

Self-Efficacy: Implications for Organizational Behavior and Human Resource Management

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Self-efficacy (one's belief in one's capability to perform a task) affects task effort, persistence, expressed interest, and the level of goal difficulty selected for performance. Despite this, little attention has been given to its organizational implications. This paper reviews the self-efficacy concept and then explores its theoretical and practical implications for organizational behavior and human resource management.

Brief and Aldag (1981) proposed a model of the "self" in work organizations that addressed the role self-beliefs play in task performance. Subsequent studies have shown that self-beliefs predict motivation and task performance in organizational settings. Ellis and Taylor (1983) found that task-specific self-esteem predicted key motivational and behavioral variables in the job search process. Barling and Beattie (1983) showed that self-efficacy perceptions were strongly correlated to sales performance among life insurance agents. Similarly, Taylor, Locke, Lee, and Gist (1984) noted that self-efficacy was directly related to research productivity among university faculty members.

These correlational studies indicate a need for more detailed examination of self-efficacy and the links between it and task performance in organizational settings. Addressing that need, the present article explicates the relationships of self-efficacy to organizational behavior. First, the self-efficacy literature is briefly reviewed. The theoretical linkages between self-efficacy and other concepts in the organizational behavior literature are then explored. Finally, practical implications of self-efficacy for organizational behavior and human resource management are dis-

cussed. Implications for research are specified throughout the article.

Self-Efficacy and Theory

Self-efficacy, a key element in Bandura's (1977b, 1978b) social learning theory refers to one's belief in one's capability to perform a specific task. Self-efficacy arises from the gradual acquisition of complex cognitive, social, linguistic, and/or physical skills through experience (Bandura, 1982). Individuals appear to weigh, integrate, and evaluate information about their capabilities; they then regulate their choices and efforts accordingly (Bandura, Adams, Hardy, & Howells, 1980).

Self-efficacy has three dimensions. *Magnitude* applies to the level of task difficulty that a person believes he or she can attain. *Strength* refers to whether the conviction regarding magnitude is strong or weak. *Generality* indicates the degree to which the expectation is generalized across situations (Bandura, 1977a, p. 194).

Bandura and Adams (1977) emphasized that behavior must be measured precisely in the analysis of efficacy and that measures should be tailored to the domain being studied. It is important to focus on specific tasks and to assess effi-

cacy perceptions and performance over a range of increasing task difficulty. Bandura's measures (1977a, 1984) reflect a microanalytic research methodology and assess the strength, magnitude, and generality of self-efficacy.

Development of Self-Efficacy. Bandura (1982) identified four information cues that influence self-efficacy. From most to least influential, they are enactive mastery, vicarious experience, verbal persuasion, and emotional (physiological) arousal. These cues provide important data, but according to Bandura it is the cognitive appraisal and integration of these data that ultimately determine self-efficacy.

First, enactive mastery, defined as repeated performance accomplishments (Bandura, 1982), has been shown to enhance self-efficacy more than the other kinds of cues (Bandura, 1977a, 1982; Bandura, Adams, & Beyer, 1977). Mastery is facilitated when gradual accomplishments build the skills, coping abilities, and exposure needed for task performance. Although enactive mastery is a powerful enhancer of self-efficacy, in some circumstances, possibly because of fear or incapacity, individuals may not expose themselves to opportunities for enactive mastery. Further, while positive mastery experiences increase self-efficacy, negative ones (failures) tend to decrease self-efficacy.

Second, when enactive mastery is not possible, vicarious experience (modeling) may be beneficial, although slightly less influential (Bandura, 1977a). Modeling is more effective when the models succeed after overcoming difficulty than when they exhibit initially facile performances (Bandura, Adams, Hardy, & Howells, 1980; Kazdin, 1974). Its effects also are enhanced when the modeled behavior produces clear results or consequences and when there is a similarity between the subject and the model in terms of age, capability, and other personal characteristics (Bandura, 1977a).

Self-modeling is a special type of vicarious experience often involving videotaped feedback in which the subject's mistakes are edited out or corrected so that the individual sees himself or

herself performing the task correctly. In one study, Gonzales and Dowrick (1982) confirmed that self-modeling led to improved performance by enhancing self-beliefs. The experiment compared a group that received video feedback showing only their successful billiard shots (accurate though selective information) with a group shown their unsuccessful shots edited to look correct (selective misinformation). In both groups, subjects who were below the median in task performance during the first session improved significantly over a control group in a subsequent session. Further, no significant change in proficiency was noted among those who were above the median.

