquisition and efficacy enhancement.

A child's academic success depends not only on his or her sense of efficacy but also

on the efforts (or lack thereof) of his or her parents. Successful parental involvement in a child's education appears to be influenced strongly by the parents' sense of efficacy for helping their children succeed academically (Bandura et al., 1996; Hoover-Dempsey & Sandler, 1997).

Occupational Choice and Performance

Few choices have greater impact on life satisfaction than one's choice of occupation or career. These choices are often limited not by deficiencies in skills and abilities but by deficiencies in one's beliefs about one's skills and abilities. Such self-efficacy beliefs are important predictors of what occupations people choose to enter (the content of career choices) and how people go about making their choices (the process of career choices; Hackett & Betz, 1995), above and beyond what can be predicted from people's vocational interests (Donnay & Borgen, 1999). Most of the research on self-efficacy and occupational or career choice has focused on understanding the choices of women and members of minority groups, partly because these groups have traditionally been more restrained in their career and occupational roles and choices by societal norms (e.g., Byars & Hackett, 1998). Men and women usually express equivalent efficacy beliefs for most (but not all) traditionally female-dominated occupations, but women usually express lower self-efficacy for traditionally male-dominated occupations than for traditionally female-dominated occupations (Hackett & Betz, 1995). Perceptions of self-efficacy, outcome expectancies, and social forces (i.e., stereotyping) are associated with the underrepresentation of women and ethnic minorities in careers dominated by white males (Hackett & Betz, 1995). For example, women and African Americans tend to avoid classes and careers involving math and science, depriving themselves of the exposure to these areas (Betz, 1997). In addition, based on stereotypes that women and certain ethnic minorities are not as successful in these areas, they may not perform to the best of their ability, creating a "self-fulfilling prophecy," as they undermine their own performances in accordance with their expectancies. Without success experiences, these individuals' self-efficacy for perfor-

mance in these areas may remain low, leading to further avoidance of these kinds of tasks.

In addition, women and minorities have less access to self-efficacy-enhancing experiences for traditionally nonfemale and nonminority careers (Hackett & Byars, 1996). They generally have fewer positive models—particularly in science and technology careers—through which they can gain vicarious efficacy-enhancing experiences, and they may receive less encouragement from others to pursue nontraditional careers. When they encounter potentially efficacy-building experiences, if they believe in negative gender or ethnic stereotypes, their performances are likely to suffer due to avoidance of tasks, lack of focus on the task, or negative emotional arousal such as anxiety (Hackett & Byars, 1996). Even when members of a minority group develop strong self-efficacy beliefs, they may maintain low expectancies that their performances will lead to desired outcomes due to discrimination (Bandura, 1997). For example, African American children hold lower outcome expectancies for themselves than for Caucasian children, despite their beliefs that they can engage in the same behaviors as middle-class Caucasian children (Mickelson, 1990; Ogbu, 1991).

Self-efficacy beliefs predict not only what occupations people choose but also how well they perform those occupations. A recent meta-analysis of 144 studies on self-efficacy and work-related performance (Stajkovic & Luthans, 1998) found a weighted average correlation of .38 between self-efficacy measures and measure of work performance. This relationship is stronger than what has been shown for the effect on performance of goal-setting, feedback interventions, organizational behavior modifications, and personality trait-like constructs (Stajkovic & Luthans, 1998). The effects of self-efficacy beliefs on work-related performance seem to operate through their influence on task-related strategies, task focus, and early skill acquisition (Stajkovic & Luthans, 1998).

Collective Efficacy

Accomplishing important goals among groups, organizations, and societies always

has depended on the ability of individuals to identify the abilities of other individuals and to harness these abilities to accomplish common goals. Thus a concept of perceived mastery that considers only individuals has limited utility. Social cognitive theory recognizes that the individual is embedded in a social network and a cultural milieu. Thus self-efficacy theory recognizes that there are limits to what individuals can accomplish alone. This idea is captured in the notion of *collective efficacy*, "a group's shared belief in its conjoint capabilities to organize and execute the courses of action required to produce given levels of attainments (Bandura, 1997, p. 477; also Zaccaro, Blair, Peterson, & Zazanis, 1995). Simply stated, collective efficacy is the extent to which people believe that they can work together effectively to accomplish their shared goals. Just as personal agency involves beliefs about personal abilities, collective agency involves a collective sense of efficacy. As does self-efficacy, collective efficacy influences collective motivation, planning and decision making, effective use of group resources, and persistence in goal pursuit (Bandura, 1997; Zaccaro et al., 1995).

Because collective efficacy is a relatively new term, researchers have not reached a consensus on its measurement. Some posit that collective efficacy consists of the individuals' perceptions of the group's abilities (e.g., Weldon & Weingart, 1993) or the individual's beliefs about the group's beliefs about its abilities (Paskevich, Brawley, Dorsch, & Widmeyer, 1999). Others have added together group members' individual responses to determine collective efficacy (Zaccaro et al., 1995). Still others contend that collective efficacy includes beliefs that are shared among group members about how well the individual members can perform the actions necessary for success, as well as beliefs about how well they can orchestrate their combined efforts (Zaccaro et al., 1995). As with all social constructions, a consensus on the definition and measurement of collective efficacy will develop gradually as theorists and researchers debate the merits of the various alternatives (Maddux, 1999a).

