



Self-Efficacy and Engaged Learners

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Abstract

Student engagement bears an important relation to motivation and other positive outcomes. *Engagement* refers to how learners' cognitions, behaviors, and affects are energized, directed, and sustained during academic activities. According to Bandura's social cognitive theory, *self-efficacy* (perceived capabilities for learning or performing actions at designated levels) is a key cognitive variable influencing motivation and engagement. The conceptual framework of social cognitive theory is described to include the roles played by vicarious, symbolic, and self-regulatory processes. We discuss how self-efficacy affects motivation through goals and self-evaluations of progress and how various contextual factors may influence self-efficacy. Research is described that relates self-efficacy to motivation and engagement. This chapter concludes with educational implications and recommendations for future research.

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Since the publication of the first edition of this handbook (Christenson et al., 2012), research and applied interest in student engagement has increased dramatically. Although historically many researchers and practitioners were interested in the topic as a means of lessening negative outcomes (e.g., school dropout), today there is growing interest in engagement as a means of promoting students' positive outcomes such as motivation, learning, interest, and enjoyment (Schunk & DiBenedetto, 2014).

As used in this chapter, *student engagement* refers to the manifestation of students' motivation, or how their cognitions, behaviors, and affects are energized, directed, and sustained during learning and other academic activities (Reschly & Christenson, 2012; Skinner et al., 2009). *Motivation* refers to internal processes that energize, direct, and sustain goal-directed activities (Schunk et al., 2014). This emphasis on engagement is well founded, with increasing evidence showing its positive influence on myriad student outcomes including learning, achievement, and adjustment (Christenson et al., 2012).

Our thesis is that motivation is a key driving force behind engagement and that motivation and engagement can be enhanced. Although various theoretical principles can explain student motivation and engagement, we utilize Bandura's (1977b, 1986, 1997, 2001) *social cognitive the-*

ory, which emphasizes that much human learning and behavior occur in social environments. By interacting with others live or virtually, people learn knowledge, skills, strategies, beliefs, norms, and attitudes. Students act in accordance with their beliefs about their capabilities and the expected outcomes of their actions. Social cognitive researchers have explored the operation and outcomes of cognitive and affective processes hypothesized to underlie motivation (Schunk & DiBenedetto, 2016, 2020).

We focus particularly on the key social cognitive motivational variable of *self-efficacy*, defined as one's perceived capabilities for learning or performing actions at designated levels (Bandura, 1977a, 1997). Researchers have shown that a higher sense of self-efficacy can positively affect learning, achievement, self-regulation, and motivational outcomes such as individuals' choices of activities, effort, persistence, and interests (Bandura, 1997; Schunk & DiBenedetto, 2016; Schunk & Usher, 2019). Self-efficacious students are motivated and engaged in learning, which promotes their competence as learners. Thus, self-efficacy influences motivation, which affects engagement. As students are engaged in learning, they see that they are making progress, which helps sustain their self-efficacy and motivation (Fig. 1). Teachers who help students experience success by fostering their development of skills, learning strategies, and a positive outlook on their capabilities and future, can positively impact self-efficacy in their classrooms (Schunk & DiBenedetto, 2016).

We next describe the conceptual framework of social cognitive theory including vicarious, sym-

bolic, and self-regulatory processes. We then discuss self-efficacy and the process whereby self-efficacy affects motivation through goals and self-evaluations of progress, as well as how self-efficacy can affect student engagement and how contextual factors may influence self-efficacy. The research evidence presented relates self-efficacy to student success. We conclude with recommendations for future research and implications for educational practice.

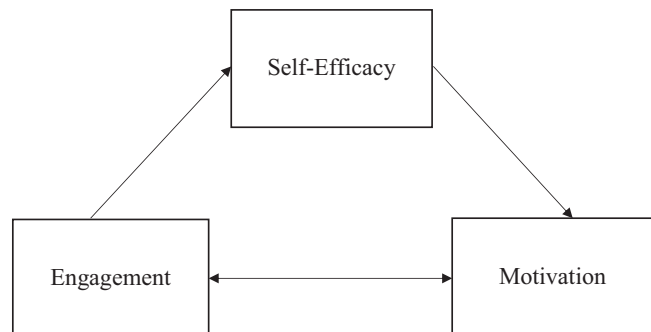
Conceptual Framework

Bandura's social cognitive theory is based on a model of reciprocal interactions and vicarious, symbolic, and self-regulatory processes.

Reciprocal Interactions

Bandura (1977b, 1986, 1997, 2001) postulated that human activity operates within a framework of *reciprocal interactions* involving personal (e.g., cognitions, beliefs, skills, affects), behavioral, and social/environmental factors. For example, self-efficacy can influence achievement behaviors such as task choice, effort, persistence, and self-regulatory strategies (person → behavior; Schunk & DiBenedetto, 2016). These behaviors also affect self-efficacy. As students work on tasks and observe their learning progress, self-efficacy for continued learning is enhanced (behavior → person). The links between self-efficacy, motivation, and engagement demonstrate this reciprocity.