Although Goldstein and Sorcher (1974) suggested that behavior modeling also can lead to improved supervisory performance, the empirical evidence is equivocal. Some studies show a positive effect of modeling on job-related behavior (Burnaska, 1976; Decker, 1983; Meyer & Raich, 1983; Moses & Ritchie, 1976). However, Dillon, Graham, and Aidells (1972) found that behavior modeling inhibited performance. The authors speculated that "S's felt overwhelmed and intimidated after watching a 'perfect' group" (p. 489). In another study, Brown and Inouye (1978) found that negative modeling (modeling of ineffective performance) reduced self-efficacy, persistence, and ultimate performance. These results suggest that modeling can have negative as well as positive influences on self-efficacy.

Third, another source of efficacy information is verbal persuasion, which is aimed at convincing a person of his or her capability of performing a task. Verbal persuasion is believed to influence efficacy perceptions in some situations, but it is viewed as less effective than modeling or enactive mastery (Bandura, 1982).

Fourth, an individual's perceptions of his or her physiological state may be used in assessing performance capability. Thus, an individual in an aroused state (e.g., high visceral anxiety while giving a presentation) may interpret the arousal as debilitating fear and feel excessively vulnerable to failure. Bandura and Adams (1977) found

that, in these anxiety-producing situations, modeling yielded higher self-efficacy and performance than psychological desensitization.

Self-Efficacy and Performance. Many studies have reported significant correlations between self-efficacy and subsequent task performance (Bandura, 1982; Bandura & Adams, 1977; Bandura, Adams, & Beyer, 1977; Bandura, Adams, Hardy, & Howells, 1980; Chambliss & Murray, 1979; Feltz, 1982; Locke, Frederick, Lee, & Bobko, 1984). In studies where efficacy perceptions have been altered by various treatments, the resulting efficacy perceptions still predict subsequent performance. Although enactive mastery yields the greatest increases in self-efficacy, correlations between self-efficacy and performance remain high for nonenactive modes such as modeling (Bandura, 1977a).

Several studies have found self-efficacy to be a better predictor of subsequent performances than past behavior (Bandura, 1977a; Bandura, 1982; Bandura & Adams, 1977; Bandura, Adams, & Beyer, 1977; Bandura, Adams, Hardy, & Howells, 1980; Chambliss & Murray, 1979). However, in other studies this was not found. Feltz (1982) provided some evidence that as experience with a task increases, past performance may become more predictive than self-efficacy. However, Feltz's study involved a task in which subjects were unable to observe their performance and were not provided with feedback. Under these circumstances, self-efficacy may have lacked veridicality. Locke et al. (1984) found that self-efficacy was a significant predictor of subsequent performance if past performance were controlled. However, the correlation between self-efficacy and past performance was higher than the correlation between self-efficacy and future performance.

Bandura (1982) indicated that self-efficacy can predict performance in a variety of domains, as long as the efficacy measure is tailored to the specific tasks being assessed. For example, in a study of life insurance sales representatives, Barling and Beattie (1983) found that self-efficacy was significantly correlated with the number of

calls made per week, the number of policies sold, sales revenue, and a composite performance index.

Self-Efficacy and Choice. Self-efficacy arises from the cognitive appraisal of one's capabilities. Bandura (1982) indicated that self-efficacy affects one's choice of settings and activities, skill acquisition, effort expenditure, and the initiation and persistence of coping efforts in the face of obstacles. Those with moderate to high self-efficacy tend to engage more frequently in task-related activities and persist longer in coping efforts; this leads to more mastery experiences, which in turn enhance self-efficacy. Those with low self-efficacy tend to engage in fewer coping efforts; they give up more easily under adversity and evidence less mastery, which in turn reinforces their low self-efficacy (Bandura, 1977a, 1982; Bandura & Schunk, 1981; Brown & Inouye, 1978). Those who persist tend to gain the corrective experiences which enhance self-efficacy; those who cease prematurely tend to retain persistent low self-efficacy. Bandura (1977a) suggested that efficacy expectations also influence the choice of environment. For example, if all other factors are held constant, an employee with high self-efficacy might choose to apply for an advertised vacancy that offers more challenge and pay, while an employee with low self-efficacy might choose to remain in a dead-end position.

