

Self-Regulation of Motivation Through Anticipatory and Self- Reactive Mechanisms

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Motivation is a general construct linked to a system of regulatory mechanisms that are commonly ascribed both directive and activating functions. At the generic level it encompasses the diverse classes of events that move one to action. Level of motivation is typically indexed in terms of choice of courses of action and intensity and persistence of effort. Attempts to explain the motivational sources of behavior therefore primarily aim at clarifying the determinants and intervening mechanisms that govern the selection, activation, and sustained direction of behavior toward certain goals.

Social cognitive theory distinguishes three broad classes of motivation (Bandura, 1986). One class of motivators is biologically based and includes biological conditions arising from cellular deficits and external aversive events that activate consummatory and protective behavior through physical discomfort. The early psycho-

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logical theorists conceptualized motivation largely in terms of the energizing and directive functions of physiological activators. However, the activating potential of physiological states is under substantial anticipatory and generative cognitive control. For example, infants become active when they expect to be fed rather than solely when they are hungry (Marquis, 1941). Humans can be sexually stirred by erotic fantasies more than by hormonal injections (Beach, 1969). Similarly, the activating and directive influence of external aversive stimulation can be markedly altered by the way the aversive events and resulting sensations are construed (Bandura, 1991a; Cioffi, 1991; McCaul & Malott, 1984). Thus, even in the so-called biological motivators, human behavior is extensively activated and regulated by anticipatory and generative cognitive mechanisms rather than simply impelled by biological urges.

The second class of motivators operates through social incentives. In the course of development, physically positive experiences often occur in conjunction with expressions of others' interest and approval, whereas unpleasant experiences are associated with disapproval or censure. Through such correlative experiences, social reactions themselves become predictors of primary rewarding and punishing consequences and thereby become incentives. People will do things to gain approval and refrain from activities that arouse others' displeasure or wrath. By reversing the physical correlates, one could make smiles forebode suffering and scowls forewarn pleasure. The effectiveness of social reactions as incentives thus derives from their predictive value rather than inhering in the reactions themselves. For this reason the approval and disapproval of people who have power to reward and punish operate as stronger incentives than similar expressions by individuals who cannot affect one's life. Indiscriminate praise that never carries any tangible effects becomes an empty reward, and disapproval that is never backed up with any tangible consequences becomes devoid of motivating power.

Several factors contribute to the durability of social incentives. The same expressions can predict an array of possible rewarding or punishing experiences. Disapproval, for example, may result in such unpleasant effects as physical punishment, loss of privileges, monetary penalties, dismissal from a job, or ostracism. An event that signifies diverse possible consequences will have greater po-

tency than one that portends only a single effect. Moreover, social reactions are not invariably accompanied by primary experiences: praise does not always bring material benefits, and reprimands do not always result in physical suffering. Unpredictability protects social and symbolic incentives from losing their effectiveness (Mowrer, 1960). Because of intermittency and diversity of correlates, social reactions retain their incentive function even with minimal primary support.

The third major source of motivators is cognitively based. In cognitively generated motivation, people motivate themselves and guide their actions anticipatorily by exercising forethought. They anticipate likely outcomes of prospective actions, they set goals for themselves, and they plan courses of action designed to realize valued futures. The capability for self motivation and purposive action is rooted in cognitive activity. Future events cannot be causes of current motivation or action, but by cognitive representation in the present, conceived future events are converted into current motivators and regulators of behavior. Forethought is translated into incentives and action through self-regulatory mechanisms. This chapter addresses cognitive motivators because most human behavior is activated and regulated over extended periods by anticipatory and self-reactive mechanisms.

One can distinguish three forms of cognitive motivators around which different theories have been built. These include *causal attributions*, *outcome expectancies*, and *cognized goals*. The corresponding theories are attribution theory, expectancy-value theory, and goal theory. Figure 1 summarizes schematically these alternative conceptions of cognitive motivation. We shall see later that certain basic mechanisms of personal agency, such as perceived self-efficacy, operate in all of these variant forms of motivation.

Attribution Theory

According to the attribution theory of motivation (Weiner, 1985), retrospective judgments of the causes of one's performance have motivational effects. People who credit their successes to personal capabilities and their failures to insufficient effort will undertake difficult tasks and persist in the face of failure, because they see their out-

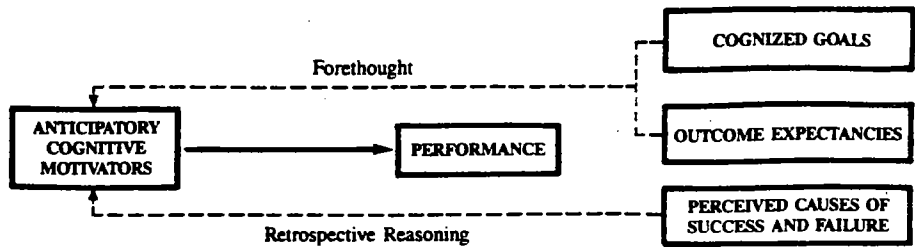


FIGURE 1. Schematic representation of conceptions of cognitive motivation based on cognized goals, outcome expectancies, and causal attributions.

comes as being influenced by how much effort they expend. In contrast, those who ascribe their failures to deficiencies in ability and their successes to situational factors will display low striving and give up readily when they encounter obstacles.

Some writers have argued that reasons offered retrospectively should not be regarded as causes. This is obviously true for past actions, which precede ascribed causes and would therefore involve backward causation. But reasons for past performances that affect beliefs about personal control can cause future actions. Thus people who believe they failed because they did not work hard enough are likely to strive harder, whereas those who believe they failed because they lack ability are apt to slacken their efforts and easily become discouraged. However, causal attributions can serve different purposes. For example, Covington and Omelich (1979) provide evidence that causal attributions may sometimes function as self-serving excuses that do not change performance rather than as motivators. The question of when causal attributions function as excuses and when they are motivators warrants investigation.

The role of attributional processes in human motivation is clarified by research in which causal attributions for ongoing performances are systematically varied by arbitrary attributional feedback and then changes in perceived self-efficacy and performance are measured. The results indicate that causal attributions can influence achievement strivings, but the effect is mediated almost entirely through changes in perceived self-efficacy (Relich, Debus, & Walker, 1986; Schunk & Gunn, 1986; Schunk & Rice, 1986).

Ability attributions are accompanied by strong self-beliefs of efficacy, which in turn predict subsequent performance. *Effort* attributions have variable effects on self-efficacy beliefs. These diverse find-

ings raise the issue of the concept of ability in attribution theory. Attribution theorists usually treat ability as a fixed or stable internal property. High effort needed to achieve an outcome is taken as indicating low ability (Kun, 1977). In actuality, people vary in their conceptions of ability and alter their views on the relation between effort and ability with increasing experience (M. Bandura & Dweck, 1988; Dweck & Elliot, 1983; Nicholls & Miller, 1984). The presumptions of attributional theory fit the subgroup of people who regard ability as a stable entity. However, many individuals construe ability as an acquirable skill that is developed through effort. The harder you try, the more capable you become. For them, errors reflect inexperience in the activity that effort rectifies, rather than basic inability. High effort that begets rising accomplishments can thus enhance self-beliefs of efficacy (Schunk & Cox, 1986).

In judging their efficacy from performance, people use much more varied sources of enactive efficacy information than the four causal factors (effort, ability, task difficulty, chance) routinely assessed in attributional research. In addition to perceptions of task difficulty and amount of effort expended, they consider whether they performed under favorable or unfavorable conditions, the amount of external aid they received, their physical and emotional state at the time, and the pattern of their successes and failures with continued engagement in the activity. Positive or negative biases in the self-monitoring, cognitive representation, and retrieval of past successes and failures also affect self-efficacy judgments (Bandura, 1986).

The effect of effort attributions on self-efficacy beliefs will vary with different conceptions of ability and different configurations of efficacy-relevant information. Given these complicating factors, it is not entirely surprising that effort attributions do not bear a uniform relationship to self-efficacy beliefs. Regardless of whether effort attributions correlate positively or negatively with perceived efficacy, however, the stronger the self-efficacy belief, the better the subsequent performance (Schunk & Cox, 1986; Schunk & Gunn, 1986; Schunk & Rice, 1986).

The overall evidence reveals that causal attributions, whether in the form of ability, effort, or task difficulty, generally have weak or no independent effect on achievement motivation. The types of factors singled out by attributional theory convey efficacy-relevant

information and influence performance attainments mainly by altering people's belief in their efficacy. Occasionally, ability attribution emerges as an independent contributor to achievement motivation, but such direct effects tend to be small and equivocal.

Subjective weighting of attributional factors and self-efficacy appraisal involves bidirectional, rather than unidirectional, causation. The relative weight given to information regarding adeptness, effort, task complexity, and situational circumstances will affect self-efficacy appraisal. Self-beliefs of efficacy, in turn, bias causal attributions. Thus, people who regard themselves as highly efficacious tend to ascribe their failures to insufficient effort, whereas those who regard themselves as inefficacious view their failures as stemming from low ability (Collins, 1982; Silver, Mitchell, & Gist, 1989). Self-efficacy belief influences causal attributions for outcomes in social transactions as well as in cognitive activities (Alden, 1986).

Expectancy-Value Theory

People also motivate themselves and guide their actions anticipatorily by the outcomes they expect to flow from given courses of behavior. Expectancy-value theory was designed to account for this form of incentive motivation (Ajzen & Fishbein, 1980; Atkinson, 1964; Rotter, 1982; Vroom, 1964). These various formulations all assume that strength of motivation is governed jointly by the expectation that particular actions will produce specified outcomes and by the value placed on those outcomes. They differ mainly in what additional determinants are combined with expectancy and outcome value. Atkinson adds an achievement motive; Rotter adds a generalized expectancy that actions control outcomes; Ajzen and Fishbein add perceived social pressures to perform the behavior and proneness to compliance; Vroom adds belief that the behavior is achievable through effort.

In its basic version, the expectancy-value theory predicts that the higher the expectancy that certain behavior can secure specific outcomes and the more highly those outcomes are valued, the greater is the motivation to perform the activity. The findings generally show that outcome expectations obtained by adding or multi-

plying these cognitive factors predict performance motivation (Feather, 1982; Mitchell, 1974; Schwab, Olian-Gottlieb, & Heneman, 1979). The amount of variance in performance motivation explained by this model is generally smaller than might be expected, however. This has stimulated spirited debates about the scope of the expectancy-value theory, its major assumptions, and the methods used for assessing and combining the cognitive factors.