Fig. 1 The interrelation of self-efficacy, motivation, and engagement



The connection between personal and social/environmental factors is often seen with students with learning disabilities who often hold low self-efficacy for performing well (Schunk & DiBenedetto, 2020). Persons may react to these students based on attributes typically associated with them (e.g., low skills) rather than based on their actual capabilities (person → social/environment). Environmental feedback can affect self-efficacy, as when teachers encourage students by communicating, “I know you can do this” (social/environment → person).

The influence between behavioral and social/environmental factors is evident in many instructional sequences. For example, when teachers point to a display and say, “Look here,” students may do that with little conscious attention (social/environment → behavior). Behaviors can alter learners’ instructional environments. When students give incorrect answers, teachers may stop the lesson and reteach the material (behavior → social/environment).

Social cognitive theory contends that individuals strive to develop a sense of *agency*, or the belief that they can exert a large degree of control over important events in their lives (Schunk & Usher, 2019). They hold beliefs that allow them to exert control over their thoughts, feelings, and actions. In reciprocal fashion, people influence and are influenced by their actions and environments. The scope of this reciprocal influence is broader than individuals because they live in social environments. *Collective agency* refers to people’s shared beliefs about what they are capable of accomplishing as a group. Groups affect and are affected by their actions and environments as well.

Vicarious, Symbolic, and Self-Regulatory Processes

Vicarious, symbolic, and self-regulatory processes influence people’s desire to attain a sense of agency.

Vicarious processes Much human learning occurs *vicariously* through observing others

(e.g., live, filmed, virtual; Bandura, 1977b). This capability allows individuals to acquire beliefs, cognitions, affects, skills, strategies, and behaviors from their social environments, media, the Internet, and the like, which saves time because learning is not demonstrated when it occurs. This capability also allows people to select environmental features (e.g., individuals, materials) to which they want to attend. Learners who strive to become musicians enroll in music lessons and classes and put themselves in situations where they can learn vicariously, such as by observing and working with musicians.

Symbolic processes Symbolic processes involve language, mathematical and scientific notation, iconography, and cognition. These processes help people adapt to and alter their environments (Bandura, 1986). They use symbolic processes when they formulate thoughts to guide their actions. People do not just react to events. Rather, they plan, solve problems, and alter their self-regulatory strategies as needed. Symbolic processes also foster verbal and written communications and thereby promote learning.

Self-regulatory processes *Self-regulation* refers to the processes people use to activate and sustain their behaviors, cognitions, and affects to attain goals (Zimmerman, 2000). People regulate their behaviors to conform to their internal standards and goals. Before they begin a task, individuals determine their goals and which strategies to use, and they feel self-efficacious about performing well. As they engage in tasks, they monitor their performances, assess their goal progress, and decide whether their strategy needs adjusting. During breaks in learning and when tasks are completed, they reflect, make modifications, and determine next steps. Believing they have learned and made progress strengthens their self-efficacy and motivates learning. Highly engaged learners also are apt to be self-regulated (Usher & Schunk, 2018; Zimmerman & Cleary, 2009).

Self-Efficacy

Self-efficacy is a key personal factor and motivational variable in Bandura's (1986, 1997) social cognitive theory (Schunk & DiBenedetto, 2020). Self-efficacy can affect choice of activities, effort, persistence, and achievement. Research in academic settings shows that students who feel efficacious about learning tend to be engaged and set learning goals, use effective learning strategies, monitor learning, evaluate goal progress, and create supportive environments (Usher & Schunk, 2018). In turn, self-efficacy is influenced by behavioral outcomes (e.g., goal progress, achievement) and environmental inputs (e.g., teacher feedback, comparisons with peers). Self-efficacy impacts motivation and learning, as well as decisions and events that affect one's life (Schunk & Usher, 2019).

Sources of Self-Efficacy Information

Information for assessing one's self-efficacy is acquired from actual performances, vicarious experiences, forms of persuasion, and physiological indexes (e.g., anxiety, stress; Bandura, 1997). Because performances are tangible indicators of individuals' capabilities, they are the most reliable source (Schunk & DiBenedetto, 2016). Interpretations of one's performances as successful raise self-efficacy whereas perceived failures may lower it, although an occasional failure or success may not have much impact. Self-efficacious learners are apt to view difficulties as challenges that they can overcome, whereas lower-efficacy learners may believe that they lack the capabilities to succeed (Bandura, 1997).

Individuals acquire much information about their capabilities through social comparisons with others (Bandura, 1997). Similarity to others is a cue for gauging self-efficacy (Schunk & DiBenedetto, 2016). Observing others succeed can raise observers' self-efficacy and motivate them to try the task because they are apt to believe that if others can succeed, they can as well. But a vicarious increase in self-efficacy can be negated by subsequent difficulties. Persons who observe peers

fail may believe they lack competence, which can dissuade them from attempting the task.