Relationship of Self-Efficacy to Motivational Concepts

Clearly, the role of self-guiding thought is a key element in self-efficacy theory. Brief and Aldag (1981) argued that self-management and self-efficacy are related to other concepts in organizational behavior, but their treatment of the topics is limited. This section complements Brief and Aldag's work by suggesting specific theoretical links between self-efficacy and other concepts pertaining to work motivation and performance. The relevance of self-efficacy in explaining variability in task performance is emphasized.

Goal Setting

Locke (1968, 1978) and Locke, Saari, Shaw, and Latham (1981) detailed the important role of goal setting in employee motivation. A number of researchers have verified the positive effects of goal setting on performance in organizational settings (Ivancevich, 1977; Latham & Baldes, 1975; Latham & Klinne, 1974; Locke & Latham, 1984). Groups with specific and challenging goals consistently have shown higher levels of performance than groups with no goals, easy goals, or "do your best" goals (Locke et al., 1981; White, Mitchell, & Bell, 1977).

Locke et al. (1984) suggested that self-efficacy provides an integrating mechanism between social learning theory and goal-setting approaches to performance. Self-efficacy is developed through social learning processes. This in turn leads to more productive goal setting. In one study of goal setting, Mento, Cartledge, and Locke (1980) found that "perceived task ability had a significant effect on performance even after controlling all other variables" (p. 419). In a laboratory experiment designed to assess the links among self-efficacy, goal level, and performance, Locke et al. (1984) found that the magnitude of self-efficacy was positively related to goal level chosen in two out of three trials and it was positively related to task performance in all three trials. This study also found that the strength of self-efficacy perceptions affected the goal level chosen, the specificity of goals, goal commitment, and task performance. Further research is needed to determine if these results generalize to task performance in field settings.

Feedback

It appears that feedback is important in formulating efficacy perceptions that interact with goal setting to enhance performance motivation (Bandura & Cervone, 1983). Self-generated feedback may be especially helpful in building self-efficacy. In one experiment (Ivancevich & McMahon, 1982), a group of engineers generated their own structured, continual feedback, reporting progress to their supervisor once per quarter. They

performed better than another group of engineers who were given feedback by their supervisor once per quarter without self-monitoring in the interim. The self-monitoring process appears to have been equivalent to guided enactive mastery, which should lead to high self-efficacy and, hence, to high performance.

Bandura and Cervone (1984) found that unfavorable feedback tended to yield negative self-evaluations. This led to increased motivation during subsequent performance of the task. While self-efficacy perceptions independently predicted subsequent performance in this study, the greatest intensification of effort was observed when both self-efficacy and self-dissatisfaction based on negative feedback were high. When feedback indicated that performance fell slightly short of the standard, various reactions were observed. Some individuals became less motivated; others became demoralized, showing decreased self-efficacy and selecting lower goals, while still others remained motivated. It is possible that a reciprocal relationship exists whereby performance feedback affects self-efficacy, but self-efficacy and goals also affect responses to feedback. Further research is needed to describe the causal relationship, to determine the conditions under which distorted efficacy perceptions may arise from feedback, and to determine whether distorted self-efficacy may lead to complacency about subsequent performance.

Intrinsic Interest and Reinforcement

Some human behavior persists over the long term without external inducements, presumably due to the effects of intrinsic interest and achievement motivation. Deci (1980) conceptualized intrinsic interest as the "need for competency and self-determination" (p. 34). Similarly, Bandura and Schunk (1981) suggested that "a sense of personal efficacy in mastering challenges is apt to generate greater interest in the activity than is self-perceived inefficacy in producing competent performances" (p. 587). In an explicit test, the authors found self-efficacy to relate positively to intrinsic interest. Subjects showing disinterest

and extreme weakness on mathematical tasks were engaged in self-directed learning experiences involving either short-term subgoals, long-term goals, or no goals at all. Although no instruction was provided, subjects with short-term subgoals made rapid progress and developed greater knowledge of their capabilities via feedback, which increased self-efficacy and performance on subsequent tasks. At the end of the treatment, this group evidenced high self-efficacy and intrinsic interest in mathematical tasks in contrast to their initial low self-efficacy and interest scores. Bandura and Schunk posited that interest is developed via satisfaction from success, and an increase in self-efficacy is developed from a sense of personal causation. Similarly, Frost and Mahoney (1976) identified an interest-performance link. They suggested that interest may be induced externally for repetitive tasks, but is intrinsic for problem-solving tasks. Further research is needed to determine how interest may be developed when it is lacking for job-relevant tasks. It is possible that short-term goals combined with a manipulation of efficacy (through mastery or modeling) may facilitate interest development.

