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Self-Efficacy

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Introduction

Self-efficacy refers to the subjective conviction that one can successfully execute the courses of action required to obtain a desired outcome. Bandura (1977) first coined the term after his experiments on phobia treatment. A group of individuals suffering from severe snake phobia participated in a treatment program. One group of these individuals directly engaged in fearful encounters with a boa constrictor, which involved mastery of progressively more fearful interactions with the snake. Another group observed a model successfully demonstrating a range of approach behaviors toward the snake. The other group did not receive any treatment. Repeated mastery experiences of the first group and repeated observations of the model’s successes in handling the boa constrictor by the second group increased the participants’ self-efficacy beliefs that they could handle the snake successfully. The greater were the changes in their self-efficacy beliefs, the greater the changes in their behaviors toward the snake. The group that did not receive treatment failed to reach target performance.

Self-efficacy has been proven to initiate and sustain behavioral changes in a wide array of domains including cognitive, affective, motivational, and selection processes (Bandura, 1989). Students armed with a strong sense of academic self-efficacy display greater willingness to choose challenging tasks, more effective use of learning strategies, less anxiety, enhanced effort, and improved academic achievement compared to those with a weaker sense of self-efficacy (Pintrich & De Groot, 1990). Self-efficacy also shows significant positive relations to persistence measures such as the amount of time spent on tasks and the number of problems and tasks attempted or completed (Multon, Brown, & Lent, 1991). Self-efficacy predicts academic performance particularly well when self-efficacy is assessed after instructional treatments, performance indexes comprise basic skills measures, and the students are low-achieving.

Self-efficacy is also a key component in self-regulated learning. Self-regulated learning consists of three highly interdependent subprocesses: Self-observation, self-judgment, and self-reaction. Self-observation refers to systematic monitoring of one’s own performance; self-judgment refers to comparison of one’s performance to a known standard; and self-reaction refers to responses to the evaluation of one’s own performance (Zimmerman, 1989; Zimmerman, Bandura, & Martinez-Pons, 1992). Self-efficacy influences all of these processes and mediates effects of goal-setting on subsequent achievement strivings.

Sources of Self-Efficacy. Students form efficacy expectations by cognitively appraising self-efficacy information from four major sources (Bandura, 1997). Direct mastery experience is the most reliable source. Success with the task raises self-efficacy toward it, whereas failure lowers it. Vicarious experience is the second powerful source. Observing others succeed or fail at tasks raises or lowers observers’ self-efficacy toward those tasks. Effects of vicarious experience increase as observers perceive greater similarity between the model and themselves. The third source is verbal persuasion. Self-efficacy is modified by
the persuasion of significant others, especially when the persuader is perceived to be credible and knowledgeable. Finally, physiological indexes function as the fourth source of efficacy information. Bodily reactions and emotional arousals such as nervousness, sweating, and faster heart rates signal to the students that they lack competence for successfully performing the task and hence lower their self-efficacy.

**Nature of Self-Efficacy.** Self-efficacy is formed in reference to a specific task, activity, or domain. It is thus critically important that tasks and activities used to assess self-efficacy closely approximate the prediction target in terms of specificity and correspondence (Pajares, 1996). If teachers want to predict how well students will perform on the next physics test covering gravity, they need to assess students’ self-efficacy for successfully solving problems on gravity, rather than their self-efficacy for dealing with acceleration and velocity problems of physics in general. Mismatch between the tasks and activities used to assess self-efficacy and those used to assess target performance diminishes self-efficacy’s prediction power.

Beliefs of self-efficacy can also differ in strength, level, and generality (Bandura, 1997). Students with a strong sense of math self-efficacy built on their repeated successes in math in the past would not despair upon receiving a poor score on a single difficult math test (i.e., strength). Likewise, students may feel confident for correctly solving multiplication problems consisting of only one- and two-digit numbers, whereas others may feel confident for successfully solving multiplication problems involving up to six-digit numbers (i.e., level). Further, students who feel highly self-efficacious in algebra may feel comparably efficacious for learning calculus (i.e., generality). The same success or failure experiences do not guarantee self-efficacy beliefs of the same strength, level, or generality for different students because what matters is how these experiences are cognitively weighed, interpreted, and combined by each student. Two students who received the same test score could reach different conclusions regarding their self-efficacy.

**Differences of Self-Efficacy from Other Constructs.** First and foremost, self-efficacy is a predictive construct. Whereas self-esteem, self-concept, and self-efficacy are all formed on the basis of one’s past experiences, self-efficacy uniquely concerns the belief regarding what one will be able to do in the upcoming future with whatever skills, knowledge, and capabilities one possesses. “I will be able to do excellent work in math” is a self-efficacy statement, whereas “I’m good at math” is a self-concept statement. Second, self-efficacy is context-specific. One’s self-efficacy for successfully delivering a public speech, for example, would differ greatly depending on familiarity of the topic, knowledgeability, and size of the audience, and language used to deliver the speech (Bandura, 1997). Third, self-efficacy is estimated largely in relation to performance goals. Although social comparison also affects judgments of self-efficacy, students judge their competence in relation to the goals and standards first. “How confident are you that you can successfully achieve an A in English?” is a self-efficacy question but “Do you think you are better than other students in English?” is not. Finally, self-efficacy is a producer and a product of affective reactions but does not include them as part of its definition (Bong & Skaalvik, 2003). Whether students are satisfied with the way they are, deem themselves worthy, or feel hopeless when it comes to certain domains, are important in global self-esteem, self-worth, or academic self-concept. In contrast, self-efficacy concerns mainly one’s perceived competence against the target performance.

