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Building a Practically Useful Theory of Goal Setting and Task Motivation

A 35-Year Odyssey

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The authors summarize 35 years of empirical research on goal-setting theory. They describe the core findings of the theory, the mechanisms by which goals operate, moderators of goal effects, the relation of goals and satisfaction, and the role of goals as mediators of incentives. The external validity and practical significance of goal-setting theory are explained, and new directions in goal-setting research are discussed. The relationships of goal setting to other theories are described as are the theory's limitations.

In the 1950s and 1960s, the study of motivation in North American psychology was not considered a respectable pursuit. The field was dominated by behaviorists, and "motivation" was argued by them to lie outside the person in the form of reinforcers and punishers. When internal mechanisms were acknowledged, as in drive reduction theory, it was said that they were primarily physiological.

McClelland, a nonbehaviorist, argued for the existence of internal motives, such as need for achievement, but these were asserted to be subconscious (McClelland, Atkinson, Clark, & Lowell, 1953) and hence measurable only by projective tests. Behaviorists, drive reductionists, and advocates of subconscious motives all agreed that introspection was not a valid method of understanding human motivation. This ruled out the possibility of studying the conscious regulation of action.

An exception to the anticonsciousness zeitgeist was the work of Ryan. Anticipating the cognitive revolution in psychology, Ryan (1970) argued that "it seems a simple fact that human behavior is affected by conscious purposes, plans, intentions, tasks and the like" (p. 18). For Ryan, these, which he called *first-level explanatory concepts*, were the immediate motivational causes of most human action.

Lewin and his colleagues (e.g., Lewin, Dembo, Festinger, & Sears, 1944) studied conscious goals, or levels of aspiration, years prior to Ryan's work. However, they treated levels of aspiration as a dependent rather than an independent variable. Mace (1935), a British investigator who was perhaps less influenced than others by American behaviorism, was the first to examine the effects of different types of goals on task performance. His work was

largely ignored, however, except for a citation in Ryan's classic text with Smith on industrial psychology (Ryan & Smith, 1954).

Goal-setting theory was formulated inductively largely on the basis of our empirical research conducted over nearly four decades. It is based on Ryan's (1970) premise that conscious goals affect action. A goal is the object or aim of an action, for example, to attain a specific standard of proficiency, usually within a specified time limit. As industrial-organizational psychologists, our primary interest has been to predict, explain, and influence performance on organizational or work-related tasks. Thus, we focused on the relationship between conscious performance goals and level of task performance rather than on discrete intentions to take specific actions (e.g., to apply to graduate school, to get a medical examination). The latter type of intention has been studied extensively by social psychologists, such as Fishbein and Ajzen (1975).

Core Findings

The first issue we addressed was the relationship of goal difficulty to performance. Atkinson (1958), a student of McClelland, had shown that task difficulty, measured as probability of task success, was related to performance in a curvilinear, inverse function. The highest level of effort occurred when the task was moderately difficult, and the lowest levels occurred when the task was either very easy or very hard. Atkinson did not measure personal performance goals or goal difficulty. Moreover, his task-difficulty findings have not been replicated when task performance

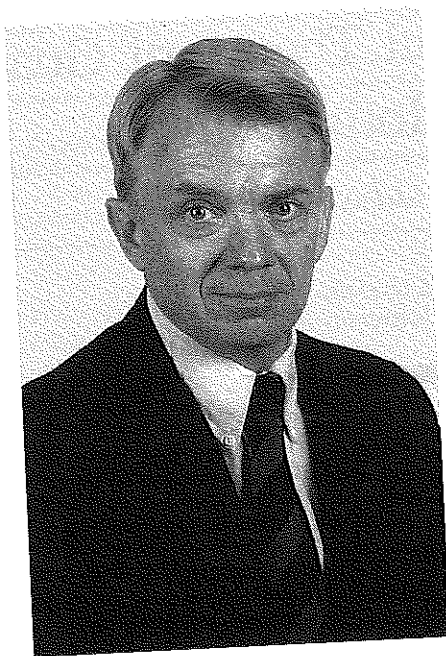
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goals were measured.¹ We found a positive, linear function in that the highest or most difficult goals produced the highest levels of effort and performance. Goal difficulty effect sizes (*d*) in meta-analyses ranged from .52 to .82 (Locke & Latham, 1990). Performance leveled off or decreased only when the limits of ability were reached or when commitment to a highly difficult goal lapsed (Erez & Zidon, 1984).

We also compared the effect of specific, difficult goals to a commonly used exhortation in organizational settings, namely, to do one's best. We found that specific, difficult goals consistently led to higher performance than urging people to do their best. The effect sizes in meta-analyses ranged from .42 to .80 (Locke & Latham, 1990). In short, when people are asked to do their best, they do not do so. This is because do-your-best goals have no external referent and thus are defined idiosyncratically. This allows for a wide range of acceptable performance levels, which is not the case when a goal level is specified. Goal specificity in itself does not necessarily lead to high performance because specific goals vary in difficulty. However, insofar as performance is fully controllable, goal specificity does reduce variation in performance by reducing the ambiguity about what is to be attained (Locke, Chah, Harrison, & Lustgarten, 1989). Goal studies have also compared the effects of learning versus performance goals and proximal versus distal goals. These results are discussed below in relation to the moderating effects of task complexity.

Expectancy and Social-Cognitive Theories

Goal-setting theory appears to contradict Vroom's (1964) valence-instrumentality-expectancy theory, which states that the force to act is a multiplicative combination of

valence (anticipated satisfaction), instrumentality (the belief that performance will lead to rewards), and expectancy (the belief that effort will lead to the performance needed to attain the rewards). Other factors being equal, expectancy is said to be linearly and positively related to performance. However, because difficult goals are harder to attain than easy goals, expectancy of goal success would presumably be negatively related to performance.

The apparent contradiction between the two theories is resolved by distinguishing expectancy within versus expectancy between goal conditions. Locke, Motowidlo, and Bobko (1986) found that when goal level is held constant, which is implicitly assumed by valence-instrumentality-expectancy theory, higher expectancies lead to higher levels of performance. Across goal levels, lower expectancies, associated with higher goal levels, are associated with higher performance.

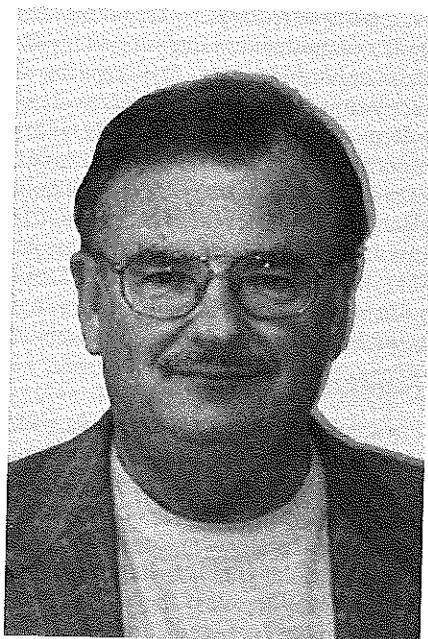
This within-between distinction is not an issue in social-cognitive theory (Bandura, 1986, 1997). Self-efficacy (task-specific confidence) is measured by getting efficacy ratings across a whole range of possible performance outcomes rather than from a single outcome (Locke et al., 1986). The concept of self-efficacy is important in goal-setting theory in several ways. When goals are self-set, people with high self-efficacy set higher goals than do people with lower self-efficacy. They also are more committed to assigned goals, find and use better task strategies to attain the goals, and respond more positively to negative feedback than do people with low self-efficacy (Locke & Latham, 1990; Seijts & B. W. Latham, 2001). These issues are addressed further below.

Goal Mechanisms

Goals affect performance through four mechanisms. First, goals serve a directive function; they direct attention and effort toward goal-relevant activities and away from goal-irrelevant activities. This effect occurs both cognitively and behaviorally. For example, Rothkopf and Billington (1979) found that students with specific learning goals paid attention to and learned goal-relevant prose passages better than goal-irrelevant passages. Locke and Bryan (1969) observed that people who were given feedback about multiple aspects of their performance on an automobile-driving task improved their performance on the dimensions for which they had goals but not on other dimensions.

Second, goals have an energizing function. High goals lead to greater effort than low goals. This has been shown with tasks that (a) directly entail physical effort, such as the ergometer (Bandura & Cervone, 1983); (b) entail repeated performance of simple cognitive tasks, such as addition; (c) include measurements of subjective effort (Bryan & Locke,

¹ Task and goal difficulty are not synonymous and can be measured separately. An example of a difficult task would be solving a complex anagram or a student pilot landing a plane. The term *performance goal*, as we use it, refers to the score one attains on the task (e.g., how many anagrams solved in three minutes or the proficiency level one attains in practice landings). A *learning goal* refers to the number of ideas or strategies one acquires or develops to accomplish the task effectively.



