

Self-Efficacy Perspective On Achievement Behavior

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Abstract:

This article examines the idea that perceived self-efficacy is an important variable in understanding achievement behavior. Self-efficacy refers to personal judgments of one's capability to organize and implement behaviors in specific situations. Students gain information about their level of self-efficacy from self-performances, vicarious experiences, verbal persuasion, and physiological indices. In forming efficacy judgments, people take into account factors such as perceived ability, task difficulty, effort expenditure, performance aids, and outcome patterns. Even when students acquire efficacy information from self-performances, efficacy judgments are not mere reflections of those performances because educational practices differ in the type of information they convey about students' capabilities. Some experimental tests of these ideas are summarized along with their educational implications. The self-efficacy framework is compared with locus of control, attribution, and self-worth theories of achievement behavior.

Article:

Recent advances in instructional psychology have led to growing interest in how students structure and employ knowledge during the learning process (Resnick, 1981). The ways that students process information in learning situations seem fruitful to explore, because instructional procedures alone cannot fully account for students' diverse achievement patterns. There is increasing evidence that personal cognitions exert important effects on achievement behavior (Bandura, 1982; Covington & Beery, 1976; DeCharms, 1968; Harter, 1978; Kukla, 1972; Moulton, 1974; Rotter, 1966; Weiner, 1979). Although these views differ in certain ways, they all stress the idea that students' achievement expectancies affect behavior.

This article addresses the idea that perceived self-efficacy is an important variable in understanding achievement behavior. Self-efficacy refers to personal judgments of one's capability to organize and implement actions in specific situations that may contain novel, unpredictable, and possibly stressful features (Bandura, 1977a, 1981, 1982). Self-efficacy is hypothesized to influence choice of activities (Bandura, 1977a). Students who hold a low sense of efficacy for accomplishing a task may attempt to avoid it, whereas those who feel more efficacious should participate more eagerly. Self-efficacy also is hypothesized to affect effort expenditure and task persistence (Bandura, 1977a). Especially when facing obstacles, individuals who hold a high sense of efficacy should work harder and persist longer than those who doubt their capabilities (Bandura & Schunk, 1981; Brown & Inouye, 1978; Schunk, 1981).

I first will discuss some ways that students acquire information about their level of efficacy in achievement situations. The central idea here is that educational practices differ in the type of information they convey. In turn, perceptions of self-efficacy are hypothesized to affect students' task motivation and skill acquisition. Some experimental tests of these propositions will be summarized along with their educational implications. The article will conclude with a comparison of the self-efficacy model to other views of achievement behavior.

Acquisition of Efficacy Information

According to Bandura (1981, 1982), people acquire information about their level of efficacy from four sources: self-performances, vicarious experiences, verbal persuasion, and physiological indices. Self-performances are

hypothesized to offer quite reliable guides for assessing self-efficacy. In general, successes should raise one's level of efficacy whereas failures should lower it, although once a strong sense of efficacy is developed an occasional failure should not have much effect. In school, students also acquire information about their own capabilities vicariously through knowledge of others. The literature on modeling supports the idea that similar others offer the best basis for comparison (Bandura, 1971; Brown & Inouye, 1978; Rosenthal & Bandura, 1978). Observing peers perform a task can convey a vicarious sense of efficacy to students that they can complete the task as well (Schunk & Carbonari, in press). Vicarious experiences are hypothesized to have a weaker effect on efficacy than self-performances because a vicarious increase in efficacy can be negated by subsequent unsuccessful personal efforts. Third, students often receive information through suggestion or exhortation — as from teachers — that they possess certain capabilities. Although positive persuasory feedback can promote a student's sense of efficacy for performing well on a task, this increase is apt to be short-lived if the student subsequently performs poorly. Finally, students acquire some efficacy information through physiological indices. For example, emotional symptoms such as trembling or sweating before a test could be interpreted by students that they may not be capable of performing well.