Deci (1972) reported that intrinsic motivation tends to decrease when extrinsic rewards are offered contingent on performance, because extrinsic rewards may reduce an individual's sense of personal causation and feelings of competence. In a later study, Pritchard, Campbell, and Campbell (1977), after accounting for methodological criticisms of Deci's paradigm, found general support for his conclusions and concurred with Deci that there are a number of variables influencing intrinsic interest. Pritchard et al. (1977) also suggested that extrinsic rewards may reduce a determinant of intrinsic interest (e.g., self-determination, feelings of competence, etc.) but that extrinsic rewards do not directly reduce intrinsic interest. In a more explicit test, Fisher (1978) found that personal control over performance affected intrinsic motivation, but the type of reward system did not affect intrinsic motivation. He also found that for high intrinsic interest to be

present high personal control and high competence were needed. Further, it has been shown that information on competence (presumably associated with self-efficacy) can mitigate the negative effect of external reinforcement on intrinsic interest (Boggiano & Ruble, 1979). In this study, older subjects whose performance was reported as superior to that of their peers sustained high levels of interest under external reinforcement, while those who were told that their performance was inferior exhibited decreased task interest. It appears that high self-efficacy leads to self-administered reward (Bandura & Perloff, 1967), and individuals who reward themselves perform better than those who do not (Bandura, 1980; Flexibrod & O'Leary, 1973). However, research is needed to clarify the specific roles played by actual and perceived competency in the formation of self-efficacy perceptions.

Expectancy Theory Concepts

Reinhardt and Wahba (1975) reviewed the development of expectancy theory and conducted a comprehensive test that addressed key methodological issues arising from earlier studies. Their findings did not support expectancy theory as a model of work motivation and performance, and they concluded that the model as originally formulated held little predictive promise. Kopelman and Thompson (1976) identified several boundary conditions, including time and task-specific ability, that strengthened the model's predictions. These findings (and those of Ilgen, Nebeker, & Pritchard, 1981, discussed below) suggest that self-efficacy may represent a more specific formulation of the rationale underlying certain expectancy theory components.

Self-efficacy is sometimes confused with outcome expectations or E_2 in expectancy theory (Eastman & Marzillier, 1984). Bandura distinguished these concepts in the following manner: "An efficacy expectation is a judgment of one's ability to execute a certain behavior pattern, whereas an outcome expectation is a judgment of the likely consequences such behavior will produce" (1978a, p. 240). This distinction was sup-

ported in a study of life insurance agents by Barling and Beattie (1983). They found that self-efficacy predicted sales performance, but outcome expectations did not.

Bandura (1984) pointed out that efficacy expectations refer to the exercise of control over one's behavior and actions. In this sense, self-efficacy has a more obvious relationship to effort-performance expectancies or E_1 in expectancy theory. However, these concepts are not identical. Two distinctions have been noted. First, while E_1 focuses on a belief that effort will lead to desired performance, self-efficacy focuses on a conviction that one can execute the required behavior. The latter definition implies that judgments of efficacy depend on more than effort considerations and, thereby, subsume variables not included in E_1 . Bandura (1984) suggested that self-efficacy may involve many factors such as coping abilities under stress or various internal motivational states. Therefore, E_1 may predict that effort will lead to desired performance, while self-efficacy may predict that desired performance will not occur because of an individual's conviction that he or she is unmotivated to perform the required behavior (Bandura, 1978a). Research is needed to identify the specific cognitive factors involved in the formation of efficacy perceptions for different types of tasks. It should be noted that Locke et al. (1984) observed that self-efficacy was a better predictor than past performance of subsequent task performance when the efficacy measures were for moderate to difficult performance levels. Future studies might explicitly test the predictive ability of efficacy ratings for different performance levels.

