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CHAPTER

2 Social Cognitive Theory and Motivation

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Abstract

Social cognitive theory is a theory of human behavior that emphasizes learning from the social environment. This chapter focuses on Bandura's social cognitive theory, which postulates reciprocal interactions among personal, behavioral, and social/environmental factors. Persons use various vicarious, symbolic, and self-regulatory processes as they strive to develop a sense of agency in their lives. Key motivational processes are goals and self-evaluations of progress, outcome expectations, values, social comparisons, and self-efficacy. People set goals and evaluate their goal progress. The perception of progress sustains self-efficacy and motivation. Individuals act in accordance with their values and strive for outcomes they desire. Social comparisons with others provide further information on their learning and goal attainment. Self-efficacy is a critical influence on motivation and affects task choices, effort, persistence, and achievement. Recommendations are made for future research.

Keywords: social cognitive theory, vicarious processes, symbolic processes, self-regulatory processes, goals, self-evaluations of progress, outcome expectations, values, social comparisons, self-efficacy

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Introduction

Contemporary perspectives of motivation postulate that cognitive and affective variables (e.g., thoughts, beliefs, emotions) underlie motivation. As used in this chapter, *motivation* refers to the process whereby goal-directed activities are instigated and sustained (Schunk, Meece, & Pintrich, 2014). Current cognitive and constructivist theories contrast with earlier views that linked motivation with individual differences in instincts and traits and with behavioral theories that construed motivation as an increased or continued level of responding to stimuli caused by reinforcements.

In this chapter, we discuss motivation from the perspective of social cognitive theory. *Social cognitive theory* emphasizes the idea that much human learning and behavior occurs in social environments. By interacting with others, people acquire knowledge, skills, strategies, beliefs, and attitudes. Through their observations

and interactions with others, individuals also learn about the appropriateness, usefulness, and consequences of behaviors. People are motivated to act in accordance with their beliefs about their capabilities and the expected outcomes of actions.

From its inception, social cognitive theory has emphasized the importance of motivation in human behavior. Rotter's (1954) social learning theory, for example, included two prominent motivational variables: expectancy, or one's belief about the likelihood of a particular reinforcement occurring following a specific behavior, and reinforcement value, or how much one values a given outcome relative to other potential outcomes. Bandura's 1960s studies on modeling were based on theoretical predictions of his social learning theory (Bandura & Walters, 1963), which included motivation as a key influence on observational learning through modeling.

Although there are various social cognitive perspectives on motivation, this chapter focuses on Bandura's (1977b, 1986, 1997, 2001) theory, which underscores the key roles of vicarious, symbolic, and self-regulatory processes in human learning and behavior (Schunk, 2012). This social cognitive framework often is employed by researchers to explore the operation and outcomes of cognitive and affective motivational processes.

The next section describes the conceptual framework of social cognitive theory to include the important roles played by vicarious, symbolic, and self-regulatory processes. Some key social cognitive motivational processes are discussed, including goals and self-evaluations of progress, outcome expectations, values, social comparisons, and self-efficacy. A separate section is devoted to discussing *self-efficacy*, or one's perceived capabilities for learning or performing actions at designated levels (Bandura, 1977a, 1997), given its centrality to learning and motivation. We conclude the chapter with future research recommendations.

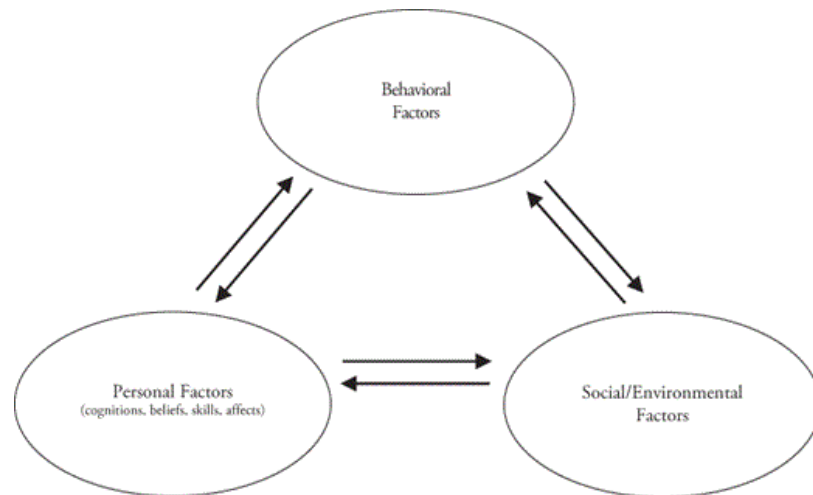
Conceptual Framework

This section discusses central features of the conceptual framework of Bandura's social cognitive theory. Of particular importance are reciprocal interactions among personal, behavioral, and social/environmental factors; the distinction between enactive and vicarious learning; and the roles of vicarious, symbolic, and self-regulatory processes in psychological functioning.

Reciprocal Interactions

A central tenet of Bandura's (1977b, 1986, 1997, 2001) social cognitive theory is that human behavior operates within a framework of reciprocal interactions among three sets of influences: personal (e.g., cognitions, beliefs, skills, affect), behavioral, and social/environmental factors (Figure 2.1). These reciprocally interacting influences are illustrated using self-efficacy—a personal factor. With respect to the interaction of self-efficacy and behavior (person → behavior), much research shows that self-efficacy influences achievement behaviors such as task choice, effort, persistence, and use of effective learning strategies (Schunk & DiBenedetto, 2016; Usher, 2015). These behaviors also affect self-efficacy (behavior → person). As students work on tasks and observe their learning progress, their self-efficacy for continued learning is enhanced.

Figure 2.1



Reciprocal interactions in social cognitive theory.

The link between personal and environmental factors (person → social/environment) can be illustrated with students with learning disabilities, many of whom hold low self-efficacy for performing well (Licht & Kistner, 1986). Instructors in such environments may base their reactions to these students on perceived attributes about the students (e.g., low skills) rather than on students' actual capabilities. In turn, environmental feedback can affect students' self-efficacy (social/environment → person), such as when a teacher tells a student, "You can do this" (Butz & Usher, 2015).

The interaction between behaviors and environmental factors is seen in many instructional sequences. Environmental factors can direct behaviors (social/environment → behavior), as when a teacher points to a display and says, "Look at this," which students do without much conscious effort. ↴ Students' behaviors can alter their instructional environments (behavior → social/environment). When teachers ask questions and students give incorrect answers, teachers are apt to reteach the material rather than continue with the lesson.

Social cognitive theory emphasizes the importance of human *agency* in which individuals attempt to exert a large degree of control over their thoughts, feelings, and actions (Schunk, 2012). In reciprocal fashion, people affect and are influenced by their actions and environments. But given social cognitive theory's grounding in the social environment, the scope of this reciprocal influence includes groups as well as individuals. *Collective agency* refers to people's shared perceived capabilities of attaining group outcomes (Schunk & Usher, 2012). Like individuals, groups also affect and are influenced by their actions and environments.

Enactive and Vicarious Learning

In social cognitive theory, learning occurs *enactively* through actual doing and *vicariously* through observing models (e.g., live, filmed, symbolic; Bandura, 1977b). Enactive learning involves learning from the consequences of one's actions, which can inform and motivate. Actions convey information about the accuracy or appropriateness of one's behaviors. People rewarded for their actions understand that they are performing well; punishments signal behavioral inappropriateness. Individuals are motivated to learn and perform behaviors that they believe will have desirable consequences and to avoid learning behaviors that they believe will be punished.

Much human learning occurs vicariously and does not require actual performance by learners. Vicarious learning offers an efficient alternative to learning by doing. Human learning would be inefficient if actions always were required. Vicarious learning also saves people from undesirable consequences. For example, observing or reading about safety techniques saves individuals from acting in potentially dangerous ways. As with enactive learning, observers are motivated to learn actions that lead to successes. People attend to successful models who demonstrate actions that they believe may benefit them (Schunk, 1987).

Learning of complex skills typically occurs both enactively and vicariously. By observing teacher models, students may learn some aspects of a skill. As they practice the skills, teachers provide feedback and corrective instruction as needed. Observation, practice, and feedback are needed for all but simple skills (Bandura, 1986).

Vicarious, Symbolic, and Self-Regulatory Processes

Social cognitive theory stresses that people possess capabilities that distinguish them as humans and motivate them to strive for a sense of agency. Three prominent types of capabilities involve vicarious, symbolic, and self-regulatory processes.

Vicarious Processes

The capability for learning vicariously allows individuals to acquire beliefs, cognitions, affects, skills, strategies, and behaviors from observations of others in their social environments. This capability not only saves people time over what would be required if all learning had to be demonstrated at the time of learning but also allows people to shape their lives as they attend to environmental features. A theory of human agency recognizes that, although some social environments are imposed, others are selected or created by individuals (Bandura, 2001). Thus, students who want to become musicians enroll in music programs and put themselves in situations where they can learn vicariously, such as by attending classes, observing and working with teachers, playing in orchestras, watching videos, attending concerts, and so forth. The models in individuals' environments are important sources of information and motivation. This section discusses the relevance of vicarious processes for learning and motivation.