People also assess self-efficacy based on persuasive information from others (e.g., "I know you can do this"; Bandura, 1997); however, such persuasion must be credible for people to believe that success is attainable. Although positive feedback can raise individuals' self-efficacy, the effects will not endure if they subsequently perform poorly (Schunk & DiBenedetto, 2016).

Physiological and emotional reactions such as anxiety and stress provide input about self-efficacy (Bandura, 1997). Strong emotional reactions can signal anticipated success or failure. 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 (Zajacova et al., 2005). Conversely, when people feel less stressful (e.g., anxiety subsides while taking a test), they may experience higher self-efficacy.

These sources do not operate automatically (Bandura, 1997). Individuals interpret the results of events and use these interpretations to gauge self-efficacy (Schunk & DiBenedetto, 2016). Some ways that research has shown to effectively build students' self-efficacy are to have students set difficult but attainable goals and assess their own goal progress (mastery experiences), allow students to observe models similar to themselves learning skills (vicarious experiences), and provide students with feedback that links their learning progress to their diligently applying a learning strategy (social persuasion; Schunk & Usher, 2019).

Although important, self-efficacy is not the only influence on behavior. Self-efficacy will not produce competent performances when requisite skills are absent. Also important are *outcome expectations* (beliefs about the likely consequences of actions; Bandura, 1997), and *values* (perceptions of the importance and utility of learning and acting in given ways (Wigfield et al., 2016). Even students who feel efficacious about performing well in school may not be academically engaged if they do not value it or believe that negative outcomes may result, such as rejec-

tion by peers. Assuming requisite skills and positive values and outcome expectations, self-efficacy is a key determinant of motivation, learning, self-regulation, and achievement (Schunk & DiBenedetto, 2016).

Consequences of Self-Efficacy

Self-efficacy can affect various motivational outcomes relevant to student engagement, including task choice, effort, and persistence (Bandura, 1997; Schunk & DiBenedetto, 2020). Individuals typically choose to engage in tasks at which they feel competent. Self-efficacy also can affect how much cognitive and physical effort they expend on task, how long they persist when they encounter difficulties, and how well they learn and achieve. Students with high self-efficacy tend to set challenging goals, work diligently, persist in the face of difficulty, and recover their sense of self-efficacy after setbacks. Those with low self-efficacy may set easier goals, expend minimal effort, quit when they encounter difficulties, and feel dejected by failure, all of which negatively affect engagement and learning (Bandura, 1997).

Goals and Self-Evaluations of Progress

Social cognitive theory highlights the importance of various symbolic processes for motivation. In addition to self-efficacy, goals and self-evaluations of goal progress are critical.

Goals can instigate and sustain actions, assuming that learners make a commitment to attempt to attain the goals (Locke & Latham, 2015). As learners work on a task, they compare their performances with their goals. Self-evaluations of progress strengthen self-efficacy and sustain motivation. A perceived discrepancy between present performance and the goal may create dissatisfaction, which can increase effort. Goals motivate learners to expend the effort necessary and persist at the task (Locke & Latham, 2015), resulting in enhanced engagement and performance (Zimmerman et al., 2015).

Goals are important, but their motivational effects depend on the properties of specificity, proximity, and difficulty. Goals that denote specific performance standards (e.g., “Work 20 math problems.”) are more likely to lead to self-evaluations of progress and enhance self-efficacy and motivation than are general goals (e.g., “Work some math problems”; Bandura, 1986). Goals also are distinguished by how far they project into the future. Because it is easier to determine progress toward goals that are closer at hand (e.g., “Study math tonight.”), proximal (short-term) goals enhance self-efficacy and motivation better than do distant (long-term) goals (e.g., “Study math by the end of the week.”; Zimmerman et al., 2015).

Goal difficulty refers to the level of task proficiency required. People tend to work harder to attain challenging goals, although people may not be motivated to attempt to attain very difficult goals because they hold low self-efficacy for attaining them. Learners are apt to feel self-efficacious when they perceive as goals as challenging but attainable (Zimmerman et al., 2015).

Goals also can be distinguished on the basis of intended outcome. A *learning goal* refers to which knowledge, behavior, skill, or strategy students hope to acquire, whereas a *performance goal* refers to which task is to be completed. These goals can have differential effects on motivation and achievement (Anderman & Wolters, 2006). Learning goals motivate by focusing and sustaining attention on processes and strategies that help learners acquire competence and skills. Self-efficacy is substantiated as learners work on the task and assess their progress (Zimmerman et al., 2015).

In contrast, performance goals focus attention on completing tasks. They may not highlight the value of the processes and strategies underlying task completion or raise self-efficacy for learning. As they engage in tasks, learners may not compare their present and past performances to determine progress. Performance goals can lead to social comparisons with others to determine progress. These comparisons can lower self-efficacy when students experience learning diffi-

culties, which adversely affects motivation and engagement.