A second distinction between E_1 and self-efficacy arises from measurement differences between the two constructs. Locke et al. (1984) noted four differences between efficacy measures and effort-performance measures. First, self-efficacy measures assess expectations for a wide range of performance levels, while typical expectancy measures assess effort-performance expectancy for one assigned performance goal. However, the most successful expectancy theory studies

assess expectancies with a method similar to that of self-efficacy measurement (Ilgen et al., 1981; Locke et al., 1984). A second distinction is that self-efficacy assessment involves two types of ratings: a dichotomous capability rating for each level of performance and a confidence rating for positive responses. A third difference is that these confidence ratings might generate different results than the probability of success estimates used in E_1 assessment. Finally, self-efficacy is assessed for immediately subsequent performance. Ilgen et al. (1981) suggested that the most successful expectancy theory studies assessed immediate performance rather than goal levels for performance at a later time. Each of these differences in measurement may affect the explanatory and predictive abilities of the two constructs. Locke et al. (1984) suggested that further research is needed to determine what effect these differences may have on the divergent validity of expectancy and self-efficacy constructs.

Pygmalion Effect

The Pygmalion effect refers to enhanced learning or performance resulting from the positive expectations of others. This phenomenon has been observed in organizational as well as classroom settings. Variables shown to explain these results include preferential treatment, increased visibility, more explicit goals or standards, and increased attention to training (Eden & Shani, 1982; Rubovits & Maehr, 1973).

Self-efficacy may be involved in the Pygmalion effect through the persuasive influence of others holding positive expectations. Persuasion is an important source of efficacy information. Bandura (personal communication, 1984) stated that the following types of information affect the success of persuasion: credibility and expertness of the source, consensus among multiple sources, and familiarity of the source with task demands. A leader's expectations might be viewed as persuasive input to the subordinate's efficacy perceptions, while the strength of the persuasion could be influenced by the leader's credibility,

and so on. Thus, the organizational processes of identifying, assessing, and developing high performers may be influenced by an interaction between the leader's expectations and the subordinate's self-efficacy. Research that controls for preferential treatment is needed to clarify the extent to which another's expectations may affect self-efficacy perceptions and performance.

Locus of Control

Self-efficacy has been compared to internal locus of control. Rotter (1966) defined internal locus of control as a perception that rewards are contingent on individual behavior, while external locus of control is the notion that rewards are controlled by outside factors, such as chance. However, two important distinctions can be made between self-efficacy and internal locus of control. First, internal versus external locus of control (I-E) is a generalized construct covering a variety of situations, whereas self-efficacy is task specific, examining the individual's conviction that he or she can perform a specific task at a specific level of expertise. Bandura (1977a) stated that individuals may show strong internal locus of control in general, but believe they have low skill levels in certain areas, which would lead to low efficacy perceptions on relevant tasks.

A second difference is that locus of control as measured by Rotter's I-E scale includes outcome expectancies in addition to behavior expectancies. Thus, in expectancy theory terms, many I-E items are measuring E_2 rather than E_1 .

In spite of these differences, there is evidence of a relationship between the two constructs as currently measured. Chambliss and Murray (1979) observed an interaction effect in their research on smoking reduction: Internal locus of control combined with high self-efficacy led to the greatest reduction in smoking. Research exploring this interaction would contribute to a better understanding of theoretical differences between the two constructs. Further, since self-efficacy was found to affect goal level chosen and goal commitment (Locke et al., 1984), a three-

way interaction may exist among self-efficacy, locus of control, and goal setting.

Behavior Modification

Behaviorism sometimes acknowledges thoughts (including efficacy judgments) as epiphenomenal accompaniments of conditioned autonomic responses. In this view, the environment is seen as causing behavioral response in a unidirectional manner without involving cognition or volition. Bolles (1972) argued, however, that reinforcement leads to change because an underlying reinforcement process suggests value appraisal and, thereby, cognition. Bandura (1980) pointed out that if efficacy judgments were epiphenomenal of autonomic responses, arousal would be an equally good predictor of behavior. Because this is not so, Bandura suggested that behavioral changes that are brought about by reinforcement are influenced by many things, including self-monitoring, goal setting, social surveillance, and the causal influence of anticipatory thought.

While social learning theory does not posit a fixed relationship between autonomic response and behavior, the role cognition plays in self-regulation is explicitly acknowledged. Accordingly, self-efficacy theory may partly explain when reinforcement will work. A high self-efficacy perception might be needed to facilitate operant conditioning (i.e., a belief that one can take the action that brings reward). Future research might explore the cognitive mechanisms through which the environment and person interact to influence behavior.