According to maximizing expectancy models, people seek to optimize their outcomes. Questions have been raised, however, concerning the assumptions about how decisions are usually made. As several authors have correctly observed, people are not as systematic in considering alternative courses of action and in weighing their likely consequences as expectancy-value models assume (Behling & Starke, 1973; Simon, 1976). Alternatives are often ill defined. People rarely examine all the feasible alternatives or give detailed thought to all the consequences of even the options they do consider. More typically they pick, from a limited array of possibilities, the course of action that looks satisfactory rather than searching studiously for the optimal one. Moreover, they are sometimes inconsistent in how they order alternatives, they have difficulty assigning relative weights to different types of outcomes, they let the attractiveness of the outcomes color their judgments of how difficult it might be to attain them, and they opt for lesser outcomes because they can get them sooner. When faced with many alternatives and complexly contingent outcomes, they use simplifying decision strategies that may lead them to select alternatives that differ from those they would have chosen had they weighted and ordered the various factors as presupposed by the maximizing model.

The issue in question is not the rationality of the judgmental process. People often have incomplete or erroneous information about alternatives and their probable consequences, they process information through cognitive biases, and what they value may be rather odd. Decisions that seem subjectively rational to the performer, given the basis on which they were made, may appear irrational to others. Subjective rationality often sponsors faulty choices. There are too many aspects to a judgmental process where one can go astray to permit objective rationality (Brandt, 1979). The main issue in dispute concerns the correspondence between the postulated

judgmental process and how people actually go about appraising and weighting the probable consequences of alternative courses of action.

The types of anticipated incentives singled out for attention is another dimension on which expectancy-value theory often departs from actuality. Some of the most valued rewards of activities are in the self-satisfaction derived from fulfilling personal standards. The satisfaction yielded by personal accomplishments may be valued more highly than tangible payoffs. When these two sources of incentives conflict, self-evaluative outcomes often override the influence of tangible rewards (Bandura, 1986). Because incentive theories of motivation tend to neglect affective self-evaluative outcomes, self-incentives rarely receive the consideration they deserve in the option/outcome calculus. Predictiveness is sacrificed if influential self-incentives are overlooked. With regard to the scope of the expectancy-value model, even the elaborated versions include only a few cognitive motivators. In actuality, forethought about outcomes influences effort and performance through additional intervening mechanisms.

People act on their beliefs about what they can do as well as on their beliefs about the likely effects of various actions. The motivating potential of outcome expectancies is partly governed by people's beliefs about their capabilities. There are many activities that, if done well, guarantee valued outcomes, but they are not pursued by those who doubt they can do what it takes to succeed (Beck & Lund, 1981; Betz & Hackett, 1986; Dzewaltowski, Noble, & Shaw, 1990; Wheeler, 1983). Self-perceived inefficacy can thus nullify the motivating potential of alluring outcome expectations. Conversely, a strong sense of personal efficacy can sustain efforts over extended periods in the face of uncertain or repeatedly negative outcomes. Indeed, because ordinary social realities are strewn with impediments, failures, adversities, setbacks, frustrations, and inequities, it requires a resilient sense of personal efficacy to sustain the perseverant effort needed to succeed (Bandura, 1989).

In activities that call upon competencies, self-efficacy beliefs affect the extent to which people act on their outcome expectations. Some expectancy-value theories include an expectancy that effort will beget the requisite performance (Vroom, 1964). It should be noted, however, that perceived self-efficacy encompasses much

more than beliefs about how effort determines performance. Effort is only one of many factors that govern the level and quality of performance. People judge their capability for challenging activities more in terms of their perceptions of the knowledge, skills, and strategies they have at their command than solely on how much they can exert themselves. Performances that call for ingenuity, resourcefulness, and adaptability depend more on adroit use of skills, specialized knowledge, and analytic strategies than on sheer effort (Wood & Bandura, 1989a). Moreover, people who cope poorly with stressors expect that marred performances in intimidating situations will be determined by their self-debilitating thought patterns rather than by how much effort they mount. The harder they try, the more they may impair their execution of the activity. Expectancy theorists probably singled out effort as the sole cause of performance because the theory has usually been concerned with how hard people work at routine activities unimpeded by obstacles or threats. Hence, the aspect of self-efficacy that is most germane to how much is accomplished is people's perceived perseverant capabilities—that is, their belief that they can exert themselves sufficiently to attain designated levels of productivity.

Some confusion has been introduced into the expectancy literature by misconstruing the specifying criteria of a performance level as its outcomes. A *performance* is conventionally defined as "an accomplishment" or "something done"; an *outcome*, as "something that follows as a result or consequence of an activity." Three major classes of outcomes can be distinguished—material consequences, social reactions, and self-reactions. Thus, in a high-jump field event performance levels are defined in terms of height of jumps. A six-foot leap is the realization of a particular performance, not the outcome that flows from it. The outcomes are the results a six-foot leap produces—the social recognition, applause, trophies, monetary prizes, and self-satisfaction if it represents a superior attainment, or the social disappointment, forfeiture of material rewards, and self-criticism if it represents a deficient level of attainment. Similarly, in assessments of academic performance, letter grades of *A*, *B*, *C*, *D*, *F* are the specifying criteria of performance level, not the outcomes. Remove the letter indicants of performance level, and one is left with an indefinite or indescribable performance. The social reactions, personal benefits, costs, and affective self-reactions antici-

pated for an A-level performance, or for an F-level performance, constitute the outcome expectations. To conceptualize a performance level as the outcome of itself is to destroy the conventional meanings of performance and outcome.

The degree to which outcome expectations contribute independently to performance motivation varies depending on how tightly contingencies between actions and outcomes are structured, either inherently or socially, in a given domain of functioning. Because activities vary in their structural contingencies, there is no single relationship between judgments of self-efficacy and outcome expectations. For many activities, outcomes are determined by level of competence. Hence the types of outcomes people anticipate depend largely on how well they believe they can perform in given situations. Students do not expect to be showered with academic honors or prizes regardless of the adequacy of their scholarship. In most social, intellectual, and physical pursuits, those who judge themselves highly efficacious will expect favorable outcomes, whereas those who expect poor performances of themselves will conjure up negative outcomes. Thus, in activities in which outcomes are highly contingent on quality of performance, self-judged efficacy accounts for most of the variance in expected outcomes. When variations in perceived self-efficacy are partialled out, the outcomes expected for given performances do not have much of an independent effect on behavior (Barling & Abel, 1983; Barling & Beattie, 1983; Godding & Glasgow, 1985; Lee, 1984a, 1984b; Williams & Watson, 1985).

Self-efficacy beliefs account for only part of the variance in expected outcomes when outcomes are not completely controlled by quality of performance. This occurs when extraneous factors also affect outcomes, or when outcomes are socially tied to a minimum level of performance so that some variations in quality above or below the standard do not produce differential outcomes. In work situations, for example, compensation is fixed to some normative performance standard, but a higher level of productivity does not bring larger weekly paychecks. Perceived self-efficacy to fulfill the minimal standard will produce better expected outcomes than perceived self-inefficacy to reach that level. But variations in perceived self-efficacy above the minimal standard would not give rise to different expected outcomes. And finally, expected outcomes are indepen-

dent of perceived self-efficacy when contingencies are restrictively structured so that no level of competence by certain groups can produce desired outcomes. This occurs in pursuits that are rigidly segregated by sex, race, age, or some other factor. In such circumstances, people in the disfavored group expect poor outcomes however efficacious they judge themselves to be. Thus, for example, when athletes were rigidly segregated by race, black baseball players could not gain entry to the major leagues and the attendant benefits no matter how well they pitched or batted.

Recent efforts to increase the predictiveness of expectancy-value models have added an efficacylike factor to the usual set of predictors (Ajzen, 1985). In the Ajzen and Fishbein (1980) model of reasoned action, the intention to engage in a course of action is governed by a personal determinant in the form of perceived outcomes and their valuation as well as a subjective normative determinant comprising perceived social pressures by significant others and one's motivation to comply with their expectations. Ajzen and his colleagues have shown that perceived control makes a significant independent contribution to performance within the expanded model, both directly and indirectly through its effects on intention (Ajzen & Madden, 1986; Schifter & Ajzen, 1985). Indeed, in activities that are not subject to much social pressure, perceived self-efficacy carries most of the explanatory power (Dzewaltowski, et al. 1990). The predictiveness of other versions of expectancy-value theory is enhanced by including the self-efficacy determinant (de Vries, Dijkstra, & Kuhlman, 1988; McCaul, O'Neill, & Glasgow, 1988; Schwarzer, 1990; Wheeler, 1983).

There has been some dispute between goal theorists and expectancy-value theorists on the causal ordering of motivational determinants. Expectancy theorists contend that high goals enhance motivation because they have greater incentive value (Matsui, Okada & Mizuguchi, 1981). Goal theorists contend that expectancy-value factors exert their impact on motivation by their effects on personal goal setting. Studies testing these competing conceptions reveal that perceived capability and level of personal goals predict performance motivation (Mento, Cartledge, & Locke, 1980). Success expectancy and outcome valuation enhance performance indirectly by promoting goal adoption, rather than by operating directly on perfor-

mance. When success expectancy also affects performance directly, its independent contribution is small compared with personal goals (Garland, 1984).

Goal Theory

The capacity to exercise self-influence by personal challenge and evaluative reaction to one's own attainments provides a major cognitive mechanism of motivation and self-directedness. Motivation through pursuit of challenging standards has been the subject of extensive research on goal setting. Evidence from numerous laboratory and field studies involving heterogeneous task domains shows that enhancement of motivation by explicit challenging goals is a remarkably robust effect replicated across heterogeneous activity domains, settings, populations, social levels, and time spans (Locke & Latham, 1990; Mento, Steel, & Karren, 1987). Goals operate largely through self-referent processes rather than regulating motivation and action directly. The self-reactive influences by which personal standards create powerful motivational effects are analyzed in some detail in the sections that follow.

SELF-REACTIVE INFLUENCES AS MEDIATORS OF GOAL MOTIVATION

Motivation based on standards involves cognitive comparison. By making self-satisfaction conditional on matching adopted goals, people give direction to their actions and create self incentives to persist in their efforts until their performances match their goals. The anticipated self-satisfaction gained from fulfilling valued standards provides one source of incentive motivation for personal accomplishments. Perceived negative discrepancies between performance and the standard individuals seek to attain creates dissatisfaction that serves as another incentive motivator for enhanced effort. The motivational effects do not stem from the goals themselves, but rather spring from the fact that people respond evaluatively to their own behavior. Goals specify the conditional requirements for positive self-evaluation.