Research supports these hypothesized effects. Schunk and Ertmer (1999) conducted two studies with teacher education college undergraduates as they worked on computer projects. Students received the goal of learning computer applications or the goal of performing them. In the first study, half of the students in each goal condition evaluated their learning progress midway through the instructional program. The learning goal led to higher self-efficacy, self-judged progress, and self-regulatory competence and strategy use. The opportunity to self-evaluate progress promoted self-efficacy. In the second study, self-evaluation students 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 multiple self-evaluations of progress can raise motivation, engagement, and achievement.

Self-Efficacy and Student Engagement

Characteristics of Engaged Learners

Student engagement in learning reflects cognitive, behavioral, and affective variables that include motivation and self-regulation (Schunk & Usher, 2019; Zimmerman, 2000). Among cognitive variables, students engaged in learning hold a sense of self-efficacy that they are capable of learning. They also value the learning and believe that positive outcomes will result from learning. They set goals and decide to use strategies that they believe will help them learn.

Engaged learners also display productive achievement behaviors. They create physical and social environments conducive to learning that include necessary materials and equipment. While engaged in tasks, they focus their attention, expend effort, persist when they encounter difficulties, and evaluate their progress. They seek help from teachers, parents, peers, the Internet, and so on, when they are unsure of what to do. Engaged learners self-monitor their use of

time. They may keep records of what they have done and what remains to be done (e.g., by using a planner).

Affective variables include creating and maintaining a positive attitude toward learning. Engaged learners value learning; by succeeding, they experience a sense of pride. They are strategic about learning and know how to keep themselves from becoming discouraged. For example, if they cannot answer the first few questions on a test, they answer other questions to gain a sense of progress. If they become stuck on difficult content, they seek help (e.g., from teachers) rather than sit idly and become anxious.

Self-efficacy comes into play at all points in engaged learning. Prior to beginning a task, students hold a sense of self-efficacy for learning (Schunk & Usher, 2019). Their self-efficacy is substantiated as they work on tasks and observe their goal progress. Self-efficacy helps to keep students motivated and engaged in learning activities. Similar to how they handle difficulties, students who feel efficacious about learning but perceive that their progress is inadequate make adjustments to improve their learning (e.g., change strategy, seek help, enhance one's environment). Such modifications promote continued engagement.

Contextual Influences

Contextual variables affect self-efficacy, motivation, and engagement. Some of the most prominent are familial, sociocultural, and educational variables (Table 1).

Familial variables Families influence self-efficacy through their *capital*, which includes resources and assets (Bradley & Corwyn, 2002). Resources may be material (e.g., income), human (e.g., education), and social/cultural (e.g., networks). These resources include knowledge and skills that are valued in school settings (e.g., technological resources such as computers in the home; Yosso, 2005). Children are motivated to learn when the home has activities and materials that arouse and hold their interest and that pro-

Table 1 Contextual variables affecting self-efficacy, motivation, and engagement

Contextual variables	Examples
Familial	Family capital
	Family environment
	Role models
Sociocultural	Socioeconomic status
	Possible selves
	Peers
	Culture related stress
Educational	Methods of instruction
	Modeling
	Social feedback

vide attainable challenges (Schunk & Usher, 2019). Parents who are better educated and have social connections are apt to stress education and enroll their children in school and extramural programs that foster self-efficacy, engagement, and learning.

Families that foster a responsive and supportive environment, encourage exploration and stimulate interest, and facilitate learning experiences, accelerate their children's intellectual development. Because mastery experiences constitute a powerful source of self-efficacy information, parents who arrange for their children to experience mastery in their interests (e.g., music, sports) are apt to develop efficacious youngsters (Schunk & Usher, 2019). In contrast, parents may negatively affect their children's academic motivation, engagement, and achievement through various practices. For example, providing extrinsic rewards that are not tied to learning progress may decrease motivation when rewards are not given. Parents who make unrealistic demands may create anxiety in learners. Those who do not encourage self-regulated learning may not prepare students to meet academic challenges.

Another means of influence is vicariously through role models. Family members who model ways to cope with difficulties, persistence, and effort, strengthen their children's self-efficacy. Family members also provide persuasive information. Parents who encourage their children to try different activities facilitate their capability for addressing challenges.

Families also are influential with adult children. Western societies are characterized by a longer transition to adulthood and a prolonged time to finish school, become employed, and start families (Settersten & Ray, 2010). Children from impoverished backgrounds may not attain these points at the same rate as their more privileged peers. Modern families can experience undue stress where children remain semi-dependent for different types of assistance. Those from low-income families receive approximately 70% less material assistance than those in the top quarter of the income distribution (Settersten & Ray, 2010).

Sociocultural variables Socioeconomic status (SES) is positively related to self-efficacy and achievement. Borkowski and Thorpe (1994) reviewed empirical studies and found that lower-SES students often lack positive visions of and long-term goals for themselves in school, career, and life.

