

## *Self-Efficacy*

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Self-efficacy beliefs are concerned with people's perceptions about their 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 ability to engage in successful self-regulation.

The study of self-efficacy beliefs is not really new. Philosophers (e.g., Spinoza, Hume, Locke, Ryle) have been concerned with human agency, self-control, and "the will" for quite some time (Russell, 1945; Vesey, 1967). Psychologists have also devoted a lot of attention to these constructs. For example, effectance motivation (White, 1959), achievement motivation (McClelland, Atkinson, Clark, & Lowell, 1953), locus of control (Rotter, 1966), learned helplessness (Abramson, Seligman, & Teasdale, 1978), are all concerned with beliefs about personal agency and the effect of these on psychological well-being and achievement (see also Skinner, 1995).

Most of these models did not draw a clear distinction between beliefs about the effect of specific behaviors on desired outcomes and beliefs about the ability to execute the behaviors that might lead to desired outcomes. One of Bandura's (1977) most important contributions was to provide clear definitions of these notions and build them into a comprehensive theory, thus providing a foundation for their scientific examination.

The goal of this chapter is to provide an overview of self-efficacy theory and how self-efficacy beliefs are an important component of self-regulation. It is not the purpose of this chapter to provide reviews of the research on the vast array of topics that have been studied using self-efficacy theory. Readers interested in such reviews can consult a variety of other sources (health behavior, Bandura, 2004; recovery from trauma, Benight & Bandura, 2004; substance abuse, Oei & Morawska, 2004; education, Ogah, 2006; effective parenting, Jones & Prinz, 2005, preventing disability: Marks,

Allegrante, & Lorig, 2005; career and vocational assessment, Gainor, 2006; education, Goddard, Hoy, & Woolfolk Hoy, 2004).

Before discussing the role of self-efficacy beliefs in personality on self-regulation, it is first necessary to provide an understanding of what self-efficacy beliefs are, how they develop, and how they may be influenced by personality.

## Defining Self-Efficacy

Self-efficacy beliefs are beliefs about *competencies*—what we know about the world and what we know how to *do* in the world. Competencies 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 appraisals of our ability to use our competencies in specific domains and situations. (See also Mischel & Ayduk, 2004; Cervone, Mor, Orom, Shadel, & Scott, 2004.) In addition, self-efficacy beliefs are not decontextualized appraisals of competencies divorced from situations; they are, instead, beliefs about what we can do with our skills and abilities in certain contexts and conditions.

It is especially important to distinguish between self-efficacy beliefs and *outcome expectancies* (Bandura, 1997) or *behavior-outcome expectancies* (Maddux, 1999a). An outcome expectancy is the belief that a particular behavior will produce a particular result under particular conditions. Outcomes expectancies, therefore, are an important aspect of what are usually referred to as *plans* or *strategies* in theories of self-regulation. A self-efficacy belief is concerned with one’s confidence in one’s ability to execute the behavior in question under the conditions in question—that is, one’s confidence in one’s ability to implement plans and strategies. In other words, outcome expectancies are means–end relations, while self-efficacy beliefs are agent–means relations (Cervone et al., 2004).

Rather than viewing self-efficacy as a construct that has different “types,” it is better to view it as a construct whose measurement can be tailored for different types of behaviors and for different types of domains and situations. For example, “self-efficacy for condom use” could have two very different meanings. One could have strong sense of self-efficacy for “putting on a condom” but a weaker sense of self-efficacy for “using a condom during sex.” Putting on a condom—or putting one on someone else—is not a difficult thing to do. However, persuading a reluctant partner (or oneself) to stop during the heat of a passionate encounter and put on a condom demands complex social and self-regulatory skills (e.g., Siegel, Mesagno, Chen, & Christ, 1989). Self-efficacy beliefs for these behaviors do not represent different “types” of self-efficacy but instead self-efficacy beliefs for very different behaviors.