Despite a lack of consensus on its measurement (Bandura, 1997; Maddux, 1999a), collective efficacy has been found to be im-

portant to a number of "collectives." The more efficacious spouses feel about their shared ability to accomplish important shared goals, the more satisfied they are with their marriages (Kaplan & Maddux, 2001). The individual and collective efficacy of teachers for effective instruction seems to affect the academic achievement of schoolchildren (Bandura, 1993, 1997). The effectiveness of self-managing work teams (Little & Madigan, 1997) and group "brainstorming" (Prussia & Kinicki, 1996) also seems to be related to a collective sense of efficacy. In neighborhoods, lower collective efficacy is associated with violent crime rates above and beyond the factors of lower family income; higher proportions of minorities, immigrants, and single-parent families; and previous homicide rates (Sampson, Raudenbush, & Earls, 1997). Finally, collective efficacy has become an important construct in the study of team sports and has facilitated a shift in research from a focus on individual motivation to group motivation (George & Feltz, 1995; Marks, 1999). For example, research has found that the collective efficacy of an athletic team can be raised or lowered by false feedback about ability and can subsequently influence its success in competitions (Hodges & Carron, 1992).

As cultural variations become more widely studied, research indicates, collective efficacy may be a more useful predictor of emotion and behavior in some cultures than in others. For example, collective efficacy is negatively correlated with depression, anxiety, and the desire to leave employment for workers in Hong Kong, but not among American workers (Schaubroeck, Lam, & Xie, 2000). An explanation for this difference is that collective efficacy may be a more important contributor to group achievements in groups that are higher in collectivism (Gibson, 1995). Nonetheless, individuals will differ in their collectivist and individualist leanings regardless of the group or cultural norms, and these individual differences may be more important than the group or cultural norm.

Researchers also are beginning to understand how people develop a sense of collective efficacy for promoting social and political change (Fernandez-Ballesteros, Diez-Nicolas, Caprara, Barbaranelli, & Bandura, 2000). Of course, personal efficacy and col-

lective efficacy go hand in hand because a “collection of inveterate self-doubters is not easily forged into a collectively efficacious force” (Bandura, 1997, p. 480). In addition to self-efficacy and collective efficacy, other factors play a role in social change, such as preexisting sociocultural standards, outcome expectations (i.e., perceived benefit or cost of changes to particular groups), and perceived obstacles to change (Bandura, 1997).

The distinction between self-efficacy and collective efficacy should not be confused with the dimension of cultural orientation usually referred to as individualism–collectivism, the extent to which a culture values the individual relative to the group, competition versus cooperation, and individual goals and achievements versus collective goals and achievements. In even the most individualistic cultures, collective goals are important, and a sense of collective efficacy is essential for the attainment of those goals. Likewise, in even the most collectivist cultures, individuals set personal goals that may not require collective effort and group cooperation, and self-efficacy will be crucial in the attainment of those goals.

The ability of businesses, organizations, communities, and governments (local, state, and national) to achieve their goals will increasingly depend on their ability to coordinate their efforts, particularly because their goals often may conflict. In a world in which communication across the globe often is faster than communication across the street and in which cooperation and collaboration in commerce and government is becoming increasingly common and increasingly crucial, understanding collective efficacy will become increasingly important.

Summary

The very little engine looked up and saw the tears in the dolls’ eyes. And she thought of the good little boys and girls on the other side of the mountain who would not have any toys or good food unless she helped. Then she said, “I think I can. I think I can. I think I can.”

—*The Little Engine that Could*
(Piper, 1930/1989)

Some of the most powerful truths also are the simplest—so simple that a child can un-

derstand them. The concept of *self-efficacy* deals with one of these truths—one so simple it can be captured in a children’s book of 37 pages (with illustrations), yet so powerful that fully describing its implications has filled thousands of pages in scientific journals and books over the past 25 years. This truth is that an unshakable belief in one’s ideas, goals, and capacity for achievement is essential for success. Strong self-efficacy beliefs are important because they lead to effective self-regulation and persistence, which in turn lead to success. Most people see only the extraordinary accomplishments of athletes, artists, and others but do not see “the unwavering commitment and countless hours of perseverant effort that produced them” (Bandura, 1997, p. 119). They then overestimate the role of “talent” in these accomplishments, while underestimating the role of determination and self-regulation. Because research on self-efficacy is concerned with understanding those factors that people can control rather than those that they cannot control, it is the study of human potential and possibilities, not human limitations.