Self-efficacy should be distinguished from outcome expectancy, which represents the belief that certain actions will lead to a particular outcome. In comparison, self-efficacy is about whether or not individuals believe that they can successfully execute the very behavior that will result in the expected outcome. For example, most students have outcome expectancy that study behaviors such as paying attention during class, finishing homework in time, reviewing course materials regularly, and preparing for tests well ahead of time will produce a decent grade on an upcoming test. Nonetheless, not all of them have sufficiently strong self-efficacy that they could successfully engage in all of these behaviors to attain the desired grade. Self-efficacy belief plays a more critical role than outcome expectancy because efficacy expectation is what makes people initiate and sustain the behaviors necessary for acquiring a desired outcome (Bandura, 1977).

**Summary and Recommendations**

To better understand the role of self-efficacy in student achievement and help them develop a stronger sense of academic self-efficacy, the following recommendations are offered:

**Goals and Goal-Setting.** Goals provide students with criteria against which to compare their academic performance and progress. When students realize that the gap between their goal and performance is gradually decreasing, they feel more motivated to keep exerting effort until they reach the goal. Goal properties are important in moderating the effects of goals on self-efficacy. Goals that are too general (e.g., “Do your best”), too difficult (e.g., “Get 100% of the problems correct in AP physics”), or too distal (e.g., “Master the content of the course by the end of this academic year”) are not as effective as goals that are specific (e.g., “obtain a letter grade of B or better”), moderately challenging (e.g., “Get at least 80% of the problems correct”), and proximal (e.g., “Complete two lessons in each study session”) (Bandura & Schunk, 1981).

**Skills Training.** Providing gradual mastery experience to students is most effective for arming them with a heightened sense of self-efficacy. In “guided” mastery experience,
teachers help students to conquer personal challenges and develop academic skills to see the gap between the goals and their own performance progressively narrows. Teachers then gradually reduce instructional scaffolding as students’ competencies develop. When providing performance feedback to students, teachers should provide progress feedback because it helps students monitor the degree of their goal attainments and witness their own improvements (Schunk & Swartz, 1993). It is also important to ensure that teachers present students with multiple opportunities to experience success. Repeated successes can help build a resilient sense of self-efficacy that does not dissipate upon occasional setbacks. These successes must be authentic mastery experiences and not easy successes on superficial tasks that do not require effort.

**Modeling.** Students can become more self-efficacious about their own learning and performance by observing a model. Cartoons and fictitious characters can be models as well. Students can also function as their own models by videotaping themselves during task performance and watching the tape afterwards. Perceived similarity of the model to observers determines how much benefit will be gained from the observation. Therefore, peer models are a lot more effective than teacher models for demonstrating problem-solving procedures. For the same reason, coping models who overcome initial and occasional difficulties through effort and persistence are better at instilling efficacy beliefs in the observers than are mastery models. Students find coping models more similar in competence to themselves than mastery models who put up a flawless task performance from the very beginning (Schunk, Hanson, & Cox, 1987). Coping models are also more helpful because these models present students with favorable social comparison results about their own competence.

**Attributional Feedback.** Attribution plays a critical role in the cognitive appraisal processes leading to self-efficacy. Successes attributed to unstable, external factors will have their significance diminished and will not augment students’ self-efficacy much. However, successes attributed to internal factors will help boost students’ self-efficacy. Two students with similar achievements arrive at drastically different conclusions regarding their own competence in the domain, depending on whether they ascribe their superb performance to pure luck and easy tasks or their own ability and effort. For students who have acquired differentiated conceptions of ability, successes achieved with minimum effort signify high ability and hence most reliably raise self-efficacy. Having to exert a lot of effort to enjoy the same level of success is interpreted as lack of ability and is not as effective as ability attribution for strengthening self-efficacy (Schunk, 1983).

**Perceived Task Difficulty.** Even among students who make the same ability attributions for their successes on a recent test, strengths of their resultant self-efficacy could still differ. Self-efficacy would be the strongest for those who view the test to have been difficult. Successes at only easy tasks will not help improve students’ self-efficacy because they do not provide enough new information regarding competence. Conversely, successes at difficult tasks indicate noticeable improvement in competence from the past and hence are much more potent for strengthening self-efficacy (Bandura, 1977).

**Reward-Performance Contingency.** When providing rewards, teachers should be mindful about the reward-performance contingency. Rewards that are not contingent upon performance could have undermining effects on students’ self-efficacy, if students believe that teachers give out the rewards simply for participation because they lack the capability to accomplish the goal. Like the progress feedback, rewards that correspond to the level and quality of performance convey information to students regarding how much they have improved and how well they are progressing toward the goal. This information is useful for strengthening students’ self-efficacy beliefs that they will be able to perform successfully at a designated level to attain a desired academic outcome.

### References