Information acquired from these sources does not influence self-efficacy in an automatic fashion; instead, the effect of such information on self-efficacy depends upon how it is cognitively appraised (Bandura, 1977a). Efficacy appraisal is an inferential process in which persons weight and combine the contributions of both personal and situational factors (Bandura, 1981). In forming efficacy judgments, people take into account various factors, such as their perceived ability, the difficulty of the task, amount of effort expended, amount of external aid received, and pattern of successes and failures, among others (Bandura, 1981; Schunk Carbonari, in press).

Even when students acquire efficacy information from self-performances, subsequent efficacy judgments are not mere reflections of those performances (Bandura, 1982; Schunk, 1981). This is because educational practices differ in how they influence students' efficacy judgments. For example, in the context of competency development students should begin to develop a sense of efficacy as they work at a task and experience some success. Some educational practices may validate this sense of efficacy by clearly conveying that students are becoming more capable, which should sustain task motivation and lead to further increases in self-efficacy and skills. Other practices may offer ambiguous information about students' capabilities, or even convey information to the effect that students are not particularly skillful. In these latter situations, increases in self-efficacy and skills should be lower than those resulting from efficacy-validating practices. In short, educational practices constitute an important contextual influence on students' percepts of efficacy.

In the research discussed below, the subjects were children who had encountered repeated difficulties with the experimental task (subtraction or division) in school. Because these subjects initially lacked skills and a sense of efficacy for performing the task, the development of self-efficacy could be studied as a function of different treatments and could be related to skill acquisition. The studies are discussed under three broad headings: attributional feedback, goal setting and social comparison, and reward contingencies. I believe that this research supports the ideas that self-efficacy is an important variable in understanding students' achievement behavior and that these processes are important contextual influences on students' efficacy judgments.

Research Evidence

Attributional Feedback

Attributional theories postulate that individuals use information to arrive at causal ascriptions for outcomes primarily in terms of ability, effort, task difficulty, and luck (Heider, 1958; Weiner, 1979; Weiner et al., 1971). The role of effort has received considerable attention, because unlike ability, task difficulty, or luck, effort presumably is under volitional control and amenable to change. Thus, ascribing past failures to insufficient effort is hypothesized to exert motivational effects. When people believe that increased effort will produce success they should persist longer at the task and thereby increase their level of performance (Weiner, 1977, 1979; Weiner et al., 1971). Along these lines, attribution retraining programs often concentrate on changing

children's causal ascriptions for failure from low ability to insufficient effort (Andrews & Debus, 1978; Dweck, 1975).

Effort attributional feedback constitutes a persuasive influence on self-efficacy. To be told that one can achieve results through hard work can motivate one to do so because such information conveys that one possesses the necessary capability to perform well. In similar fashion, providing effort feedback for task success can support students' perceptions of their successes and lead to further increases in self-efficacy and skills. Effort feedback should be especially potent with young children, who view outcomes as highly dependent upon effort and often equate effort with ability (Frieze, 1980; Frieze & Bar-Tal, 1980; Frieze & Snyder, 1980; Harari & Covington, 1981; Nicholls, 1978, 1979).

To explore the effects of effort attributional feedback on self-efficacy and achievement, low-achieving children participated in a division competency-development program and received either cognitive modeling or didactic instruction (Schunk, 1981). In the modeling treatment, children observed an adult model verbalize aloud division operations while simultaneously applying them to problems. The didactic treatment consisted of children reviewing instructional pages that portrayed the solution of division problems step-by-step. Modeling was expected to be more effective because of evidence that coupling explanatory principles with exemplary modeling promotes skills better than principles alone (Rosenthal & Zimmerman, 1978). Within each of these conditions, half of the children periodically received effort attributional feedback as they solved problems; children were told that they had worked hard after their efforts led to success and that they needed to work harder when difficulties followed less-diligent effort. The other half received no attributional feedback.