Learners who view school subjects in light of who they want to become (e.g., lawyer, teacher) improve their capabilities, motivation, and engagement (Shell & Husman, 2001). Based on their study involving almost 200 primarily White undergraduate students, Shell and Husman (2001) found that students' future time beliefs (i.e., relative importance of attaining immediate versus long-term future outcomes) were associated with higher self-efficacy, achievement, and study time and effort.

Children can be guided to develop future-oriented conceptions (possible selves; Borkowski & Thorpe, 1994). Short- and long-range goals are critical for their development (Borkowski & Thorpe, 1994; Oyserman & James, 2009). Teachers who have a future time perspective can influence engagement and motivate students by explaining the importance of present behavior on future actions and identity (Simons et al., 2004). Although short-term and specific goals are strong motivators, long-term goals also are important (Bandura, 1986).

Teachers engage their students by taking into account their capacities to think about the future

(Husman & Lens, 1999). Teachers exert socio-cultural influence as role models when they help students understand what possibilities can be acted upon in their environment and when they assist with problem solving and goal setting for achieving future goals (Miller & Brickman, 2004). Teachers can exert a positive influence by changing the classroom environment, modifying their instructional and interpersonal strategies, and addressing students' individual goals (Miller & Brickman, 2004).

In a 5-year study of the motivational levels of Native Americans and White Americans, McInerney et al. (1998) found that middle schoolers experienced difficulty in imagining the future (e.g., employability and other long-term goals). Students may need to be encouraged to connect their present and future goals by determining an instrumental route to the future (McInerney, 2004). Developmental changes may make a difference. McInerney et al. (1998) found that when they reached high school, middle schoolers often became more receptive to imagining their futures and projecting themselves into colleges and jobs. Adolescents are better able to do this than younger children.

Peers constitute another sociocultural influence. With development, peers become important influences on self-efficacy (Schunk et al., 2014). Parents who steer their children toward efficacious peers provide opportunities for vicarious increases in self-efficacy. When children observe their peers succeed, they are likely to experience higher self-efficacy and motivation.

Peer influence also operates through *networks*, or groups of friends and others with whom students associate. Students who belong to networks tend to be similar (Cairns et al., 1989), which enhances the likelihood of influence by modeling. Networks help define students' opportunities for interactions and observations of others' interactions, as well as their access to activities. Over time, network members tend to become even more similar. Arroyo and Zigler (1995) studied African American and White peer groups in urban high schools and found that racial identification can affect achievement when members believe that others hold a negative per-

ception of their group. The African American participants reported lower identification with their racial group, instead being concerned about jeopardizing the approval of nonmembers.

Peer groups promote motivational socialization. Changes in children's motivation across the school year are predicted by their peer group membership (Kindermann et al., 1996). Children affiliated with highly motivated groups change positively, whereas those in less motivated groups change negatively. Steinberg et al. (1996) tracked students throughout their high school years, finding that those with similar grades but affiliated with academically oriented crowds achieved more than those affiliated with less academically inclined peers. Peer group academic socialization can influence academic self-efficacy (Schunk & Usher, 2019).

Another influence on academic self-efficacy is perceived stress and anxiety. Stress has the potential to depress students' self-efficacy, especially among disadvantaged college populations (e.g., nontraditional, immigrant, and minority; Zajacova et al., 2005) and urban high school students (Gillock & Reyes, 1999). Pajares and Kranzler (1995) found that mathematics anxiety exerted a weaker influence than self-efficacy on high school students' mathematical performances. Zajacova et al. (2005) assessed self-efficacy and stress among freshmen immigrant and minority college students and found that academic self-efficacy and stress were negatively correlated.

Minority and immigrant students experience culture-related stress, making them more susceptible to social stress than native-born and White students (Zajacova et al., 2005). Despite increasing diversity within classrooms, many African American and Hispanic students feel disengaged and culturally segregated.

Educational variables The role of self-efficacy in student engagement has been explored by researchers in diverse educational domains with students differing in age, developmental level, and cultural background. Researchers have established that self-efficacy influences individuals' motivation, achievement, and self-regulation in

both correlational and empirical studies (Bandura, 1997; Pajares, 1997; Schunk & DiBenedetto, 2016; Stajkovic & Luthans, 1998). A recent study with 881 urban, primarily minority and low income, first-to-third graders, identified by teachers as at-risk for reading, examined the role of self-efficacy in predicting achievement (Lee & Jonson-Reid, 2016). Students' reading skills were tested at both the beginning and the end of the school year and students, parents, and teachers were administered surveys assessing students' reading, self-efficacy, behavior, and global-reading self-concept. Surveys were developed by obtaining questions from previously established assessment scales of self-efficacy and self-concept and then modified to be more appropriate for this sample's age. Findings revealed that young students were able to differentiate between self-efficacy and self-concept and that self-efficacy predicted students' motivation and performance. Reading self-efficacy had a significant and positive impact on standardized reading achievement measures whereas the effect of reading self-concept on reading achievement was not significant.