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1967a); and (d) include physiological indicators of effort (Sales, 1970).

Third, goals affect persistence. When participants are allowed to control the time they spend on a task, hard goals prolong effort (LaPorte & Nath, 1976). There is often, however, a trade-off in work between time and intensity of effort. Faced with a difficult goal, it is possible to work faster and more intensely for a short period or to work more slowly and less intensely for a long period. Tight deadlines lead to a more rapid work pace than loose deadlines in the laboratory (Bryan & Locke, 1967b) as well as in the field (Latham & Locke, 1975).

Fourth, goals affect action indirectly by leading to the arousal, discovery, and/or use of task-relevant knowledge and strategies (Wood & Locke, 1990). It is a virtual axiom that all action is the result of cognition and motivation, but these elements can interact in complex ways. Below is a summary of what has been found in goal-setting research:

1. When confronted with task goals, people automatically use the knowledge and skills they have already acquired that are relevant to goal attainment. For example, if the goal involves cutting logs, loggers use their knowledge of logging without the need for additional conscious planning in their choice to exert effort and persist until the goal is attained (Latham & Kinne, 1974).

2. If the path to the goal is not a matter of using automatized skills, people draw from a repertoire of skills that they have used previously in related contexts, and they apply them to the present situation. For example, Latham and Baldes (1975) found that truck drivers who were assigned the goal of increasing the weight of their truck loads made modifications to their trucks so that they could better estimate truck weight before driving to the weighing station.

3. If the task for which a goal is assigned is new to people, they will engage in deliberate planning to develop strategies that will enable them to attain their goals (Smith, Locke, & Barry, 1990).

4. People with high self-efficacy are more likely than those with low self-efficacy to develop effective task strategies (Latham, Winters, & Locke, 1994; Wood & Bandura, 1989). There may be a time lag between assignment of the goal and the effects of the goal on performance, as people search for appropriate strategies (Smith et al., 1990).

5. When people are confronted with a task that is complex for them, urging them to do their best sometimes leads to better strategies (Earley, Connolly, & Ekegren, 1989) than setting a specific difficult performance goal. This is because a performance goal can make people so anxious to succeed that they scramble to discover strategies in an unsystematic way and fail to learn what is effective. This can create evaluative pressure and performance anxiety. The antidote is to set specific challenging learning goals, such as to discover a certain number of different strategies to master the task (Seijts & G. P. Latham, 2001; Winters & Latham, 1996).

6. When people are trained in the proper strategies, those given specific high-performance goals are more likely to use those strategies than people given other types of goals; hence, their performance improves (Earley & Perry, 1987). However, if the strategy used by the person is inappropriate, then a difficult performance-outcome goal leads to worse performance than an easy goal (Audia, Locke, & Smith, 2000; Earley & Perry, 1987). For a detailed discussion of the relation of task goals and knowledge, see Locke (2000).

Moderators

Goal Commitment

The goal-performance relationship is strongest when people are committed to their goals. Seijts and Latham (2000a) found goal commitment questionnaires to have high reliability and validity. Commitment is most important and relevant when goals are difficult (Klein, Wesson, Hollenbeck, & Alge, 1999). This is because goals that are difficult for people require high effort and are associated with lower chances of success than easy goals (Erez & Zidon, 1984).

Two key categories of factors facilitating goal commitment are (a) factors that make goal attainment important to people, including the importance of the outcomes that they expect as a result of working to attain a goal, and (b) their belief that they can attain the goal (self-efficacy).

Importance. There are many ways to convince people that goal attainment is important. Making a public commitment to the goal enhances commitment, presumably because it makes one's actions a matter of integrity in one's own eyes and in those of others (Hollenbeck, Williams, & Klein, 1989). Goal commitment can also be enhanced by leaders communicating an inspiring vision and behaving supportively. In field settings (e.g., Ronan, Latham, & Kinne, 1973) and laboratory settings (e.g.,

Latham & Saari, 1979b), the supervisor's legitimate authority to assign goals creates *demand characteristics*.

An alternative to assigning goals is to allow subordinates to participate in setting them. The theory is that this would make goals more important to the person because one would, at least in part, own the goals. A series of studies by Latham and his colleagues revealed that, when goal difficulty is held constant, performances of those with participatively set versus assigned goals do not differ significantly (e.g., Dossett, Latham, & Mitchell, 1979; Latham & Marshall, 1982; Latham & Saari, 1979a, 1979b; Latham & Steele, 1983). Erez and her colleagues (Erez, 1986; Erez, Earley, & Hulin, 1985; Erez & Kanfer, 1983), however, reached the opposite conclusion.

Working collaboratively, with Locke as mediator, Latham and Erez explored reasons for their contradictory findings. They found that from a motivational perspective, an assigned goal is as effective as one that is set participatively provided that the purpose or rationale for the goal is given. However, if the goal is assigned tersely (e.g., "Do this . . .") without explanation, it leads to performance that is significantly lower than for a participatively set goal (Latham, Erez, & Locke, 1988). Meta-analyses of the effects of participation in decision making on performance, for those studies that measured performance objectively, yielded an effect size of only .11 (Wagner & Gooding, 1987a, 1987b).

Subsequently, Locke, Alavi, and Wagner (1997) found that the primary benefit of participation in decision making is cognitive rather than motivational in that it stimulates information exchange. For example, Latham et al. (1994) found that with goal difficulty level controlled, participation in goal setting had no beneficial effect on performance. However, people who participated with others in formulating task strategies performed significantly better and had higher self-efficacy than those who did not participate in formulating strategies.

Monetary incentives are one practical outcome that can be used to enhance goal commitment. However, there are important contingency factors. The first is the amount of the incentive; more money gains more commitment. Second, goals and incentive type interact. When the goal is very difficult, paying people only if they reach the goal (i.e., a task-and-bonus system) can hurt performance. Once people see that they are not getting the reward, their personal goal and their self-efficacy drop and, consequently, so does their performance. This drop does not occur if the goal is moderately difficult or if people are given a difficult goal and are paid for performance (e.g., piece rate) rather than goal attainment (Latham & Kinne, 1974; Latham & Yukl, 1975; T. Lee, Locke, & Phan, 1997).

Latham (2001) developed an empathy box to help managers identify nonfinancial outcomes that employees expected as a result of committing to or rejecting a specific difficult goal. In a study where the goal was to reduce theft, when self-efficacy regarding honest behavior was high, actions taken to change outcome expectancies led to a significant decrease in stolen material (Latham, 2001).

Self-efficacy. As noted, self-efficacy enhances goal commitment. Leaders can raise the self-efficacy of their subordinates (a) by ensuring adequate training to increase mastery that provides success experiences, (b) by role modeling or finding models with whom the person can identify, and (c) through persuasive communication that expresses confidence that the person can attain the goal (Bandura, 1997; White & Locke, 2000). The latter may involve giving subordinates information about strategies that facilitate goal attainment. Transformational leaders raise the efficacy of employees through inspiring messages to and cognitive stimulation of subordinates (Bass, 1985).

Feedback

For goals to be effective, people need summary feedback that reveals progress in relation to their goals. If they do not know how they are doing, it is difficult or impossible for them to adjust the level or direction of their effort or to adjust their performance strategies to match what the goal requires. If the goal is to cut down 30 trees in a day, people have no way to tell if they are on target unless they know how many trees have been cut. When people find they are below target, they normally increase their effort (Matsui, Okada, & Inoshita, 1983) or try a new strategy. Summary feedback is a moderator of goal effects in that the combination of goals plus feedback is more effective than goals alone (Bandura & Cervone, 1983; Becker, 1978; Erez, 1977; Strang, Lawrence, & Fowler, 1978).

Control theory (Carver & Scheier, 1981) also emphasizes the importance of goal setting and feedback for motivation. The assumptions that underlie control theory, however, are questionable (Locke, 1991a, 1994; Locke & Latham, 1990). In essence, the theory is based on a machine model derived from cybernetic engineering (Powers, 1978). The source of motivation is asserted to be a negative feedback loop (such as that characterizing a thermostat) that eliminates goal-performance discrepancies. The natural state of the organism is, by implication, one of motionlessness or rest.