Activation of self-evaluation processes through internal comparison requires both comparative factors—a personal standard and knowledge of one's performance level. Neither performance knowledge without standards nor standards without performance knowledge can provide a basis for self-evaluative reactions. Studies in which goals and performance feedback are systematically varied yield results consistent with this formulation, whatever the nature of the pursuit (Bandura & Cervone, 1983; Becker, 1978; Strang, Lawrence, & Fowler, 1978). Simply adopting a goal, whether an easy or a challenging one, without knowing how one is doing, or knowing how one is doing in the absence of a goal, has no lasting motivational impact. In marked contrast, the combined influence of goals with performance feedback heightens motivation substantially. This is shown in Figure 2, which summarizes the level of self motivation in the presence of both, only one, or none of the comparative factors.

Although performance feedback alone is not a dependable motivator, it produces substantial variance in motivation that is explainable by the comparative structures individuals create for themselves. When they engage in an ongoing activity and are informed of their attainments, some set goals for themselves spontaneously (Bandura, & Cervone, 1983). Variations in personal goal setting are reflected in diversity in motivation (Figure 3). Those who set no goals for themselves achieve no change in effort and are surpassed by those who aim to match their previous level of effort, and they in turn are outperformed by those who set themselves the more challenging goal of bettering their past endeavor. However, self-set goals alone do not in themselves have any continuing motivational impact on activities that provide little inherent feedback of performance level. These results from self-created comparative structures lend further support for the influential role of cognitive comparison in motivation through personal standards or goals.

Cognitive motivation based on goal intentions is mediated by three types of self-influences: they include affective self-evaluation, perceived self-efficacy for goal attainment, and ongoing adjustment of personal standards. As I have already pointed out, goals motivate by enlisting self-evaluative involvement in the activity. People seek self-satisfaction from fulfilling valued standards and are prompted to intensify their efforts by discontent with substandard perfor-

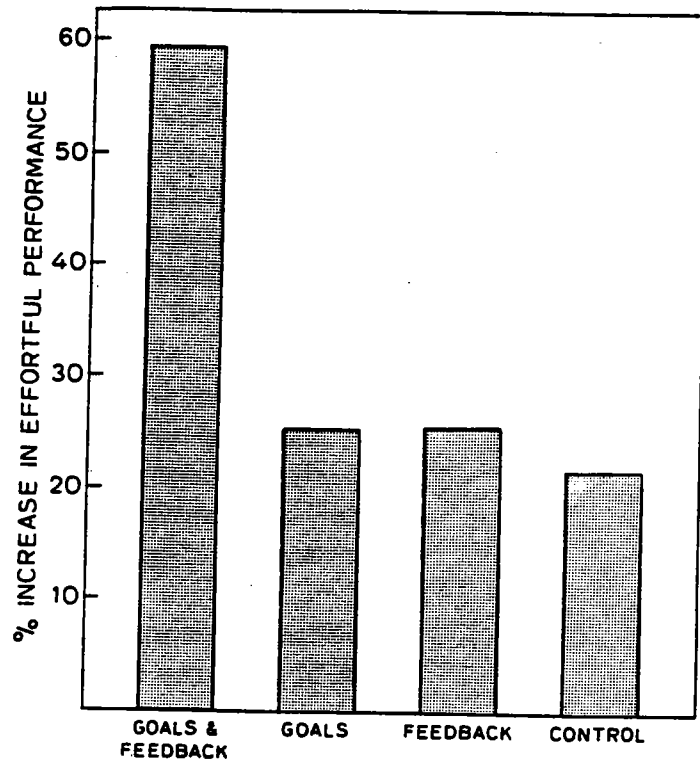


FIGURE 2. Mean percentage change in level of motivation under conditions combining goals with performance feedback, goals alone, feedback alone, or none of these factors. From Bandura, & Cervone, 1983, p. 1021. Copyright 1983 by the American Psychological Association. Reprinted by permission of the publisher.

mance. Both the positive and negative affective self-motivators operate in human pursuits, although discontent is more salient when performances fall short of what one seeks. But without the prospect of self-satisfaction from personal accomplishments, unremitting discontent would eventually take its toll on self motivation.

Perceived self-efficacy is another cognitive factor that plays an influential role in the exercise of personal control over motivation. It is partly based on their self-belief of efficacy that people choose what challenges to undertake, how much effort to expend in the endeavor, how long to persevere in the face of difficulties, and how much stress and despondency they experience in the face of difficulties and failures (Bandura, 1986, 1989). Whether negative discrepancies between personal standards and attainments are motivating or discouraging is partly determined by people's belief that they can

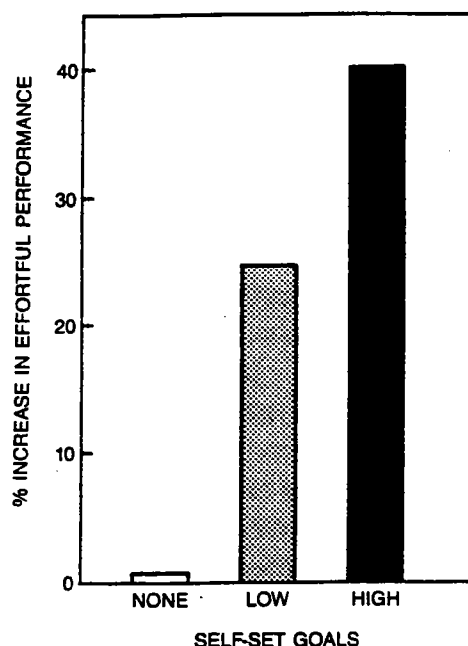


FIGURE 3. Mean increases in motivational level under conditions of performance feedback alone depending on whether people continue to perform the activity without goals or spontaneously set low or high goals for themselves. Drawn from data in Bandura & Cervone, 1983.

attain the goals they set for themselves. Those who harbor self-doubt about their capabilities are easily dissuaded by failure. Those who are assured of their capabilities intensify their efforts when they fail to achieve what they seek, and they persist until they succeed.

That strong belief in one's efficacy heightens level of effort and perseverance in difficult pursuits is corroborated by evidence across diverse domains of functioning for both children and adults (Bandura, & Cervone, 1986; Brown & Inouye, 1978; Cervone, & Peake, 1986; Jacobs, Prentice-Dunn & Rogers, 1984; Schunk, 1984; Weinberg, Gould, & Jackson, 1979). Several paradigms have been used to verify that self-efficacy beliefs operate as causal factors in motivation. Some of these tests of causality introduce a trivial factor that is devoid of information to affect competency but can alter perceived self-efficacy. The impact of the altered self-efficacy beliefs on level of motivation is then measured. For example, studies of anchoring influences show that arbitrary reference points from which judgments

are adjusted either upward or downward can bias the judgments because the adjustments are usually insufficient. Cervone and Peake (1986) used arbitrary anchor values to influence self-efficacy judgments. Judgments made from an arbitrary high starting point biased students' perceived self-efficacy as problem solvers in the positive direction, whereas an arbitrary low starting point lowered students' judgments of their efficacy (Figure 4). The higher the instated perceived self-efficacy, the longer they persevered on difficult and unsolvable problems before they quit.

In a related study (Peake & Cervone, 1989), efficacy judgment was biased simply by having people judge their self-efficacy in relation to ascending or descending levels of possible attainment. The initial levels in these respective sequences served as anchoring influences that lowered or raised self-efficacy beliefs. Elevated self-beliefs of efficacy heightened effort, whereas lowered self-beliefs lessened effort on troublesome problems. In a further study, Cervone (1989) biased self-efficacy judgment through differential cognitive focus on things about the task that might make it troublesome or tractable. Dwelling on formidable aspects weakened people's belief in their efficacy, but focusing on doable aspects raised self-judgment of capabilities. The higher the altered self-efficacy beliefs, the longer people persevered in the face of repeated failure. In these various experiments, perceived self-efficacy predicts variance in motivation within treatment conditions as well as across treatments. Mediation analyses reveal that neither anchoring influence nor cognitive focus has any impact on motivation when variations in self-efficacy beliefs are controlled. These external influences thus exerted their effect on motivation entirely by mediating changes in self-efficacy beliefs.

A number of studies have been conducted in which self-efficacy beliefs are altered by bogus feedback unrelated to one's actual performance. People partly judge their capabilities through social comparison. Using this type of induction procedure, Weinberg, Gould, and Jackson (1979) showed that physical stamina in competitive situations is mediated by perceived self-efficacy. They raised the self-efficacy beliefs of one group by telling subjects they had triumphed in a competition of muscular strength. They lowered the self-efficacy beliefs of another group by telling subjects they had been outperformed by their competitors. The higher the illusory beliefs of phys-

Self-Regulation of Motivation

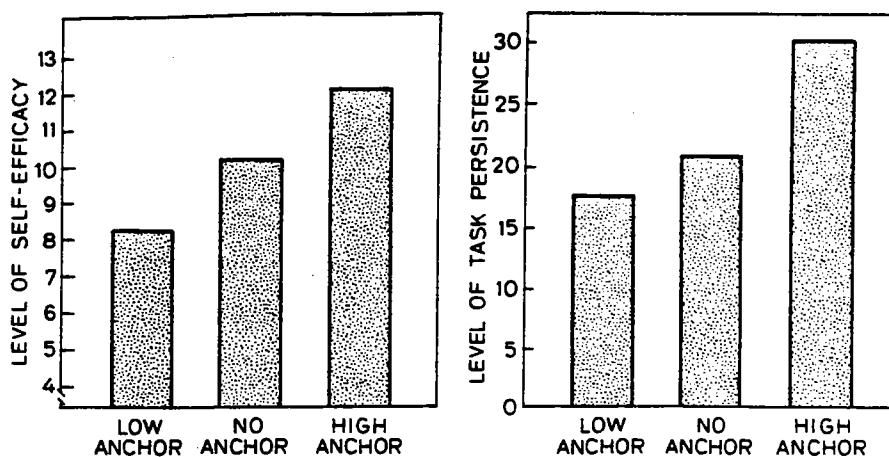


FIGURE 4. Mean changes induced in perceived self-efficacy by anchoring influences and the corresponding effects on level of subsequent perseverant effort. From Cervone & Peake, 1986, p. 495. Copyright 1986 by the American Psychological Association. Reprinted by permission.