The results showed that both cognitive modeling and didactic instruction led to significant increases in self-efficacy, skill, and task persistence, but that modeling resulted in significantly higher skill. Surprisingly, the effort feedback exerted no significant effect on any measure. To explore the hypothesized relationship between self-efficacy and subsequent skillful performance, the probability of an accurate solution as a function of the level of self-efficacy was computed. Regardless of treatment condition, higher levels of self-efficacy were associated with progressively higher skill.¹

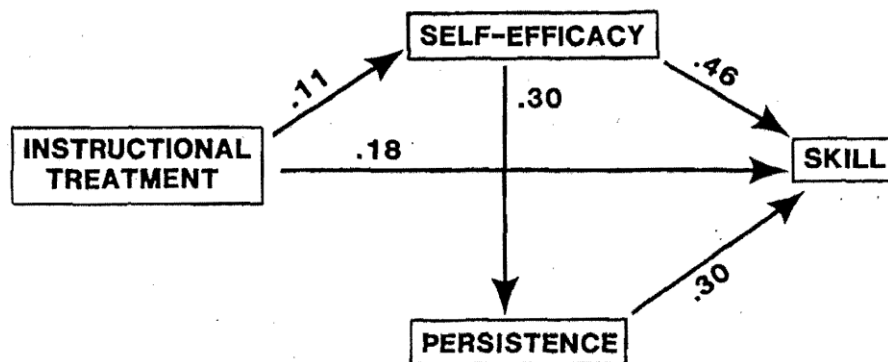


Figure 1. Path model showing effects of instructional treatment, self-efficacy, and persistence, on subsequent skillful performance.

The hypothesized influences on achievement outcomes were explored further using path analysis to reproduce the correlation matrix consisting of instructional treatment (modeling-didactic), self-efficacy, persistence, and skill. Although path analysis cannot prove a theory to be correct, it is useful in rejecting causal models that demonstrate a poor fit to the original data (Kerlinger & Pedhazur, 1973). The most parsimonious model that reproduced the data is shown in Figure 1, where the discrepancies between the original and reproduced correlation coefficients were small and did not exceed .015. Although treatment exerted both a direct effect on skill as well as an indirect effect through persistence and self-efficacy, the effect of treatment on persistence operated indirectly through self-efficacy. The predicted effects of self-efficacy on skill and persistence were obtained.²

The failure of the attributional feedback may have been due to the difficulty of the task. Information that effort expenditure can affect outcomes should be maximally effective for intermediate-difficulty tasks (Kukla, 1972).

Division generally is regarded as a difficult subject for children to master, and perhaps these Tow achievers viewed the task as quite difficult.

It also is possible that providing effort attributional feedback for success and difficulty conveyed markedly different efficacy information. As children work at a task and observe their successes, they should begin to develop a sense of efficacy. Telling children that effort is the reason for their successes should support their perceptions of skill improvement and convey that they can continue to perform well with hard work; however, telling them that they need to work hard following difficulty might convey that they are not doing well. They might conclude that they are not very efficacious at the task despite some progress and might wonder whether more effort will produce better results.

A second experiment disentangled these two *forms* of feedback (Schunk, 1982a). An adult proctor periodically monitored children's performances as they individually solved subtraction problems during a training program. One group (past attribution) had their prior achievement linked with effort each time by the proctor remarking, "You've been working hard." The proctor stressed the value of future effort to a second group (future attribution) by remarking, "You need to work hard." A third group was monitored periodically but received no attributional feedback, and a fourth group was not monitored.

The results showed that past attribution led to significantly higher levels of skill and self-efficacy compared with the other conditions, which did not differ. Past-attribution subjects also demonstrated greater task motivation as measured by their rate of problem solving during training (training progress) compared with future-attribution children and the non-monitored controls. The results supported the idea that past performances do not influence self-efficacy automatically. Although past-attribution children judged self-efficacy the highest, their training progress did not differ from that of subjects who were monitored but received no feedback.