Types of Vicarious Processes

Bandura (1986) distinguished three types of vicarious processes: response facilitation, inhibition and disinhibition, and observational learning. *Response facilitation* refers to modeled actions that serve as social motivators for observers to act in the same fashion. Response facilitation effects are common in everyday life. An individual walking down a street who encounters a group of people looking in a store window may be motivated to stop and look in the window.

Response facilitation effects do not represent learning because people already know how to perform the actions. The behaviors of others motivate observers' actions. Some research evidence shows that response facilitation effects can occur without conscious awareness (Chartrand & Bargh, 1999; Heyes, 2011).

Inhibition and disinhibition effects result when models strengthen or weaken observers' tendencies to act in given ways. Inhibition can happen when models are punished for their actions, whereas disinhibition can result when models perform threatening or prohibited actions without negative consequences.

Classroom misbehavior may be disinhibited when students observe other students misbehaving without being reprimanded by the teacher, whereas a sudden reprimand may inhibit further misbehavior.

Like response facilitation, inhibition and disinhibition represent motivational effects on behavior, not new learning. A difference between these two categories is that response facilitation involves behaviors that are socially acceptable, whereas inhibition and disinhibition involve actions that have moral or legal implications (e.g., breaking rules) or involve strong emotions (e.g., fears). Favorable or unfavorable portrayals by the media can affect an observer's moral standards and self-sanctions (Bandura, 2016). For example, watching, listening to, or reading about someone's aggressive behavior that results in no adverse consequences may disinhibit others who might take similar aggressive actions.

Observational learning through modeling occurs when observers perform behaviors that they had not learned prior to exposure to the models (Bandura, 1986). Observational learning has four component processes: attention, retention, production, and motivation.

Observational learning requires that observers attend to relevant features so that they can be perceived. Certain features of models and situations command better attention. Observers are more motivated to attend to models who have status and credibility, such as teachers (Bandura, 1997). Task features can affect attention, as when teachers use bright colors, oversized features, and interactive materials. Attention also is influenced by observers' beliefs about the functional value of the modeled behaviors. Modeled activities that observers believe are important and likely to lead to desirable outcomes motivate them to pay attention. Students' attention should be raised when teachers provide verbal markers, such as when they announce that students will be tested on the material they are about to cover.

Retention involves cognitively organizing, rehearsing, coding, and transforming information for storage in memory. Relative to the other processes of observational learning, social cognitive theory devotes less attention to this process. Theorists and researchers in the information processing tradition have addressed this aspect in depth (Radvansky & Ashcraft, 2014). The third process—production—involves translating cognitive conceptions of modeled actions into behaviors. Especially with complex behaviors, observers often will learn only some features through observation. They refine their skills through practice and feedback that may include additional modeling (e.g., worked examples; see Renkl, 2014).

Motivation is a key process in observational learning because onlookers are more apt to attend to, retain, and produce modeled actions that they believe are important. People are selective; they do not learn or perform everything that they observe. Rather, they attempt to learn those actions that they believe will lead to desirable outcomes and help them attain their goals, and they avoid those actions that they believe will result in dissatisfying outcomes. As they observe the actions of others, people form outcome expectations about anticipated outcomes of behaviors, which are based on their observations of models and their own experiences. Their learning and performances are based in part on these expectations.

Model Characteristics

Researchers have investigated the characteristics of effective models. For example, perceived similarity between models and observers is a key variable that affects modeling (Schunk, 1987). Similarity in important ways serves as a source of information for determining behavioral appropriateness, forming outcome expectations, and assessing one's self-efficacy. Age similarity between model and observer is important for gauging behavioral appropriateness but less so for actual learning, which is enhanced more by models who observers believe are competent. When competence and age similarity do not match (e.g., a younger model is more competent than a same-age model), children are swayed more by the competent model. Viewing a similar peer successfully perform a task may raise observers' self-efficacy and motivate them to learn because they are apt to believe that if the model could learn, they can as well (Butz & Usher, 2015; Schunk, 1987). Model gender can influence modeling by conveying information about task appropriateness. In general, observing a same-gender peer model perform a behavior without negative consequences conveys that the action is appropriate. Model gender is less important in learning academic skills and strategies (Schunk, 1987).

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Researchers have also explored the effects of exposing students to mastery and coping models (Schunk, 1987). Mastery models demonstrate faultless performance from the outset. Coping models initially have difficulty learning skills, but through effort gradually improve their skills and eventually perform as well as mastery models. Research shows that children who have experienced previous difficulties learning may benefit more from observing coping models (Schunk & Hanson, 1985). Such children may perceive themselves as more similar in competence to coping models, which can raise their self-efficacy and motivation for learning. Viewing one's own performances, or *self-modeling*, can facilitate learning and motivation. Carroll and Bandura (1982) had adults view models performing a motor skill and then attempt to reproduce the skill. Performances of some learners were taped and learners were allowed to watch this concurrent visual feedback while performing. Visual feedback given before learners had formed a mental model of the skill had no effect on performance, but once learners had formed such a mental model, the visual feedback enhanced their production of the skill. The self-modeled feedback may reduce discrepancies between learners' mental models and actual performances.

Observational learning is enhanced when modeled displays contain explanations and demonstrations (*cognitive modeling*). In an early study, Schunk (1981) compared the effects of cognitive modeling with those of didactic instruction on children's long-division self-efficacy and achievement. Children who lacked division skills received instruction and practice over sessions. Cognitive-modeling children observed an adult model explain and demonstrate division solution strategies while applying them to problems. Didactic-instruction children received written instructional material that explained and demonstrated the operations. Compared with didactic instruction, cognitive modeling promoted division achievement and accuracy of perceived division capabilities (i.e., self-efficacy was better aligned with demonstrated skills).

Symbolic Processes

In addition to their capability for vicarious learning, individuals possess the capacity for symbolic representations, which involve language, mathematical and scientific notation, iconography, and cognition and which help people adapt to and alter their environments (Bandura, 1986). They use symbolic processes to interpret actions and outcomes and guide future actions. People do not simply react to events in their lives, but rather generate new courses of actions for solving problems based on their capabilities to symbolize. Symbolic processes also foster communications with others (e.g., in person, on the phone, electronically, in writing), which promote further learning.

Self-Regulatory Processes

Social cognitive theory assigns a prominent role to self-regulatory processes (Bandura, 1986; Schunk, 2012; Usher & Schunk, 2018). *Self-regulation* refers to the processes that individuals use to activate and sustain behaviors, cognitions, and affects, which are systematically oriented toward attainment of goals (Zimmerman, 2000). Prior to beginning a task, people set goals and determine which strategies to use. As they work on tasks, they assess their goal progress and decide whether to continue or alter their strategies. During breaks and when tasks are complete, they reflect on their experiences, seeking to make sense of them and to determine what their next steps should be. As they reflect on what they have done, their belief that they have learned and made progress strengthens their self-efficacy and motivates them to continue learning. We elaborate on these motivational processes next.

Motivational Processes

The preceding sections showed how observational, symbolic, and self-regulatory processes can have motivational effects on individuals (Schunk & Usher, 2012). Among the most critical motivational processes are goals and self-evaluations of progress, outcome expectations, values, social comparisons, and self-efficacy (Table 2.1). These processes are covered in the following sections.

Table 2.1 Social Cognitive Motivational Processes

- | |
|--|
| • Goals and self-evaluations of progress |
| • Outcome expectations |
| • Values |
| • Social comparisons |
| • Self-efficacy |

Goals and Self-Evaluations of Progress

Goals, or what people are consciously trying to attain, involve symbolic and self-regulatory processes that people use to instigate and sustain actions. Initially, people must make a commitment to attempt to attain goals because goals do not affect behavior without commitment (Locke & Latham, 2002). As people work on a task, they compare their current performance with their goals. Positive self-evaluations of progress strengthen self-efficacy and sustain motivation. A perceived discrepancy between present performance and the goal may create dissatisfaction, which can raise effort. Goals motivate people to expend the necessary effort and persist at the task (Locke & Latham, 2015). Greater effort and persistence typically lead to better performance. Goals also help to direct people's attention to relevant task features, behaviors to be performed, and possible outcomes of their actions, which can affect how people process information.

Although goals are important motivational processes, their effects depend on their properties: specificity, proximity, and difficulty. Goals that include specific performance standards (e.g., "Read 10 pages") are

more likely to activate self-evaluations of progress and enhance motivation and learning than are general goals (e.g., “Read some pages”; Bandura, 1986). Specific goals indicate the amount of effort needed to succeed, and evaluating progress toward specific goals is straightforward. Goals also are distinguished by how far they project into the future. Proximal, short-term goals (e.g., “Read 10 pages in the next hour”) enhance motivation and learning better than do distant, long-term goals (“Read 10 pages by the end of the week”) because people often put off what they do not have to do soon (Schunk, 2012).