Implications for Organizational Behavior and Human Resource Management

Research on self-efficacy generally has supported a high correlation between efficacy perceptions and subsequent performance. The following implications for selection, leadership, training, and vocational counseling are offered

in light of that research. However, validation of a high correlation between efficacy perceptions and performance in work settings would be required before such practices are adopted. Because the correlation between the two is imperfect, implications are discussed for interactions with locus of control, equal employment opportunity (EEO), performance appraisal, goals, and incentives. Suggestions for extending efficacy theory to groups and for developing an instrument for broader prediction also are made.

Selection

Self-efficacy appears to be relevant to selection in several ways. Because the selection of high-performing individuals is important to organizations, self-efficacy, as a predictor of performance, may be helpful. Research is needed to determine if self-efficacy is generalizable to job situations and to specify the conditions under which it might be used.

When selection instruments are used, some assessment of self-efficacy might be useful in conjunction with a battery of other measures. Job interviews are a potential setting for assessing self-efficacy, although response bias (faking) may need to be controlled.

Implications of self-efficacy for selection extend to placement and career planning. Periodic assessment of employee efficacy perceptions on a variety of tasks may reflect clusters of potential abilities that could be relevant to career advancement. As positions become vacant, individuals with high self-efficacy for relevant skills might then be considered.

Leadership

Early leadership research focused on leader traits as the key causal variable in subordinate performance (Bass, 1981). Other studies have examined the impact of leader behavior or style on subordinate performance. However, some concern remains that these concepts have not proven very successful in predicting performance and that new approaches are needed (Bass, 1981; House & Baetz, 1979; Yukl, 1981).

A competency-based approach to leadership has developed from the job analysis concept in personnel management (Boyatzis, 1982). Boyatzis defined job competency as an underlying characteristic of a person (e.g., efficiency orientation, proactivity, etc.) that results in effective or superior performance in a job. It is expressed in specific actions or demonstrated behavior that is generic to the job.

Identifying critical managerial competencies is of potential importance to the field of organizational behavior. There may be a significant correlation between perceived and actual competencies (performance) because perceived competency has much in common with self-efficacy. A perceived competency could be defined as generalized self-efficacy, the conviction that one can successfully carry out a range of actions.

Following Katz (1955), managerial competencies could be categorized into three broad classes: technical, conceptual, and human relations. Within each category, numerous skills are required for competence at different managerial levels. Research is needed to validate competencies for managerial success at specific levels and across diverse fields. If self-perceived competencies were found to be a causal variable in performance, assessing both actual competencies and self-perceived competencies could be useful in predicting managerial performance and in prescribing training and counseling.

Training and Vocational Counseling

The implications of self-efficacy for training (or organizational development) are numerous. First, low self-efficacy may pinpoint specific training needs. Research is needed to determine the most useful methods for increasing competency-based efficacy perceptions. Although enactive mastery and modeling have been the most successful methods for enhancing self-efficacy (Bandura & Adams, 1977; Bandura, Adams, & Beyer, 1977), many training sessions focus more on lectures and verbal persuasion, imparting relevant knowledge but doing little to relieve debilitating low self-efficacy. Further, while participants may

engage in small group work sessions, the experiences are sometimes dissimilar to the actual competencies required in their positions. If the self-efficacy paradigm is transferable to work settings, self-efficacy could be used as one criterion in training. Goldstein and Sorcher (1974) suggested that behavior modeling can be used effectively for organizational training. Films might be developed and tested to model successful performance for training purposes. Also, classes might be used to allow participants guided mastery experiences in key performance areas. These could be coupled with self-modeling videotapes for important skills.

Another implication of self-efficacy in the training area is that specific problems sometimes may be traced to low self-efficacy. Collins (1982) found that self-efficacy aided in predicting mathematics performance even when self-efficacy was independent of relevant skills. This study also showed that interest in math was positively correlated with math self-efficacy but not with math ability. Research is needed to determine if these findings apply to work situations. If so, training to enhance self-efficacy also may improve interest and attitudes.

Similarly, a self-efficacy approach to vocational counseling could be used to augment interest measures. Individuals who are unsure of new career directions could be tested for perceived competencies in a variety of occupations. They might then be advised of the chances of success in fields in which they score high. In cases where career opportunities are good but perceived competencies are low, a trial enactive mastery period might be offered.