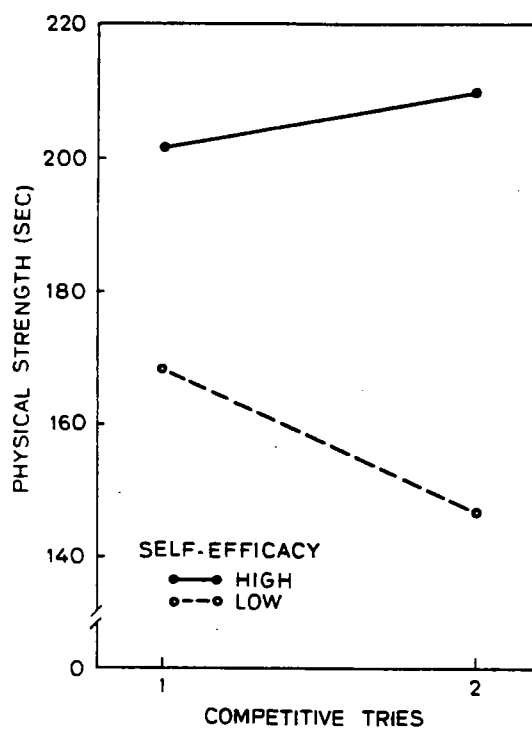


FIGURE 5. Mean level of physical stamina mobilized in competitive situations as a function of illusorily instated high or low self-percepts of physical efficacy. Drawn from data in Weinberg, Gould, & Jackson, 1979.

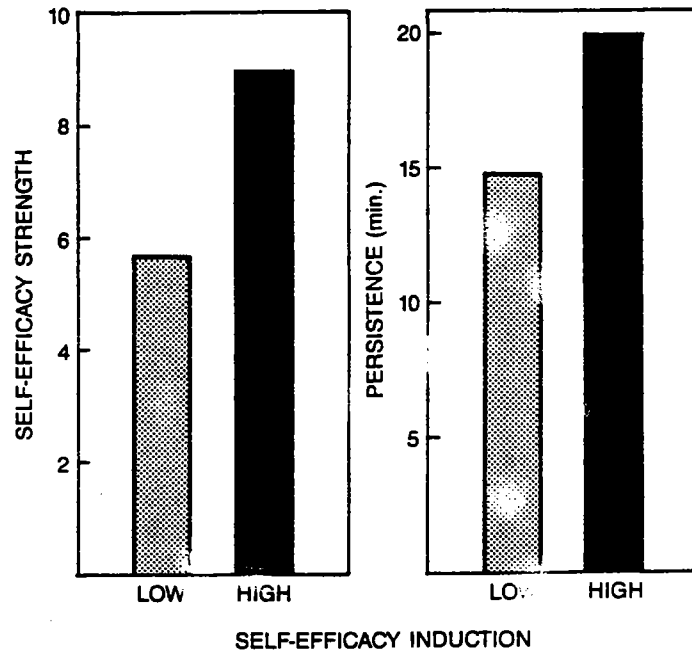


FIGURE 6. Mean changes in perceived self-efficacy induced by arbitrary normative comparison and the corresponding effects on level of subsequent perseverant effort. Drawn from data in Jacobs, Prentice-Dunn, & Rogers, 1984.

ical strength, the more physical endurance subjects displayed during competition on a new task measuring physical stamina (Figure 5). Failure in the subsequent competition spurred those with a high sense of perceived self-efficacy to even greater physical effort, whereas failure impaired the performance of those whose perceived self-efficacy had been undermined. Self-beliefs of physical efficacy illusorily heightened in females and illusorily weakened in males obliterated large preexisting sex differences in physical strength.

Jacobs et al. (1984) used another variant of social self-appraisal—bogus normative comparison—as a way of altering self-efficacy beliefs. Individuals are led to believe, regardless of their actual performance, that they performed at high or low percentile ranks of an ostensibly normative group. Self-efficacy beliefs heightened by this means produce stronger perseverant effort (Figure 6). The regulatory role of self-efficacy beliefs, instated by arbitrary normative comparison, is replicated in perseverance in markedly different domains of functioning (Litt, 1988).

The combined evidence that divergent modes of efficacy induc-

tion produce convergent effects on motivation across a variety of pursuits adds to the explanatory and predictive generality of the efficacy mediator. Perceived self-efficacy determines not only level of effort expenditure, but how productively that effort is deployed. People who have a strong sense of efficacy engage in more efficient analytic thinking than do self-doubters (Wood & Bandura, 1989a). When faced with complex decisions, those who distrust their efficacy become erratic in their analytic thinking. Perceived self-efficacy can thus enhance performance through its effects on thought processes and deployment of strategies as well as on motivation. Moreover, in activities in which deficient performances can have untoward consequences, perceived self-inefficacy can impair functioning by generating disruptive cognitions and avoidant actions. The efficacy-activated cognitive and affective processes will be addressed later.

The goals people set for themselves at the outset of an endeavor are likely to change, depending on how they construe the pattern and level of progress they are making and readjust their aspirations accordingly (Campion & Lord, 1982). They may maintain their original goal, lower their sights, or adopt an even more challenging goal. Thus the third constituent self-influence in the ongoing regulation of motivation concerns readjusting personal goals in light of one's attainments. Csikszentmihalyi (1979) examined what it is about activities that fosters continuing deep engrossment in life pursuits. The common factors found to be conducive to enduring motivation include adopting personal challenges in accordance with one's perceived capabilities and having informative feedback on progress.

Studies in which discrepancy levels are varied systematically and the self-reactive influences are measured before motivational change shed light on how these influences operate in concert in regulating motivation through goal systems. One experiment examined how self-evaluative and efficacy mediators contribute to motivation under a moderate negative goal discrepancy (Bandura, & Cervone, 1983). As shown in Figure 7, affective self-evaluation and perceived self-efficacy are good predictors of the degree of change in motivation when attainments fall short of the goal being pursued. Discontent over a substandard performance combined with high perceived self-efficacy for goal attainment produces a marked heightening of effort. A low sense of self-efficacy with low discon-

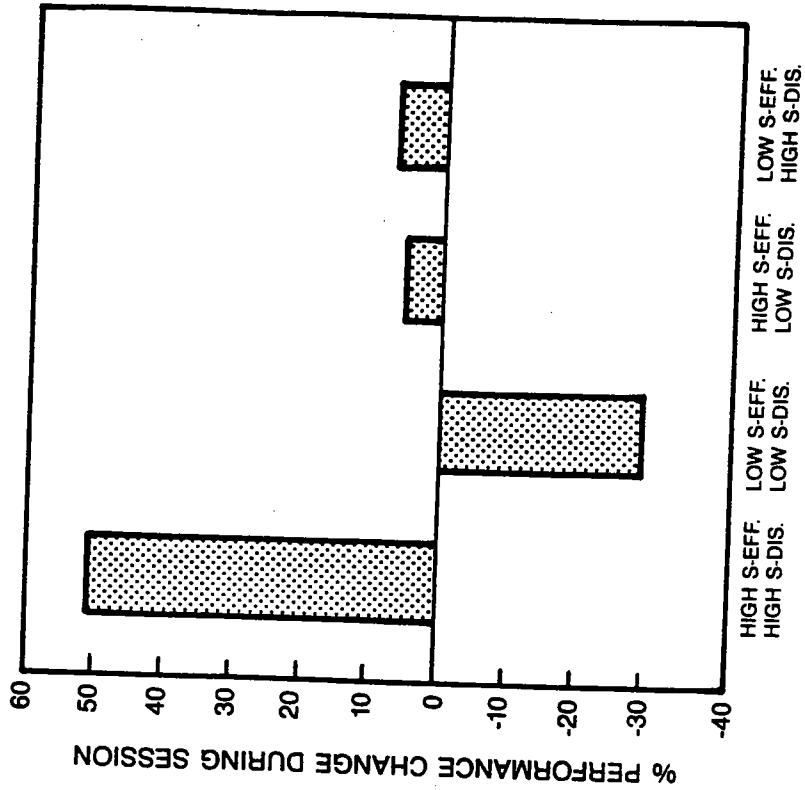
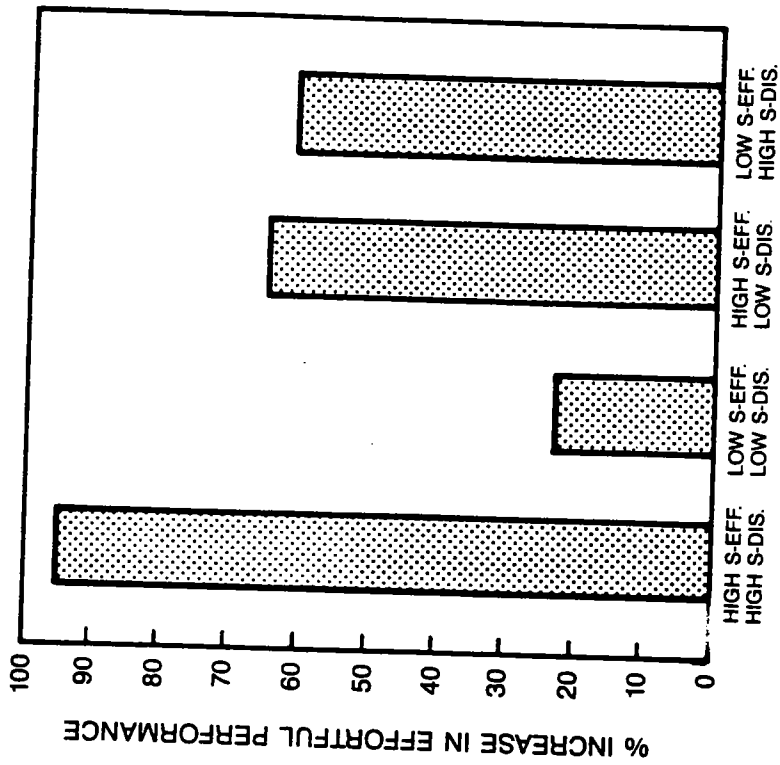


FIGURE 7. Mean percentage changes in motivational level under conditions combining goals and performance feedback as a function of different combinations of levels of self-dissatisfaction (S-DIS) and perceived self-efficacy for goal attainment (S-EFF). The left-hand panel shows the mean change in motivation for the entire session; the right-hand panel shows the mean motivational change between the initial and the final segment of the session. From Bandura & Cervone, 1983, p. 1024. Copyright 1983 by the American Psychological Association. Adapted by permission of the publisher.