## Sources of Self-Efficacy Beliefs

The ability to self-regulate begins in infancy and develops throughout childhood through the complex interaction of temperament and experience (McCabe, Cunnington, & Brooks-Gunn, 2004; Eisenberg, Eggum, Sallquist, & Edwards, this volume). Although assessing self-efficacy beliefs in infants and young children would be a difficult task, rudimentary self-efficacy beliefs probably begin developing along with rudimentary self-regulatory abilities. Infants of a few months old demonstrate some rudimentary awareness of cause-and-effect relationships (outcome expectancies) (Leslie, 1982; Mandler, 1992); therefore, it stands to reason that they also can develop rudimentary self-efficacy beliefs or agent–means expectancies. Because self-efficacy beliefs are appraisals of agent–means relationships, the early development of such beliefs will be influenced by the development of the capacity for symbolic thought: the development of a sense of a “self” that is separate from one’s environment, including other people; and the environment’s responsiveness to one’s behavior, in particular the responses of parents and other powerful adults. Research on *effortful control*—“the ability to willfully or voluntarily inhibit, activate, or change (modulate) attention and behavior” (Eisenberg, Smith, Sadovsky, & Spinard, 2004, p. 260)—suggests that individual differences in self-regulatory ability may be grounded to some extent in biological systems. Because effortful control seems to be “involved in awareness of one’s planned behavior and subjective feelings of voluntary control of thoughts and feelings” (Eisenberg et al., 2004, p. 260), children who are higher in effortful control are likely to develop strong self-efficacy beliefs more easily than children who are lower in this capacity.

People develop self-efficacy beliefs by integrating information from five sources: performance experience, vicarious experience, imaginal experience, verbal persuasion, and affective and physiological states. Self-efficacy beliefs are most strongly influenced by our own *performance experiences* (Bandura, 1977, 1997). When our attempts at control are successful, self-efficacy for that behavior or domain is usually strengthened. When we fail, self-efficacy is usually diminished. Observations of the behavior of others and the consequences of that behavior—vicarious experiences—also can influence self-efficacy beliefs because we use observations of others to form expectancies about our own behavior and its consequences.

*Imagining* ourselves behaving effectively or ineffectively in hypothetical situations can also influence self-efficacy beliefs (e.g., Wesch, Milne, Burke, & Hall, 2006), such as when a psychotherapist employs interventions that rely heavily on imagery, such as systematic desensitization and covert modeling (Williams, 1995).

What others say to us about our abilities and probability of success also can influence our self-efficacy beliefs. The power of verbal persuasion to influence self-efficacy beliefs depends on such source factors as expertness, trustworthiness, and attractiveness, as decades of research on verbal persuasion and attitude change has demonstrated (e.g., Eagly & Chaiken, 1993).

*Physiological and emotional states* can affect self-efficacy if we come to associate poor performance or perceived failure with unpleasant physiological arousal and success with pleasant emotions. When I am anxious, for example, I am more likely to doubt my abilities. Likewise, if I feel calm, I am more likely to feel confident in my ability to perform effectively.

## **Self-Efficacy and Personality**

A discussion of self-efficacy and personality must address two questions: (a) Is there a personality trait called *general self-efficacy*? and (b) How is the development of self-efficacy beliefs influenced by personality?

Self-efficacy, as noted previously, is not defined and measured as a personality trait. As Stajkovic and Luthans (1998) stated, “Decontextualizing specific efficacy expectations replaces them with abstract beliefs (general self-efficacy) that then become incongruent with the defined premises of social cognitive theory” (p. 244). Of course practically any psychological construct can be defined and measured along a dimension of specificity (situation- or domain-specific) and generality (more or less trait-like). Self-efficacy is no different in this regard. Therefore, although the notion of trait-like self-efficacy is inconsistent with the original theory, measures of general or trait self-efficacy have been developed and have been used frequently in research (e.g., Sherer et al., 1982; Schwarzer & Jerusalem, 1995; Chen, Gully, & Eden, 2001; see Scherbaum, Cohen-Charash, & Kern, 2006 for a comparison of psychometric properties of these three frequently used general self-efficacy scales). For the most part, general self-efficacy scales have not shown predictive value above that of domain-specific self-efficacy measures (Martin & Gill, 1991; Pajares & Johnson, 1994). In addition, research suggests that scales designed to measure the presumably different constructs of generalized self-efficacy, self-esteem, neuroticism, and locus of control are measuring a single factor or construct (Judge, Erez, Bono, & Thoresen, 2002).