References

- Abramson, L. Y., Seligman, M. E. P., & Teasdale, J. D. (1978). Learned helplessness in humans: Critique and reformulation. *Journal of Abnormal Psychology, 87*, 49–74.
- AbuSabha, R., & Achterberg, C. (1997). Review of self-efficacy and locus of control for nutrition- and health-related behavior. *Journal of the American Dietetic Association, 97*, 1122–1133.
- Ajzen, I. (1988). *Attitudes, personality, and behavior*. Chicago: Dorsey Press.
- Arnstein, P., Caudill, M., Mandle, C. L., Norris, A., & Beasley, R. (1999). Self efficacy as a mediator of the relationship between pain intensity, disability and depression in chronic pain patients. *Pain, 80*, 483–491.
- Baker, L., & Wigfield, A. (1999). Dimensions of children’s motivation for reading and their relations to reading activity and reading achievement. *Reading Research Quarterly, 34*, 452–477.
- Barone, D., Maddux, J. E., & Snyder, C. R. (1997). *Social cognitive psychology: History and current domains*. New York: Plenum Press.
- Bandura, A. (1977). Self-efficacy: Toward a unifying theory of behavioral change. *Psychological Review, 84*, 191–215.
- Bandura, A. (1986). *Social foundations of thought and action*. New York: Prentice-Hall.
- Bandura, A. (1989). Regulation of cognitive processes through perceived self-efficacy. *Developmental Psychology, 25*, 729–735.

- Bandura, A. (1993). Perceived self-efficacy in cognitive development and functioning. *Educational Psychologist*, 28, 117–148.
- Bandura, A. (1995). *Self-efficacy in changing societies*. New York: Cambridge University Press.
- Bandura, A. (1997). *Self-efficacy: The exercise of control*. New York: Freeman.
- Bandura, A. (1999). A sociocognitive analysis of substance abuse: An agentic perspective. *Psychological Science*, 10, 214–217.
- Bandura, A. (2001). Social cognitive theory: An agentic perspective. *Annual Review of Psychology*, 52, 1–26.
- Bandura, A., Barbaranelli, C., Caprara, G. V., & Pastorelli, C. (1996). Multifaceted impact of self-efficacy beliefs on academic functioning. *Child Development*, 67, 1206–1222.
- Bandura, A., & Jourdan, J. F. (1991). Self-regulatory mechanisms governing the impact of social comparison on complex decision-making. *Journal of Social and Clinical Psychology*, 60, 941–951.
- Bandura, A., Pastorelli, C., Barbaranelli, C., & Caprara, G. V. (1999). Self-efficacy pathways to childhood depression. *Journal of Personality and Social Psychology*, 76, 258–269.
- Barone, D., Maddux, J. E., & Snyder, C. R. (1997). *Social cognitive psychology: History and current domains*. New York: Plenum Press.
- Benight, C. C., Swift, E., Sanger, J., Smith, A., & Zeppelin, D. (2000). Coping self-efficacy as a mediator of distress following a natural disaster. *Journal of Applied Social Psychology*, 29, 2443–2464.
- Betz, N. (1997). What stops women and minorities from choosing majors in science and engineering? In D. Johnson (Ed.), *Minorities and girls in school: Effects on achievement and performance*. Thousand Oaks, CA: Sage.
- Bong, M. (1998). Tests of the internal/external frames of reference model with subject-specific academic self-efficacy and frame-specific academic self-concepts. *Journal of Educational Psychology*, 90, 102–110.
- Bong, M., & Clark, R. E. (1999). Comparison between self-concept and self-efficacy in academic motivation research. *Educational Psychologist*, 34, 139–153.
- Brouwers, A., & Tomic, W. (2000). A longitudinal study of teacher burnout and perceived self-efficacy in classroom management. *Teaching and Teacher Education*, 16, 239–253.
- Bryan, A. D., Aiken, L. S., & West, S. G. (1997). Young women's condom use: The influence of acceptance of sexuality, control over the sexual encounter, and perceived susceptibility to common STDs. *Health Psychology*, 16, 468–479.