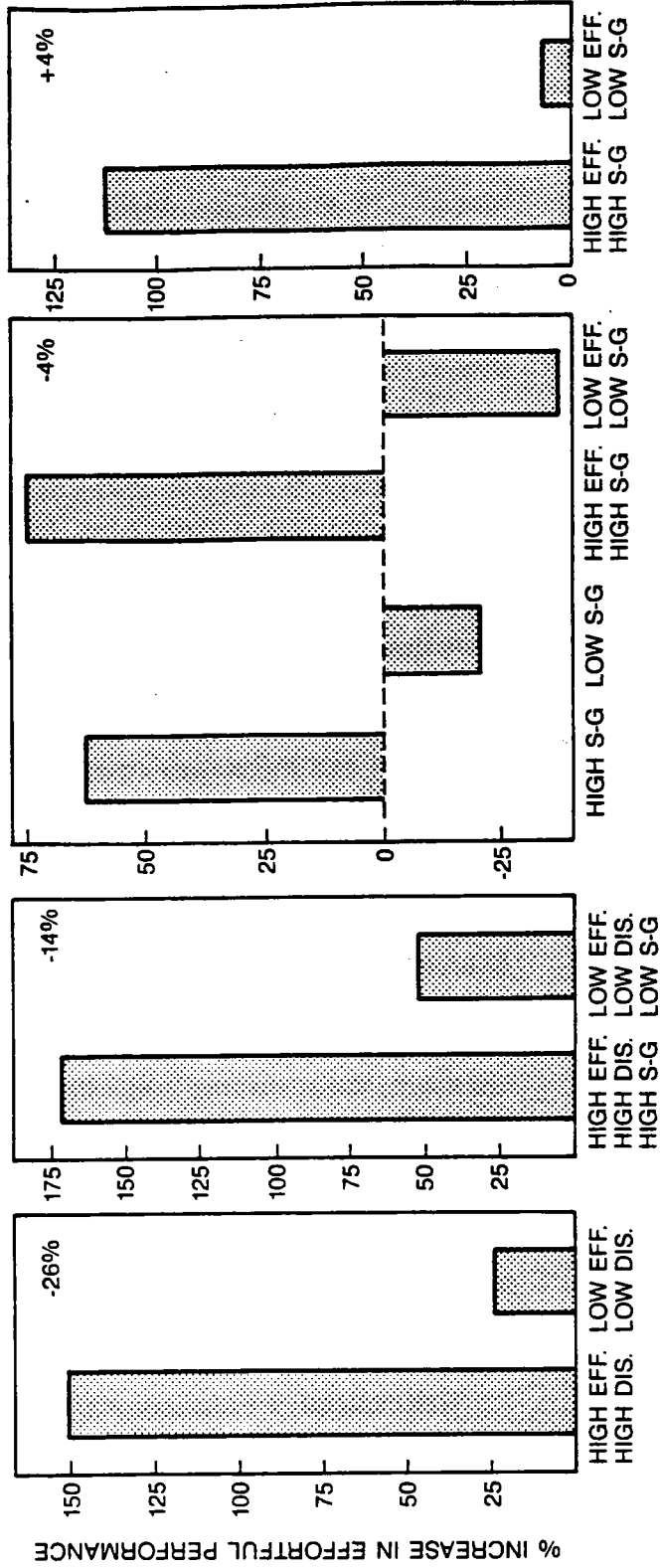


FIGURE 8. Mean percentage changes in motivational level by people who are high or low in the self-reactive influences identified by hierarchical regression analyses as the critical motivators at each of four levels of preset discrepancy between a challenging standard and level of performance attainment. EFF signifies strength of perceived self-efficacy to attain a 50% increase in effort; DIS, the level of self-dissatisfaction with the same level of attainment as in the prior attempt; and S-G, the goals people set for themselves for the next attempt. The second set of graphs at the -4% discrepancy level summarize the results of the regression analysis performed with perceived self-efficacy averaged over the 30%-70% goal attainment range. From Bandura & Cervone, 1986, p. 108. Reprinted by permission of Academic Press, Inc.

tent over a substandard performance mobilizes little effort. Either high discontent or high perceived self-efficacy alone results in a moderate increase in motivation. The joint operation of the self-reactive influences even predicts whether motivation is enhanced, sustained, or debilitated over the course of a given attempt. Discontented self-efficacious subjects intensified their effort as time went on, whereas those who judged themselves unable to reach the goal and were satisfied with a substandard performance slackened their efforts and displayed a substantial decline in motivation as they continued the activity.

The three self-reactive influences exert differential impact on motivation when attainment diverges from the comparative standard over a wide range of discrepancies (Bandura & Cervone, 1986). After performing a strenuous task, individuals received prearranged feedback that their effort either fell markedly, moderately, or minimally short of the adopted standard or exceeded the standard. They then recorded their perceived self-efficacy for goal attainment, their self-evaluation, and their self-set goals, whereupon their motivational level was measured. Figure 8 portrays graphically how this set of self-influences operates in concert at each discrepancy level in the regulation of motivation.

Perceived self-efficacy contributes to motivation at all discrepancy levels. The stronger people's self-efficacy beliefs that they can meet challenging standards, the more they intensify their efforts. Discontent operates as an influential affective motivator when attainment falls substantially or moderately short of a comparative standard. The more self-dissatisfied people are with substandard attainment, the more they heighten their efforts. If they are quite satisfied with approximating or matching the standard again, however, self motivation invest increased effort. As people approach or surpass the initial standard, the new goals they set for themselves serve as an additional motivator. The higher the self-set goals, the more effort is invested in the endeavor. Taken together this set of self-reactive influences accounts for the major share of variation in motivation.

Self-reactive influences predict the impact of success, as well as of failure, on motivation. When attainments surpass challenging goals, people's belief in their efficacy and their self-set goals determine their level of motivation (Figure 8). Those who hold a strong

belief in their efficacy motivate themselves by setting even higher goal challenges that create new discrepancies to be mastered. Thus, notable attainments bring temporary satisfaction, but people enlist new challenges as personal motivators for further accomplishment. Those who doubt they could muster the same level of effort again lower their goals. Their motivation declines.

SELF-REGULATION AND THE NEGATIVE FEEDBACK MODEL

Many theories of self-regulation are founded on a negative feedback control system (Carver & Scheier, 1981; Lord & Hanges, 1987; Miller, Galanter, & Pribram, 1960). The basic structure of this type of regulatory system includes a behavior monitoring operation, a comparator, and an error correction routine. The system functions as a motivator and regulator of action through a discrepancy reduction mechanism. Perceived discrepancy between performance and the reference standard automatically triggers action to reduce the incongruity. Discrepancy reduction clearly plays a central role in any system of self-regulation, but in the negative feedback control system, self motivation matches the standard the person does nothing. A regulatory process in which matching a standard begets inertness does not characterize human self motivation. Such a feedback control system would produce circular action that leads nowhere. Nor could people be stirred to action until they receive feedback of a shortcoming.

Although comparative feedback is essential in the ongoing regulation of motivation, people can initially raise their level of motivation by adopting goals before they receive any feedback regarding their beginning effort (Bandura & Cervone, 1983). Negative feedback may help to keep them going, but it is not present antecedently to start them. That different self-regulatory systems operate in the initiation and continued control of motivation is shown in Figure 9. In the initial phase of the endeavor, individuals who had adopted a challenging goal enlisted a higher level of effort than those who performed with no goal other than to do their best. As they went on with the activity, those who continued to perform it with goals only or without goals displayed no further increases in motivation,

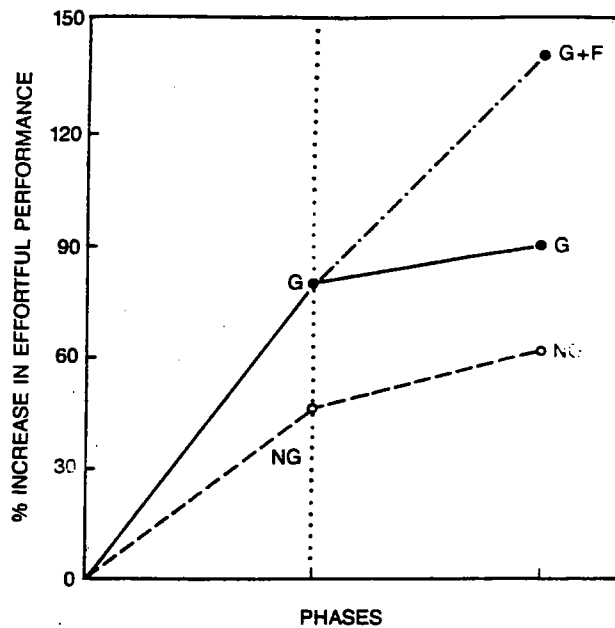


FIGURE 9. Portrayal of how proactive systems and reactive feedback systems operate in the initiation and continued regulation of motivation. Initially, subjects performed with goals (G) or no goals (NG). In the next phase, the goal subjects continued to perform with goals only (G) or with goals and performance feedback (GF). Drawn from data in Bandura & Cervone, 1983.

whereas the individuals who had the benefit of goals and performance feedback raised their level of motivation substantially. A theory of motivation control must explain how each new goal adoption motivates from the outset before the first performance feedback. The motivating starter is the anticipatory estimate of the level of effort needed to match the goal. Subsequent feedback provides instructive information on the corrective adjustments in motivation needed to attain or surpass the goal.

Human self motivation relies on both *discrepancy production* and *discrepancy reduction*. It requires *proactive control* as well as *reactive control*. People initially motivate themselves through proactive control by setting themselves valued performance standards that create a state of disequilibrium and then mobilizing their effort based on anticipatory estimation of what it would take to reach them. Feedback control comes into play in subsequent adjustments of effort expenditure to achieve desired results. As previously shown, after people attain the standard they have been pursuing, those who have a

strong sense of efficacy generally set a higher standard for themselves. Adopting further challenges creates new motivating discrepancies to be mastered. Similarly, surpassing a standard is more likely to raise aspiration than to lower subsequent performance to conform to the surpassed standard. Self motivation thus involves a dual control process of disequilibrating discrepancy production followed by equilibrating discrepancy reduction.

An evaluative executive control system with a proactive component can, of course, be superimposed on a negative feedback operation that keeps changing aspirational standards either upward or downward depending on how performance attainment is construed. To capture the complexity of human self-regulation, such an executive control system must be invested with the evaluative agentive properties previously shown to play an important role in self-directedness. These include (1) predictive anticipatory control of effort expenditure, (2) affective self-evaluative reactions to one's performance rooted in a value system, (3) self-appraisal of personal efficacy for goal attainment, and (4) self-reflective metacognitive activity concerning the adequacy of one's efficacy appraisals and the suitability of one's standard setting. Evaluation of perceived self-efficacy relative to task demands indicates whether the standards being pursued are attainable or beyond one's reach.