Control theory is in effect a mechanistic version of Hull's drive reduction theory, which was abandoned decades ago. However, machines do not possess internal motivational states and do not have goals of their own. Their "goals" are those of the machine's builders. Furthermore, discrepancy reduction is a consequence rather than a cause of goal-directed behavior. As Bandura (1989) stated, goal setting is first and foremost a discrepancy-creating process. Motivation requires feed-forward control in addition to feedback. After people attain the goal they have been pursuing, they generally set a higher goal for themselves. This adoption of higher goals creates rather than reduces motivation discrepancies to be mastered. "Self motivation thus involves a dual cyclic process of disequilibrium discrepancy production followed by equilibrium reduction" (Bandura, 1989, p. 38).

Task Complexity

A third moderator of goal effects is task complexity. As the complexity of the task increases and higher level skills and

strategies have yet to become automatized, goal effects are dependent on the ability to discover appropriate task strategies. Because people vary greatly in their ability to do this, the effect size for goal setting is smaller on complex than on simple tasks. Meta-analyses (Wood, Mento, & Locke, 1987) have revealed goal difficulty effect sizes (d) of .48 for the most complex tasks versus .67 for the least complex tasks. For specific difficult goals versus a goal to do one's best, the effect size was .41 for the most complex tasks versus .77 for the least complex tasks.

Because people use a greater variety of strategies on tasks that are complex than on tasks that are easy, measures of task strategy often correlate more highly with performance than do measures of goal difficulty (Chesney & Locke, 1991). In addition, there are often goal-strategy interactions, with goal effects strongest when effective strategies are used (Durham, Knight, & Locke, 1997).

R. Kanfer and Ackerman (1989) found that in an air traffic controller simulation (a highly complex task), having a performance-outcome goal actually interfered with acquiring the knowledge necessary to perform the task. People performed better when they were asked to do their best. However, Winters and Latham (1996) showed that the fault was with the type of goal that had been set rather than with the theory. They found that when a specific difficult learning goal rather than a performance goal was set, consistent with goal-setting theory, high goals led to significantly higher performance on a complex task than did the general goal of urging people do their best.

Another factor that may facilitate performance on new, complex tasks is the use of proximal goals. Latham and Seijts (1999), using a business game, found that do-your-best goals were more effective than distal goals, but when proximal outcome goals were set in addition to the distal outcome goal, self-efficacy and profits were significantly higher than in the do-your-best condition or in the condition where only a distal outcome goal had been set. In dynamic situations, it is important to actively search for feedback and react quickly to it to attain the goal (Frese & Zapf, 1994). As Dörner (1991) noted, performance errors on a dynamic task are often due to deficient decomposition of a distal goal into proximal goals. Proximal goals can increase what Frese and Zapf (1994) called *error management*. Proximal feedback regarding errors can yield information for people about whether their picture of reality is aligned with what is required to attain their goal.

Personal Goals as Mediators of External Incentives

What Locke (1991b) called the *motivation hub*, meaning where the action is, consists of personal goals, including goal commitment, and self-efficacy. These variables are often, though not invariably, the most immediate, conscious motivational determinants of action. As such, they can mediate the effects of external incentives.

For example, assigned goal effects are mediated by personal or self-set goals that people choose in response to the assignment, as well as by self-efficacy. The relation-

ships among assigned goal difficulty, self-set goal difficulty, self-efficacy, and performance are shown in Figure 1. Observe that assigning a challenging goal alone raises self-efficacy because this is an implicit expression of confidence by a leader that the employee can attain the goal. The correlation between self-set goals and self-efficacy is higher when no goals are assigned.

The mediating effect of self-set goals and self-efficacy on monetary incentive effects was noted earlier (T. Lee et al., 1997). However, not all incentive studies have found a mediating effect. Wood, Atkins, and Bright (1999) showed that incentive effects were mediated by instrumentality or outcome expectancies rather than by goals and efficacy. Also, when summary feedback is provided without any goals, the feedback effects are mediated by the goals that are set in response to the feedback (Locke & Bryan, 1968). Bandura and Cervone (1986) found that both goals and self-efficacy mediated feedback effects. Self-efficacy is especially critical when negative summary feedback is given because the person's level of self-efficacy following such feedback determines whether subsequent goals are raised or lowered.

As noted earlier, the benefits of participation in decision making are primarily cognitive rather than motivational. However, Latham and Yukl (1976) and Latham, Mitchell, and Dossett (1978) found that employees who were allowed to participate in setting goals set higher goals and had higher performance than those who were assigned goals by the supervisor. The higher the goals, the higher the performance. Finally, Kirkpatrick and Locke (1996) found that goals and self-efficacy mediated the effect of visionary leadership on employee performance.

Satisfaction

Goals are, at the same time, an object or outcome to aim for and a standard for judging satisfaction. To say that one is trying to attain a goal of X means that one will not be satisfied unless one attains X . Thus, goals serve as the inflection point or reference standard for satisfaction versus dissatisfaction (Mento, Locke, & Klein, 1992). For any given trial, exceeding the goal provides increasing satisfaction as the positive discrepancy grows, and not reaching the goal creates increasing dissatisfaction as the negative dis-

Figure 1
Relationships Among Assigned Goals, Self-Set Goals, Self-Efficacy, and Performance



Note. Adapted from *A Theory of Goal Setting and Task Performance* (p. 72), by E. A. Locke and G. P. Latham, 1990, Englewood Cliffs, NJ: Prentice Hall. Copyright 1990 by Prentice Hall. Reprinted with permission.

crepancy grows. Across trials, the more goal successes one has, the higher one's total satisfaction.

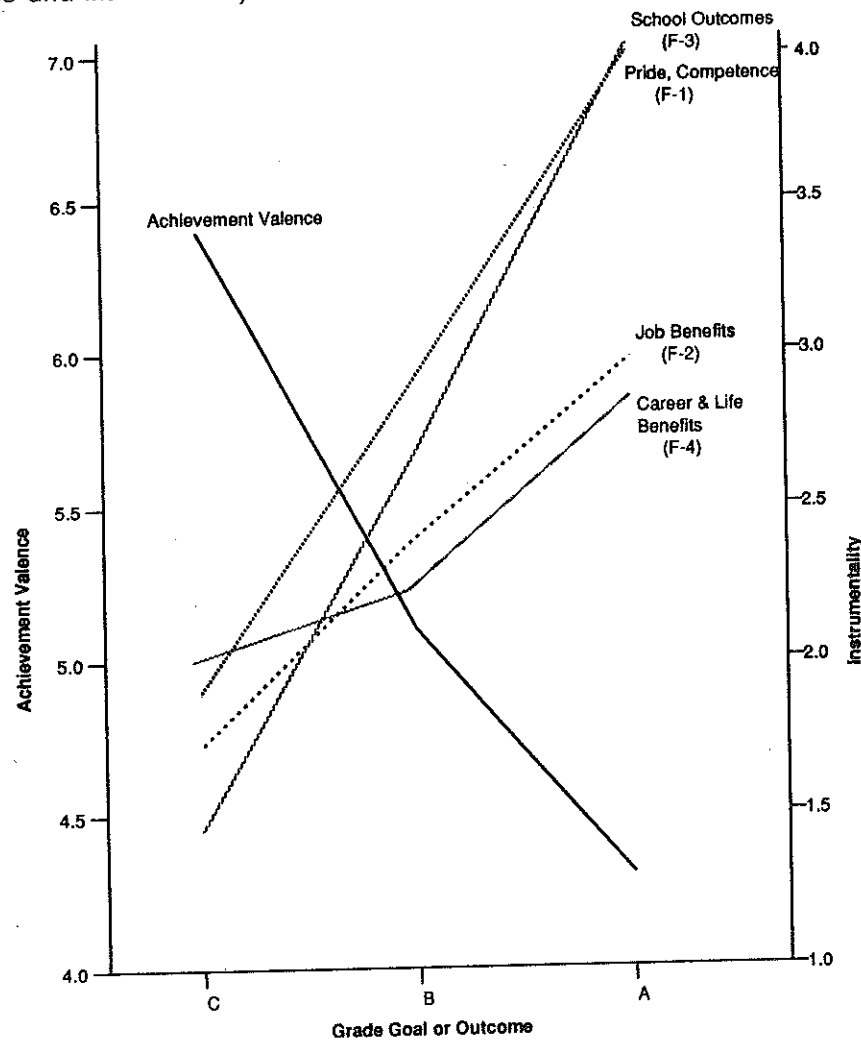
There is a paradox here, however. How can people who produce the most, those with difficult goals, be the least satisfied? The answer is implicit in the question. People with high goals produce more because they are dissatisfied with less. The bar for their satisfaction is set at a high level. This is why they are motivated to do more than those with easy goals.

But why would people be motivated to set high goals? People can expect many psychological and practical outcomes from setting and attaining those goals. For example, undergraduate business students reported four beneficial outcomes that they expected as a result of having a grade point average of A versus B versus C (Mento et al., 1992).