Interactions with Locus of Control

Correlations and interactions between self-efficacy and locus of control need to be specified because they have implications for the performance improvement of individuals and groups in organizations. Several studies have found positive behavioral correlates with internal locus of control (Anderson, Hellriegel, & Slocum, 1977; Anderson & Schneier, 1978; Goodstadt &

Hjelle, 1973). It is likely that persons with an internal locus of control may need fewer enactive mastery experiences to improve efficacy perceptions and performance. They also may respond more readily to modeling, because they tend to believe that they, like the models, generally are in control of their environments. It has been shown that modeling is most effective when subjects can identify with the model's ability and personal characteristics (Kazdin, 1974; Meichenbaum, 1971).

In contrast, persons with an external locus of control may be inclined to view enactive mastery experiences as luck. They also may reject modeling because of a tendency to attribute the model's success to skills the observers doubt they have. For those individuals with an external locus of control, efficacy intervention might be enhanced by guided enactive mastery coupled with verbal persuasion to increase their internal locus of control for key behaviors. Brockner and Guare (1983) also suggested that, in order to improve performance, verbal persuasion might be used to encourage low self-efficacy subjects to attribute their *intermediate* performance difficulties to the complexity of the task (external) as opposed to their capabilities (internal) in order to improve performance. Other forms of intervention may be tested to determine which forms yield the greatest efficacy and performance improvements.

Equal Employment Opportunity

Hackett and Betz (1981) suggested that self-efficacy is relevant to EEO. Weak efficacy perceptions could be viewed as internal barriers to advancement; they also may inhibit the ability to cope effectively with external barriers.

In the EEO context, it is important to note the distinction between self-efficacy, which is task specific, and general self-esteem, which is not task specific. In the past, it had been assumed that members of disadvantaged groups had low general self-esteem (Clark, 1965; Proshansky & Newton, 1968). However, in a thorough review of the literature, Wylie (1978) concluded that there

was no significant difference in self-esteem between members of disadvantaged and nondisadvantaged groups. Rosenberg (1979) noted that the discrepancy between theory and research developed from the choice of referent group that individuals used in gathering vital self-esteem information: Although society may have discriminated against certain women and minority groups and held them in low esteem, the disadvantaged group members held a more positive view of themselves because they used their own subgroups as referents instead of the broader society.

Given these findings, no differences would be expected when using self-esteem as a predictor of behavior. Self-efficacy, on the other hand, is task specific and arises primarily from the influences of mastery, modeling, and persuasion. If, as Rosenberg suggested, members of disadvantaged groups focused on their own subgroups as referents in order to sustain self-esteem, then these subgroups also could be expected to serve as more powerful sources of mastery, modeling, and persuasive influences for self-efficacy. It is possible that there are dual levels of self-efficacy operating on behavior. An individual who feels highly efficacious about his or her skills in interpersonal relations when compared to the referent subgroup may lack self-efficacy in a broader setting. When compounded by a shortage of role models, self-doubts could become significant internal barriers to performance. Research in this area might reveal that efficacy training could help members of disadvantaged groups to minimize these barriers to success.

Performance Appraisal, Goals, and Incentives

Organizational objectives of performance appraisal systems include performance improvement, employee development, and motivation through goal setting (Carroll & Schneier, 1982). Because feedback may be a persuasive input to efficacy perceptions and because negative feedback may reduce motivation (Bandura & Cervone, 1984), research is needed to examine the

effects of performance appraisal feedback on these objectives.

Low self-efficacy may be induced by negative performance appraisals. If so, low self-efficacy may inhibit effort even when skill is present, and it may lead to easy discouragement. Research is needed to determine if performance can be improved by enhancing efficacy perceptions; it also is needed to develop efficient mechanisms for enhancing efficacy perceptions in conjunction with performance appraisals.

Bandura and Cervone (1984) also maintained that self-regulation is important in human motivation and that goal setting and self-evaluative reactions are indispensable to this process. Locke et al. (1984) found that self-efficacy mediates the effects of goal setting on performance. Research is needed to determine the extent to which the successful use of goals and specific incentive techniques (e.g., compensation, bonuses, job enrichment, and participative decision making) requires high self-efficacy and whether the manipulation of self-efficacy may change the relative effectiveness of these techniques.

Generality of Performance Prediction

Self-efficacy is measured as it relates to specific tasks. Little research has been done to determine how efficacy perceptions could be generalized. If an analogue can be found in the research on self-esteem and performance (Tharenou, 1979), it appears that predictive power is sacrificed as the measure becomes more general. If so, it would be more promising to generalize self-efficacy perceptions by aggregating across a number of related but domain-specific measures (e.g., a cluster of specific competencies within verbal skills) than by attempting to devise a broad omnibus test. An omnibus measure is likely to offer convenience, but this probably will be at great expense to predictive power.