In human endeavors, goal adjustments do not follow a neat pattern of ever-rising standards after personal accomplishments, nor do failures necessarily lower aspirations. Rather, because of interacting cognitive and affective factors, feedback of discrepancy has diverse effects on the self-reactive influences that mediate motivation and standard setting. This is shown in the study previously cited (Bandura & Cervone, 1986), in which people were led to believe that their attainments diverged from their original goal over a wide range of discrepancies. The variations in perceived self-efficacy and self-set goals at each discrepancy level are plotted in Figure 10.

Impact of Goal Discrepancy on Perceived Self-Efficacy. When people fail to fulfill a challenging standard, some become less sure of their efficacy and others lose faith in their capabilities, but many remain unshaken in their belief that they can attain the standard (Figure 10). Surpassing a taxing standard through sustained strenuous effort does not necessarily strengthen self-beliefs of efficacy. Al-

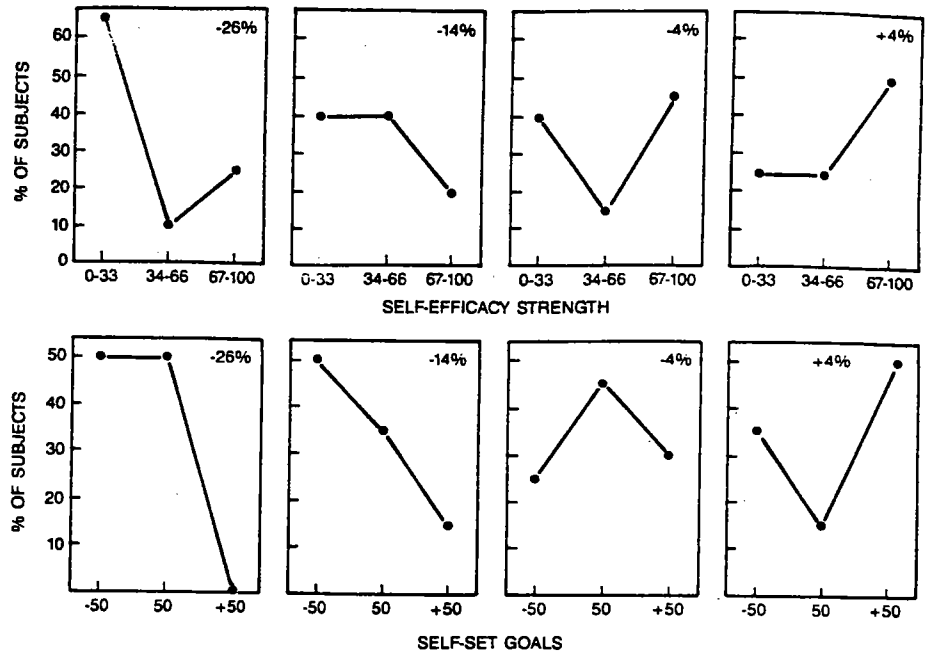


FIGURE 10. Patterns of perceived self-efficacy to attain a 50% increase in effort and whether this difficult goal was adhered to, abandoned for a lower goal, or raised to an even more challenging goal at each of four levels of preset discrepancy (-26%, -14%, -4%, +4%) between the difficult goal and level of performance attainment. Drawn from data in Bandura & Cervone, 1986.

though for most people high accomplishment strengthens self-beliefs, a sizable number who drive themselves to hard-won success doubt they can duplicate the feat.

The latter findings raise the important issue of resiliency of self-beliefs of efficacy in the face of difficulties. There is a growing body of evidence that human accomplishment and positive well-being require an optimistic and resilient sense of personal efficacy (Bandura, 1986). This is because ordinary social realities are usually fraught with difficulties. They are full of impediments, adversities, failures, setbacks, frustrations, and inequities. Success usually comes through renewed effort following failed attempts. To abort efforts prematurely limits personal accomplishment. Therefore people must have a robust sense of personal efficacy to sustain the perseverant effort needed to succeed. White (1982) vividly documents that the striking common characteristic of people who eventually achieved eminence in their respective fields was an inextinguishable

sense of self-efficacy that enabled them to override innumerable rejections of their early work. Their resilient self-efficacy was combined with a steadfast belief in the worth of what they were doing.

Affective and achievement benefits of optimistic self-efficacy belief. It is widely believed that misjudgment produces dysfunction. Certainly, gross miscalculation can get one into trouble. But optimistic self-appraisals of efficacy that are not unduly disparate from what is possible can be advantageous, whereas veridical judgments can be self-limiting. Human skill is a generative capability, not a fixed property. What people can do in different situations depends on how well they orchestrate their subskills and stratagems and how hard they work at the task. Therefore the same capability can give rise to performances that are subpar, ordinary, or extraordinary for a particular person. When people err in their self-appraisal they tend to overestimate their capabilities. This is a benefit rather than a cognitive failing to be eradicated. If self-efficacy beliefs always reflected only what people can do routinely, they would rarely fail, but they would not mount the extra effort needed to surpass their ordinary performance.

Evidence suggests that it is often the so-called normals who are distorters in self-appraisal, but they distort in the positive direction. Anxious and depressed people have been compared in their skills and their self-beliefs with those who are unburdened by such problems. The groups differ little in their actual skills, but they differ substantially in their beliefs about their efficacy. People who are socially anxious are often just as socially skilled as the more sociable ones. But socially active people judge themselves much more adept than they really are (Glasgow & Arkowitz, 1975). Schwartz and Gottman (1976) have similarly shown that unassertive people know what to do but lack the efficacy to translate their knowledge into assertive action.

Depressed persons usually display realistic self-appraisals of their social competencies. The nondepressed view themselves as much more adroit than they really are. As depressed people improve in treatment, they show the self-enhancing biases that characterize the nondepressed (Lewinsohn, Mischel, Chaplin, & Barton, 1980). A similar pattern of advantageous self-appraisal is revealed in

laboratory tasks in which people perform actions and outcomes occur, but the actions exert no control over the outcomes. The depressed are quite realistic in judging they lack control. In contrast, nondepressed people believe they are exercising a good deal of control in such situations (Alloy & Abramson, 1979). After nondepressed people are made temporarily depressed, they become realistic in judging their personal control. When depressed people are made to feel happy, they overestimate the extent to which they exercise control (Alloy, Abramson, & Viscusi, 1981). Thus the depressed appear as realists, the nondepressed as confident distortionists.

Social reformers strongly believe that they can mobilize the collective effort needed to bring social change (Bandura, 1986; Muller, 1979). Although their beliefs and the collective sense of efficacy they instill in others are rarely fully realized, they sustain reform efforts that achieve lesser, but important, gains. Were social reformers to be entirely realistic about the prospects of transforming social systems, they would either forgo the endeavor or fall easy victim to discouragement. Realists may adapt well to existing realities, but those with a tenacious optimistic self-efficacy are likely to change those realities.

The emerging evidence indicates that the achievers, the innovators, the sociable, the nonanxious, the nondespondent, and the social reformers take an optimistic view of their personal efficacy to exercise influence over events that affect their lives. If not unrealistically exaggerated, such self-beliefs sustain the motivation needed for personal and social accomplishments.

Effect of goal discrepancy on personal goal setting. Self-beliefs of capability affect personal goal setting. The more capable people judge themselves to be, the higher the goals they set for themselves (Bandura & Cervone, 1986; Taylor, Locke, Lee, & Gist, 1984; Wood & Bandura, 1989a), and the more firmly committed they remain to their goals (Locke, Latham, & Erez, 1988). Hence the variable impact of discrepancy feedback on perceived self-efficacy is also reflected in personal goal setting. As can be seen in Figure 10, variation in the size of the performance discrepancy produced substantially different patterns of personal goal setting. When people receive prearranged feedback that their efforts fell markedly or moderately short of the goal they were pursuing, they either adhere to or lower their

- goal. A strenuous effort that falls just short of a difficult standard has diverse effects on personal goal setting. Many continue to strive for it, others lower their sights, and still others set themselves an even greater challenge.

It is widely assumed that accomplishment raises performance standards. Studies of level of aspiration show that, indeed, people generally set their goals slightly above their preceding attainment (Festinger, 1942; Ryan, 1970). However, the use of simple tasks that call for little effort limits the generality of the results from this line of research. This is because in everyday life, significant accomplishments usually require arduous effort over an extended period. In such endeavors many interacting determinants, including fortuitous factors, contribute to achievement. Therefore people do not necessarily expect to outdo each past accomplishment in an ever-rising series of triumphs. Knowledge of having surpassed a demanding standard through laborious effort does not automatically lead people to raise their aspirations (Figure 10). Those who have a high sense of self-efficacy set themselves more challenging goals to accomplish. But some doubt they can muster the same level of laborious effort again, and they set their sights on simply trying to match the standard they had previously pursued. Having driven themselves to success, others judge themselves inefficacious to repeat a demanding feat, and they lower their aspirations.

NEGATIVE DISCREPANCY AS AUTOMOTIVATOR

Self motivation has been explained by some theorists in terms of an inborn automotivator operating through cognitive incongruity reduction. According to Piaget (1960), discrepancies between the cognitive schemata children already possess and perceived events create internal conflict that motivates exploration of the source of discrepancy until the internal schemata are altered to accommodate the contradictory information. In this view, moderately discrepant experiences, rather than markedly or minimally discrepant ones, presumably arouse the cognitive perturbations regarded as necessary for cognitive change.

The conceptual and empirical problems associated with this equilibration model have been addressed elsewhere in some detail

and will not be reviewed here (Bandura, 1986; Kupfersmid & Wonderly, 1982). Studies of the relation between discrepancy level and inquisitiveness are inconsistent in their findings (Wachs, 1977). With regard to cognitive changes, people are inclined to adopt views that involve only small shifts from their own, but highly discrepant influences can be as effective, or even more so (Arbutnot, 1975; Matfey & Acksen, 1976; Walker, 1982). These findings are in accord with substantial evidence in social psychology showing that the more discrepant others' views are from one's own the more one's views change (McGuire, 1985). Although discrepant influences foster cognitive changes, the changes are unrelated to level of cognitive conflict (Haan, 1985; Zimmerman & Blom, 1983). The impact of divergent influences seems to stem more from how persuasive they are than from how internally conflictful they happen to be. Social factors exert a powerful influence on how discrepant conceptions are cognitively processed and received. Simply demonstrating that children are bored by what they already know and easily discouraged by information that exceeds their cognitive-processing capabilities is a mundane finding that can be explained by any theory without requiring an automotivating mismatch mechanism.