These outcomes were pride in performance; academic outcomes, such as admission into graduate school or receiving a scholarship; future benefits, such as an excellent job offer or a high starting salary; and life benefits, such as career success. At the same time, expected satisfaction with performance showed the opposite pattern. The highest degree of anticipated satisfaction, averaged across all grade outcomes, was for students with a goal of C, and the lowest was for students with a goal of earning an A. The relationships found by Mento et al. (1992) are shown in Figure 2. Setting specific challenging goals is also a means of enhancing task interest (Locke & Bryan, 1967) and of helping people to discover the pleasurable aspects of an activity (Harackiewicz, Manderlink, & Sansone, 1984).

Figure 2

Achievement Valence and Instrumentality Functions for Grade Goals or Outcomes



Note. From "Relationship of Goal Level to Valence and Instrumentality," by A. Mento, E. Locke, and H. Klein, 1992, *Journal of Applied Psychology*, 77, p. 401. Copyright 1992 by the American Psychological Association.

Practical Applications

Productivity and Cost Improvement

Numerous studies have shown that setting a specific difficult goal leads to significant increases in employee productivity (Locke & Latham, 1984). For example, loggers cut more trees (Latham & Kinne, 1974; Latham & Yukl, 1975), and unionized truck drivers increased the logs loaded on their trucks from 60% to 90% of the legal allowable weight (see Figure 3) as a result of assigned goals. The drivers saved the company \$250,000 in 9 months (Latham & Baldes, 1975). A subsequent study saved \$2.7 million dollars in 18 weeks by assigning unionized drivers the goal of increasing their number of daily trips to the mill (Latham & Saari, 1982). Word-processing operators with specific high goals increased their performance regardless of whether the goal was assigned or set participatively (Latham & Yukl, 1976). In a survey of companies from *Dun's Business Rankings*, Terpstra and Rozell (1994) found a significant correlation between goal setting and organizational profitability.

Performance Appraisal

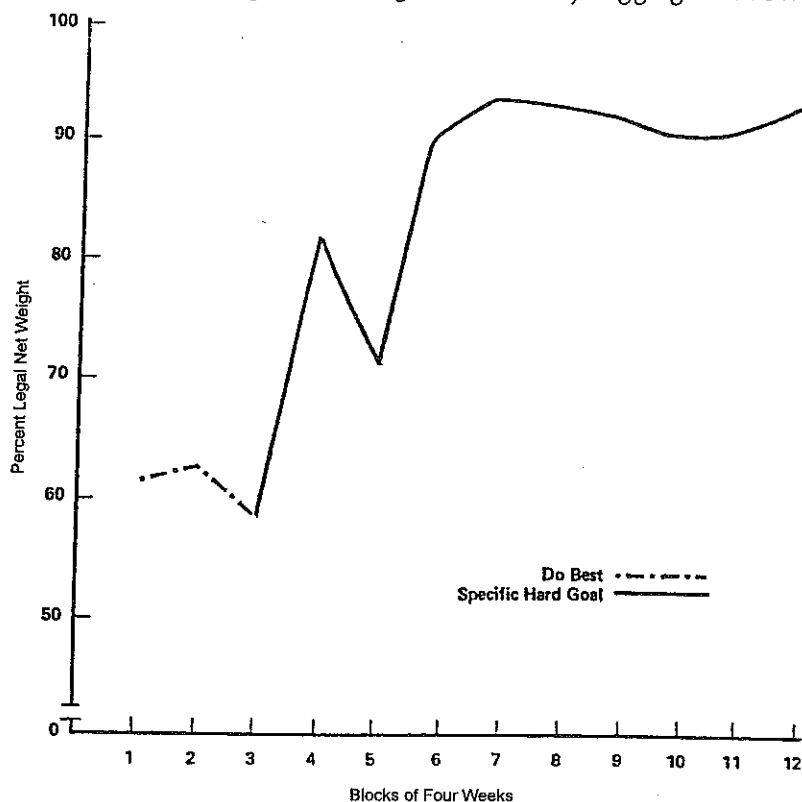
Engineers and scientists who set goals for their scores on a behavioral index of their performance had higher subsequent performance than those who were urged to do their best (Latham et al., 1978). Unionized telecommunications employees had high performance and high satisfaction with the performance appraisal process when specific high goals were set. Moreover, self-efficacy correlated positively with subsequent performance (Brown & Latham, 2000a). As was the case with the engineers and scientists, the higher the goal, the higher and more positive the performance appraisal.

Selection

Latham, Saari, Pursell, and Campion (1980) developed the situational interview to assess an applicant prior to employment. In brief, applicants are presented with situations, based on a job analysis. Each question contains a dilemma that assesses an applicant's goals or intentions for what he or she would do when confronted by these situations. Meta-analyses have shown that the situational interview

Figure 3

Effect of Goal Setting on Percentage of Legal Net Weight Achieved by Logging Truck Drivers



Note. From "The 'Practical Significance' of Locke's Theory of Goal Setting," by G. P. Latham and J. Baldes, 1975, *Journal of Applied Psychology*, 60, p. 123. Copyright 1975 by the American Psychological Association.

has high criterion-related validity (e.g., Huffcutt & Arthur, 1994; Latham & Sue-Chan, 1999). McDaniel, Whetzel, Schmidt, and Maurer (1994) concluded that the mean criterion-related validity of the situational interview is higher than that of all other selection interviews.

Self-Regulation at Work

A key variable in self-regulation is goal setting. Job attendance is a prerequisite of job performance. Consequently, Frayne and Latham (1987) adapted F. H. Kanfer's (1970, 1996) methodology for the development of a training program to teach unionized state government employees ways to overcome obstacles they perceived to coming to work. The training in self-regulation taught those employees to set specific high goals for attendance, to monitor ways in which their environment facilitated or hindered attainment of their goal, and to identify and administer rewards for making goal progress, as well as punishments for failing to make progress toward goal attainment.

Not only did this training in self-management enable these employees to cope effectively with personal and social obstacles to their job attendance but, consistent with social-cognitive theory (Bandura, 1986, 1997), it increased their self-efficacy because they could exercise influence over their behavior. Increases in self-efficacy correlated significantly with subsequent increases in job attendance. Moreover, the job attendance of the people who were taught these self-management skills was significantly higher than that of the control group three months after the training had taken place.

In a follow-up study, Latham and Frayne (1989) found that the increase in self-efficacy and the increase in job attendance were maintained over a nine-month period. Then, the control group was provided with the same training in self-regulation skills as the original experimental group. Three months later, their job attendance and self-efficacy regarding job attendance increased to the same level as that of the original experimental group. Similarly, Brown and Latham (2000b) studied the team-playing behavior of master's-level business students in their respective study groups. Those students who set specific high goals regarding their evaluation by peers and who received training in verbal self-guidance regarding goal attainment had higher team-playing skills than those who did not set goals.

Mental practice is symbolic guided rehearsal of a task in the absence of any physical involvement (Richardson, 1967). Using Richardson's (1967) methodology, mental practice in which goal setting was either implicit or explicit was investigated by Morin and Latham (2000) as a transfer-of-training intervention to improve the communication skills of supervisors interacting with the union. Six months later, self-efficacy was significantly higher for the supervisors who had received training in mental practice and goal setting than for those in the control group. Self-efficacy correlated significantly with goal commitment and communication skills on the job.

Finally, goal-setting research led to the development of the high-performance cycle (Latham, Locke, & Fassin,

2002; Locke & Latham, 1990). The high-performance cycle explains how high goals lead to high performance, which in turn leads to rewards, such as recognition and promotion. Rewards result in high satisfaction as well as high self-efficacy regarding perceived ability to meet future challenges through the setting of even higher goals. This cycle explains the lack of a direct connection between job satisfaction and subsequent productivity, an issue that has long puzzled psychologists (e.g., Hersey, 1932; Kornhauser & Sharp, 1932). In the high-performance cycle, high satisfaction is the result, not the cause, of high performance when rewards are commensurate with performance. The subsequent effect of satisfaction on action is therefore indirect rather than direct. Job satisfaction leads to performance only if it fosters organizational commitment, only if this commitment is to specific and challenging goals, and only if the moderator variables discussed in this article are taken into account. Goal setting also has been applied successfully to nonwork domains, such as sports (Lerner & Locke, 1995) and health management (Gauggel, 1999). It is applicable to any self-regulated activity.