Goal difficulty, which refers to the level of task proficiency required as assessed against a standard, influences the amount of effort that people expend. In general, people work harder to attain goals perceived to be difficult than goals thought to be easier; however, perceived difficulty and motivation do not bear an unlimited positive relation to one another. Goals that people believe are overly difficult do not motivate because people hold low self-efficacy for attaining them. The opposite may also be true. Although people may feel efficacious for attaining goals perceived as very easy, these goals may not motivate because people often procrastinate in attempting them. The best goals are those people view as challenging but attainable (Locke & Latham, 2015).

Another distinction is between learning and performance goals. A *learning goal* refers to what knowledge, behavior, skill, or strategy students are to acquire; a *performance goal* refers to what task students are to complete. These goals can have differential effects on achievement behaviors (Anderman & Wolters, 2006). Learning goals focus students’ attention on processes and strategies that help them acquire competence and improve their skills. Focusing on knowledge and skill acquisition motivates behavior and sustains attention to important features. Students in pursuit of a learning goal are apt to feel self-efficacious for attaining it and be motivated to work hard, persist, and use effective learning strategies (Huang, 2016). Self-efficacy and motivation are sustained as learners work toward their goals and assess their progress (Schunk, 1996).

In contrast, performance goals focus attention on completing tasks. They may not highlight the importance of the processes and strategies underlying task completion or raise self-efficacy for learning. As students engage in a task, they may be less likely to determine their progress by comparing their present and past performances. Performance goals can lead to social comparisons with the work of others to determine progress. These comparisons can lower self-efficacy among students who experience learning difficulties, which adversely affects motivation and learning.

Research supports these hypothesized effects of learning and performance goals (Anderman & Wolters, 2006). For example, Schunk (1996) conducted two studies in which elementary-age children with low fraction skills received instruction and practice on fractions over sessions. Children worked under conditions involving either a learning goal of how to solve problems or a performance goal of solving them. In the first study, half of the students in each goal condition completed a self-evaluation at the end of each instructional session in which they evaluated their progress in learning to solve the types of problems covered during that session. The learning goal with or without self-evaluation and the performance goal with self-evaluation led to higher motivation, self-efficacy, and achievement. In the second study, all students evaluated their learning progress at the end of the last instructional session. The learning goal led to higher motivation and achievement outcomes than did the performance goal.

Schunk and Ertmer (1999) conducted two studies with college undergraduates as they worked on computer projects over sessions. Students received a goal of learning computer applications or a goal of performing them. In the first study, half the students in each goal condition evaluated their learning progress midway through the instructional program. The learning goal led to higher self-efficacy, self-evaluated progress, and self-regulatory competence and strategy use. The opportunity to self-evaluate progress promoted self-efficacy. In the second study, students in the self-evaluation condition assessed their progress after each instructional session. Frequent self-evaluation produced comparable results when linked with a learning or

performance goal. These results suggest that infrequent self-evaluation of one's progress complements learning goals, but frequently evaluating one's progress can outweigh the benefits of learning goals and raise motivation and achievement outcomes. This is another example of students' personal influences on their motivation and behavior through self-regulatory processes.

Outcome Expectations

Outcome expectations are beliefs about the expected outcomes of actions. They can refer to external outcomes (e.g., "If I study hard, I should do well on the test"), to internal outcomes (e.g., "If I study hard, I will feel good about myself"), and to progress in learning (e.g., "If I study hard, I will learn more"). People form outcome expectations about the likely consequences of given actions based on personal experiences and observations of models (Bandura, 1986; Schunk, 2012; Schunk & Zimmerman, 2006). Outcome expectations constitute a source of motivation. Individuals act in ways they believe will be successful and attend to models who they believe will teach them valued skills.

Outcome expectations can sustain behaviors over long periods when people believe their actions will eventually produce desired outcomes. Students who feel self-efficacious for succeeding and believe that their actions will lead to positive outcomes are motivated to continue working even when progress occurs slowly. Conversely, those whose self-efficacy is weaker may, when they encounter difficulties, work lackadaisically or give up. This situation can be demotivating; students may believe that positive outcomes could result but that they personally lack the self-efficacy to motivate themselves to continue. For example, they may believe that if they studied hard they would do well on the test, but may doubt their self-efficacy to study hard.

Shell, Murphy, and Bruning (1989) obtained evidence of the influential role of outcome expectations. College students completed measures of self-efficacy and outcome expectations for reading and writing, as well as reading and writing achievement tests. For the self-efficacy assessment, students judged their competencies for performing various reading and writing tasks. For the outcome expectation measure, students judged the importance of reading and writing for achieving life goals, such as getting a job, being financially secure, and being happy.

Self-efficacy and outcome expectations related positively to achievement in both domains, although the relations were stronger for reading than for writing. In both domains, self-efficacy related more strongly to achievement than did outcome expectations, although the latter results were significant and added to the prediction of achievement. This study also found that self-efficacy and outcome expectations in each domain related significantly to achievement in the other domain, which suggests that improvements in students' self-efficacy and outcome expectations in one literacy area may generalize to other areas.

Values are individuals' perceptions of the importance and utility of learning and acting in given ways. The role of values in motivation has been explored extensively by achievement motivation researchers (Wigfield, Rosenzweig, & Eccles, 2017; Wigfield, Tonks, & Klauda, 2016). Values enter prominently in a social cognitive account of motivation and behavior (Bandura, 1997, 2016). People who value attaining a sense of agency believe that they can exert significant control over important elements in their lives and are motivated to do so.

Individuals act in ways to bring about the outcomes they value and avoid actions leading to outcomes that are inconsistent with their values. They are motivated to learn when they believe that learning is important. For instance, students who value mathematics may do so for various reasons, such as because they want to become mathematics teachers or because they believe that mathematics has many uses in everyday life. Valuing mathematics may lead them to take more mathematics courses and expend greater effort to succeed. Investigations by achievement motivation researchers (e.g., Wigfield et al., 2016, 2017) have shown

that values and expectancy beliefs such as self-efficacy relate positively to students' achievement. When both expectancy beliefs and values are used to predict achievement, expectancy beliefs are significant predictors, whereas values are not. In contrast, values are better predictors of students' intentions to take future courses and actual enrollment in those courses than are expectancy beliefs. Values seem most important as contributors to individuals' choices, which are key motivational outcomes.

Social Comparisons

Given its emphasis on learning from the social environment and reciprocal interactions among personal, behavioral, and social/environmental variables, social cognitive theory underscores the importance of *social comparisons*, or comparing ourselves with others on some criterion (Wheeler & Suls, 2005). Although people often compare their performances with objective standards, they also socially evaluate ↴ their capabilities, especially when objective standards are unclear or unavailable. Comparisons indicating that one is improving or more competent than others can raise self-efficacy and motivation; comparisons that result in negative self-evaluations can diminish these outcomes.

The most accurate self-evaluations arise from comparisons with others who people believe are similar to themselves in the particular ability or characteristic being evaluated (Schunk, 2012). The more alike observers are to models, the greater the probability that similar actions by observers will produce comparable results (Schunk, 1987). Model–observer perceived similarity in competence can improve learning (Braaksma, Rijlaarsdam, & van den Bergh, 2002). Observing similar others succeed can raise observers' self-efficacy and motivate them to try the task. Similarity may be especially influential with persons who have experienced difficulties and possess self-doubts about performing well.

Although social comparisons can motivate individuals, their effects are not automatic. Among elementary school children, Schunk (1983a) found that providing children with social comparative information about how their performances compared with that of others promoted their motivation but that pursuing goals enhanced their self-efficacy. Giving children both goals and comparative information led to the best learning. Schunk (1983b) showed that difficult goals raised children's academic motivation more than easier goals, that persuasive self-efficacy feedback (e.g., "You can work 25 problems") raised self-efficacy more than feedback indicating how children's performances compared to that of peers, and that difficult goals plus persuasive feedback led to the highest achievement.

The effects of social comparisons on self-efficacy and motivation depend on the abilities of the comparison peers. Guay, Boivin, and Hodges (1999) found that the relation between children's perceived competence (analogous to self-efficacy) and achievement was stronger when best friends' achievement was low than when it was high. Students' social comparisons with close friends' achievement may make students' own performances look worse than they really are. In contrast, learners may assess their capabilities more accurately when they have low-achieving friends because they rely less on social comparison and more on objective assessments of their progress and performances.

On the one hand, social comparisons that focus students' attention on the accomplishments of similar and average peers could imply that they, too, are average and therefore have no reason to feel highly self-efficacious. On the other hand, self-efficacy can decline when students socially compare themselves to high-achieving peers (Usher, 2015). Self-efficacy and motivation may increase more predictably from providing students with objective information indicating that they are making learning progress without referring to peers' accomplishments.