Self-efficacy beliefs also 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 & Gibb, 2002; Weitlauf, Cervone, Smith, & Wright, 2001). In addition, research has shown that general self-efficacy beliefs can be enhanced through targeted interventions (e.g., Eden & Aviram, 1993).

Self-efficacy beliefs also may become relatively stable over time. The stability of self-efficacy beliefs for specific performances and specific domains depends on the individual's experiences with those performances and domains, specifically the degree to which the individual views his or her performances as relatively successful or unsuccessful and attributes success to personal capabilities and effort. However, these are not justifications for assuming that self-efficacy beliefs in a specific domain emanate from a trait-like general self-efficacy.

The most important question is not “Is there a personality trait called *general self-efficacy*”? but “How useful is it to view self-efficacy as a trait?” If our goal is to understand the *process* of self-regulation, then viewing self-efficacy as a belief or expectancy as a component of self-regulation that interacts with other components of self-regulation will be more useful than viewing it as a trait (an issue that we will return to below).

Although self-efficacy is not a personality trait, the capacity for developing strong self-efficacy beliefs may be influenced by personality. As noted previously, children who are higher on effortful control (which, as an aspect of temperament, can be viewed as a personality trait) may develop strong self-efficacy beliefs more easily than children who are lower in this capacity.

Research on the five-factor model of personality also suggests that certain people may be more predisposed than others to develop strong self-efficacy beliefs. McCrae and Löckenhoff (this volume) suggest, for example, that people high in conscientiousness (which includes the components of deliberation, organization, and achievement orientation) are likely to set more explicit and more challenging goals. Because setting explicit and challenging goals is associated with goal attainment, and because goal attainment enhances self-efficacy beliefs, people who are higher in conscientiousness seem predisposed to develop strong self-efficacy beliefs more easily than people who are lower in this trait. McCrae and Löckenhoff (this volume) also suggest that people higher in achievement orientation, an aspect of conscientiousness, also may respond more vigorously to detected discrepancies between a desired state (goal) and a present state of affairs. Responding vigorously to detected discrepancies is likely to increase the probability of success, which is conducive to the development of strong self-efficacy beliefs.

They also suggest that people higher in neuroticism—because they are motivated largely to avoid failure and dejection—may set goals that are poorly defined and less challenging than do people lower in neuroticism. Poorly defined and less challenging goals are less likely to be attained and therefore are less likely to result in stronger self-efficacy beliefs. They note that a meta-analysis by Judge and Ilies (2002) did indeed find that higher conscientiousness, higher extraversion, and lower neuroticism are associated with setting more challenging goals in task and job performance.

Little, Lecci, and Watkinson (1992) found that people who were lower in neuroticism viewed their personal goals as less stressful and more meaningful and felt more efficacious about goal attainment. People higher in extraversion and conscientiousness also reported stronger self-efficacy beliefs regarding their goals.

Because neuroticism is associated with rumination, including a focus on threats to the self (McCrae & Löckenhoff, this volume), people higher in neuroticism are probably more likely to become critically self-diagnostic (“What’s wrong with me?”) rather than task-diagnostic (“What do I need to do now?”) when encountering self-regulatory challenges and setbacks. Task-diagnostic behavior is more likely to lead to success and therefore to strengthen self-efficacy beliefs (Bandura & Wood, 1989; Wood & Bandura, 1989).

People higher in conscientiousness are less likely to procrastinate, more likely to persist in the face of challenges, and better able to delay or suppress gratification than are people lower in conscientiousness (McCrae & Löckenhoff, this volume). Individuals who are *both* high in conscientiousness and low in neuroticism tend to have clear goals and tend to persist under unfavorable conditions (McCrae & Löckenhoff, this volume). Setting clear goals, persisting under challenging conditions, delaying gratification, and not procrastinating increase the probability of success and therefore the probability that self-efficacy beliefs will be enhanced.

Much research remains to be done before firm conclusions can be drawn about the relationship between personality and self-efficacy. Research suggests, however, that people higher in conscientiousness, higher in extroversion, and lower in neuroticism more easily develop strong self-efficacy beliefs.