New Directions and Limitations

Goal Conflict

In organizational settings, the organization's goal and the goal of the individual manager are sometimes in conflict. For example, working to attain the organization's goals could be detrimental to the monetary bonus of a manager if managers are rewarded more for the performance of the people they lead than for the performance of the overall organization. Goal conflict undermines performance if it motivates incompatible action tendencies (Locke, Smith, Erez, & Schaffer, 1994). Seijts and Latham (2000b) found that when specific, difficult goals of the person are aligned with the group's goal of maximizing performance, the group's performance is enhanced. Without such alignment, personal goals have a detrimental effect on a group's performance.

Learning and Performance Goals

We noted earlier that on tasks that are complex for people, learning goals can be superior to performance goals. However, there have been almost no studies examining the use of both together. Intriguing findings have been obtained by Harackiewicz, Barron, Carter, Lehto, and Elliott (1997) with college students. Performance goals improved grades but did not affect interest, whereas learning goals enhanced interest in the class but did not affect grades. The performance effect is contrary to Dweck's (e.g., Dweck & Leggett, 1988) assertion that performance goals have a deleterious effect on a wide range of educationally relevant outcome measures.

Goals and Risk

Organizations must take risks to remain competitive in the marketplace. Prospect theory (Kahneman & Tversky, 1979) emphasizes reference points, as does goal theory, but it does not incorporate the concept of aspiration level.

Knight, Durham, and Locke (2001) found that difficult performance goals increased the riskiness of the strategies participants chose to use in a computer game and improved performance. Obviously, higher risk strategies sometimes lead to worse performance outcomes than lower risk ones, and the conditions under which better or worse outcomes occur need to be studied further.

Personality

Two related issues are involved here. First, do goals, along with self-efficacy, mediate personality effects? It must be noted here that there is some doubt about the meaning of personality test scores (Bandura, 1986, 1997). If a trait measure refers only to past behavior, then trait-performance correlations involve predicting current behavior from past behavior. Traits, in this case, would predict but not explain behavior. If, however, traits are viewed, explicitly or implicitly, as reflecting, in some form, underlying motives, then they would constitute an explanation.

Regardless of one's opinion on this issue, a number of studies have found that goals, along with self-efficacy, mediate the effect of personality measures on work performance (see Locke, 2001, for a summary). For example, Matsui, Okada, and Kakuyama (1982) found that the relationship between achievement motivation (measured with a questionnaire) and performance disappeared when the difficulty level of self-set goals was controlled. Barrick, Mount, and Strauss (1993) found that the effects of conscientiousness on sales performance were partially mediated by goals and goal commitment. VandeWalle, Cron, and Slocum (2001) found that goals and self-efficacy mediated the effect of a person's goal orientation on student performance.

The second issue involved is whether goals are better predictors of action than traits. If goals mediate personality effects, then the former should predict better than the latter. Adler and Weiss (1988), in their review of the goal-setting literature, argued that a performance goal is a strong variable that masks personality differences. Yukl and Latham (1978) found that goals predicted performance and satisfaction better than a measure of need for achievement. Dweck and her colleagues (Dweck, 1986; Dweck & Leggett, 1988; Elliott & Dweck, 1988) found that two personality traits characterized children in the classroom. Those with a desire to acquire knowledge and skills—that is, those with a learning goal orientation (LGO)—performed better on school-related subjects than whose focus was primarily on attaining a performance outcome such as a grade or score—that is, those with a performance goal orientation (PGO). In industrial/organizational psychology, PGO has been measured as a desire not for challenging goals but rather for certain or easy success that results in praise (Button, Mathieu, & Zajac, 1996)—a focus that goal theory predicts would be associated with low performance. Thus, it would be an LGO rather than a PGO that would be more likely to lead people to undertake challenges, thus leading to high performance, as was found by VandeWalle et al. (2001). As noted, the latter study found LGO effects to be fully mediated by goals.

Seijts and B. W. Latham (2001) conducted a study to determine whether a learning goal too is a strong variable. They found that individuals who have a high PGO but are given a specific, difficult learning goal perform as well as those with a learning goal who have an LGO. In short, assigned goals neutralize goal orientation effects.

Further evidence that the setting of a high goal creates a strong situation was obtained by Harackiewicz and Elliott (1998). Using a pinball machine, they found that, regardless of whether a person scored high or low on need for achievement (as measured by a self-report questionnaire), a specific high-performance goal that was accompanied by a rationale or purpose that emphasized a PGO resulted in a higher level of intrinsic motivation (e.g., continued performance during free time) than a performance goal that emphasized an LGO. In the absence of a statement of purpose, a specific high-performance goal that emphasized an LGO resulted in the highest level of intrinsic interest in the task.

Goals and Subconscious Motivation

Because we had studied conscious goals and McClelland et al. (1953) had asserted that achievement motivation was subconscious, McClelland collaborated with Locke and others to see if there was a relationship between these two concepts. The results, involving entrepreneurs in the printing business, showed that need for achievement, measured by the Thematic Apperception Test (TAT; a projective test), had no concurrent or longitudinal relationship with a firm's performance and no relationship to entrepreneur-set goals. However, goal effects were highly significant in both cases (Tracy, Locke, & Renard, 1999).

Howard and Bray (1988) collected TAT data in a 25-year study of managers at AT&T. Collaborating with McClelland, they constructed a pattern score for leaders' motives from the TAT. This score combined need for power, power inhibition, and need for affiliation (weighted negatively). Howard also possessed unscored TAT protocols that she subsequently added to the data set. In addition, she made scoring adjustments, after consulting with McClelland about recent refinements in the procedure, for calculating leader motive pattern. In the reanalysis, the leader motive pattern was not significantly related to managers' number of promotions. However, managers' ambition was a significant motivational predictor of number of promotions over the 25-year period. Howard (personal communication) noted that the core item in the ambition factor was a single interview question: "How many levels up do you want to go?" This was the managers' conscious goal for number of promotions. Managers' motive patterns and their promotion goals were unrelated.

Two tentative conclusions may be drawn from Howard and Bray's (1988) results. First, even over a long period, Ryan's (1970) first-level explanation of motivation, namely, conscious goal setting, may be more reliably and directly tied to action than are second-level explanations (e.g., motives). Second, the conscious and subconscious aspects of achievement motivation are unrelated.

Despite the above results, there can be no doubt that the subconscious is a storehouse of knowledge and values beyond that which is in focal awareness at any given time (Murphy, 2001). People can take action without being fully aware of what is motivating them or what stored knowledge is affecting their choices. The lack of focus on the subconscious is a limitation of goal-setting theory. In the 19th century, the Wurzburg school (Ach, Watt, Kulpe, and others)—a school that influenced Lewin—showed that assigned goals (they used the term *tasks*) could affect action at a later time without people being aware of it. Research is now needed on the effect of the subconscious on goals and on the ways in which goals arouse and affect subconscious knowledge. As an initial step in this direction, Wegge and Dibbelt (2000) found that hard goals automatically enhanced the speed of information processing.

Goal-setting theory states that, irrespective of the subconscious, conscious motivation affects performance and job satisfaction. This is especially true for people who choose to be purposeful and proactive (Binswanger, 1991). As Bandura (1997) noted, people have the power to actively control their lives through purposeful thought; this includes the power to program and reprogram their subconscious, to choose their own goals, to pull out from the subconscious what is relevant to their purpose and to ignore what is not, and to guide their actions based on what they want to accomplish.

Conclusion

The essential elements of goal-setting theory, along with the high-performance cycle model, are summarized in Figure 4. Goal-setting theory is fully consistent with social-cognitive theory in that both acknowledge the importance of conscious goals and self-efficacy. The two theories differ in emphasis and scope. The focus of goal-setting theory is on the core properties of an effective goal. These properties are as follows: specificity and difficulty

level; goal effects at the individual, group, and organization levels; the proper use of learning versus performance goals; mediators of goal effects; the moderators of goal effects; the role of goals as mediators of other incentives; and the effect of goal source (e.g., assigned vs. self-set vs. participatively set).

Goal-setting theory is not limited to but focuses primarily on motivation in work settings. Social-cognitive theory and the research that underlies it are primarily focused on self-efficacy, its measurement, its causes, and its consequences at the individual, group, and societal levels in numerous domains of functioning. Social-cognitive theory also discusses the effects of and processes underlying modeling, cognitive development, moral judgment, language development, and physiological arousal. Despite these differences, the two theories agree about what is considered important in performance motivation. A detailed discussion of the relationship of goal theory to other work motivation theories is presented in Locke (1997).