Self-Efficacy

Self-efficacy is a critical variable affecting learning and motivation (Bandura, 1997). This section discusses how self-efficacy develops and changes, the consequences of self-efficacy, research on self-efficacy in achievement situations, and collective self-efficacy.

Sources of Self-Efficacy Information

People acquire information to assess their self-efficacy from four primary sources: their mastery experiences (interpretations of actual performances), vicarious (modeled) experiences, forms of social persuasion, and physiological indexes (Bandura, 1997; Table 2.2). One's actual performances constitute the most reliable information because they typically are interpreted as tangible indicators of one's capabilities (Schunk & DiBenedetto, 2016; Schunk & Usher, 2012). Successful performances raise self-efficacy whereas failures may lower it, although an occasional failure or success after many successes or failures should not have much impact.

Table 2.2 Informational Sources of Self-Efficacy

- | |
|--|
| • Mastery experiences (interpretations of actual performances) |
| • Vicarious (modeled) experiences |
| • Forms of social persuasion |
| • Physiological indexes |

The influence of actual performances on self-efficacy depends on one's interpretations of variables such as task difficulty, effort expended, aid received, and preconceptions of one's capabilities (Bandura, 1997). For example, a high-achieving student who makes an external task attribution for success (e.g., "I did well because the test was easy") will not necessarily feel highly self-efficacious. The cognitive interpretations of the results of one's actions, not the actions themselves, determine how past performances affect self-efficacy. Meeting the minimum requirements for passing geometry may not boost the mathematics self-efficacy of a student who holds extraordinarily high personal standards and who longs to be an engineer. For another student whose values and interests are different, an average performance in geometry may boost self-efficacy and lead to continued motivation in mathematics classes. Failures can also serve an important function when they lead to better strategies that strengthen self-efficacy.

As noted in the previous section, individuals acquire much information about their capabilities through social comparisons with others (Bandura, 1997). Observing similar others succeed can raise observers' self-efficacy and motivation when they believe that if others can perform well, they can too. But a vicarious increase in self-efficacy can be negated by subsequent failure. Persons who observe similar peers fail may believe they lack the competence to succeed, which can negatively affect motivation.

Students commonly compare themselves to classmates who are engaged in similar learning activities. Surpassing one's peers builds self-efficacy, whereas inferior performances lower it. Despite these tendencies, the influence of peer models on one's self-efficacy cannot be reliably predetermined (Usher,

2009). Whether an observed performance raises or lowers self-efficacy depends on how the observer interprets and judges the circumstances surrounding the performance. Such circumstances include the models one selects for comparison, how similar the models are perceived to be, the models' attitudes, and disparities between the observers' and models' achievement and progress. Individual differences might also make modeled experiences more salient. For example, one study found that adolescent girls were more likely than boys to attribute changes in their mathematics and reading self-efficacy to social influences such as relative ability comparisons with peers (Butz & Usher, 2015).

Teaching practices can increase the frequency with which students compare their performances to those of others. Schools create comparative structures when they group students according to ability levels as measured by achievement test scores or similar criteria. Such practices can send students a public message about their capabilities. Because exposure to multiple skilled models sustains learning self-efficacy, students who find themselves among highly talented peers may reap long-term self-efficacy benefits, whereas those surrounded by less skilled peers may harbor self-doubts. Students who establish their own strong personal standards may be less prone to making unfavorable comparisons to others (Pajares, 2006).

The third source of self-efficacy information is social persuasion by others (e.g., "I know you can do this"; Bandura, 1997). Social persuasions must be credible for learners to believe that success is attainable. Although positive feedback can raise individuals' self-efficacy, the increase will not endure if students subsequently perform poorly (Schunk & DiBenedetto, 2016). Factors that influence persuasiveness include source credibility, valence of the message, and frequency. Highly credible sources such as parents and teachers typically affect students' self-efficacy more than do less credible sources. Ahn, Bong, and Kim (2017) found that messages from teachers but not from parents or peers were influential sources of self-efficacy among Korean high school and college students. Self-efficacy may be affected more from negative remarks than from positive ones (Bandura, 1997). Students who hear messages often or from multiple sources that they are incapable may come to believe it.

People are more likely to attend to social messages about their capabilities when they lack adequate knowledge of what is required to succeed in a domain. To be most effective and motivating, persuasive messages from others must be matched to the individuals' current skill level. Students are quick to dismiss empty praise. Those who are most skilled at building students' self-efficacy couple positive feedback about students' capabilities with scaffolded tasks that build mastery (Butz & Usher, 2015).

Individuals also can acquire self-efficacy information from physiological and emotional reactions such as anxiety and stress (Bandura, 1997). Strong emotional reactions provide cues about anticipated success or failure. On the one hand, for example, a student who experiences fear when heading to advanced chemistry may interpret that fear as a sign of personal inefficacy. When people experience negative thoughts and fears about their capabilities (e.g., feeling nervous when thinking about taking a test), those affective reactions can lower self-efficacy. On the other hand, positive affect or excitement in learning can motivate. Learners who feel energized by challenging academic work likely hold high self-efficacy for succeeding. When people notice their stress abating (e.g., feeling less anxious while taking a test), they may experience higher self-efficacy for performing well.

These informational sources do not affect self-efficacy automatically (Bandura, 1997). Individuals interpret the results of events, and these interpretations provide the impetus for upward or downward shifts in their self-efficacy (Schunk & DiBenedetto, 2016). People weigh and combine information from the various sources to form self-efficacy judgments. Many factors influence the ways in which students interpret and integrate this information when forming their self-efficacy and motivation-related beliefs. For some individuals, the accumulation of informational sources enhances self-efficacy. Other people tend to rely on information from one source more than from others. In a study of the sources of academic self-efficacy among middle school students, girls and African American students seemed more attuned to social

persuasions when forming their self-efficacy than did boys and White students (Usher & Pajares, 2006). The social and cultural environment in which individuals live can partly determine what information is most salient to learners in the development of self-efficacy (Usher & Weidner, 2018).

The influence of these sources of self-efficacy also might be interactive. For example, students who have had few mastery experiences in a given domain may be more likely to rely on what others tell them than would students who have had ample opportunities for mastery (Usher, 2009). Beliefs in one's personal efficacy for learning might also follow a transformational experience. A meaningful individual encounter with a caring teacher might have a more profound influence on one's self-efficacy than a year's worth of school. A disparaging remark can also leave a lasting bruise on one's sense of efficacy and undermine subsequent motivation. We now turn to the many outcomes that are influenced by these important self-beliefs.

Effects of Self-Efficacy

Within a social cognitive system of triadic reciprocity, self-efficacy is hypothesized to influence behaviors and environments and, in turn, be affected by them (Bandura, 1986, 1997). Self-efficacy exerts its influence through cognitive, motivational, affective, and selection processes. Students who feel efficacious about learning should have thoughts and perform actions that improve their learning, such as setting goals, using effective learning strategies, monitoring their comprehension, evaluating their goal progress, and creating effective environments for learning. In turn, self-efficacy is influenced by the outcomes of one's behaviors (e.g., goal progress, achievement) and by input from one's environment (e.g., feedback from teachers, social comparisons with peers; Schunk & DiBenedetto, 2016).

Despite its benefits, self-efficacy is not the only influence on behavior. No amount of self-efficacy will produce a competent performance when individuals lack the needed skills to succeed (Schunk & DiBenedetto, 2016). Discussed earlier was the importance of other motivating factors such as outcome expectations and values (Bandura, 1997; Wigfield et al., 2017). Even learners who feel highly efficacious about their mathematical skills will not become mathematics majors in college if they do not value a career as a mathematician, and they typically engage in activities that they believe will result in positive outcomes and avoid actions that they believe may lead to negative outcomes. Nonetheless, given requisite skills, positive values, and outcome expectations, self-efficacy is a key determinant of individuals' motivation, learning, self-regulation, and achievement (Schunk & DiBenedetto, 2016).

Self-efficacy can have diverse effects in achievement contexts (Bandura, 1997). It can influence various motivational outcomes including choice of tasks, effort, and persistence. Individuals are apt to select tasks and activities at which they feel competent and avoid those at which they do not. Self-efficacy can affect how much effort people expend on an activity, how long they persist when they encounter difficulties, and their levels of learning and achievement. On the one hand, people with high self-efficacy tend to set challenging goals, work diligently, persist in the face of failure, and recover their sense of efficacy after setbacks. As a consequence, they develop competence. On the other hand, those with low self-efficacy may set easier goals, expend little effort to succeed, give up readily when they experience difficulties, and feel dejected after they encounter failure, all of which negatively affect learning (Usher, 2015).

Self-efficacy also influences one's level of self-regulation (Schunk & DiBenedetto, 2016; Zimmerman & Cleary, 2009). Those with higher self-efficacy for learning set challenging goals, employ what they believe are effective strategies, self-monitor their learning goal progress, make strategy adjustments and seek help as needed, and create an effective work environment. As formal and informal learning environments become increasingly technological, one's capabilities to minimize distractions and operate efficiently are at

a premium. In turn, these activities result in better performance and higher self-efficacy for continued improvement. We next highlight some specific research findings on the sources and effects of self-efficacy.