## **Self-Efficacy and Self-Regulation**

Understanding the role that self-efficacy beliefs play in self-regulation requires understanding of the broader theoretical foundation. Self-efficacy theory 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 is grounded in the assumption that 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; develop new plans of action; make predictions about outcomes (expectancies); and test and evaluate their predictions. In addition, environmental events, inner personal factors (cognition, emotion, and biological 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.

These capacities set the stage for self-regulation. 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. Self-efficacy's effect on self-regulatory ability is the aspect of self-efficacy that has the greatest influence in people's lives.

Because self-regulation refers to a set of "processes by which people control their thoughts, feelings, and behaviors" (Hoyle, 2006, p. 1507), understanding self-regulation consists of not just understanding who self-regulates well and who does not—"stable tendencies to self-regulate in particular ways or with characteristic levels of success or failure" (Hoyle, 2006, p. 1508). It consists also of understanding the *process* of self-regulation or *how* people self-regulate. A social cognitive approach to self-regulation

is concerned specifically with understanding the process of self-regulation, not simply measuring individual differences in general self-regulatory ability (Karoly, this volume; Cervone, Shadel, Smith, & Fiori, 2006). In fact, a social cognitive approach to self-regulation assumes that self-regulation consists of a set of skills that can be learned and improved with practice, while recognizing that there are individual differences in the capacity for mastering these skills that may be grounded in personality and therefore to some extent in biology (e.g., effortful control, Eisenberg et al., this volume; conscientiousness, McCrae & Löckenhoff, this volume).

Self-regulation is a complex process involving reciprocal relationships among a number of components. For this reason, self-efficacy beliefs interact in complex ways with the other major components of self-regulation.

Self-efficacy beliefs influence the *goals* people decide to pursue. 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 (e.g., Bandura, 1997). Motivation to accomplish difficult tasks and accomplish lofty goals is enhanced 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 then surpass their previous levels of accomplishments.

In addition, the goals people choose may influence self-efficacy beliefs. For example, people view *avoidance goals* (things they want to avoid) as less clearly defined than *approach goals* (things they want to attain) and as having less clearly defined strategies for attainment (Cervone et al., 2004; Mor & Cervone, 2002). Therefore, people usually have a lower sense of self-efficacy for accomplishing avoidance goals than for accomplishing approach goals (Cervone et al., 2004; Mor & Cervone, 2002).

Self-efficacy beliefs influence people's choices of goal-directed *plans* or *strategies* (Bandura, 1998). People are more likely to attempt to implement plans they believe they can implement competently than plans that they believe are beyond their abilities. They are also less likely to procrastinate at goal-directed behavior when their self-efficacy beliefs are relatively strong (Steel, 2007). As Mischel and Ayduk noted:

The motivation to delay immediate gratification for the sake of distal goals that are contingent on the individual's own effort also depends on the activation of beliefs that one can fulfill the necessary requirements . . . on which the distal reward is contingent. (Mischel and Ayduk, 2004, p. 105)

Thus, as people contemplate a goal and make attempts at self-regulation in pursuit of that goal, they not only consider what behaviors and strategies are necessary to attain the goal (including specific subgoals in specific situations), but they also consider to what extent they believe they can perform those behaviors and implement those strategies.

Self-efficacy beliefs influence *intentions* to attain particular goals and intentions to engage in particular goal-directed behaviors, plans, or strategies. Of particular relevance to self-regulation are *implementation* intentions—intentions to perform specific

goal-directed behaviors in specific situations (Gollwitzer, Fujita, & Oettingen, 2004). Intentions are influenced by a number of factors, including, but not limited to, self-efficacy beliefs (Maddux, 1999a; Maddux & Ducharme, 1997). Self-efficacy beliefs can influence self-regulation through their influence on intentions because people are unlikely to hold strong intentions to perform behaviors if they lack confidence in their ability to perform them (Bandura, 1997; Maddux & Ducharme, 1997).