- Burger, J. M. (1999). Personality and control. In V. J. Derlega, B. A. Winstead, & W. H. Jones (Eds.), *Personality: Contemporary theory and research* (2nd ed., pp. 282–306). Chicago: Nelson-Hall.
- Byars, A. M., & Hackett, G. (1998). Applications of social cognitive theory to the career development of women of color. *Applied and Preventive Psychology*, 7, 255–267.
- Caprara, G. V., Scabini, E., Barbaranelli, C., Pastorelli, C., Regalia, C., & Bandura, A. (1998). Impact of adolescents' perceived self-regulatory efficacy on familial communication and antisocial conduct. *European Psychologist*, 3, 125–132.
- Carver, C. S., & Scheier, M. F. (2002). Optimism. In C. R. Snyder & S. J. Lopez (Eds.), *Handbook of positive psychology* (pp. 231–243). New York: Oxford University Press.
- Cervone, D. (1989). Effects of envisioning future activities on self-efficacy judgments and motivation: An availability heuristic interpretation. *Cognitive Therapy and Research*, 13, 247–261.
- Cervone, D. (2000). Thinking about self-efficacy. *Behavior Modification*, 24, 30–56.
- Chwalisz, K., Altmaier, E. M., & Russell, D. W. (1992). Causal attributions, self-efficacy cognitions, and coping with stress. *Journal of Social and Clinical Psychology*, 11, 377–400.
- Coldarci, T. (1992). Teachers' sense of efficacy and commitment to teaching. *Journal of Experimental Education*, 60, 323–337.
- Conger, J. C., & Keane, S. P. (1981). Social skills intervention in the treatment of isolated or withdrawn children. *Psychological Bulletin*, 90, 478–495.
- Conn, V. S. (1998). Older women: Social cognitive theory correlates of health behavior. *Women and Health*, 26, 71–85.
- Cowan, R., Logue, E., Milo, L., Britton, P. J., & Smucker, W. (1997). Exercise stage of change and self-efficacy in primary care: Implications for intervention. *Journal of Clinical Psychology in Medical Settings*, 4, 295–311.
- Cozzarelli, C. (1993). Personality and self-efficacy as predictors of coping with abortion. *Journal of Personality and Social Psychology*, 65, 1224–1236.
- Dawson, K. A., & Brawley, L. R. (2000). Examining the relationship between exercise goals, self-efficacy, and overt behavior with beginning exercisers. *Journal of Applied Social Psychology*, 30, 315.
- Deci, E. L., & Ryan, R. M. (1995). Human autonomy: The basis for true self-esteem. In M. H. Kernis (Ed.), *Efficacy, agency, and self-esteem* (pp. 31–49). New York: Plenum Press.
- Denham, S. A. (1998). *Emotional development in young children*. New York: Guilford Press.
- DiClemente, C. C., Fairhurst, S. K., & Piotrowski, N. A. (1995). Self-efficacy and addictive behaviors. In J. E. Maddux (Ed.), *Self-efficacy, adaptation, and adjustment: Theory, research, and application* (pp. 109–142). New York: Plenum Press.
- Diener, E., Suh, E. M., Lucas, R. E., & Smith, H. L. (1999). Subjective well-being: Three decades of progress. *Psychological Bulletin*, 125, 276–302.
- Donnay, D. A. C., & Borgen, F. H., (1999). The incremental validity of vocational self-efficacy: An examination of interest, self-efficacy, and occupation. *Journal of Counseling Psychology*, 46, 432–447.
- Ducharme, J., & Bachelor, A. (1993). Perception of social functioning in dysphoria. *Cognitive Therapy and Research*, 17, 53–70.
- Dweck, C. S. (2000). *Self-theories: Their role in motivation, personality, and development*. Philadelphia: Taylor & Francis.
- Dzewaltowski, D. A., Noble, J. M., & Shaw, J. M. (1990). Physical activity participation: Social cognitive theory versus the theories of reasoned action and planned behavior. *Journal of Sport and Exercise Psychology*, 12, 388–405.