Research may be able to ascertain if any key factors generally are predictive of success. One possibility is an individual's conviction that he or she can master new situations. Those who have

experienced past mastery in new situations may feel efficacious when faced with other new situations; therefore, they may set higher goals for themselves, may be more persistent in overcoming difficulty, and ultimately may perform better.

Identifying key efficacy perceptions may be useful in determining who will be high performers, particularly when there is little history of past performance or when past performance has been marginal. Specific self-efficacy measures might be tailored to unique organizations such as hospitals, academic institutions, or sports teams. For example, academic institutions might use specific self-efficacy measures in conjunction with aptitude test scores during assessment for admission. While aptitude test scores correlate well with performance, there are cases in which test scores and transcripts present discrepancies. In these or other marginal situations, using a validated self-efficacy instrument may enhance final decisions.

Groups and Organizational Performance

Bandura suggested that self-efficacy theory can be extended to groups as large as nations. If so, research is needed to develop an assessment instrument for group efficacy. One approach might be to aggregate individual efficacy perceptions and compare them to subsequent group performance measures. Another might be to have individuals rate their own perceptions of the group's efficacy and then to average their responses. A third possibility would be using group consensus responses to a single efficacy questionnaire. It would be important to determine the superior method in predicting subsequent performance.

By using a valid instrument, research may show that group perceptions of efficacy are related to group performance. If this is the case, there are implications for an efficacy approach to group training and team-building along the same lines as those discussed for individuals. This could be applied at all levels of organizational analysis. For example, corporate efficacy might be examined at the strategic level for functions such as planning and forecasting.

The concept of group efficacy also could be examined in the context of organizational change. Resistance to change, a common phenomenon, sometimes may be caused by low efficacy expectations and a fear of failure. Research is needed to determine if efficacy intervention could aid organizational change.

In contrast, self-efficacy could be too high, thus producing overconfidence and poor performance. Groupthink might be explored as an effect of unrealistically high efficacy perceptions. Janis (1972) cited an illusion of invulnerability as one of the symptoms of groupthink. This was described as an excessive optimism that tends to encourage the group members to take extreme risks. Janis noted that such an attitude was prevalent among members of President Kennedy's inner circle, and that it led to the fiasco in Southeast Asia. In describing the group's mood during the first few months after Kennedy took office, Arthur Schlesinger is quoted as saying, "euphoria reigned; we thought for a moment that the world was plastic and the future unlimited" (Janis, 1972, p. 36). The genesis of this optimism might be found in Kennedy's own enactive mastery: his emergence as the national leader against exceptional odds. While his success certainly should have generated strong feelings of efficacy, it also may have led to unrealistically high efficacy perceptions among his top aides.

Applications

In a stable environment, managing human resources could be viewed as a relatively routine function. However, as the pace of environmental change increases, organizations sometimes respond in ways that demand wide-scale shifts in personnel. Some common examples include mergers, acquisitions, divestitures, rapid expansion, reduction in force, internal realignment of functions, and strategic changes in mission or product/service lines. AT&T's divestiture illustrates some of the potential applications of self-efficacy in human resource management.

The restructuring of AT&T may have led to different managerial roles. The company formerly had identified relevant skills (job compe-

tencies) that predicted managerial success (Bray, Campbell, & Grant, 1974). To the extent that these competencies would generalize to the new positions, assessment of self-efficacy on these competencies might have been useful in the selection process. It is possible that the company could develop a more generalized self-efficacy measure for management development by aggregating across competencies that have been found to predict management success within the firm. This approach also would apply to selections and training needs for other types of positions.

Because of the extent of reorganization in this case, it is likely that new work groups were formed. These groups may have been composed of new members who faced new tasks. To the

extent that the group must function as a team, performance on these tasks could be influenced by group efficacy perceptions. Traditional team-building approaches might have been augmented by an assessment of group efficacy. As an example, a survey feedback approach might have been beneficial for enhancing group efficacy as well as task performance.

While the suggestions in this case presume that empirical support will be found for self-efficacy in the organizational context, they are offered as an example of how the construct might be of practical value in an organizational setting. However, research is still needed to determine the extent to which self-efficacy is relevant in human resource management.

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