A regression analysis determined what portion of the variation in skill was accounted for by the joint influence of self-efficacy, training progress, and persistence. The results showed that the contributions of training progress (48%) and self-efficacy (20%) were statistically significant. The greater contribution of progress is partly artifactual because self-efficacy presumably influences progress. Together, the three predictors jointly accounted for 70% of the variation in subtraction skill.

The preceding considerations of effort feedback suggest that ability attributional feedback (e.g., linking past successes to ability) also should support children's perceptions of their progress and promote self-efficacy and skills. There is little research comparing different forms of attributional feedback with children. Miller, Brickman, and Bolen (1975) found that ability and effort feedback were equally effective in enhancing children's mathematical skills and self-esteem; however, these authors did not assess performance expectancies. They also used second graders as subjects. There is evidence that third grade (around age 9) is important developmentally because the concept of ability begins to differentiate from effort (Nicholls, 1978). At earlier ages, children view effort as the prime cause of outcomes and ability-related terms as closely associated with effort. Once these concepts begin to differentiate, ability and effort feedback might convey different efficacy information. There is developmental evidence that third graders use inverse compensation in judging effort from ability information (Kun, 1977; Surber, 1980); that is, children infer less effort as outcomes are presented as resulting from higher ability. Success attained with less perceived effort should promote self-efficacy more than when greater effort is required (Bandura, 1981).

To these ideas, third-grade children who lacked subtraction skills participated in a training program and periodically received either ability feedback ("You're good at this"), effort feedback ("You've been working hard"), both forms of feedback, or neither form of feedback (Schunk, 1983a). Attributional feedback exerted its expected motivational effects: The three feedback conditions did not differ, but each completed significantly more training problems than no-feedback subjects. But subjects who received only ability feedback demonstrated higher levels of self-efficacy and skill compared with the effort-only and effort-plus-ability

conditions, which did not differ. On a measure of effort expenditure during training, the judgments of children in the latter two groups were higher than those of ability-only subjects.

These results support the idea that attributional feedback is an important contextual influence on students' appraisals of self-efficacy. Combining effort with ability feedback resulted in some discounting of the ability information in favor of effort. Developmental evidence shows that by the third grade some children also use inverse compensation in judging ability from effort information (Surber, 1980). Information that children were good in subtraction and that they had been working hard may have implied lower ability than did ability feedback alone. Ability + effort children may have wondered how good they really were if they had to work hard to succeed.

Collectively, these results have implications for teachers of young children. Linking effort with task success exerts motivational effects and helps to develop a sense of efficacy, but with development ability information becomes increasingly important. Knowing how children's interpretation of attributional feedback changes with development would allow teachers to structure their feedback accordingly, including over the course of a school year, to enhance children's achievement and sense of efficacy.

Goal Setting and Social Comparison

Goal setting involves an internal comparison of desired standards against present performance level (Bandura, 1977b). When persons make self-satisfaction contingent on attaining a desired standard, they are likely to sustain their efforts until they achieve their goals (Bandura, 1977b).

Of central importance to the goal-setting process are goal properties, such as specificity, difficulty level, and proximity (Bandura, 1977b; Latham & Yukl, 1975; Locke, 1968; Locke, Shaw, Saari, & Latham, 1981; Schunk & Gaa, 1981). Goals that incorporate specific standards of performance are more likely to activate self-evaluative reactions and lead to higher performance than are no explicit or general goals, such as, "Do your best" (Locke, 1968; Locke et al., 1981). Goal difficulty refers to the level of task proficiency as assessed against a standard (Locke et al., 1981). Assuming that individuals have sufficient ability to accomplish the goal, there is much evidence demonstrating a positive and linear relationship between difficulty level and task performance (Locke et al., 1981).