Self-efficacy beliefs can influence and can be influenced by *causal attributions*. Causal attributions are explanations for events, including one's own behavior and its consequences. Attributions are important in self-regulation because people's explanations for the success or failure of their self-regulatory efforts can determine their subsequent responses (e.g., increased or diminished effort). Self-efficacy beliefs can influence 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 strong self-efficacy beliefs for an activity are more likely than people with weak self-efficacy beliefs to attribute success in that activity to personal capabilities rather than to external factors (Bandura, 1989; Schunk, 1995). Attributing success to personal capabilities is more likely to lead to persistence in self-regulatory efforts than is attributing success to external factors.

People who are pursuing long-term goals (e.g., getting a PhD) are frequently faced with complex problems and difficult decisions; therefore, effective self-regulation requires efficient and effective problem solving and decision making. Self-efficacy beliefs can influence the efficiency and effectiveness of problem solving and decision making. When faced with complex problems and difficult decisions, people who have confidence in their ability to solve problems and make decisions use their cognitive resources more effectively than do people who doubt their cognitive skills (e.g., Bandura, 1997; Cervone, Jiwani, & Wood, 1991; Cervone & Wood, 1995). Such efficiency usually leads to better solutions and greater achievement. In the face of difficulty, people with higher self-efficacy are more likely to remain *task-diagnostic* and continue to search for solutions to problems. Those with lower 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 at hand (Bandura & Wood, 1989; Wood & Bandura, 1989).

Recent research indicates that self-regulation is a limited resource that is temporarily depleted when people exercise it, including when they make choices and decisions (Doerr & Baumeister, in press). Making decisions and choices with high confidence (decisiveness) may be less effortful than making choices and decisions with low confidence (indecisiveness). Therefore, people with higher self-efficacy (and greater decisiveness) for decision making may be less vulnerable to postdecision self-regulatory depletion than are people with lower self-efficacy for decision making (and lower decisiveness).

Self-efficacy beliefs influence people's *emotional reactions* to challenges and perceived discrepancies between goals and current performance. During attempts at self-regulation, people gather information or *feedback* 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). However, people do not simply perceive information; they *interpret* it. Likewise, people interpret feedback about progress toward or away from a goal, and different people will interpret and react to the same feedback in different ways. 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 self-efficacy beliefs continue their efforts to master a task when difficulties arise. A person with relatively strong self-efficacy beliefs is less likely to become anxious or despondent in reaction to self-regulatory challenges and disruptions and in reaction to perceived self-regulatory failure than is a person with weaker self-efficacy beliefs (e.g., Bandura, Cioffi, Taylor, & Brouillard, 1988; Bandura, Pastorelli, Barbaranelli, & Caprara, 1999). Because distress typically disrupts self-regulatory efforts (Scott & Cervone, 2002; Tillema, Cervone, & Scott, 2001), the person with higher self-efficacy is less vulnerable to distress-based disruptions. Self-efficacy beliefs for self-regulation of affect are particularly important in the self-regulation of interpersonal behavior and relationships (e.g., Caprara, 2002; Bandura, Caprara, Barbaranelli, Gerbino, & Pastorelli, 2003).

These findings are consistent with the broaden-and-build theory of positive emotions (Frederickson, 1998, 2001) that proposes that positive emotions broaden people's thought processes, which can lead to more flexible, creative, and effective problem solving and the enhancement of resources and skills over time. As noted previously, people with stronger self-efficacy beliefs are less likely to become *self-diagnostic* and more likely to become *task-diagnostic* in response to challenges, disruptions, and perceived discrepancies between present and desired states. Self-diagnostic reactions typically lead to distress, which can further disrupt self-regulation.

People who maintain strong self-efficacy beliefs during self-regulatory efforts are less resistant to the disruptions in self-regulation that can result from difficulties and setbacks (e.g., Shiffman et al., 2000) and are more likely to persevere. Perseverance usually increases the likelihood of success, and this success then strengthens the individual's self-efficacy beliefs.

More research is needed to elucidate the relationship between self-efficacy beliefs and self-regulatory perseverance. For example, most studies on the role of self-efficacy beliefs in predicting behavior maintenance have relied on tests of the relation between an initial measure of self-efficacy and a distal behavior. What are needed are studies that involve the repeated assessment of both behavior and self-efficacy beliefs throughout the behavior-change process (Rothman, Baldwin, & Hertel, 2004, p. 141) so that fluctuations in self-efficacy and fluctuations in self-regulatory success can be examined more closely.