The relationship between self-efficacy, engagement, and performance has also been shown in high school and college students. In a study with 220 suburban high school students, researchers examined the impact of self-efficacy and other variables on cognitive engagement and achievement (Greene et al., 2004). A series of questionnaires were distributed over a three-month period. Results showed that self-efficacy and meaningful strategy use were the strongest predictors of academic achievement. Percentage grade was significantly and positively predicted by self-efficacy ($B = .38, t = 5.29$) and strategy use ($B = .15, t = 2.08$). DiBenedetto and Bembenutty (2013) examined changes in science self-efficacy over a semester for 113 college students enrolled in intermediate level science courses. Findings revealed self-efficacy beliefs at the end of the semester declined and yet were more closely related to final term averages than they were at the start of the semester (pre-assessment $M = 6.30, SD = 0.78$ and postassess-

ment $M = 6.02, SD 0.94, t = -3.68$). These results suggest that students' beliefs about their performance became better calibrated as the semester progressed.

Experimental research also has shown that instructional and social practices that convey to students that they are making progress and becoming competent learners raise self-efficacy, motivation, and achievement (Schunk & DiBenedetto, 2016). Some beneficial practices are having students pursue proximal and specific goals, using social models in instruction, providing feedback indicating competence, having students self-monitor and evaluate their learning progress, and teaching students to use metacognitive strategies while learning (Coutinho, 2008; Schunk & Ertmer, 1999; Schunk & DiBenedetto, 2016). Other benefits on students' self-efficacy occur from role models who provide encouragement and high expectations for achievement, a feeling of control over and empowerment within one's environment, and rewards for doing well in school (Jonson-Reid et al., 2005; Miller & Brickman, 2004).

Falco and Summers (2019) conducted an intervention study incorporating the four sources of self-efficacy on high school girls' STEM (science, technology, engineering, mathematics) career self-efficacy beliefs. Ethnically diverse high school girls received nine 50-minute counseling sessions targeted at building students' self-efficacy for making intentional career decisions and for building self-efficacy for careers in STEM. The four sources to build self-efficacy included focusing on performance accomplishments, modeling, strategies for controlling anxiety, and verbal persuasions and encouragement. Results showed positive moderate-to-large effect sizes for the impact of the intervention on both students' career decision making self-efficacy and self-efficacy for careers in STEM.

Ramdass and Zimmerman (2011) examined the influence of modeling and social feedback on 76 sixth- and seventh-grade students' self-efficacy and mathematical achievement. Students observed coping models with or without social feedback, or mastery models with or without social feedback. Mastery models demonstrate

faultless performance from the outset; coping models initially experience difficulties but gradually improve and eventually perform as well as mastery models. Findings revealed that students in the coping model conditions surpassed those in the mastery model conditions on the posttests mathematics performance ($F(1, 71) = 14.83$, $p < 0.001$), and on self-efficacy ($F(1, 71) = 5.04$, $p < 0.05$). Thus, the sources of self-efficacy can be used to foster competency beliefs, motivation, and engagement in learners.

Self-Efficacy and Positive Development and Outcomes

The role of self-efficacy in engagement has been studied extensively in underachievement and dropout (Alexander et al., 2001; Christenson et al., 2012; Hardre & Reeve, 2003; Lee & Burkam, 2003; Rumberger & Thomas, 2000). Factors contributing to underachievement and dropout include under-developed academic and social skills, little interest in school subjects, classrooms that stress competition and ability social comparisons, low perceived value of school learning, little sense of belonging or relatedness to the school environment, and inadequate vision of the future (Alexander et al., 2001; McInerney, 2004; Meece et al., 2006; Wentzel, 2005).

In recent years, researchers have increasingly turned their attention toward how self-efficacy may promote positive student development, adjustment, and other outcomes (Furlong et al., 2014). The latter depend heavily on students' involvement and participation in school; in particular, how much the environment promotes their perceptions of autonomy and relatedness (Suldo et al., 2014), which in turn can influence self-efficacy and achievement. Students who feel a sense of belonging at school are more apt to be engaged academically, socially, and physically in school activities (Ryan & Deci, 2016). Parents, teachers, and peers affect students' feelings of belongingness, and peer groups exert increasing influence during adolescence (Kindermann, 2007; Steinberg et al., 1996).

High self-efficacy can promote student engagement, but by itself does not guarantee motivation and engagement. It is possible to feel efficacious about learning but show little interest if students place little value on school learning or show low interest in it. It is important that teachers, parents, and peers build self-efficacy in learners through the sources mentioned earlier: performance accomplishments, vicarious experiences, social persuasions, and physiological indexes. The perception of progress in learning is a reliable indicator of capabilities because progress conveys to students that they are capable of learning. Such self-referential feedback that others might provide can raise students' self-efficacy and motivation for school (Schunk & DiBenedetto, 2016). Especially for learners who have disadvantaged backgrounds it is critical that they receive positive information in school that they can be successful.