Goals also can be distinguished by how far they project into the future. Proximal goals, which are close at hand and can be achieved rather quickly, result in greater self-motivation directed toward attainment and a higher level of performance than more distant goals (Bandura & Simon, 1977). Proximal goals should be especially influential with young children, who have short time frames of reference and who may not be fully capable of representing distant goals in thought (Schunk & Gaa, 1981). Pursuing proximal goals also can promote self-efficacy. As children observe their progress toward a proximal goal, they begin to develop a sense of efficacy, which should help sustain motivation and foster skill development. Because progress toward a distal goal is more difficult to gauge, children may receive less-clear information about their capabilities.

The idea that proximal goals constitute an important contextual influence on self-efficacy was tested during a subtraction competency-development program (Bandura & Schunk, 1981). Children were given a written packet consisting of seven sets of training material and were told they would work on it over seven sessions. Some children pursued a proximal goal of completing one set each session; a second group pursued a distal goal of completing all sets by the end of the last session; and a third group worked on the packet without an explicit goal. The proximal and distal goals represented the same amount of work.

Consistent with prediction, suggesting proximal goals heightened task motivation, because these subjects demonstrated the highest rate of problem solving during training. Proximal goals also led to the highest levels of subtraction skill and self-efficacy. In contrast, distal goals resulted in no benefits compared with no goals.

The hypothesized mechanism whereby proximal *goals can promote* perceptions of self-efficacy bears some similarity to the social comparison process. Social comparative information constitutes a vicarious influence on self-efficacy, because students can learn something about their own capabilities from knowledge about others. Thus, students who observe similar others (e.g., peers) succeed at a task might feel more efficacious about succeeding themselves (Bandura, 1981). Social comparative information would seem to provide a standard against which students could assess their own performance, and the perception of progress toward the standard should convey that students are becoming more capable. Developmental evidence shows that social comparative information becomes an increasingly important influence on self-evaluations because its effective utilization depends upon higher levels of cognitive development and experience in making comparative evaluations (Veroff, 1969). Prior to ages 5-6 children make little self-evaluative use of comparative information. In the early elementary-school years, children show increasing interest in comparative information, and by the fourth grade they utilize such information to help form self-evaluations of competence (Ruble, Boggiano, Feldman, & Loebel, 1980; Ruble, Feldman, & Boggiano, 1976).

A recent study compared the effects of proximal goals to those of social comparative information (Schunk, 1983b). Fourth-grade children deficient in division skills participated in a competency-development program. One group was given comparative information each session indicating the average number of problems solved by other similar children. A second group pursued a proximal goal of completing a given number of problems each session. The goals were of intermediate difficulty. A third group received both treatments, and a fourth group received neither treatment. The goals and comparative information indicated the same level of attainment.

The results showed that combining the two treatments led to the highest level of skill; the other groups did not differ. Combined-treatment children also judged self-efficacy higher than did children receiving only comparative information and the control subjects. Although the combined and goals-only conditions did not differ in level of self-efficacy, combined children demonstrated more rapid problem solving during training.

The goals-only condition of this study did not enhance task motivation as well as the proximal-goals condition of the Bandura and Schunk (1981) study. The fact that a more difficult subject matter was used in the Schunk (1983b) study may have been responsible. Given their deficiencies in division, goals-only children may have perceived solving several division problems as very difficult. Combining goals with comparative information conveyed that the goals were attainable. The belief that goals are attainable should yield an initial expectation of success, which promotes goal commitment and task performance (Locke et al., 1981). Children's sense of efficacy is strengthened as they work at the task and observe their progress. At the same time, combined-treatment children should have had no reason to feel overly efficacious as a result of their training successes because they knew that the goals represented average attainment by similar others. Attaining such goals can lead to the conclusion that one is average in ability (Goethals & Darley, 1977). Thus, although information about similar others is informative of one's capabilities, it may not lead to a strong sense of efficacy.³

The goals-only treatment promoted efficacy as well as the combined treatment but not skills. In the absence of information about the level of capability that goal attainment represented, goals-only children may have been overly swayed by their modest training successes. These children even may have assumed that goal attainment was synonymous with task mastery. In contrast, children who received only comparative information knew that this standard represented average attainment. In the absence of a goal, they may have been less committed to attaining the comparative level than combined treatment children, which would not have produced the same initial expectation of success.