Research Evidence

p. 21 Researchers have explored the operation of self-efficacy in various domains (e.g., education, health, business) and among individuals differing in age, developmental level, and cultural background. This research has shown that self-efficacy is a strong predictor of individuals' motivation, achievement, self-regulation, and life decisions in diverse contexts (Bandura, 1997; Honicke & Broadbent, 2016; Klassen & Usher, 2010; Multon, Brown, & Lent, 1991; Pajares, 1997; Schunk & Usher, 2012; Stajkovic & Luthans, 1998).

For example, much research shows that self-efficacy correlates with motivation, learning, and achievement (Schunk & DiBenedetto, 2016; Usher, 2015). Using meta-analysis, Multon et al. (1991) found that self-efficacy was related to academic performance and accounted for 14% of the variance. Stajkovic and Luthans (1998) found that self-efficacy resulted in a 28% gain in work performance. In their systematic review, Richardson, Abraham, and Bond (2012) examined 50 possible correlates of college students' success and found that self-efficacy was among the strongest and most consistent predictors.

Self-efficacy is an important process during self-regulated learning. Self-efficacy for self-regulated learning refers to self-efficacy to generate thoughts, feelings, and behaviors that are systematically oriented toward the attainment of learning goals (Zimmerman, 2000). Self-regulated learning involves students setting goals and pursuing goal-directed activities, such as focusing on task demands, applying effective strategies to learn, establishing productive social and work environments, assessing learning progress, and making strategic adjustments as needed. A sense of self-efficacy for self-regulated learning motivates learners and promotes their learning (Cleary & Zimmerman, 2012; Usher & Schunk, 2018).

Researchers have explored the link between self-efficacy and self-regulatory processes. As students regulate their cognitions, affect, and behaviors, they also can regulate their self-efficacy (Wolters & Taylor, 2012), such as by reminding themselves that they are capable of learning. Efficacious students set ambitious goals and plan specific goal-directed activities to accomplish those goals (Wigfield, Klauda, & Cambria, 2011). Self-efficacy can affect students' monitoring of their performances, resisting distractions, and managing time (Klassen, Krawchuk, & Rajani, 2008). Efficacious students are likely to attribute their performances to factors they can control (e.g., effort) and make adaptations to future actions such as expending greater effort (McPherson & Renwick, 2011). Self-efficacy for self-regulated learning also can lead students to react to dissatisfaction by developing more adaptive strategies for future performance.

Self-efficacy also relates well to career choices (Lent & Brown, 2013). Social cognitive career theorists have demonstrated that basic social cognitive variables, including self-efficacy, outcome expectations, and goals, help explain career decision-making and development (S. D. Brown & Lent, 2006). As learners develop and are given more choices over their decisions and activities, they are apt to select activities that involve capabilities they believe they can develop and shun areas in which they have doubts. They also develop beliefs about their career decision-making skills, which have been shown to predict career choice, social support, and career-related outcome expectations (Choi et al., 2012).

In addition to documenting the effects of self-efficacy, researchers have examined the influence of the four hypothesized sources on self-efficacy development. Researchers have shown that mastery experiences are the most powerful and consistent predictors of self-efficacy across academic domains and age levels (Usher & Pajares, 2008; van Dinther, Dochy, & Segers, 2011). Scaffolding instruction to provide for frequent successes offers learners many opportunities to build self-efficacy. The relative predictive power of the other three sources has been variable across studies conducted in different contexts. For example, in a comparison of the sources of self-efficacy of adolescents in Korea, the United States, and the Philippines,

Ahn, Usher, Butz, and Bong (2016) found that students in the more collectivist cultures may rely more heavily on social messages from family members than on other socially conferred information. In an analysis of data from over 2,500 upper elementary and middle school students, Butz and Usher (2015) found evidence that students describe different key sources of self-efficacy in mathematics and reading. Klassen (2004) also found that Indo-Canadian students reported greater reliance on vicarious experiences and social persuasions than did Anglo-Canadian students. These findings demonstrate important contextual differences in how individuals form their self-efficacy.

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Experimental research has shown that instructional and social processes that convey information to students that they are making learning progress and becoming more competent raise self-efficacy, motivation, and achievement (Schunk & DiBenedetto, 2016). Common instructional ways to build students' self-efficacy include having students pursue proximal and specific goals, using social models in instruction, providing social comparative information indicating competence, and having students self-monitor and evaluate their learning progress (Schunk & Ertmer, 2000). A noncompetitive classroom climate can lower students' anxiety, which can lead to a more favorable evaluation of their own capabilities (Pajares, 2006).

Collective efficacy researchers have explored the operation of *collective efficacy* beliefs, or individuals' beliefs about their capabilities as a group to learn or produce desired actions (Bandura, 1997). Collective efficacy perceptions are not simply the sum or average of the self-efficacy of individual group members; rather, they reflect individuals' perceptions of the capabilities of the group as a whole. In educational settings, collective teacher efficacy denotes the perceptions of the faculty as a whole to influence student outcomes (Fives & Buehl, 2016; Henson, 2002).

The influence of collective efficacy beliefs on group motivation may depend on the level of organizational coupling (Henson, 2002). In units that are loosely knit, collective efficacy beliefs may not predict outcomes well; individual self-efficacy may be a better predictor. But in more tightly knit units—such as many elementary schools—the collective efficacy beliefs of teachers may be a better predictor of the efforts of the faculty as a whole to improve student learning (Tschannen-Moran, Salloum, & Goddard, 2015).

The same four sources are important for the development of collective self-efficacy: performance attainments, vicarious experiences, social persuasion, and physiological indicators. Group members rely on what they know about the capabilities of each group member, as well as the group's collective capacity, when evaluating what they can do together (Bandura, 1997). When members work together successfully to implement changes, learn from one another and from other successful groups, receive encouragement for change from supervisors and others, and cope with difficulties and alleviate stress, their beliefs about what they can do will be raised (Goddard, Hoy, & Woolfolk Hoy, 2004). Individuals who believe in their group's collective capabilities will be more motivated to work on the group's behalf to implement innovative ideas. Educational research shows that collective self-efficacy is important for teachers' job satisfaction and motivation to remain in teaching. Researchers have found that teachers' collective self-efficacy bears a significant and positive relation to their job satisfaction in various contexts (Caprara, Barbaranelli, Borgogni, & Steca; 2003; Klassen, Usher, & Bong, 2010). Relatively less research attention has been given to the collective efficacy beliefs of students. Klassen and Krawchuk (2009) showed that the collective efficacy beliefs of early adolescents working in small groups became more strongly related to the group's success on an interdependent task over time. Experimental evidence from college students' group work showed that student groups with higher initial collective efficacy beliefs reported a higher level of task engagement over three tasks than did groups with a lower sense of collective efficacy (Vera, Le Blanc, Taris, & Salanova, 2014). Perceived collective efficacy also depends on group members believing that others are working on their behalf. Consistent with Bandura's (1997) contention, however, even high self-efficacy will not lead to performance changes unless the environment in which groups function provides appropriate opportunities for success.

Conclusion

Social cognitive theory stresses the role of the social environment in motivation and learning. The conceptual focus of Bandura's (1986) social cognitive theory postulates reciprocal interactions among personal, behavioral, and social/environmental factors. Social cognitive researchers have investigated the operation of vicarious, symbolic, and self-regulatory processes in the various ways that individuals interact with their environments and one another.

A key point underlying social cognitive theory is that persons are motivated to develop a sense of agency for being able to largely control the important events in their lives. Among the influential variables affecting motivation are goals and self-evaluations of progress, outcome expectations, values, social comparisons, and self-efficacy. Important questions remain to be addressed by researchers, which will further clarify the role of social cognitive theory in human motivation.

Future Research Directions

Researchers continue to test the predictions of social cognitive theory with respect to motivation. Several research areas should be addressed. In particular, we recommend research on sociocultural influences, technology, and out-of-school settings.

Sociocultural Influences

Social cognitive theory underscores the importance of the social environment for motivation. The influences postulated by the theory (personal, behavioral, environmental) are affected by various sociocultural variables such as culture and gender.

p. 23 *Culture* refers to the beliefs and value systems of people that can influence motivation and learning (McInerney, 2011). Although research globally is increasing, social cognitive theory has been most widely applied in Western cultures. Research is needed to investigate how cultural variables may affect theoretical predictions. And the situation often is complex such that easy generalizations are not warranted. For example, in parts of East Asia, some people follow Confucianism whereas others follow Buddhism. Even though both groups are from a collectivist society—and thus the principle of collective efficacy may be most relevant—they differ from one another in values and customs (Bandura, 1997). Although social cognitive constructs such as self-efficacy have been found to be universal (Schunk & DiBenedetto, 2016), how they are formed and changed can be affected by cultural differences (Usher & Weidner, 2018). For example, some cultures may stress modesty in making personal judgments whereas others do not. In this case, students in the former culture would likely judge self-efficacy lower than those in other cultures.