Interventions can be simple such as class-based programs, but they also can involve school district policies and entire schools. Social policies and second-chance programs have been in effect for years; however, many of these are restrictive in scope and problem-based, not developmental (Bloom, 2010). They often have not assessed students' self-efficacy, but this is necessary. Increased research is needed on such programs and a focus on ethnic identity and prevention at the high school level or earlier (Bloom, 2010). Engagement strategies for assisting high-risk dropout populations (e.g., immigrants, disabled, young mothers, foster care youth, youth offenders) include identity development, paid work, internships, job training, community service, and life skills. Research shows that these types of experiences can promote academic self-efficacy of diverse first-generation students (Majer, 2009).

Future Research Directions

The principles of social cognitive theory add value to understanding student engagement. There are several self-efficacy research areas that

should be addressed. Among these are contextual influences, cross-cultural relevance, collective self-efficacy, and integration with technology.

Contextual Influences

Self-efficacy can affect and be influenced by social/environmental variables that often are context specific. Enhancing students' self-efficacy, motivation, and engagement requires an understanding of how contextual variables operate.

For example, an area needing to be addressed is the role of school transitions (e.g., middle school to high school) because these produce many contextual changes that can affect self-efficacy. It is not unusual for students' self-efficacy to decline after a transition (Wigfield & Cambria, 2010). Material to be learned typically becomes more difficult and students' comparison groups shift membership. Researchers should address how students perceive these changes and how they might affect self-efficacy. A key question is how social/environmental variables might be structured to not only prevent a decline but also provide efficacy-strengthening experiences.

Another research emphasis should be on how self-efficacy interacts with students' perceptions of school climate and sense of belonging—variables that are key predictors of school engagement (Ryan & Deci, 2016; Suldo et al., 2014). Learners who experience positive emotions in school and feel a sense of belonging in a positive environment are less at risk for underachieving and dropping out (Suldo et al., 2014). Research on students' perceptions will suggest ways to improve their self-efficacy and engagement in learning. For example, imaging a future goal and how school might contribute to that can enhance self-efficacy and engagement (Borkowski & Thorpe, 1994; Jonson-Reid et al., 2005). Knowing how classroom factors contribute to perceptions of climate can lead to improvements in environmental factors. Research also can investigate self-conceptions and possible selves, as well as experiences of academic identification (Kerpelman et al., 2008).

Cross-Cultural Relevance

Most social cognitive research has been conducted in Western societies, but this situation is changing as researchers are testing principles of social cognitive theory globally. The topics of self-efficacy and self-regulation have much international appeal. And cross-cultural research has yielded differences (McInerney, 2008). For example, Klassen (2004) found that individuals in individualistic (Western) cultures tend to judge self-efficacy higher than do learners in collectivist cultures. The correspondence between self-efficacy and skills is better for those in collectivist cultures.

These are important findings because people who overestimate their self-efficacy may attempt tasks beyond their means and perform poorly, whereas those who underestimate may be reluctant to engage in tasks and thereby preclude opportunities for learning (Schunk & DiBenedetto, 2020). These results suggest that collectivist cultures may promote modest self-efficacy judgments and that in some cultures collective self-efficacy (self-efficacy of what a group can accomplish; discussed next) may predict learning outcomes better than individual self-efficacy.

Although social cognitive theory has been found to be cross-culturally relevant, more needs to be known about students from different cultures and countries. Most educational self-efficacy studies have focused on students from the United States without sufficient attention on issues of diversity, especially as related to learning and engagement. This is especially important today as schools become more diverse including within cultures. Cross-cultural studies will expand understanding of the operation and generality of self-efficacy.

Research that focuses on culturally ethnic students' experiences at different types of institutions is also needed. Hand in hand with this focus is that of social policies and programs that can address in a specific way not only the lower achievement and higher attrition for African American college students but also what types of

interventions and resources foster ethnic students' self-efficacy and success. Given that research on self-efficacy has mostly focused on White students at predominately White institutions, we need a better understanding of African American youths' sense of self-efficacy, in addition to strategies that foster a belief in the value of education (Jonson-Reid et al., 2005).

Collective Self-Efficacy

As noted previously, cultural dimensions such as individualism and collectivism may influence the relation of self-efficacy to academic outcomes (Oettingen & Zosuls, 2006). Kim and Park (2006) argued that theories that emphasize individualistic values—such as self-efficacy—cannot explain the high achievement of East Asian students. Instead, the Confucian-based socialization practices that promote close parent–child relationships seem responsible for high levels of self-regulatory, relational, and social efficacy. In these cultures, relational efficacy (i.e., perceived competence in family and social relations), as well as social support from parents, may influence students' academic performances. Self-efficacy may be more other-oriented in some non-Western (particularly Asian) cultures than in Western cultures (Klassen, 2004), a point that needs further research.