Goal setting is a common educational practice, and these results show that pursuing proximal goals can help develop skills and a sense of efficacy. But especially if students might perceive tasks as difficult they should benefit from information that the goals are attainable. Teachers who wish to promote a strong sense of efficacy among students might avoid providing comparative information in favor of directly telling students that they can attain the goal ("You can do this."). As Ruble, Parsons, and Ross (1976) suggest, providing social comparative information may lead to a focus on self-evaluation. With direct task information, students might

focus more on how their present attainments surpass their prior accomplishments, which should promote self-efficacy. Along these lines, one suggestion is to use self-set goals. Although realistic goal setting may require some training and experience (Sagotsky, Patterson, & Lepper, 1978), there is evidence that self-set goals are especially effective with persons low in achievement motivation and who may hold low initial expectations for success (Steers, 1975).

Reward Contingencies

Rewarding consequences inform and motivate (Bandura, 1977b). As people work at a task, they notice which behaviors lead to desirable outcomes and which result in undesirable ones. Such information guides future behavior. Further, the anticipation of attaining desirable outcomes motivates individuals to engage in a task and persevere. There is much evidence showing that offering rewards promotes task performance (Dornbush, 1965; Glucksberg, 1962; Goyen & Lyle, 1971; McCullers, 1978; McGraw, 1978).

Reward contingencies should be an important contextual influence on students' efficacy appraisals. Rewards should enhance self-efficacy when they are tied to students' actual accomplishments, as opposed to being given merely for task participation. Telling children that they can earn rewards based on what they accomplish might instill a sense of efficacy for performing well. As children then work at a task and note their progress, this sense of efficacy is validated. Receipt of the reward further validates efficacy because it symbolizes children's progress. In contrast, when rewards are offered merely for participating at a task, children should not experience a heightened sense of efficacy. In fact, such rewards actually may convey negative efficacy information: Children might infer that they are not expected to accomplish much and that they do not possess the requisite capability to perform well.

Along these lines, Deci distinguishes between informational and controlling functions of rewards (Deci, 1975; & Porac, 1978). Reward systems may be structured primarily to convey capability information or to control behavior, and the relative salience of each influences behavior. A salient informational aspect indicating successful performance should promote feelings of competence, whereas a salient controlling aspect can lead to perceptions of the reward as the cause of behavior. When rewards clearly are tied to progress, the informational aspect should be salient; rewards are more likely to be viewed as controlling behavior when they are contingent merely on task participation.

To investigate the effects of different reward contingencies, low-achieving children participated in a division training program (Schunk, 1983c). One group (performance-contingent reward) were told that they would earn points for each problem solved during training and that they would exchange their points for prizes equal in monetary value to the points. Other children (task-contingent reward) were told that they would receive prizes for participating in the program. To disentangle the effects of reward anticipation from reward receipt, a third group (unexpected reward) were unexpectedly allowed to choose prizes at the end of training. The monetary value of prizes chosen was equated across conditions.

The results supported the preceding considerations. Compared with the other conditions, performance-contingent rewards led to the highest levels of problem solving during training, division skill, and self-efficacy. In contrast, offering rewards for participation resulted in no benefits over merely providing training. Regardless of treatment condition, children's self-efficacy judgments bore a strong, positive relationship to their subsequent demonstrated skill.

These findings on performance-contingent rewards seem to have relevance to goal setting. Offering children rewards based on their task accomplishments in the context of goal setting might instill an initial sense of efficacy for performing well, because of evidence that offering rewards can strengthen goal commitment (Locke, 1968; Locke et al., 1981). Children who believe that they have a good chance of attaining their goals should demonstrate sustained task motivation. Experiencing success conveys that children are becoming more capable, which validates this initial sense of efficacy. Thus, combining proximal goals with performance-contingent rewards might be an especially effective means of promoting self-efficacy and skills.