- Eagly, A. H., & Chaiken, S. (1993). *The psychology of attitudes*. Dallas, TX: Harcourt Brace Jovanovich.
- Emmelkamp, P. M. G. (1994). Behavior therapy with adults. In A. E. Bergin & S. L. Garfield (Eds.), *Handbook of psychotherapy and behavior change* (4th ed.; pp. 379–427). New York: Wiley.
- Epel, E. S., Bandura, A., & Zimbardo, P. (1999). Escaping homelessness: The influences of self-efficacy and time perspective on coping with homelessness. *Journal of Applied Social Psychology, 29*, 575–596.
- Ewart, C. K. (1995). Self-efficacy and recovery from heart attack: Implications for a social-cognitive analysis of exercise and emotion. In J. E. Maddux (Ed.), *Self-efficacy, adaptation, and adjustment: Theory, research, and application* (pp. 203–226). New York: Plenum Press.
- Feltz, D. L., & Lirgg, C. D. (1998). Perceived team and player efficacy in hockey. *Journal of Applied Psychology, 83*, 557–564.
- Fernandez-Ballesteros, R., Diez-Nicolas, J., Caprara, G. V., Barbaranelli, C., & Bandura, A. (2000). *Determinants and structural relation of personal efficacy to collective efficacy*. Unpublished manuscript, Stanford University.
- Fishbein, M., & Ajzen, I. (1975). *Belief, attitude, intention, and behavior: An introduction to theory and research*. Reading, MA: Addison-Wesley.
- Fiske, S. T., & Taylor, S. E. (1991). *Social cognition* (2nd ed.). New York: McGraw-Hill.
- Forsterling, F. (1986). Attributional conceptions in clinical psychology. *American Psychologist, 41*, 275–285.
- Forsyth, A. D., & Carey, M. P. (1998). Measuring self-efficacy in the context of HIV risk reduction: Research challenges and recommendations. *Health Psychology, 17*, 559–568.
- Frank, J. D., & Frank, J. B. (1991). *Persuasion and healing: A comparative study of psychotherapy* (3rd ed.). Baltimore: Johns Hopkins University Press.
- Gardiner, M., Luszcz, M. A., & Bryan, J. (1997). The manipulation and measurement of task-specific memory self-efficacy in younger and older adults. *International Journal of Behavioral Development, 21*, 209–227.
- George, T. R., & Feltz, D. L. (1995). Motivation in sport from a collective efficacy perspective. *International Journal of Sport Psychology, 26*, 98–116.
- Gibson, C. B. (1995). Determinants and consequences of group efficacy beliefs in work organizations in the United States, Hong Kong, and Indonesia. *Dissertation Abstracts International, 56*(6), 2318A.
- Giles, M., & Rea, A. (1999). Career self-efficacy: An application of the theory of planned behaviour. *Journal of Occupational and Organizational Psychology, 72*, 393–399.
- Goldfried, M. R., & Robins, C. (1982). On the facilitation of self-efficacy. *Cognitive Therapy and Research, 6*, 361–380.
- Goodrick, G. K., Pendleton, V. R., Kimball, K. T., Poston, W. S. C., Reeves, R. S., & Foreyt, J. P. (1999). Binge eating severity, self-concept, dieting self-efficacy and social support during treatment of binge eating disorder. *International Journal of Eating Disorders, 26*, 295–300.
- Guzzo, R. A., Yost, P. R., Campbell, R. J., & Shea, G. P. (1993). Potency in groups: Articulating a construct. *British Journal of Social Psychology, 32*, 87–106.
- Hackett, G., & Betz, N., (1995). Self-efficacy and career choice and development. In J. E. Maddux (Ed.), *Self-efficacy, adaptation, and adjustment: Theory, research, and application* (pp. 249–280). New York: Plenum Press.
- Hackett, G., & Byars, A. M. (1996). Social cognitive theory and the career development of African American women. *Career Development Quarterly, 44*, 322–340.
- Halpern, L. F., & McLean, W. E., Jr. (1997). “Hey mom, look at me!” *Infant Behavior and Development, 20*, 515–529.
- Hodges, L., & Carron, A. V. (1992). Collective efficacy and group performance. *International Journal of Sport Psychology, 23*, 48–59.
- Hollon, S. D., & Beck, A. T. (1994). Cognitive and cognitive-behavioral therapies. In A. E. Bergin & S. L. Garfield (Eds.), *Handbook of psychotherapy and behavior change* (4th ed., pp. 428–466). New York: Wiley.
- Holman, H. R., & Lorig, K. (1992). Perceived self-efficacy in self-management of chronic disease. In R. Schwarzer (Ed.), *Self-efficacy: Thought control of action* (pp. 305–324). Washington: Hemisphere.
- Hoover-Dempsey, K. V., & Sandler, H. M. (1997). Why do parents become involved in their children’s education? *Review of Educational Research, 67*, 3–42.
- Ingram, R. E., Kendall, P. C., & Chen, A. H. (1991). Cognitive-behavioral interventions. In C. R. Snyder & D. R. Forsyth (Eds.), *Handbook of social and clinical psychology* (pp. 509–522). New York: Pergamon.
- Kaplan, M., & Maddux, J. E. (2001). Goals and marital satisfaction: Perceived support for personal goals and collective efficacy for collective goals. *Journal of Social and Clinical Psychology, 21*, 157–164.
- Kasimatis, M., Miller, M., & Marcussen, L. (1996). The effects of implicit theories on exercise motivation. *Journal of Research in Personality, 30*, 510–516.
- Kavanaugh, D. (1992). Self-efficacy and depression. In R. Schwarzer (Ed.), *Self-efficacy: Thought control of action* (pp. 177–194). Washington, DC: Hemisphere.
- Kazdin, A. E. (1979). Imagery elaboration and self-efficacy in the covert modeling treatment of unassertive behavior. *Journal of Consulting and Clinical Psychology, 47*, 725–733.
- Kirsch, I. (1985). Self-efficacy and expectancy: Old wine with new labels. *Journal of Personality and Social Psychology, 49*, 824–830.
- Kirsch, I. (1995). Self-efficacy and outcome expectancies: A concluding commentary. In J. E. Maddux (Ed.), *Self-efficacy, adaptation, and adjustment: Theory, research, and application* (pp. 173–202). New York: Plenum Press.
- Kirsch, I. (Ed.). (1999). *How expectancies shape behavior*. Washington, DC: American Psychological Association.
- Kobasa, S. C. (1979). Stressful life events, personality and health: An inquiry into hardiness. *Journal of Personality and Social Psychology, 37*, 1–11.
- Kozub, S. A., & McDonnell, J. F. (2000). Exploring the relationship between cohesion and collective efficacy in rugby teams. *Journal of Sport Behavior, 23*, 120–129.
- Langer, E. J., & Rodin, J. (1976). The effects of choice and enhanced personal responsibility for the aged: A field experiment in an institutional setting. *Journal of Personality and Social Psychology, 34*, 191–198.
- Leary, M. R., & Kowalski, R. M. (1995). The self-presentation model of social phobia. In R. G. Heimberg, M. R. Liebowitz, D. A. Hope, & F. R. Schneier (Eds.), *Social*