Researchers must consider the many cultural values that influence any individual. Many learners' cultural identities are complex, as are the environments in which they learn. These complexities mean that researchers should consider how both personal and environmental factors influence learners' perceptions and behaviors. These intersections make it unlikely that psychologists will reach universal prescriptions, but they also offer an opportunity for refining theory as it relates to complex social environments (Rosenthal, 2016). Additional research in varied contexts will help to clarify cultural differences (Usher & Weidner, 2018).

Many researchers have investigated the role of gender in motivation; for example, a number of research findings point to differences in self-efficacy due to gender (Meece & Painter, 2008). Results from a meta-analysis of 187 studies of academic self-efficacy suggest that these differences depend on academic domain

and other factors (Huang, 2013). Female students tend to report higher self-efficacy in language arts and music, whereas male students report higher self-efficacy in mathematics, computer science, and social sciences. Other researchers have examined teachers' stereotypical perceptions of students' capabilities (Riegle-Crumb & Humphries, 2012). Gender disparities in self-efficacy are important because they can affect career trajectories (Bandura, 1997; Tellhed, Bäckström, & Björklund, 2017). Group-based stereotyping and discrimination can hinder the choices students make in deciding which classes to take in college and what careers to ultimately pursue (C. B. Brown, 2017). Greater research on how gender and other group identities (e.g., social class, race, nationality) influence the development of self-efficacy should help to clarify differences and suggest ways to improve students' perceived capabilities to pursue different careers.

Technology

With the widespread use of technology in the early 21st century, it is imperative that students develop skills and positive beliefs about their capabilities to use and regulate technologies effectively. A number of personal, behavioral, and environmental factors can influence students' use of technology, such as access, familiarity, cognitive demand, teacher encouragement, self-efficacy, and attitudes.

For example, a proliferation of research into game-based learning has shown that games can be used to increase and sustain motivation and help students make connections to real-life situations (Foster, 2008; Mayer, 2014). Learning games offer many opportunities for player feedback and success, typically presenting a player with challenges that match the user's current skill level. This built-in scaffolding can support learner self-efficacy. Games also take advantage of learners' increased attention by exposing them to avatars (models) that represent the players or other characters. Interactive simulations and video games can lead to improved cognitive gains over traditional instruction (Vogel et al., 2006). Technologies also permit learners to become active players in a range of symbolic environments. Medical students can treat "patients" in virtual reality labs; students can simulate real-life circumstances while forgoing the risks. In one recent study, middle school science students who took part in a multiuser virtual environment related to ecosystems developed greater interest and self-efficacy in science (Chen et al., 2016). Simulations can enable students to gain social skills, too. Clearly, more research attention is needed on how virtual and gaming environments support (or do not support) learners' sense of agency. Technology-enhanced environments offer fertile ground for testing many predictions of social cognitive theory in novel contexts.

Out-of-School Settings

Research is needed on the operation of social cognitive variables in out-of-school settings. Much research in education has been conducted in regular instructional settings using academic or related (e.g., physical education, music) content. Examining social cognitive processes outside school is important because much learning takes place outside formal instructional contexts, such as in after-school programs, summer camps, homes, workplaces, and communities. Variables such as modeling and self-efficacy seem no less pertinent in these situations, but less is known about their operation outside formal settings. Researchers might examine, for example, the role of modeling as students complete homework, engage in internships, and participate in mentoring interactions. Some important questions to be addressed are these: Who are effective models outside formal schooling? What are important motivators for learning outside school? Which models (e.g., parents, peers) best help to instigate and sustain learners' motivation? How do variables such as values, outcome expectations, and self-efficacy come into play in these contexts? How do informal learning settings affect self-efficacy development and change? These and other research questions will broaden the applicability of social cognitive theory to the study of motivation.

References

Ahn, H. S., Bong, M., & Kim, S. (2017). Social models in the cognitive appraisal of self-efficacy information. *Contemporary Educational Psychology*, 48, 149–166.

[Google Scholar](#) [WorldCat](#)

Ahn, H. S., Usher, E. L., Butz, A. R., & Bong, M. (2016). Cultural differences in the understanding of modelling and feedback as sources of self-efficacy information. *British Journal of Educational Psychology*, 86, 112–136.

Anderman, E. M., & Wolters, C. A. (2006). Goals, values, and affects: Influences on student motivation. In P. A. Alexander & P. H. Winne (Eds.), *Handbook of educational psychology* (2nd ed., pp. 369–389). Mahwah, NJ: Erlbaum.

[Google Scholar](#) [Google Preview](#) [WorldCat](#) [COPAC](#)

Bandura, A. (1977a). Self-efficacy: Toward a unifying theory of behavioral change. *Psychological Review*, 84, 191–215.

[Google Scholar](#) [WorldCat](#)

Bandura, A. (1977b). *Social learning theory*. Englewood Cliffs, NJ: Prentice Hall.

[Google Scholar](#) [Google Preview](#) [WorldCat](#) [COPAC](#)

Bandura, A. (1986). *Social foundations of thought and action: A social cognitive theory*. Englewood Cliffs, NJ: Prentice Hall.

[Google Scholar](#) [Google Preview](#) [WorldCat](#) [COPAC](#)

Bandura, A. (1997). *Self-efficacy: The exercise of control*. New York, NY: Freeman.

[Google Scholar](#) [Google Preview](#) [WorldCat](#) [COPAC](#)

Bandura, A. (2001). Social cognitive theory: An agentic perspective. *Annual Review of Psychology*, 52, 1–26.

Bandura, A. (2016). *Moral disengagement: How people do harm and live with themselves*. New York, NY: Worth.

[Google Scholar](#) [Google Preview](#) [WorldCat](#) [COPAC](#)

Bandura, A., & Walters, R. H. (1963). *Social learning and personality development*. New York, NY: Holt, Rinehart & Winston.

[Google Scholar](#) [Google Preview](#) [WorldCat](#) [COPAC](#)

Braaksma, M. A. H., Rijlaarsdam, G., & van den Bergh, H. (2002). Observational learning and the effects of model–observer similarity. *Journal of Educational Psychology*, 94, 405–415.

[Google Scholar](#) [WorldCat](#)

Brown, C. B. (2017). *Discrimination in childhood and adolescence: A developmental intergroup approach*. New York, NY: Routledge.

[Google Scholar](#) [Google Preview](#) [WorldCat](#) [COPAC](#)

Brown, S. D., & Lent, R. W. (2006). Preparing adolescents to make career decisions: A social cognitive perspective. In F. Pajares & T. Urdan (Eds.), *Adolescence and education: Vol. 5. Self-efficacy beliefs of adolescents* (pp. 201–223). Greenwich, CT: Information Age.

[Google Scholar](#) [Google Preview](#) [WorldCat](#) [COPAC](#)

Butz, A. R., & Usher, E. L. (2015). Salient sources of self-efficacy in reading and mathematics. *Contemporary Educational Psychology*, 42, 49–61.

[Google Scholar](#) [WorldCat](#)

Caprara, G. V., Barbaranelli, C., Borgogni, L., & Steca, P. (2003). Efficacy beliefs as determinants of teachers' job satisfaction. *Journal of Educational Psychology*, 95, 821–832.

[Google Scholar](#) [WorldCat](#)

Carroll, W. R., & Bandura, A. (1982). The role of visual monitoring in observational learning of action patterns: Making the unobservable observable. *Journal of Motor Behavior*, 14, 153–167.

[Google Scholar](#) [WorldCat](#)

Chartrand, T. L., & Bargh, J. A. (1999). The chameleon effect: The perception–behavior link and social interaction. *Journal of Personality and Social Psychology*, 76, 893–910.

[Google Scholar](#) [WorldCat](#)

Chen, J. A., Tutwiler, M. S., Metcalf, S. J., Kamarainen, A. M., Grotzer, T. A., & Dede, C. J. (2016). A multi-user virtual environment to support students' self-efficacy and interest in science: A latent growth model analysis. *Learning and Instruction*, 41, 11–22.

[Google Scholar](#) [WorldCat](#)

Choi, B. Y., Park, H., Yang, E., Lee, S. K., Lee, Y., & Lee, S. M. (2012). Understanding career decision self-efficacy: A meta-analytic approach. *Journal of Career Development*, 39, 443–460.

[Google Scholar](#) [WorldCat](#)

Cleary, T. J., & Zimmerman, B. J. (2012). A cyclical self-regulatory account of student engagement: Theoretical foundations and applications. In S. L. Christenson, A. L. Reschly, & C. Wylie (Eds.), *Handbook of research on student engagement* (pp. 237–257). New York, NY: Springer.

[Google Scholar](#) [Google Preview](#) [WorldCat](#) [COPAC](#)

Fives, H., & Buehl, M. M. (2016). Teacher motivation: Self-efficacy and goal orientation. In K. R. Wentzel & D. B. Miele (Eds.), *Handbook of motivation at school* (2nd ed., pp. 340–360). New York, NY: Routledge.