These ideas were tested during a division training program (Schunk, 1982b). One group of children were offered performance-contingent rewards for their accomplishments under conditions identical to those of the previous study. A second group received proximal performance goals each session, a third group received both treatments, and a fourth condition received neither.

Although rewards alone, goals alone, and rewards + goals yielded comparable motivational effects as evidenced by children's rate of problem solving during training, combining rewards with goals led to the highest levels of self-efficacy and division skill. These findings support the idea that efficacy judgments are not a mere reflection of prior performance attainments. Further, children who received both rewards and goals judged their initial expectancy of goal attainment significantly higher than did subjects who received only goals. A multiple regression analysis showed that self-efficacy accounted for 56% of the variation in subsequent skillful performance.

The results from these two studies should not imply that performance-contingent rewards are necessarily the best way to enhance task motivation, self-efficacy, and skillful performance. Nonetheless, reward systems are common in educational settings. Although it is true, as Upper and Greene (1978) point out, that engaging in a task over time should result in increased skill proficiency, mere task engagement may not convey clear information to students about their capabilities. Teachers who use rewards would be well advised to tie them to progress to insure that students receive clear information on what they are capable of doing.

Related Conceptions

As noted at the outset, other theories also hypothesize that achievement expectancies affect performance. Three theories that are similar in some ways to the self-efficacy framework are locus of control, attribution theory, and self-worth theory.

Locus of Control

Rotter's conception of locus of control emphasizes perceived control over outcomes (Rotter, 1966; Rotter & Mulry, 1965). According to Rotter, people differ in whether they believe that outcomes occur independently of how one behaves (external control) or are highly contingent on one's behavior (internal control). These expectancy beliefs have differential effects on behavior. Students who believe that they possess a large measure of control over outcomes in achievement situations should be more inclined to engage in such activities and persist at them than students who believe that their behaviors have little impact on outcomes.

Expectancies about how performances affect outcomes must be distinguished from judgments concerning one's capability to produce those performances. The former reflect perceptions about contingencies between actions and outcomes, whereas the latter are self-appraisals of what one can do. For example, students may give up working on a task because they doubt their capabilities to master it. Conversely, they may be fully confident of their capabilities but give up because they do not expect competent performance to produce results, as might happen if they believed that the teacher disliked them.

This is not to suggest that outcome expectancies and self-efficacy are independent. In tasks in which effects are tied to quality of performance, outcome expectancies are closely linked with judgments of capabilities. For example, students who perceive themselves as capable of performing well expect positive reactions from their teachers following successful performances. Outcomes, in turn, serve to validate self-perceptions of efficacy. Outcome expectancies are separable from efficacy judgments in situations where outcomes are only loosely tied to actions through social contingencies (Bandura, 1982). As a result, variations in demonstrated capabilities may not produce much in the way of differential outcomes. Such situations do not arise often in academic activities.

Attribution Theory

In Weiner's model of achievement motivation (Weiner, 1974, 1977, 1979), causal attributions for prior outcomes (e.g., ability, effort, task difficulty, *luck*, and others) constitute the central influence on future

expectancies of success and failure. Attributions may be categorized along three dimensions (stability, locus of causality, controllability). People form attributional judgments based on different environmental cues, such as prior successes, social norms, objective task characteristics, and time spent at the task (Weiner, 1974). Attributional judgments concerning the contributions of ability, effort, task difficulty, chance, and other causes to one's successes and failures influence performance expectations and affective reactions. Expectancies and affects, in turn, influence achievement strivings such as choice and persistence.