- phobia: *Diagnosis, assessment, and treatment* (pp. 94–112). New York: Guilford Press.
- Leslie, A. M. (1982). The perception of causality in infants. *Perception, 11*, 173–186.
- Little, B. L., & Madigan, R. M. (1997). The relationship between collective efficacy and performance in manufacturing work teams. *Small Group Research, 28*, 517–534.
- Locke, E. A., & Latham, G. P. (1990). *A theory of goal setting and task performance*. Englewood Cliffs, NJ: Prentice-Hall.
- Ludwig, K. B., & Pittman, J. F. (1999). Adolescent prosocial values and self-efficacy in relation to delinquency, risky sexual behavior, and drug use. *Youth and Society, 30*, 461–482.
- Maddux, J. E. (1993). Social cognitive models of health and exercise behavior: An introduction and review of conceptual issues. *Journal of Applied Sport Psychology, 5*, 116–140.
- Maddux, J. E. (1999a). The collective construction of collective efficacy: Comment on Paskevich, Brawley, Dorsch, and Widmeyer. *Group Dynamics: Theory, Research, and Practice, 3*, 223–226.
- Maddux, J. E. (1999b). Expectancies and the social-cognitive perspective: Basic principles, processes, and variables. In I. Kirsch (Ed.), *How expectancies shape behavior* (pp. 17–40). Washington, DC: American Psychological Association.
- Maddux, J. E., Brawley, L., & Boykin, A. (1995). Self-efficacy and healthy decision-making: Protection, promotion, and detection. In J. E. Maddux (Ed.), *Self-efficacy, adaptation, and adjustment: Theory, research, and application* (pp. 173–202). New York: Plenum Press.
- Maddux, J. E., & DuCharme, K. A. (1997). Behavioral intentions in theories of health behavior. In D. Gochman (Ed.), *Handbook of health behavior research: I. Personal and social determinants* (pp. 133–152). New York: Plenum Press.
- Maddux, J. E., & Lewis, J. (1995). Self-efficacy and adjustment: Basic principles and issues. In J. E. Maddux (Ed.), *Self-efficacy, adaptation, and adjustment: Theory, research, and application* (pp. 37–68). New York: Plenum Press.
- Maddux, J. E., & Meier, L. J. (1995). Self-efficacy and depression. In J. E. Maddux (Ed.), *Self-efficacy, adaptation, and adjustment: Theory, research and application* (pp. 143–169). New York: Plenum Press.
- Maddux, J. E., Norton, L. W., & Leary, M. R. (1988). Cognitive components of social anxiety: An investigation of the integration of self-presentation theory and self-efficacy theory. *Journal of Social and Clinical Psychology, 6*, 180–190.
- Maddux, J. E., & Rogers, R. W. (1983). Protection motivation and self-efficacy: A revised theory of fear appeals and attitude change. *Journal of Experimental Social Psychology, 19*, 469–479.
- Mandler, J. M. (1992). How to build a baby: II. Conceptual primitives. *Psychological Review, 99*, 587–604.
- Marks, M. (1999). A test of the impact of collective efficacy in routine and novel performance environments. *Human Performance, 12*, 295–309.
- Marlowe, N. (1998). Self-efficacy moderates the impact of stressful events on headache. *Headache, 38*, 662–667.
- Martin, J. J., & Gill, D. L. (1991). The relationships among competitive consultation, sport-confidence, self-efficacy, anxiety, and performance. *Journal of Sport and Exercise Psychology, 13*, 149–159.
- Maxwell, E. (1998). "I can do it myself!" Reflections on early self-efficacy. *Roeper Review, 20*, 183–187.
- McAvay, G., Seeman, T. E., & Rodin, J. (1996). A longitudinal study of change in domain-specific self-efficacy among older adults. *Journals of Gerontology: Series B. Psychological Sciences and Social Sciences, 51B*, 243–253.
- McClelland, D. C. (1984). *Motives, personality, and society: Selected papers*. New York: Praeger.
- McClelland, D. C. (1985). How motives, skills, and values determine what people do. *American Psychologist, 40*, 812–825.
- McClelland, D. C., Atkinson, J. W., Clark, R. W., & Lowell, E. L. (1953). *The achievement motive*. New York: Appleton-Century-Croft.
- McDougall, G. J. (1995). Memory self-efficacy and strategy use in successful elders. *Educational Gerontology, 21*, 357–373.
- Mischel, W. (1973). Toward a cognitive social learning reconceptualization of personality. *Psychological Review, 80*, 252–284.
- Mone, M. A. (1994). Comparative validity of two measures of self-efficacy in predicting academic goals and performance. *Educational and Psychological Measurement, 54*, 516–529.
- Mudde, A. N., Kok, G., & Strecher, V. J. (1995). Self-efficacy as a predictor for the cessation of smoking: Methodological issues and implications for smoking cessation programs. *Psychology and Health, 10*, 353–367.
- Oei, T. P., Fergusson, S., & Lee, N. K. (1998). The differential role of alcohol expectancies and drinking refusal self-efficacy in problem and nonproblem drinkers. *Journal of Studies on Alcohol, 59*, 704–711.
- Ogbu, J. U. (1991). Minority coping responses and school experience. *Journal of Psychohistory, 18*, 433–456.
- O'Leary, A., & Brown, S. (1995). Self-efficacy and the physiological stress response. In J. E. Maddux (Ed.), *Self-efficacy, adaptation, and adjustment: Theory, research and application* (pp. 227–248). New York: Plenum Press.
- Pajares, F. (1996). Self-efficacy beliefs in academic settings. *Review of Educational Research, 66*, 543–578.
- Pajares, J., & Johnson, M. J. (1996). Self-efficacy beliefs and the writing performance of entering high school students. *Psychology in the Schools, 33*, 163–175.
- Paskevich, D. M., Brawley, L. R., Dorsch, K. D., & Widmeyer, W. N. (1999). Relationship between collective efficacy and team cohesion: Conceptual and measurement issues. *Group Dynamics: Theory, Research, and Practice, 3*, 210–222.
- Piper, W. (1989). *The little engine that could*. New York: Platt & Monk. (Original work published 1930)
- Pollock, P. H. (1996). Self-efficacy and sexual offending against children: Construction of a measure and changes following relapse prevention treatment. *Legal and Criminology Psychology, 1*, 219–228.
- Prochaska, J. O., Norcross, J. C., & DiClemente, C. C. (1994). *Changing for good*. New York: Morrow.
- Prussia, G. E., & Kinicki, A. J. (1996). A motivational investigation of group effectiveness using social cognitive