To emphasize the role that self-efficacy beliefs play in self-regulation is not to say that strong self-efficacy beliefs are always adaptive. Although most of the research on the effect of self-efficacy on self-regulation suggests that the higher one's self-efficacy, the more effective one's self-regulation in pursuit of a goal, self-efficacy beliefs can be "too high" or "too strong." 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). Effective self-regulation involves choosing the right goals to pursue, and unrealistically strong self-efficacy beliefs may lead one to choose unattainable goals. In addition, an important feature of effective self-regulation is knowing when to disengage from a goal when one's efforts are not paying off (e.g., King & Hicks, 2007). If self-efficacy beliefs are unrealistically high, they may result in the relentless pursuit of obviously (to observers) unattainable goals and overly risky goals (Brandstatter & Renner, 1990; Cervone et al., 2004; Haaga & Stewart, 1992; Janoff-Bulman & Brickman, 1982). This can be especially true later in life when resources (e.g., physical strength and stamina, financial resources) become more scarce (Freund & Baltes, 2002).

Although stronger self-efficacy beliefs usually enhance self-regulatory efforts in a variety of ways, the ways in which these strong self-efficacy beliefs develop can also influence self-regulation. 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. 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 & Jourden, 1991). As a result, progress toward a goal may be hindered.

## Collective Efficacy and Collective Regulation

Accomplishing important goals in 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 self-regulation that omits the relationship between an individual and other people 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, no matter how well they can self-regulate. 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 self-regulate effectively *together* to accomplish their shared goals, which we might refer to as *collective regulation*. Just as effective self-regulation requires strong self-efficacy beliefs, effective collective regulation requires strong collective efficacy beliefs.

Collective efficacy, like self-efficacy, influences collective motivation, collective 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 individuals' 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, 1999b).

Despite a lack of consensus on its measurement (Bandura, 1997; Maddux, 1999b), collective efficacy has been found to be important to a number of "collectives." The more efficacious married couples feel about their shared ability to accomplish important shared goals, the more satisfied they are with their marriages (Kaplan & Maddux, 2002). This same relationship has been found for dating couples (Zapata & Maddux, 2008). Greater individual and collective efficacy of teachers for effective instruction is associated with the greater academic achievement of school children (Bandura, 1993, 1997; Goddard et al., 2004). A strong sense of collective efficacy is associated with the greater effectiveness of self-managing work teams (Little & Madigan, 1997) and group "brainstorming" (Prussia & Kinicki, 1996). In neighborhoods, lower collective efficacy is associated with violent crime rates above and beyond 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 that 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 for American workers (Schaubroeck, Lam, & Xie, 2000). One 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, 1999). 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 (Bandura, 2000).

Researchers also are beginning to understand how people develop a sense of collective efficacy for promoting social and political change (Fernández-Ballesteros, Díez-Nicolás, Caprara, Barbaranelli, & Bandura, 2002)—collective regulation on a large scale. Of course, self-efficacy and collective 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). Collective efficacy beliefs also can be important in people’s reactions to traumatic events such as natural disasters (e.g., Benight, 2004).

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 and collective regulation will become increasingly important.

## Summary

Self-efficacy beliefs are beliefs about one’s ability to “organize and execute the courses of action required to produce given attainments” (Bandura, 1997, p. 3). Although self-efficacy was originally conceived not as a personality trait but as a domain-specific belief or set of beliefs, measures of a trait-like general self-efficacy have been developed and have been used frequently in research. In addition, research suggests that the capacity for developing strong self-efficacy beliefs may be influenced by such personality traits as effortful control, conscientiousness, extroversion, and neuroticism. Nonetheless, understanding the role that self-efficacy plays in self-regulation will be facilitated best not by viewing self-efficacy as a trait but by viewing it as a domain-specific belief about one’s competencies that interacts in complex ways with the other major components of the *process* of self-regulation. Finally, just as the individual cannot be fully understood without understanding his or her relationships with other people, self-efficacy and self-regulation cannot be fully understood without understanding how the individual works collectively with other people to accomplish personal and shared goals.

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