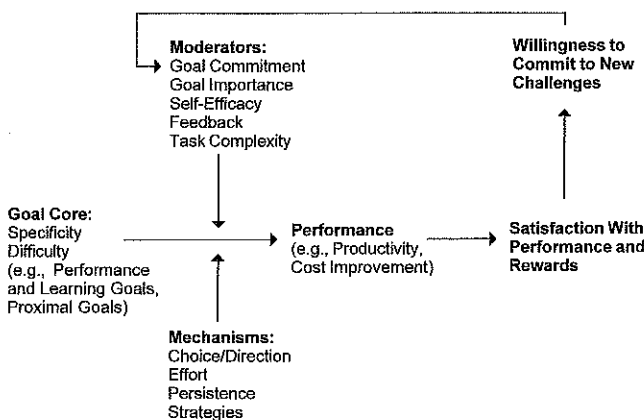
The effects of goal setting are very reliable. Failures to replicate them are usually due to errors, such as not matching the goal to the performance measure, not providing feedback, not getting goal commitment, not measuring the person's personal (self-set) goals, not conveying task knowledge, setting a performance goal when a specific high-learning goal is required, not setting proximal goals when the environment is characterized by uncertainty, or not including a sufficient range of goal difficulty levels (see Locke & Latham, 1990, chapter 2).

A key issue involved in theory building is that of generalization. With goal-setting theory, specific difficult goals have been shown to increase performance on well over 100 different tasks involving more than 40,000 participants in at least eight countries working in laboratory, simulation, and field settings. The dependent variables have included quantity, quality, time spent, costs, job behavior measures, and more. The time spans have ranged from 1 minute to 25 years. The effects are applicable not only to the individual but to groups (O'Leary-Kelly, Martocchio, & Frink, 1994), organizational units (Rogers & Hunter, 1991), and entire organizations (Baum, Locke, & Smith, 2001). The effects have been found using experimental, quasi-experimental, and correlational designs. Effects have been obtained whether the goals are assigned, self-set, or set participatively. In short, goal-setting theory is among the most valid and practical theories of employee motivation in organizational psychology (C. Lee & Earley, 1992; Miner, 1984; Pinder, 1998). Isn't it time that psychologists took consciousness, including conscious motivation, seriously (Locke, 1995)?

REFERENCES

- Adler, S., & Weiss, H. M. (1988). Recent developments in the study of personality and organizational behavior. In C. L. Cooper & I. T. Robertson (Eds.), *International review of industrial and organizational psychology* (pp. 307-330). New York: Wiley.
- Atkinson, J. (1958). Towards experimental analysis of human motivation in terms of motives, expectancies and incentives. In J. Atkinson (Ed.),

Figure 4
Essential Elements of Goal-Setting Theory and the High-Performance Cycle



- Motives in fantasy, action and society* (pp. 288–305). Princeton, NJ: Van Nostrand.
- Audia, P., Locke, E., & Smith, K. (2000). The paradox of success: An archival and a laboratory study of strategic persistence following a radical environmental change. *Academy of Management Journal*, 43, 837–853.
- Bandura, A. (1986). *Social foundations of thought and action: A social-cognitive theory*. Englewood Cliffs, NJ: Prentice Hall.
- Bandura, A. (1989). Self-regulation of motivation and action through internal standards and goal systems. In L. A. Pervin (Ed.), *Goal concepts in personality and social psychology* (pp. 19–85). Hillsdale, NJ: Erlbaum.
- Bandura, A. (1997). *Self-efficacy: The exercise of control*. New York: Freeman.
- Bandura, A., & Cervone, D. (1983). Self-evaluative and self-efficacy mechanisms governing the motivational effects of goal systems. *Journal of Personality and Social Psychology*, 45, 1017–1028.
- Bandura, A., & Cervone, D. (1986). Differential engagement of self-reactive influences in cognitive motivation. *Organizational Behavior and Human Decision Processes*, 38, 92–113.
- Barrick, M., Mount, M., & Strauss, J. (1993). Conscientiousness and performance of sales representatives: Test of the mediating effects of goal setting. *Journal of Applied Psychology*, 78, 715–722.
- Bass, B. (1985). *Leadership and performance beyond expectations*. New York: Free Press.
- Baum, R., Locke, E., & Smith, K. (2001). A multi-dimensional model of venture growth. *Academy of Management Journal*, 44, 292–303.
- Becker, L. (1978). Joint effect of feedback and goal setting on performance: A field study of residential energy conservation. *Journal of Applied Psychology*, 63, 428–433.
- Binswanger, H. (1991). Volition as cognitive self-regulation. *Organizational Behavior and Human Decision Processes*, 50, 154–178.
- Brown, T. C., & Latham, G. P. (2000a). The effects of goal setting and self-instruction training on the performance of unionized employees. *Industrial Relations*, 55, 80–94.
- Brown, T. C., & Latham, G. P. (2000b, August). *The effects of training in verbal self-guidance and goal setting on teamplaying behavior*. Paper presented at the meetings of the Academy of Management, Toronto, Ontario, Canada.
- Bryan, J., & Locke, E. (1967a). Goal setting as a means of increasing motivation. *Journal of Applied Psychology*, 51, 274–277.
- Bryan, J., & Locke, E. (1967b). Parkinson's law as a goal-setting phenomenon. *Organizational Behavior and Human Performance*, 2, 258–275.
- Button, S., Mathieu, J., & Zajac, D. (1996). Goal orientation in organizational research: A conceptual and empirical foundation. *Organizational Behavior and Human Decision Processes*, 67, 26–48.
- Carver, C., & Scheier, M. (1981). *Attention and self-regulation: A control theory approach to human behavior*. New York: Springer-Verlag.
- Chesney, A., & Locke, E. (1991). An examination of the relationship among goal difficulty, business strategies, and performance on a complex management simulation task. *Academy of Management Journal*, 34, 400–424.
- Donner, D. (1991). The investigation of action regulation in uncertain and complex situations. In J. Rasmussen & B. Brehmer (Eds.), *Distributed decision making: Cognitive models for cooperative work* (pp. 349–354). Chichester, England: Wiley.
- Dossett, D. L., Latham, G. P., & Mitchell, T. R. (1979). Effects of assigned vs. participatively set goals, knowledge of results, and individual differences on employee behavior when goal difficulty is held constant. *Journal of Applied Psychology*, 64, 291–298.
- Durham, C., Knight, D., & Locke, E. (1997). Effects of leader role, team-set goal difficulty, efficacy, and tactics on team effectiveness. *Organizational Behavior and Human Decision Processes*, 72, 203–231.
- Dweck, C. S. (1986). Motivational processes affecting learning. *American Psychologist*, 41, 1040–1048.
- Dweck, C. S., & Leggett, E. L. (1988). A social-cognitive approach to motivation and personality. *Psychological Review*, 95, 256–273.
- Earley, P. C., Connolly, T., & Ekegren, G. (1989). Goals, strategy development and task performance: Some limits on the efficacy of goal setting. *Journal of Applied Psychology*, 74, 24–33.
- Earley, P. C., & Perry, B. (1987). Work plan availability and performance: An assessment of task strategy priming on subsequent task completion. *Organizational Behavior and Human Decision Processes*, 39, 279–302.
- Elliott, E. S., & Dweck, C. S. (1988). Goals: An approach to motivation and achievement. *Journal of Personality and Social Psychology*, 54, 5–12.
- Erez, M. (1977). Feedback: A necessary condition for the goal-performance relationship. *Journal of Applied Psychology*, 62, 624–627.
- Erez, M. (1986). The congruence of goal-setting strategies with socio-cultural values and its effect on performance. *Journal of Management*, 12, 585–592.
- Erez, M., Earley, P. C., & Hulin, C. L. (1985). The impact of participation on goal acceptance and performance: A two step model. *Academy of Management Journal*, 28, 50–66.
- Erez, M., & Kanfer, F. H. (1983). The role of goal congruence in goal setting and task performance. *Academy of Management Review*, 8, 454–463.
- Erez, M., & Zidon, I. (1984). Effects of goal acceptance on the relationship of goal setting and task performance. *Journal of Applied Psychology*, 69, 69–78.
- Fishbein, M., & Ajzen, I. (1975). *Belief, attitude, intention and behavior: An introduction to theory and research*. Reading, MA: Addison-Wesley.
- Frayne, C. A., & Latham, G. P. (1987). The application of social learning theory to employee self-management of attendance. *Journal of Applied Psychology*, 72, 387–392.
- Frese, M., & Zapf, D. (1994). Action as the core of work psychology: A German approach. In H. C. Triandis & M. D. Dunnette (Eds.), *Handbook of industrial and organizational psychology* (2nd ed., pp. 271–340). Palo Alto, CA: Consulting Psychologists Press.
- Gauggel, S. (1999). *Goal setting and its influence on the performance of brain-damaged patients*. Unpublished doctoral dissertation, Philipps University of Marburg, Marburg, Germany.
- Harackiewicz, J. M., Barron, K. E., Carter, S. M., Lehto, A. T., & Elliott, A. J. (1997). Predictors and consequences of achievement goals in the college classroom: Maintaining interest and making the grade. *Journal of Personality and Social Psychology*, 73, 1284–1295.
- Harackiewicz, J. M., & Elliott, N. J. (1998). The joint effects of target and purpose goals on intrinsic motivation. *Personality and Social Psychology Bulletin*, 24, 675–689.
- Harackiewicz, J. M., Manderlink, G., & Sansone, C. (1984). Rewarding pinball wizardry: Effects of evaluation and cue value on intrinsic interest. *Journal of Personality and Social Psychology*, 47, 287–300.
- Hersey, R. B. (1932). *Workers' emotions in shop and home: A study of individual workers from the psychological and physiological standpoint*. Philadelphia: University of Pennsylvania Press.
- Hollenbeck, J., Williams, C., & Klein, H. (1989). An empirical examination of the antecedents of commitment to difficult goals. *Journal of Applied Psychology*, 74, 18–23.
- Howard, A., & Bray, D. (1988). *Managerial lives in transition*. New York: Guilford Press.
- Huffcutt, A. I., & Arthur, W. A. (1994). Hunter and Hunter (1984) revisited: Interview validity for entry-level jobs. *Journal of Applied Psychology*, 79, 184–190.
- Kahneman, D., & Tversky, A. (1979). Prospect theory: An analysis of decision under risk. *Econometrica*, 47, 263–291.
- Kanfer, F. H. (1970). Self-regulation: Research, issues and speculation. In C. Neuringer & J. L. Michael (Eds.), *Behavior modification in clinical psychology* (pp. 178–220). New York: Appleton-Century-Crofts.
- Kanfer, F. H. (1996). Motivation and emotion in behavior therapy. In K. S. Dobson & K. D. Craig (Eds.), *Advances in cognitive-behavioral therapy* (pp. 1–30). Thousand Oaks, CA: Sage.
- Kanfer, R., & Ackerman, P. L. (1989). Motivation and cognitive abilities: An integrative aptitude treatment interaction approach to skill acquisition. *Journal of Applied Psychology*, 74, 657–690.
- Kirkpatrick, S., & Locke, E. (1996). Direct and indirect effects of three core charismatic leadership components on performance and attitudes. *Journal of Applied Psychology*, 81, 36–51.
- Klein, H., Wesson, M., Hollenbeck, J., & Alge, B. (1999). Goal commitment and the goal-setting process: Conceptual clarification and empirical synthesis. *Journal of Applied Psychology*, 84, 885–896.