[Google Scholar](#) [Google Preview](#) [WorldCat](#) [COPAC](#)

Foster, A. (2008). Games and motivation to learn science: Personal identity, applicability, relevance and meaningfulness. *Journal of Interactive Learning Research*, 19, 597–614.

[Google Scholar](#) [WorldCat](#)

Goddard, R. D., Hoy, W. K., & Woolfolk Hoy, A. (2004). Collective efficacy beliefs: Theoretical developments, empirical evidence, and future directions. *Educational Researcher*, 33(3), 3–13.

[Google Scholar](#) [WorldCat](#)

Guay, F., Boivin, M., & Hodges, E. V. E. (1999). Social comparison processes and academic achievement: The dependence of the development of self-evaluations on friends' performance. *Journal of Educational Psychology*, 91, 564–568.

[Google Scholar](#) [WorldCat](#)

Henson, R. K. (2002). From adolescent angst to adulthood: Substantive implications and measurement dilemmas in the development of teacher efficacy research. *Educational Psychologist*, 37, 137–150.

[Google Scholar](#) [WorldCat](#)

Heyes, C. (2011). Automatic imitation. *Psychological Bulletin*, 137, 463–483.

[Google Scholar](#) [WorldCat](#)

Honcke, T., & Broadbent, J. (2016). The influence of academic self-efficacy on academic performance: A systematic review. *Educational Research Review*, 17, 63–84.

[Google Scholar](#) [WorldCat](#)

Huang, C. (2013). Gender differences in academic self-efficacy: A meta-analysis. *European Journal of Psychology of Education*, 28, 1–35.

[Google Scholar](#) [WorldCat](#)

Huang, C. (2016). Achievement goals and self-efficacy: A meta-analysis. *Educational Research Review*, 19, 119–137.

[Google Scholar](#) [WorldCat](#)

- p. 25 Klassen, R. M. (2004). A cross-cultural investigation of the efficacy beliefs of South Asian immigrant and Anglo ↪ non-immigrant early adolescents. *Journal of Educational Psychology*, 96, 731–742.
- Klassen, R. M., & Krawchuk, L. L. (2009). Collective motivation beliefs of early adolescents working in small groups. *Journal of School Psychology*, 47, 101–120.
[Google Scholar](#) [WorldCat](#)
- Klassen, R. M., Krawchuk, L. L., & Rajani, S. (2008). Academic procrastination of undergraduates: Low self-efficacy to self-regulate predicts higher levels of procrastination. *Contemporary Educational Psychology*, 33, 915–931.
[Google Scholar](#) [WorldCat](#)
- Klassen, R. M., & Usher, E. L. (2010). Self-efficacy in educational settings: Recent research and emerging directions. In T. C. Urdan & S. A. Karabenick (Eds.), *Advances in motivation and achievement: Vol. 16A. The decade ahead: Theoretical perspectives on motivation and achievement* (pp. 1–33). Bingley, UK: Emerald.
[Google Scholar](#) [Google Preview](#) [WorldCat](#) [COPAC](#)
- Klassen, R. M., Usher, E. L., & Bong, M. (2010). Teachers' collective efficacy, job satisfaction, and job stress in cross-cultural context. *Journal of Experimental Education*, 78, 464–486.
[Google Scholar](#) [WorldCat](#)
- Lent, R. W., & Brown, S. D. (2013). Social cognitive model of career self-management: Toward a unifying view of adaptive career behavior across the lifespan. *Journal of Counseling Psychology*, 60, 557–568.
[Google Scholar](#) [WorldCat](#)
- Licht, B. G., & Kistner, J. A. (1986). Motivational problems of learning-disabled children: Individual differences and their implications for treatment. In J. K. Torgesen & B. W. L. Wong (Eds.), *Psychological and educational perspectives on learning disabilities* (pp. 225–255). Orlando, FL: Academic Press.
[Google Scholar](#) [Google Preview](#) [WorldCat](#) [COPAC](#)
- Locke, E. A., & Latham, G. P. (2002). Building a practically useful theory of goal setting and task motivation: A 35-year odyssey. *American Psychologist*, 57, 705–717.
[Google Scholar](#) [WorldCat](#)
- Locke, E. A., & Latham, G. P. (2015). Breaking the rules: A historical overview of goal-setting theory. In A. J. Elliot (Ed.), *Advances in motivation science* (Vol. 2, pp. 99–126). Oxford, UK: Elsevier.
[Google Scholar](#) [Google Preview](#) [WorldCat](#) [COPAC](#)
- Mayer, R. E. (2014). *Computer games for learning: An evidence-based approach*. Cambridge, MA: MIT Press.
[Google Scholar](#) [Google Preview](#) [WorldCat](#) [COPAC](#)
- McInerney, D. M. (2011). Culture and self-regulation in educational contexts. In B. J. Zimmerman & D. H. Schunk (Eds.), *Handbook of self-regulation of learning and performance* (pp. 442–464). New York, NY: Routledge.
[Google Scholar](#) [Google Preview](#) [WorldCat](#) [COPAC](#)
- McPherson, G. E., & Renwick, J. M. (2011). Self-regulation and mastery of musical skills. In B. J. Zimmerman & D. H. Schunk (Eds.), *Handbook of self-regulation of learning and performance* (pp. 234–248). New York, NY: Routledge.
[Google Scholar](#) [Google Preview](#) [WorldCat](#) [COPAC](#)
- Meece, J. L., & Painter, J. (2008). Gender, self-regulation, and motivation. In D. H. Schunk & B. J. Zimmerman (Eds.), *Motivation and self-regulated learning: Theory, research, and applications* (pp. 339–368). New York, NY: Taylor & Francis.
[Google Scholar](#) [Google Preview](#) [WorldCat](#) [COPAC](#)
- Multon, K. D., Brown, S. D., & Lent, R. W. (1991). Relation of self-efficacy beliefs to academic outcomes: A meta-analytic investigation. *Journal of Counseling Psychology*, 38, 30–38.

[Google Scholar](#) [WorldCat](#)

Pajares, F. (1997). Current directions in self-efficacy research. In M. Maehr & P. R. Pintrich (Eds.), *Advances in motivation and achievement* (Vol. 10, pp. 1–49). Greenwich, CT: JAI Press.

[Google Scholar](#) [Google Preview](#) [WorldCat](#) [COPAC](#)

Pajares, F. (2006). Self-efficacy beliefs during adolescence: Implications for teachers and parents. In F. Pajares & T. Urdan (Eds.), *Adolescence and education: Vol. 5. Self-efficacy beliefs of adolescents* (pp. 339–367). Greenwich, CT: Information Age.

[Google Scholar](#) [Google Preview](#) [WorldCat](#) [COPAC](#)

Radvansky, G. A., & Ashcraft, M. H. (2014). *Cognition* (6th ed.). Boston, MA: Pearson Education.

[Google Scholar](#) [Google Preview](#) [WorldCat](#) [COPAC](#)

Renkl, A., (2014). Towards an instructionally-oriented theory of example-based learning. *Cognitive Science*, 38, 1–37.

[Google Scholar](#) [WorldCat](#)

Richardson, M., Abraham, C., & Bond, R. (2012). Psychological correlates of university students' academic performance: A systematic review and meta-analysis. *Psychological Bulletin*, 138, 353–387.

[Google Scholar](#) [WorldCat](#)

Riegle-Crumb, C., & Humphries, M. (2012). Exploring bias in math teachers' perceptions of ability by gender and race/ethnicity. *Gender and Society*, 26, 290–322.

[Google Scholar](#) [WorldCat](#)

Rosenthal, L. (2016). Incorporating intersectionality into psychology: An opportunity to promote social justice and equity. *American Psychologist*, 71, 474–485.

[Google Scholar](#) [WorldCat](#)

Rotter, J. B. (1954). *Social learning and clinical psychology*. Englewood Cliffs, NJ: Prentice Hall.

[Google Scholar](#) [Google Preview](#) [WorldCat](#) [COPAC](#)

Schunk, D. H. (1981). Modeling and attributional effects on children's achievement: A self-efficacy analysis. *Journal of Educational Psychology*, 73, 93–105.

[Google Scholar](#) [WorldCat](#)

Schunk, D. H. (1983a). Developing children's self-efficacy and skills: The roles of social comparative information and goal setting. *Contemporary Educational Psychology*, 8, 76–86.

[Google Scholar](#) [WorldCat](#)

Schunk, D. H. (1983b). Goal difficulty and attainment information: Effects on children's achievement behaviors. *Human Learning*, 2, 107–117.

[Google Scholar](#) [WorldCat](#)

Schunk, D. H. (1987). Peer models and children's behavioral change. *Review of Educational Research*, 57, 149–174.