As the preceding findings show, arousal of interest is not confined to events that differ only slightly from what one already knows; a moderate discrepancy of experience alone does not guarantee cognitive learning, nor is acquisition of knowledge dependent solely on internal cognitive conflict. There are many other motivators for bettering one's knowledge and thinking skills. The substantial benefits of being able to predict the occurrence of events and to exercise control over those that affect one's own well-being or that of significant others provide positive incentives for acquiring knowledge and cognitive and social competencies (Bandura, 1986). The self-satisfaction gained from progressive mastery and fulfillment of personal challenges serves as another enduring motivator. People often drive themselves for material gain, for social recognition, or in the pursuit of excellence.

There are other reasons why an automotivational system of the type proposed by Piaget might be viewed with considerable skepticism. An automatic self-motivator explains more than has ever been observed. If disparities between perceived events and mental structure were, in fact, automatically motivating, learning would be un-

remitting and much more unselective than it really is. As a rule, people do not persist in exploring most activities that differ moderately from what they know or can do. Indeed, if they were driven by every moderately discrepant event encountered in their daily lives they would be rapidly overwhelmed by innumerable imperatives for cognitive change. Effective functioning requires selective deployment of attention and inquiry. When faced with contradictions between evidence and their conceptions, people are much more likely to discount or reinterpret the "evidence" than to change their way of thinking. If people were motivated by an innate drive to know powered by negative discrepancy reduction, they should all be highly knowledgeable about the world around them and continually advancing to ever higher levels of reasoning. The evidence does not bear this out.

In the social cognitive view, people function as active agents in their own motivation rather than simply being reactive to discordant events that produce cognitive perturbations. Self motivation through cognitive comparison requires distinguishing between standards of what one knows and standards of what one desires to know. It is the latter standards, together with perceived self-efficacy, that exert selective influence over which of many activities will be actively pursued. Aspirational standards determine which discrepancies are motivating and which activities people will strive to master. Strength of self motivation varies curvilinearly with the level of discrepancy between standards and attainments: relatively easy standards are not sufficiently challenging to arouse much interest or effort; moderately difficult ones maintain high effort and produce satisfaction through subgoal achievements; standards set well beyond a person's reach can be demotivating by fostering discouragement and a sense of inefficacy.

GOAL PROPERTIES AND SELF MOTIVATION

Goal intentions do not automatically activate the self-reactive influences that govern level of motivation. Certain properties of goal structures determine how strongly the self system will become enlisted in any given endeavor. The relevant goal properties are addressed next.

Goal specificity. The extent to which goals create personal incentives and guides for action is partly determined by their specificity. Explicit standards regulate performance by designating the type and amount of effort required to attain them, and they generate self-satisfaction and build self-efficacy by furnishing unambiguous signs of personal accomplishment. General intentions, which are indefinite about the level of attainment to be reached, provide little basis for regulating one's efforts or evaluating how one is doing. In studies of the regulative function of goals differing in specificity, clear, attainable goals produce higher levels of performance than general intentions to do one's best, which usually have little or no effect (Bandura & Cervone, 1983; Locke & Latham, 1990). Specific performance goals serve to motivate the unmotivated and to foster positive attitudes toward the activities (Bryan & Locke, 1967).

Goal challenge. The amount of effort and satisfaction that accompanies variations in goals depends on the level at which they are set. Strong interest and involvement in activities is sparked by challenges. When self-satisfaction is contingent on attainment of challenging goals, more effort is expended than if easy ones are adopted as sufficient. Locke postulates a positive linear relationship between goal level and performance motivation. A large body of evidence does show that the higher the goals, the harder people work to attain them and the better is their performance (Locke & Latham, 1990). However, the linear relationship is assumed to hold only if performers accept the goals and remain strongly committed to them. Most people, of course, eventually reject performance goals they consider unrealistically demanding or well beyond their reach. But people often remain surprisingly steadfast to goals they have little chance of fulfilling, even when given normative information that others reject them as unrealistic (Erez & Zidon, 1984). When assigned goals are beyond their reach and failure to attain them carries no cost, people try to approximate high standards as closely as they can rather than abandoning them altogether (Garland, 1983; Locke, Zubritzky, Cousins, & Bobko, 1984). As a result, they achieve notable progress even though the accomplishment of distal goal aspirations eludes them.

The generality of evidence of unshaken pursuit of unreachable goals must be qualified, however, by the fact that laboratory simula-

tions may differ from actual conditions on several important dimensions: the endeavor usually involves only a brief effort, failure carries no costs, and no opportunities exist for alternative pursuits. Unattainable goals are more likely to be abandoned when the activities require extensive investment of effort and resources, failure to meet the goals brings aversive consequences, and other activities are available in which one's efforts might be more fruitfully invested. When goals are set unrealistically high, strong effort produces repeated failure that can eventually weaken motivation by undermining perceived self-efficacy.

Much of the experimentation on level of goal challenges involves a single effort to achieve an individual goal. Social cognitive theory distinguishes between complementary regulative functions of distal goals and a graduated system of proximal subgoals in ongoing endeavors (Bandura, 1986). Superordinate distal goals give purpose to a domain of activity and serve a general directive function, but subgoals are better suited to serve as the proximal determinants of specific choice of activities and how much effort is devoted to them. Self motivation is best sustained through a series of proximal subgoals that are hierarchically organized to ensure successive advances to superordinate goals. The relation between probability of goal attainment and effort expenditure will differ for subgoals and for end goals. Pursuit of a formidable distal goal can sustain a high level of motivation if it is subdivided into subgoals that are challenging but clearly attainable through extra effort (Bandura & Schunk, 1981). To strive for unreachable subgoals is to drive oneself to unremitting failure. By making complex tasks easier through subdivision into more manageable units, one can perhaps retain the power of goals that tend to have lesser impact on complex than on simpler activities (Wood, Mento, & Locke, 1987). It is not that challenging goals are necessarily ineffective or debilitating for complex pursuits, but that complex activities must be structured in ways that goals enhance and must helpfully channel efforts rather than misdirect them. When complex tasks are aidfully structured, challenging goals are transformed from debilitators to enhancers of performance (Earley, Connolly, & Ekegren, 1989; Earley, Connolly, & Lee, 1990).

The complementary regulation of motivation by hierarchical goals of differential achievability characterizes most of the strivings of everyday life. Long-range aspirations may remain unfulfilled, but

personal and social advancements are realized in the process of successful striving. In an ongoing pursuit, of course, the perceived difficulty of a superordinate goal does not remain constant. Progress toward a superordinate goal in the distant future alters subjective estimates of eventual success. As one comes closer to realizing distal goals, the task appears less formidable than when originally viewed from far down the line.

Goal proximity. As I suggested in the preceding discussion, the effectiveness of goal intentions in regulating motivation and action depends greatly on how far into the future they are projected. A proximate standard serves to mobilize self-influences and direct what one does in the here and now. Distal goals alone are too far removed in time to provide effective incentives and guides for present action. In the face of many competing attractions, focus on the distant future makes it easy to put off matters in the present on the belief that there is always ample time to mount the effort later.

Subgoals not only enlist self-reactive motivators, they also figure prominently in the development of self-efficacy (Bandura & Schunk, 1981). Without standards against which to measure their performance, people have little basis for gauging their capabilities. Subgoal attainment provides rising indicants of mastery for enhancing self-percepts of efficacy. By contrast, distal goals are too far removed in time to serve as favorable markers of progress along the way to ensure a growing sense of personal efficacy.

The standards against which attainments are compared also contribute, in several ways, to the development of intrinsic interest in the things being pursued. People develop enduring interest in activities at which they feel self-efficacious and from which they derive satisfaction. Challenging standards enlist sustained involvement in tasks needed to build competencies that foster interest. Moreover, when people aim for and master valued levels of performance, they experience a sense of satisfaction (Bandura & Cervone, 1983; Bandura & Jourden, 1991; Locke, Cartledge, & Knerr, 1970). The satisfactions derived from goal attainment build intrinsic interest, but when distal goals are used as the comparative standard, current attainments may prove disappointing because of wide disparities with lofty future standards. As a result, interest fails to develop even though skills are being acquired in the process. To the extent that

proximal subgoals promote and authenticate a sense of efficacious agency, they heighten interest by enhancing perceived personal causation (Bandura & Schunk, 1981). Perceived self-efficacy is thus a better predictor of intrinsic interest than is actual ability (Collins, 1982).

These diverse effects of proximal self-motivation are revealed in a study in which children who were grossly deficient and uninterested in mathematics pursued a program of self-directed learning under conditions involving either proximal subgoals leading to a distal goal, only the distal goal, or no reference to goals (Bandura & Schunk, 1981). Within each of the goal conditions, children could observe how many units of work they had completed in each session and their cumulative attainment. Under proximal subgoals children progressed rapidly in self-directed learning, achieved substantial mastery of mathematical operations, and developed an increased sense of efficacy (Figure 11). Distal goals had no demonstrable effects. Subgoal attainments also created intrinsic interest in arithmetic initially holding little attraction for the children (Figure 12). The value of proximal subgoals in cultivating intrinsic interest and promoting academic attainment is further corroborated by Morgan (1985) in an extended field experiment designed to improve the academic competence of college students. People not only perform better under goal proximity, but they much prefer a proximal to a distal focus (Jobe, 1984).