The conceptual structures of self-efficacy theory and attribution theory both emphasize the cognitive processing of environmental information, inferences concerning factors affecting performance, and the influence of expectancies on achievement behaviors. They differ, however, in the range of judgmental factors that directly influence expectancies. In the self-efficacy framework, attributional factors such as the amount of effort expended and judgments of task difficulty operate on performance indirectly through self-perceptions of efficacy (Bandura, 1981). That is, people who succeed through high expenditure of effort should judge themselves less capable than those who succeed with ease. Success on an easy task conveys less self-efficacy than success on a difficult task. Self-efficacy judgments are based not only on causal attributions but also on other sources of information such as temporal patterns of successes and failures, number of performance aids, situational circumstances under which prior performances occur, social comparative information, and forms of persuasion (Bandura, 1981). From an attributional perspective, these latter factors (among others) directly influence causal attributions (Weiner, 1974).

It follows from attribution theory that variations in achievement expectancies and behaviors should depend upon causal attributions. Although attributional change programs have found support for this idea (Andrews & Debus, 1978; Dweck, 1975), there is some evidence that causal attributions do not have much effect on achievement expectancies and behaviors (Covington & Omelich, 1979; Medway & Venino, 1982). Further empirical investigation is needed on how antecedent influences on expectancies and behaviors are weighted and combined.

Self-Worth Theory

According to self-worth theory (Beery, 1975; Covington & Beery, 1976), achievement behavior is motivated by the desire to maintain a high self-image of ability. In our society, one's self-worth depends heavily upon one's ability. Failure is to be avoided, because it leads to shame and distress and conveys incompetence; however, when failure seems inevitable there are ways that one can protect the perception of high ability. For example, one can attribute failure to unstable factors such as insufficient effort or bad luck.

In the self-worth view, perceived ability strongly influences achievement cognitions and behaviors. The self-efficacy model similarly assumes that students who judge themselves to be highly capable will select challenging tasks and show the type of high perseverance that insures success. Self-efficacy theory views competence as a generative capability (Bandura, 1982). There is a difference between having skills and being able to use them well under different conditions. Self-efficacy, therefore, is concerned with people's judgments of how well they can use the abilities they possess.

Concluding Remarks

Self-efficacy theory posits a broad set of influences on perceptions of self-efficacy, delineates different ways in which self-efficacy affects psychological functioning, and specifies the process by which these effects occur. This theory thus provides a conceptual framework within which to explore the determinants, processes, and effects of self-efficacy. A theory that can account for diverse phenomena has greater explanatory power than one that encompasses a more limited domain of functioning. Although this article is restricted to the role of perceived self-efficacy in achievement behavior, a growing body of converging evidence indicates that self-efficacy operates as a common mechanism mediating varied domains of psychological functioning (Bandura, 1982). Further educational research that utilizes a wider range of subjects, tasks, and experimental treatments is necessary to promote our understanding of the interrelationship of educational practices, self-efficacy, and achievement behavior.

Notes:

¹ In these studies, self-efficacy was assessed by briefly showing children sample pairs of problems that corresponded in form and difficulty to the problems on the ensuing skill test, although they were not identical. Brief exposure times gave some idea of problem difficulty but did not permit mental solutions. For each sample, children privately judged their certainty of being able to solve correctly the type of problem depicted. Children were judging their capability to solve types of problems and not whether they could solve any particular problem. Following the efficacy assessment, children were given the skill-test problems. They chose which problems they wanted to work on and decided how long to spend on them. The time that they spent on these problems was recorded as a measure of persistence.

² This analysis required the use of multiple regression. Where several interrelated predictors are combined with a small sample, the regression coefficients tend to be unstable from one sample to another (Kerlinger & Pedhazur, 1973). The present analysis needs replication with a larger sample.

³ How information about similar others affects self-efficacy may depend somewhat upon students' achievement status. It would seem that providing high achievers with comparative information about other high achievers could promote a strong sense of efficacy if students attained the comparative level. This issue requires investigation.

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