[Google Scholar](#) [WorldCat](#)

Schunk, D. H. (1996). Goal and self-evaluative influences during children's cognitive skill learning. *American Educational Research Journal*, 33, 359–382.

[Google Scholar](#) [WorldCat](#)

Schunk, D. H. (2012). Social cognitive theory. In K. R. Harris, S. Graham, & T. Urdan (Eds.), *Educational psychology handbook: Vol. 1. Theories, constructs, and critical issues* (pp. 101–123). Washington, DC: American Psychological Association.

[Google Scholar](#) [Google Preview](#) [WorldCat](#) [COPAC](#)

Schunk, D. H., & DiBenedetto, M. K. (2016). Self-efficacy theory in education. In K. R. Wentzel & D. B. Miele (Eds.), *Handbook of*

motivation at school (2nd ed., pp. 34–54). New York, NY: Routledge.

[Google Scholar](#) [Google Preview](#) [WorldCat](#) [COPAC](#)

Schunk, D. H., & Ertmer, P. A. (1999). Self-regulatory processes during computer skill acquisition: Goal and self-evaluative influences. *Journal of Educational Psychology*, 91, 251–260.

[Google Scholar](#) [WorldCat](#)

Schunk, D. H., & Ertmer, P. A. (2000). Self-regulation and academic learning: Self-efficacy enhancing interventions. In M. Boekaerts, P. R. Pintrich, & M. Zeidner (Eds.), *Handbook of self-regulation* (pp. 631–649). San Diego, CA: Academic Press.

[Google Scholar](#) [Google Preview](#) [WorldCat](#) [COPAC](#)

Schunk, D. H., & Hanson, A. R. (1985). Peer models: Influence on children's self-efficacy and achievement. *Journal of Educational Psychology*, 77, 313–322.

[Google Scholar](#) [WorldCat](#)

Schunk, D. H., Meece, J. L., & Pintrich, P. R. (2014). *Motivation in education: Theory, research, and applications* (4th ed.). Boston, MA: Pearson Education.

[Google Scholar](#) [Google Preview](#) [WorldCat](#) [COPAC](#)

Schunk, D. H., & Usher, E. L. (2012). Social cognitive theory and motivation. In R. M. Ryan (Ed.), *The Oxford handbook of human motivation* (pp. 13–27). New York, NY: Oxford University Press.

[Google Scholar](#) [Google Preview](#) [WorldCat](#) [COPAC](#)

Schunk, D. H., & Zimmerman, B. J. (2006). Competence and control beliefs: Distinguishing the means and ends. In P. A. Alexander & P. H. Winne (Eds.), *Handbook of educational psychology* (2nd ed., pp. 349–367). Mahwah, NJ: Erlbaum.

[Google Scholar](#) [Google Preview](#) [WorldCat](#) [COPAC](#)

Shell, D. F., Murphy, C. C., & Bruning, R. H. (1989). Self-efficacy and outcome expectancy mechanisms in reading and writing achievement. *Journal of Educational Psychology*, 81, 91–100.

[Google Scholar](#) [WorldCat](#)

Stajkovic, A. D., & Luthans, F. (1998). Self-efficacy and work-related performances: A meta-analysis. *Psychological Bulletin*, 124, 240–261.

[Google Scholar](#) [WorldCat](#)

p. 26 Tellhed, U., Bäckström, M., & Björklund, F. (2017). Will I fit in and do well? The importance of social belongingness and self-efficacy for explaining gender differences in interest in STEM and HEED majors. *Sex Roles*, 77, 86–96.

[Google Scholar](#) [WorldCat](#)

Tschannen-Moran, M., Salloum, S. J., & Goddard, R. D. (2015). Context matters: The influence of collective beliefs and norms. In H. Fives & M. G. Gill (Eds.), *International handbook of research on teachers' beliefs* (pp. 301–316). New York, NY: Routledge.

[Google Scholar](#) [Google Preview](#) [WorldCat](#) [COPAC](#)

Usher, E. L. (2009). Sources of middle school students' self-efficacy in mathematics: A qualitative investigation of student, teacher, and parent perspectives. *American Educational Research Journal*, 46, 275–314.

[Google Scholar](#) [WorldCat](#)

Usher, E. L. (2015). Personal capability beliefs. In L. Corno & E. H. Anderman (Eds.), *Handbook of educational psychology* (3rd ed., pp. 146–159). New York, NY: Taylor & Francis.

[Google Scholar](#) [Google Preview](#) [WorldCat](#) [COPAC](#)

Usher, E. L., & Pajares, F. (2006). Sources of academic and self-regulatory efficacy beliefs of entering middle school students. *Contemporary Educational Psychology*, 31, 125–141.

[Google Scholar](#) [WorldCat](#)

Usher, E. L., & Pajares, F. (2008). Sources of self-efficacy in school: Critical review of the literature and future directions. *Review of Educational Research*, 78, 751–796.

[Google Scholar](#) [WorldCat](#)

Usher, E. L., & Schunk, D. H. (2018). Social cognitive theoretical perspective of self-regulation. In D. H. Schunk & J. A. Greene (Eds.), *Handbook of self-regulation of learning and performance* (2nd ed., pp. 19–35). New York, NY: Routledge.

[Google Scholar](#) [Google Preview](#) [WorldCat](#) [COPAC](#)

Usher, E. L., & Weidner, B. L. (2018). Sociocultural influences on self-efficacy development. In G. A. D. Liem & D. M. McInerney (Eds.), *Big theories revisited 2* (pp. 141–164). Charlotte, NC: Information Age Publishing.

[Google Scholar](#) [Google Preview](#) [WorldCat](#) [COPAC](#)

van Dinther, M., Dochy, F., & Segers, M. (2011). Factors affecting students' self-efficacy in higher education. *Educational Research Review*, 6, 95–108. doi:10.1016/j.edurev.2010.10.003 [10.1016/j.edurev.2010.10.003](#)

[Google Scholar](#) [WorldCat](#) [Crossref](#)

Vera, M., Le Blanc, P. M., Taris, T. W., & Salanova, M. (2014). Patterns of engagement: The relationship between efficacy beliefs and task engagement at the individual versus collective level. *Journal of Applied Social Psychology*, 44, 133–144.

[Google Scholar](#) [WorldCat](#)

Vogel, J. J., Vogel, D. S., Cannon-Bowers, J., Bowers, C. A., Muse, K., & Wright, M. (2006). Computer gaming and interactive simulations for learning: A meta-analysis. *Journal of Educational Computing Research*, 34, 229–243.

[Google Scholar](#) [WorldCat](#)

Wheeler, L., & Suls, J. (2005). Social comparison and self-evaluations of competence. In A. J. Elliot & C. S. Dweck (Eds.), *Handbook of competence and motivation* (pp. 566–578). New York, NY: Guilford Press.

[Google Scholar](#) [Google Preview](#) [WorldCat](#) [COPAC](#)

Wigfield, A., Klauda, S. L., & Cambria, J. (2011). Influences on the development of academic self-regulatory processes. In B. J. Zimmerman & D. H. Schunk (Eds.), *Handbook of self-regulation of learning and performance* (pp. 33–48). New York, NY: Routledge.

[Google Scholar](#) [Google Preview](#) [WorldCat](#) [COPAC](#)

Wigfield, A., Rosenzweig, J., & Eccles, J. S. (2017). Achievement values: Interactions, interventions, and future directions. In A. Elliott, C. S. Dweck, & D. S. Yeager (Eds.), *The handbook of competence and motivation* (2nd ed., pp. 116–134). New York, NY: Guilford Press.

[Google Scholar](#) [Google Preview](#) [WorldCat](#) [COPAC](#)

Wigfield, A., Tonks, S. M., & Klauda, S. L. (2016). Expectancy-value theory. In K. R. Wentzel & D. B. Miele (Eds.), *Handbook of motivation at school* (2nd ed., pp. 55–74). New York, NY: Routledge.

[Google Scholar](#) [Google Preview](#) [WorldCat](#) [COPAC](#)

Wolters, C. A., & Taylor, D. J. (2012). A self-regulated learning perspective on student engagement. In S. L. Christenson, A. L. Reschly, & C. Wylie (Eds.), *Handbook of research on student engagement* (pp. 635–651). New York, NY: Springer.

[Google Scholar](#) [Google Preview](#) [WorldCat](#) [COPAC](#)

Zimmerman, B. J. (2000). Attaining self-regulation: A social cognitive perspective. In M. Boekaerts, P. R. Pintrich, & M. Zeidner (Eds.), *Handbook of self-regulation* (pp. 13–39). San Diego, CA: Academic Press.

[Google Scholar](#) [Google Preview](#) [WorldCat](#) [COPAC](#)

Zimmerman, B. J., & Cleary, T. J. (2009). Motives to self-regulate learning: A social cognitive account. In K. R. Wentzel & A. Wigfield (Eds.), *Handbook of motivation at school* (pp. 247–264). New York, NY: Routledge.

[Google Scholar](#) [Google Preview](#) [WorldCat](#) [COPAC](#)