- theory. *Journal of Applied Psychology*, 81, 187–198.
- Rogers, R. W., & Prentice-Dunn, S. (1997). Protection motivation theory. In D. S. Gochman (Ed.), *Handbook of health behavior research: I. Personal and social determinants* (pp. 113–132). New York: Plenum Press.
- Rosenbaum, M. (Ed.). (1990). *Learned resourcefulness: On coping skills, self-control, and adaptive behavior*. New York: Springer.
- Rotter, J. B. (1966). Generalized expectancies for internal versus external control of reinforcement. *Psychological Monographs*, 80 (1, Whole No. 609).
- Rudolph, D. L., & Butki, B. D. (1998). Self-efficacy and affective responses to short bouts of exercise. *Journal of Applied Sport Psychology*, 10, 268–280.
- Rudolph, D. L., & McAuley, E. (1995). Self-efficacy and salivary cortisol responses to acute exercise in physically active and less active adults. *Journal of Sport and Exercise Psychology*, 17, 206–213.
- Russell, B. (1954). *A history of Western philosophy*. New York: Simon & Schuster.
- Ryan, A. M., Gheen, M. H., & Midgley, C. (1998). Why do some students avoid asking for help? An examination of the interplay among students' academic efficacy, teachers' social-emotional role, and the classroom goal structure. *Journal of Educational Psychology*, 90, 528–535.
- Sampson, R. J., Raudenbush, S. W., & Earls, F. (1997). Neighborhoods and violent crime: A multilevel study of collective efficacy. *Science*, 277, 918–924.
- Samuels, S. M., & Gibbs, R. W. (in press). Self-efficacy assessment and generalization in physical education courses. *Journal of Applied Social Psychology*.
- Schaubroeck, J., Lam, S. S. K., & Xie, J. L. (2000). Collective efficacy versus self-efficacy in coping responses to stressors and control: A cross-cultural study. *Journal of Applied Psychology*, 85, 512–525.
- Schunk, D. H. (1995). Self-efficacy and education and instruction. In J. E. Maddux (Ed.), *Self-efficacy, adaptation, and adjustment: Theory, research, and application*. (pp. 281–304). New York: Plenum Press.
- Schunk, D. H., & Zimmerman, B. J. (1997). Social origins of self-regulatory competence. *Educational Psychologist*, 32, 195–208.
- Schwarzer, R. (1992). Self-efficacy in the adoption and maintenance of health behaviors: Theoretical approaches and a new model. In R. Schwarzer (Ed.), *Self-efficacy: thought control of action* (pp. 217–243). Washington, DC: Hemisphere.
- Schwarzer, R., Bassler, J., Kwiatck, P., Schroder, K., & Zhang, J. X. (1997). The assessment of optimistic self-beliefs: Comparison of the German, Spanish, and Chinese versions of the General Self-Efficacy Scale. *Applied Psychology: An International Review*, 46, 69–88.
- Schwarzer, R., & Renner, B. (2000). Social-cognitive predictors of health behavior: Active self-efficacy and coping self-efficacy. *Health Psychology*, 19, 487–495.
- Sherer, M., Maddux, J. E., Mercandante, B., Prentice-Dunn, S., Jacobs, B., & Rogers, R. W. (1982). The self-efficacy scale: Construction and validation. *Psychological Reports*, 51, 633–671.
- Showers, C. J. (1995). The evaluative organization of self-knowledge: Origins, processes, and implications for self-esteem. In M. H. Kernis (Ed.), *Efficacy, agency, and self-esteem* (pp. 101–120). New York: Plenum Press.
- Siegel, K., Mesagno, F. P., Chen, J., & Christ, G. (1989). Factors distinguishing homosexual males practicing risky and safer sex. *Social Science and Medicine*, 28, 561–569.
- Skinner, E. A. (1995). *Perceived control, motivation, and coping*. Thousand Oaks, CA: Sage.
- Snyder, C. R., Rano, K. L., & Sigmon, D. R. (2002). Hope theory: A member of the positive psychology family. In C. R. Snyder & S. J. Lopez (Eds.), *Handbook of positive psychology* (pp. 257–276). New York: Oxford University Press.
- Sorensen, M. (1997). Maintenance of exercise behavior for individuals at risk for cardiovascular disease. *Perceptual and Motor Skills*, 85, 867–881.
- Spink, K. S. (1990). Group cohesion and collective efficacy of volleyball teams. *Journal of Sport and Exercise Psychology*, 12, 301–311.
- Smith, P. L., & Fouad, N. A. (1999). Subject-matter specificity of self-efficacy, outcome expectancies, interests, and goals: Implications for the social-cognitive model. *Journal of Counseling Psychology*, 46, 461–472.
- Stanjovic, A. D., & Luthans, F. (1998). Self-efficacy and work-related performance: A meta-analysis. *Psychological Bulletin*, 124, 240–261.
- Stanley, K. D., & Murphy, M. R. (1997). A comparison of general self-efficacy with self-esteem. *Genetic, Social, and General Psychology Monographs*, 123, 79–99.
- Strecher, V. J., Champion, V. L., & Rosenstock, I. M. (1997). The health belief model and health behavior. In D. Gochman (Ed.), *Handbook of health behavior research: I. Personal and social determinants* (pp. 71–92). New York: Plenum Press.
- Taberner, C., & Wood, R. E. (1999). Implicit theories versus the social construal of ability in self-regulation and performance on a complex task. *Organizational Behavior and Human Decision Processes*, 78, 104–127.
- Taylor, S. E., & Brown, J. D. (1988). Illusion and well-being: A social psychological perspective on mental health. *Psychological Bulletin*, 2, 193–210.
- Thompson, S. C. (1991). Intervening to enhance perceptions of control. In C. R. Snyder & D. R. Forsyth (Eds.), *Handbook of social and clinical psychology* (pp. 607–623). New York: Pergamon.
- Tipton, R. M., & Worthington, E. L. (1984). The measurement of generalized self-efficacy: A study of construct validity. *Journal of Personality Assessment*, 48, 545–548.
- Vessey, G. N. A. (1967). Volition. In P. Edwards (Ed.), *Encyclopedia of philosophy* (Vol. 8). New York: Macmillan.
- Vinokur, A. D., van Ryn, M., Gramlich, E. M., & Price, R. H. (1991). Long-term follow-up and benefit-cost analysis of the jobs program: A preventive intervention for the unemployed. *Journal of Applied Psychology*, 76, 213–219.
- Wang, A. Y., & Richarde, R. S. (1988). Global versus task-specific measures of self-efficacy. *Psychological Record*, 38, 533–541.
- Watson, J. S. (1977). Depression and the perception of control in early childhood. In J. G. Schulerbrandt & A. Raskin (Eds.), *Depression in childhood: Diagnosis, treatment, and conceptual models* (pp. 129–139). New York: Raven Press.
- Watson, J. S., Hayes, L. A., & Vietze, P. (1982). Response-contingent stimulation as a treatment of developmental