- Knight, D., Durham, C., & Locke, E. (2001). The relationship of team goals, incentives and efficacy to strategic risk, tactical implementation and performance. *Academy of Management Journal*, 44, 326-338.
- Kornhauser, A. W., & Sharp, A. A. (1932). Employee attitudes: Suggestions from a study in a factory. *Personnel Journal*, 10, 393-404.
- LaPorte, R., & Nath, R. (1976). Role of performance goals in prose learning. *Journal of Educational Psychology*, 68, 260-264.
- Latham, G. P. (2001). The importance of understanding and changing employee outcome expectancies for gaining commitment to an organizational goal. *Personnel Psychology*, 54, 707-716.
- Latham, G. P., & Baldes, J. (1975). The "practical significance" of Locke's theory of goal setting. *Journal of Applied Psychology*, 60, 122-124.
- Latham, G. P., Erez, M., & Locke, E. (1988). Resolving scientific disputes by the joint design of crucial experiments by the antagonists: Application to the Erez-Latham dispute regarding participation in goal setting. *Journal of Applied Psychology*, 73, 753-772.
- Latham, G. P., & Frayne, C. A. (1989). Self-management training for increasing job attendance: A follow-up and a replication. *Journal of Applied Psychology*, 74, 411-416.
- Latham, G. P., & Kinne, S. B. (1974). Improving job performance through training in goal setting. *Journal of Applied Psychology*, 59, 187-191.
- Latham, G. P., & Locke, E. A. (1975). Increasing productivity with decreasing time limits: A field replication of Parkinson's law. *Journal of Applied Psychology*, 60, 524-526.
- Latham, G. P., Locke, E. A., & Fassina, N. E. (2002). The high performance cycle: Standing the test of time. In S. Sonnentag (Ed.), *Psychological management of individual performance* (pp. 201-228). Chichester, England: Wiley.
- Latham, G. P., & Marshall, H. A. (1982). The effects of self-set, participatively set, and assigned goals on the performance of government employees. *Personnel Psychology*, 35, 399-404.
- Latham, G. P., Mitchell, T. R., & Dossett, D. L. (1978). The importance of participative goal setting and anticipated rewards on goal difficulty and job performance. *Journal of Applied Psychology*, 63, 163-171.
- Latham, G. P., & Saari, L. M. (1979a). The effects of holding goal difficulty constant on assigned and participatively set goals. *Academy of Management Journal*, 22, 163-168.
- Latham, G. P., & Saari, L. M. (1979b). The importance of supportive relationships in goal setting. *Journal of Applied Psychology*, 64, 151-156.
- Latham, G. P., & Saari, L. M. (1982). The importance of union acceptance for productivity improvement through goal setting. *Personnel Psychology*, 69, 569-573.
- Latham, G. P., Saari, L. M., Pursell, E. D., & Campion, M. (1980). The situational interview. *Journal of Applied Psychology*, 65, 422-427.
- Latham, G. P., & Seijts, G. H. (1999). The effects of proximal and distal goals on performance on a moderately complex task. *Journal of Organizational Behavior*, 20, 421-429.
- Latham, G. P., & Steele, T. P. (1983). The motivational effects of participation versus goal setting on performance. *Academy of Management Journal*, 26, 406-417.
- Latham, G. P., & Sue-Chan, C. (1999). A meta-analysis of the situational interview: An enumerative review of reasons for its validity. *Canadian Psychology*, 40, 56-67.
- Latham, G. P., Winters, D., & Locke, E. (1994). Cognitive and motivational effects of participation: A mediator study. *Journal of Organizational Behavior*, 15, 49-63.
- Latham, G. P., & Yukl, G. A. (1975). Assigned versus participative goal setting with educated and uneducated wood workers. *Journal of Applied Psychology*, 60, 299-302.
- Latham, G. P., & Yukl, G. (1976). Effects of assigned and participative goal setting on performance and job satisfaction. *Journal of Applied Psychology*, 61, 166-171.
- Lee, C., & Earley, P. C. (1992). Comparative peer evaluations of organizational behavior theories. *Organization Development Journal*, 10, 37-42.
- Lee, T., Locke, E., & Phan, S. (1997). Explaining the assigned goal-incentive interaction: The role of self-efficacy and personal goals. *Journal of Management*, 23, 541-559.
- Lerner, B., & Locke, E. A. (1995). The effects of goal setting, self-efficacy, competition and personal traits on the performance of an endurance task. *Journal of Sport and Exercise Psychology*, 17, 138-152.
- Lewin, K., Dembo, T., Festinger, L., & Sears, P. (1944). Level of aspiration. In J. Hunt (Ed.), *Personality and the behavior disorders* (Vol. 1). New York: Ronald Press.
- Locke, E. A. (1991a). Goal theory vs. control theory: Contrasting approaches to understanding work motivation. *Motivation and Emotion*, 15, 9-28.
- Locke, E. A. (1991b). The motivation sequence, the motivation hub and the motivation core. *Organizational Behavior and Human Decision Processes*, 50, 288-299.
- Locke, E. A. (1994). The emperor is naked. *Applied Psychology: An International Review*, 43, 367-370.
- Locke, E. A. (1995). Beyond determinism and materialism, or isn't it time we took consciousness seriously? *Journal of Behavior Therapy and Experimental Psychiatry*, 26, 265-273.
- Locke, E. A. (1997). The motivation to work: What we know. In M. Maehr & P. Pintrich (Eds.), *Advances in motivation and achievement* (Vol. 10, pp. 375-412). Greenwich, CT: JAI Press.
- Locke, E. A. (2000). Motivation, cognition, and action: An analysis of studies of task goals and knowledge. *Applied Psychology: An International Review*, 49, 408-429.
- Locke, E. A. (2001). Self-set goals and self-efficacy as mediators of incentives and personality. In M. Erez, H. U. Kleinbeck, & H. Thierry (Eds.), *Work motivation in the context of a globalizing economy* (pp. 13-26). Mahwah, NJ: Erlbaum.
- Locke, E. A., Alavi, M., & Wagner, J. (1997). Participation in decision-making: An information exchange perspective. In G. Ferris (Ed.), *Research in personnel and human resources management* (Vol. 15, pp. 293-331). Greenwich, CT: JAI Press.
- Locke, E., & Bryan, J. (1967). Performance goals as determinants of level of performance and boredom. *Journal of Applied Psychology*, 51, 120-130.
- Locke, E. A., & Bryan, J. (1968). Goal setting as a determinant of the effects of knowledge of score in performance. *American Journal of Psychology*, 81, 398-406.
- Locke, E. A., & Bryan, J. (1969). The directing function of goals in task performance. *Organizational Behavior and Human Performance*, 4, 35-42.
- Locke, E. A., Chah, D., Harrison, S., & Lustgarten, N. (1989). Separating the effects of goal specificity from goal level. *Organizational Behavior and Human Performance*, 43, 270-287.
- Locke, E. A., & Latham, G. P. (1984). *Goal setting: A motivational technique that works!* Englewood Cliffs, NJ: Prentice Hall.
- Locke, E. A., & Latham, G. P. (1990). *A theory of goal setting and task performance*. Englewood Cliffs, NJ: Prentice Hall.
- Locke, E. A., Motowidlo, S., & Bobko, P. (1986). Using self-efficacy theory to resolve the conflict between goal-setting theory and expectancy theory in organizational behavior and industrial/organizational psychology. *Journal of Social and Clinical Psychology*, 4, 328-338.
- Locke, E. A., Smith, K., Erez, M., Chah, D., & Schaffer, A. (1994). The effects of intra-individual goal conflict on performance. *Journal of Management*, 20, 67-91.
- Mace, C. A. (1935). *Incentives: Some experimental studies* (Report No. 72). London: Industrial Health Research Board.
- Matsui, T., Okada, A., & Inoshita, O. (1983). Mechanism of feedback affecting task performance. *Organizational Behavior and Human Performance*, 31, 114-122.
- Matsui, T., Okada, A., & Kakuyama, T. (1982). Influence of achievement need on goal setting, performance, and feedback effectiveness. *Journal of Applied Psychology*, 67, 645-648.
- McClelland, D., Atkinson, J., Clark, J., & Lowell, E. (1953). *The achievement motive*. New York: Appleton-Century-Crofts.
- McDaniel, M. A., Whetzel, D. L., Schmidt, F. L., & Maurer, S. D. (1994). The validity of employment interviews: A comprehensive review and meta-analysis. *Journal of Applied Psychology*, 79, 599-616.
- Mento, A., Locke, E., & Klein, H. (1992). Relationship of goal level to valence and instrumentality. *Journal of Applied Psychology*, 77, 395-405.
- Miner, J. B. (1984). The validity and usefulness of theories in emerging organizational science. *Academy of Management Review*, 9, 296-306.
- Morin, L., & Latham, G. P. (2000). Effect of mental practice and goal