Like any other form of influence, goals can be applied in ways that breed dislike rather than nurture interests. Goals have their strongest positive psychological effects when they serve as mastery devices rather than as onerous dicta. As already noted, personal standards that subserve valued aspirations promote interest. But if goals assigned by others impose severe constraints and burdensome performance requirements, the pursuit can become oppressive. Because the effects of goals depend on their properties, propositions about the impact of goals on interest must be qualified by the nature and structure of the goals and the purposes they serve. Mossholder (1980) reports that goals enhance interest in dull tasks by infusing them with challenge but reduce interest on interesting tasks. Self-development would be poorly served if aspirations and challenges became dysfunctional for activities that normally hold some interest. Fortunately, this is not the case. An interesting activity with

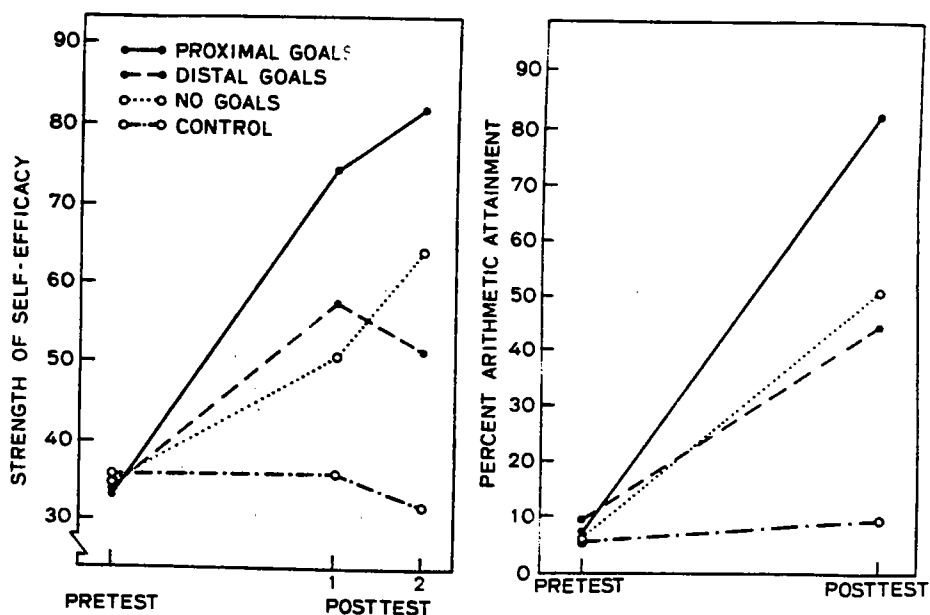


FIGURE 11. The left panel shows the strength of children's perceived arithmetic efficacy at the beginning of the study (pretest), after they completed the self-directed learning (Post 1), and after they took the arithmetic posttest (Post 2). Children in the control group were assessed without the intervening self-directed learning. The right panel displays the children's level of arithmetic achievement before and after the self-directed learning. From Bandura & Schunk, 1981, p. 592. Copyright 1981 by the American Psychological Association. Reprinted by permission of the publisher.

a rising standard for success, which continues to present challenges, enhances intrinsic interest, whereas the same activity with a low level of challenge does not (McMullin & Steffen, 1982). If subgoals for an interesting activity are easily attainable, then more distal goals, which pose more of a challenge, may hold greater interest (Manderlink & Harackiewicz, 1984). Routine successes with no corresponding growth of competence create little enjoyment. Doing more of a tedious activity under the influence of performance goals will not increase liking for it (Latham & Yukl, 1976; Umstot, Bell, & Mitchell, 1976). In the studies in which proximal goals cultivate perceived self-efficacy and intrinsic interest, each subgoal presents new challenges in mastery of new subskills (Bandura & Schunk, 1981).

The combination of perceived self-inefficacy, self-devaluation, and diminished interest creates a state of self-demoralization. Subgoal structuring of pursuits can reduce the risk of such self-demor-

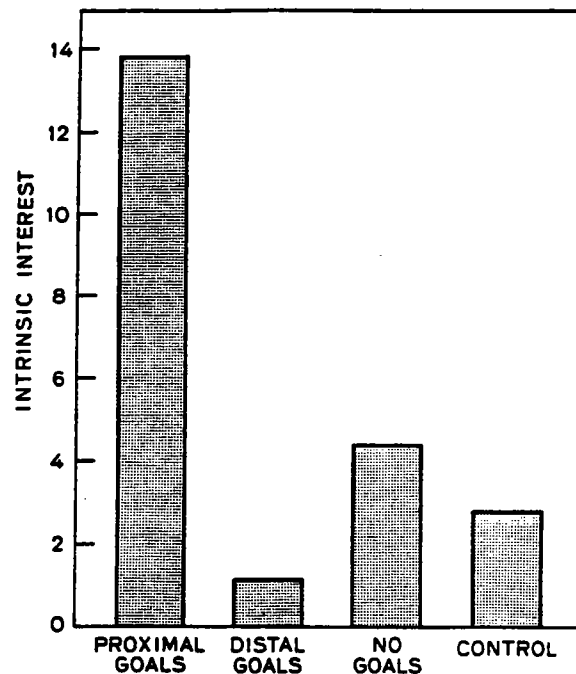


FIGURE 12. Level of intrinsic interest in arithmetic activities shown by children in different goal conditions when given free choice of activities. From Bandura & Schunk, 1981, p. 593. Copyright 1981 by the American Psychological Association. Reprinted by permission of the publisher.

alization through high aspiration. Significant performance gains judged against lofty distal standards do not provide much of a sense of accomplishment because of the wide disparity between current attainment and aspiration. Thus, people can be making good progress but downplaying their accomplishments and getting discouraged. Hierarchical subgoals minimize dispiriting mismatches. I shall return shortly to the self-debilitating affective consequences of unfulfilled striving.

Goal proximity should be distinguished from specificity of planning, which includes not only temporal variation in goals but a host of other factors. For example, in studies comparing daily specific plans with monthly general plans, the detailed proximal system prescribes more onerous busywork in creating daily flow charts of when and where activities will be performed and in monitoring and recording one's performances than does the distal general system (Kirschenbaum, Humphrey, & Mallet, 1981; Kirschenbaum, Tomar-

ken, & Ordman, 1982). Self-influence requiring excess busywork is usually less faithfully applied and has less beneficial results. The motivating potential of goal proximity is best revealed by varying only whether attainment is compared with close or distant standards without confounding proximal goals with more bothersome and time-consuming overseeing routines.

Efforts to clarify how goal proximity operates in self-regulatory mechanisms often encounter methodological obstacles because of spontaneous goal transformations during the course of pursuits. When encouraged to set themselves distal goals, many people quickly improvise their own more helpful proximal goals. They simply partition desired future attainments into more easily realizable subgoals (Bandura & Simon, 1977; Dubbert & Wilson, 1984; Weinberg, Bruya, & Jackson, 1985). Performance becomes the product of self-created goals rather than of externally assigned ones. The effects of proximal goals are untestable if uncontrolled personal goal setting largely eliminates experimentally assigned temporal variation in goals. Similarly, even when people simply monitor their performance, without any reference to goals, many begin to create goals for themselves (Bandura & Cervone, 1983). Self-set goals predict subsequent levels of performance motivation. The motivational advantage of goal proximity becomes most evident under conditions that minimize transformation of distal goals into proximal ones (Bandura & Schunk, 1981).

Variations in personal goal setting under prescribed distal goals illustrate the dual self-processes of exercising and undergoing influence. Regardless of whether studies of self-regulatory processes focus on self-monitoring of progress or on goal setting, people are not simply reactors to situational influences. They often transform them into self-influences that differ from what others intend. Theories that attempt, through regressive causal analysis, to reduce self-regulatory processes to situational control overlook the fact that people are not merely objects of change; they act as agents who give new form to situational influences. Such bidirectionality of influence supports a reciprocal model of self-regulation (Bandura, 1986).

HIERARCHICAL STRUCTURE OF GOAL SYSTEMS

Thus far, the discussion has centered on goal systems as a directive and motivational device and on the self-referent mechanisms through which they exert their effects. Goal systems, of course, usually involve a hierarchical structure in which the goals that operate as the proximal regulators of motivation and action serve broader goals reflecting matters of personal import and value. However, proximal goals are not simply subordinate servitors of valued loftier ones, as commonly depicted in machinelike hierarchical control systems. Through engagement of the self-system, subgoals invest ac-self motivationersonal significance. As I have previously shown, proximal goals generate self-satisfaction from personal accomplishment that operates as its own reward during the pursuit of higher level goals. When the reward of personal accomplishment is linked to indicants of progress, individuals contribute a continuing source of self motivation quite apart from the incentive of the loftier goal. Indeed, subgoal challenges often outweigh the lure of superordinate goals as ongoing motivators (Bandura & Schunk, 1981). In this motivational process, people gain their satisfaction from progressive mastery of an activity rather than suspending any sense of success in their endeavors until the superordinate goal is attained. In short, the reward is in the ongoing process of mastery rather than solely in the attainment of the end goal. The model of self motivation as a process of recurrent proximal self-challenge and evaluative reward differs from one in which a linear series of subordinate goals is powered entirely by a superordinate one. Self motivation through proximal self-influence does not imply any restriction in the future time perspective of aspirations. Progress toward valued futures is best achieved by combining distal aspirations with proximal self-guidance.

GENERIC GOAL ORIENTATIONS

People impose goal preferences on activities that reflect their basic orientations to achievement across a wide range of situations. This process has been the focus of research on how people's conceptions of ability affect the goals they pursue, which in turn determines the

quality of their intellectual functioning (M. Bandura & Dweck, 1988; Dweck & Leggett, 1988; Nicholls, 1984). Two major conceptions have been identified. In one perspective, intelligence is construed as an *incremental skill* that can be continually enhanced by acquiring knowledge and perfecting one's competencies. People with this conception adopt a learning goal. They seek challenging tasks providing opportunities to expand their knowledge and develop their competencies. Errors are regarded as a natural, instructive part of an acquisition process—one learns from mistakes. Such an outlook sustains task-oriented, perseverant effort in the face of failures. Capabilities are judged more in terms of personal progress than by comparison against the achievements of others. Mastery through effort is rewarding, whereas easy successes are boring or disappointing.

In the contrasting perspective, intelligence is construed as a more or less *stable entity*. Because quality of performance is regarded as diagnostic of intellectual capability, errors and performance insufficiencies carry personal threat and arouse concern over social evaluation of incompetence. Consequently, people adopting the entity view tend to favor goals of exhibiting established skills and to prefer tasks that minimize the risk of errors at the expense of learning something new. Prolonged expenditure of effort, which is the way most competencies are built, also poses threats because high effort is taken to indicate low ability. Those aiming to look smart through proficient performance are prone to measure their capabilities by comparison with the achievements of others. Effort is rewarded by a feeling of pride or relief over validation of intellectual status without having had to expend much effort.

The effect of these differential goal orientations on psychological functioning is revealed in experiments in which children have to cope with failure (Elliott & Dweck, 1988). Those who view intelligence as an entity and perceive themselves as deficient in it are easily debilitated by failure, whereas those subscribing to an incremental view take failure in their stride. It should be noted that the processes and correlates discussed here concern goal orientations, not types of people. Thus, when children who construe ability as a fixed attribute are encouraged to adopt a learning goal by portraying intelligence as an acquirable skill, they manage failure much more effectively. Even the same individual may construe ability as a fixed