- failure in infancy. *Journal of Applied Developmental Psychology*, 3, 191-203.
- Weinstein, N. D. (1993). Testing four competing theories of health-protective behavior. *Health Psychology*, 12, 324-333.
- Welch, D. C., & West, R. L. (1995). Self-efficacy and mastery: Its application to issues of environmental control, cognition, and aging. *Developmental Review*, 15, 150-171.
- Weldon, E., & Weingart, L. R. (1993). Group goals and group performance. *British Journal of Social Psychology*, 32, 307-334.
- Wheeler, K. G. (1983). Comparisons of self-efficacy and expectancy models of occupational preferences for college males and females. *Journal of Occupational Psychology*, 56, 73-78.
- White, R. W. (1959). Motivation reconsidered: The concept of competence. *Psychological Review*, 66, 297-333.
- Williams, S. L. (1995). Self-efficacy, anxiety, and phobic disorders. In J. E. Maddux (Ed.), *Self-efficacy, adaptation, and adjustment: Theory, research, and application* (pp. 69-107). New York: Plenum Press.
- Williams, S. L., Kinney, P. J., Harap, S. T., & Liebmann, M. (1997). Thoughts of agoraphobic people during scary tasks. *Journal of Abnormal Psychology*, 106, 511-520.
- Yeung, R. R., & Hemsley, D. R. (1997). Exercise behavior in an aerobics class: The impact of personality traits and efficacy cognitions. *Personality and Individual Differences*, 23, 425-431.
- Zaccaro, S., Blair, V., Peterson, C., & Znanis, M. (1995). Collective efficacy. In J. E. Maddux (Ed.), *Self-efficacy, adaptation, and adjustment: Theory, research, and application* (pp. 305-330). New York: Plenum Press.
- Zimmerman, B. J. (1989). A social cognitive view of self-regulated academic learning. *Journal of Educational Psychology*, 81, 329-339.