- setting as a transfer of training intervention on supervisors' self-efficacy and communication skills: An exploratory study. *Applied Psychology: An International Review*, 49, 566-578.
- Murphy, S. T. (2001). Feeling without thinking: Affective primacy and the nonconscious processing of emotion. In J. A. Bargh & D. K. Apsley (Eds.), *Unraveling the complexities of social life: A festschrift in honor of Robert B. Zajonc* (pp. 39-53). Washington, DC: American Psychological Association.
- O'Leary-Kelly, A., Martocchio, J., & Frink, D. (1994). A review of the influence of group goals on group performance. *Academy of Management Journal*, 37, 1285-1301.
- Pinder, C. (1998). *Work motivation in organizational behavior*. Englewood Cliffs, NJ: Prentice Hall.
- Powers, W. (1978). Quantitative analysis of purposive systems: Some spadework at the foundations of scientific psychology. *Psychological Review*, 85, 417-435.
- Richardson, A. (1967). Mental practice: A review and discussion: Part I. *Research Quarterly*, 38, 95-107.
- Rogers, R., & Hunter, J. (1991). Impact of management by objectives on organizational productivity. *Journal of Applied Psychology*, 76, 322-336.
- Ronan, W. W., Latham, G. P., & Kinne, S. B. (1973). The effects of goal setting and supervision on worker behavior in an industrial situation. *Journal of Applied Psychology*, 58, 302-307.
- Rothkopf, E., & Billington, M. (1979). Goal-guided learning from text: Inferring a descriptive processing model from inspection times and eye movements. *Journal of Educational Psychology*, 71, 310-327.
- Ryan, T. A. (1970). *Intentional behavior*. New York: Ronald Press.
- Ryan, T. A., & Smith, P. C. (1954). *Principles of industrial psychology*. New York: Ronald Press.
- Sales, M. (1970). Some effects of role overload and role underload. *Organizational Behavior and Human Performance*, 5, 592-608.
- Seijts, G. H., & Latham, B. W. (2001, June). Can goal orientation be induced? Further exploration of the state versus trait debate. In C. Sue-Chan (Chair), *Justice, efficacy, goal orientation, culture, and creativity: New findings in motivation*. Symposium conducted at the annual meeting of the Canadian Psychological Association, St. Foy, Quebec, Canada.
- Seijts, G. H., & Latham, G. P. (2000a). The construct of goal commitment: Measurement and relationships with task performance. In R. Goffin & E. Helmes (Eds.), *Problems and solutions in human assessment* (pp. 315-332). Dordrecht, the Netherlands: Kluwer Academic.
- Seijts, G. H., & Latham, G. P. (2000b). The effects of goal setting and group size on performance in a social dilemma. *Canadian Journal of Behavioural Science*, 32, 104-116.
- Seijts, G. H., & Latham, G. P. (2001). The effect of learning, outcome, and proximal goals on a moderately complex task. *Journal of Organizational Behavior*, 22, 291-302.
- Smith, K., Locke, E., & Barry, D. (1990). Goal setting, planning and organizational performance: An experimental simulation. *Organizational Behavior and Human Decision Processes*, 46, 118-134.
- Strang, H. R., Lawrence, E. C., & Fowler, P. C. (1978). Effects of assigned goal level and knowledge of results on arithmetic compensation: A laboratory study. *Journal of Applied Psychology*, 63, 446-450.
- Terpstra, D. E., & Rozell, E. J. (1994). The relationship of goal setting to organizational profitability. *Group and Organization Management*, 19, 285-294.
- Tracy, K., Locke, E., & Renard, M. (1999, August). *Conscious goal setting versus subconscious motives: Longitudinal and concurrent effects on the performance of entrepreneurial firms*. Paper presented at the annual meeting of the Academy of Management, Chicago, IL.
- VandeWalle, D., Cron, W., & Slocum, J. (2001). The role of goal orientation following performance feedback. *Journal of Applied Psychology*, 86, 629-640.
- Vroom, V. (1964). *The motivation to work*. New York: Wiley.
- Wagner, J., & Gooding, R. (1987a). Effects of societal trends on participation research. *Administrative Science Quarterly*, 32, 241-262.
- Wagner, J., & Gooding, R. (1987b). Shared influence and organizational behavior: A meta-analysis of situational variables expected to moderate participation-outcome relationships. *Academy of Management Journal*, 30, 524-541.
- Wegge, J., & Dibbelt, S. (2000). Zur wirkung von Zielsetzungen auf die Informationsverarbeitung bei Buchstabenvergleichsaufgaben [Effects of goal setting on information processing in letter-matching tasks]. *Zeitschrift fuer Experimentelle Psychologie*, 47, 89-114.
- White, S., & Locke, E. (2000). Problems with the Pygmalion effect and some proposed solutions. *Leadership Quarterly*, 11, 389-415.
- Winters, D., & Latham, G. (1996). The effect of learning versus outcome goals on a simple versus a complex task. *Group and Organization Management*, 21, 236-250.
- Wood, R., Atkins, P., & Bright, J. (1999). Bonuses, goals and instrumentality effects. *Journal of Applied Psychology*, 84, 703-720.
- Wood, R., & Bandura, A. (1989). Social-cognitive theory of organizational management. *Academy of Management Review*, 14, 361-384.
- Wood, R., & Locke, E. (1990). Goal setting and strategy effects on complex tasks. In B. Staw & L. Cummings (Eds.), *Research in organizational behavior* (Vol. 12, pp. 73-109). Greenwich, CT: JAI Press.
- Wood, R., Mento, A., & Locke, E. (1987). Task complexity as a moderator of goal effects. *Journal of Applied Psychology*, 72, 416-425.
- Yukl, G. A., & Latham, G. P. (1978). Interrelationships among employee participation, individual differences, goal difficulty, goal acceptance, goal instrumentality, and performance. *Personnel Psychology*, 31, 305-324.