Many educational contexts are structured for group work. It makes sense to ask how to create and sustain engaged groups. These groups display the same features as engaged individuals. *Collective self-efficacy* (perceived capabilities of the group, team, or larger social entity) is not the average of individuals' self-efficacy but rather members' perceived capabilities to attain a common goal by working together (Bandura, 1997).

As noted earlier in this chapter, collective self-efficacy may predict group performance better than individual self-efficacy and especially among persons in collectivist cultures. But even in more individualistic cultures, working in groups is considered important in- and outside-of-school.

In a similar vein, *collective teacher self-efficacy* is the belief of a group of teachers that they can enhance students' achievement and well-being (Bandura, 1997). Collective self-efficacy and collective teacher self-efficacy are influenced by the same sources as is individual self-efficacy. Collective efficacy can be developed when group members work together to achieve common goals (performance accomplishments), learn from one another and from mentors (vicarious experiences), receive encouragement and support from others (forms of persuasion), and work together to cope with difficulties and alleviate stress (physiological indexes). Cantrell and Hughes (2008), for example, found that sixth- and ninth-grade teachers' collective self-efficacy improved after a year-long professional development program involving a team approach to teaching literacy.

Relative to individual self-efficacy, there is far less research on collective efficacy. But researchers have shown that collective self-efficacy is positively related to teacher job satisfaction and retention (Caprara et al., 2003). Teachers and students who remain engaged are less likely to drop out of teaching or school. We recommend enhanced research on collective self-efficacy both to clarify its operation within groups and suggest implications for educational practices.

Integration with Technology

Social cognitive theory was largely developed prior to technological advances. Most research has been face-to-face. The theory does not need major revisions because the principles are intended to be generic and apply across different contexts. But the role of technology requires some theoretical adaptations.

Social cognitive research is needed with social media. These media offer ways for learners to be engaged with others, and we know little about how such engaged interactions may influence self-efficacy and other variables. Learning from others is a source of self-efficacy information, and this should be true regardless of whether the

interactions are live or virtual. Social media fit well with a social cognitive theory.

Such research has implications for teaching and learning. There are many educational uses for technologies such as Facebook and Zoom. How might these and other forms of media be used to help students set goals, monitor progress, assess self-efficacy for learning, and the like? How might instruction be designed to incorporate social media that take self-efficacy of learners and teachers into account? Research is needed to expand the generality of the theory beyond its original formulation.

Educational Applications

There are several applications of self-efficacy theory and research for student engagement, especially using the four sources of self-efficacy information. Mastery experiences are powerful influences on self-efficacy, especially when learners set challenging but attainable goals and practice and refine skills. As they observe their goal and learning progress, their self-efficacy for continued learning is strengthened. Teachers also can provide vicarious experiences by indicating how other similar students have mastered skills, as well as persuasive information through realistic encouragement. Encouraging students to attempt very difficult tasks may prove demoralizing and lower self-efficacy. Teachers can use physiological indicators, such as when they tell students that they are reacting in a less-stressful way to completing assignments.

Teachers want students to be successful and may be tempted to assist them. Assistance often is necessary in the early stages of learning. But success with help does not build strong self-efficacy because students may attribute the success to the teacher's help. Allowing learners to succeed on their own strengthens self-efficacy better.

Another idea is to use an appropriate instructional model that allows for differentiation. Students do not learn at the same rate or in the same way. Nonindividualized assignments mean some will succeed but others will not. The latter

students, when they compare their performances to those of students who have done well, may doubt their capabilities. Individualized instruction minimizes social comparisons. Teachers can provide individualized feedback, such as by telling them, "See how much better you're doing on these now?"

Students can be encouraged to evaluate their learning and gauge their progress. For example, teachers could give students a scale ranging from 1 (low) to 10 and ask them to assess their progress in solving different types of mathematical problems. Such assessments are good indicators of where students may need additional instruction and practice.

A key goal is for learners to have a sense of realistic optimism about what they can learn or accomplish, which can motivate them to improve (Bandura, 1997). A sense of realistic optimism gives learners goals to strive for and makes for enjoyable environments in which to learn.

Conclusion

Research evidence supports the point that self-efficacy is a significant influence on learners' motivation and engagement (Schunk & DiBenedetto, 2016, 2020). Self-efficacy helps to create a sense of agency and contributes to learners' positive development in- and out-of-school (Schunk & DiBenedetto, 2016).

Social cognitive theory stresses learning from the social environment. The conceptual focus of Bandura's theory postulates reciprocal interactions among personal, behavioral, and social/environmental factors. Self-efficacy is a critical personal factor that can affect motivation, engagement, learning, and achievement. Self-efficacy is shaped by personal, cultural, and social factors.

Attention to ways of building students' skills and self-efficacy will help learners become academically motivated and stay engaged in learning. These outcomes should help diminish underachievement and dropout, as well as provide learners with a sense of realistic optimism about their capabilities. Important research ques-

tions remain that will help refine the theory and have implications for teaching and learning.

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