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## Goal Setting and Task Performance: 1969-1980

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A review of both laboratory and field studies on the effects of setting goals when performing a task found that in 90% of the studies, specific and challenging goals lead to higher performance than easy goals, "do your best" goals, or no goals. Goals affect performance by directing attention, mobilizing effort, increasing persistence, and motivating strategy development. Goal setting is most likely to improve task performance when the goals are specific and sufficiently challenging, the subjects have sufficient ability (and ability differences are controlled), feedback is provided to show progress in relation to the goal, rewards such as money are given for goal attainment, the experimenter or manager is supportive, and assigned goals are accepted by the individual. No reliable individual differences have emerged in goal-setting studies, probably because the goals were typically assigned rather than self-set. Need for achievement and self-esteem may be the most promising individual difference variables.

In this article we summarize research relating to (a) the effects of setting various types of goals or objectives on task performance and (b) the factors (other than the goals themselves) that influence the effectiveness of goal setting.

All-encompassing theories of motivation based on such concepts as instinct, drive, and conditioning have not succeeded in explaining human action. Such theories have been gradually replaced by more modest and limited approaches to motivation. These approaches do not presume to explain all motivational phenomena; their domains are more restricted. The study of goal setting is one such limited approach.

The concept of goal setting falls within the broad domain of cognitive psychology and is consistent with recent trends such as cognitive behavior modification (Meichenbaum, 1977). The present interest of researchers in goal setting has two sources, one academic

and the other organizational. The academic source extends back in time from Ryan (1970) and G. Miller, Galanter, and Pribram (1960), through Lewin, to the Wurzburg School and the associated concepts of intention, task, set, and level of aspiration (see Ryan, 1970, for a summary). The organizational source is traced from Management by Objectives programs, now widely used in industry (see Odiorne, 1978, for a summary), back to the Scientific Management movement founded by Frederick W. Taylor (1911/1967). These two strains of thought converge in the more recent work of Locke (1968), Latham (Latham & Yukl, 1975b), and others who have studied the effects of goal setting on task performance. Goal setting is also an important component of social learning theory (Bandura, 1977), which has become increasingly influential in recent years. Even the literature on organizational behavior modification can be interpreted largely within a goal-setting framework (Locke, 1977).

Research on goal setting is proliferating so rapidly that recent reviews (Latham & Yukl, 1975b; Locke, 1968; Steers & Porter, 1974) are now outdated. To provide a longer

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term perspective than just the last 6 years, our review includes research published since 1968. Studies that are explicitly clinical and social-psychological in nature are not included (for a detailed review of the latter, see Fishbein & Ajzen, 1975).

### The Concept of Goal Setting

A goal is what an individual is trying to accomplish; it is the object or aim of an action. The concept is similar in meaning to the concepts of purpose and intent (Locke, 1969). Other frequently used concepts that are also similar in meaning to that of goal include performance standard (a measuring rod for evaluating performance), quota (a minimum amount of work or production), work norm (a standard of acceptable behavior defined by a work group), task (a piece of work to be accomplished), objective (the ultimate aim of an action or series of actions), deadline (a time limit for completing a task), and budget (a spending goal or limit).

Earlier attempts by behaviorists to reduce concepts like goal and purpose to physical events have been strongly criticized (e.g., see Locke, 1969, 1972). Goal setting might be called "stimulus control" by a modern behaviorist, but the key question then becomes, What is the stimulus? If it is only an assigned goal (an environmental event), then the importance of goal acceptance is ignored; an assigned goal that is rejected can hardly regulate performance. If goal acceptance is considered relevant, then the regulating stimulus must be a mental event—ultimately the individual's goal. The environment, of course, can influence goal setting as well as goal acceptance, an issue that is dealt with in some of the recent research.

The basic assumption of goal-setting research is that goals are immediate regulators of human action. However, no one-to-one correspondence between goals and action is assumed because people may make errors, lack the ability to attain their objectives (Locke, 1968), or have subconscious conflicts or premises that subvert their conscious goals. The precise degree of association between goals and action is an empirical question that is dealt with in the research we

review here. We also examine the mechanisms by which goals affect action, the effects of feedback, participation, and money on goal-setting effectiveness, the role of individual differences, and the determinants of goal commitment.

### Goal-Setting Attributes<sup>1</sup>

Mental processes have two major attributes, content and intensity (Rand, 1967). The content of a goal is the object or result being sought. The main dimensions of goal content that have been studied so far are specificity or clarity (the degree of quantitative precision with which the aim is specified) and difficulty (the degree of proficiency or level of performance sought). The terms *task difficulty* and *goal difficulty* are often used interchangeably, but a distinction between them can be made.

A task is a piece of work to be accomplished. A difficult task is one that is hard to do. A task can be hard because it is complex, that is, requires a high level of skill and knowledge. For example, writing a book on physics is a harder task than writing a thank-you note. A task can also be hard because it requires a great deal of effort: digging the foundation for a pool takes more effort than digging a hole to plant a flower seed.

Since a goal is the object or aim of an action, it is possible for the completion of a task to be a goal. However, in most goal-setting studies, the term *goal* refers to attaining a specific standard of proficiency on a task, usually within a specified time limit. For example, two individuals are given the same task (e.g., simple addition), but one is asked to complete a large number of problems within 30 minutes, and the other, a small number. The harder goal would be achieved by expending greater effort and attention than would be expended to achieve the easy goal. Harder goals, like harder tasks, also can require more knowledge and skill than easier goals (e.g., winning a chess

<sup>1</sup> Our view of what constitutes a goal attribute differs from that of Steers and Porter (1974) who, for example, called participation an attribute of goals. We treat participation as a mechanism that may *affect* goal content or goal acceptance.

tournament vs. coming in next to last). To summarize the distinction between the terms, goal difficulty specifies a certain level of task proficiency measured against a standard, whereas task difficulty refers simply to the nature of the work to be accomplished.

Although greater task difficulty should lead to greater effort (Kahneman, 1973; Kaplan & Rothkopf, 1974; Shapira, Note 1), the relation of task difficulty to performance is problematic. If more work is translated into a goal to get more done, task difficulty may be positively related to performance (Sales, 1970). On the other hand, if harder tasks require more ability or knowledge, most people will, at least initially, perform less well on them, even if they try harder, than they would on easier tasks (e.g., Shapira, Note 1).

An experiment by Campbell and Ilgen (1976) demonstrated that the distinction between task and goal difficulty has practical utility. They manipulated both dimensions independently. On chess problems difficult goals led to better performance than easy goals; training subjects on hard problems (tasks) led at first to poorer performance but later to better performance than training subjects on easier problems (tasks). Presumably the harder goals led to greater effort than the easier goals, and training on the harder chess problems led to the acquisition of more skill and knowledge than training on easier ones.

Although there has been extensive research on the effects of goal specificity and difficulty on performance, little attention has been paid to two other dimensions of goal content: goal complexity (the number and interrelation of the results aimed for) and goal conflict (the degree to which attaining one goal negates or subverts attaining another).

The second attribute of goals, intensity, pertains to the process of setting the goal or of determining how to reach it. Intensity would be measured by such factors as the scope of the cognitive process, the degree of effort required, the importance of the goal, and the context in which it is set. Goal intensity may be related to goal content; for example, a more intense psychological process is needed to set complex goals and to

figure out how to attain them than the process needed to set and attain simple goals. Goal intensity has not been studied as such, although a related concept, goal commitment, has been measured in a number of experiments.

#### Relation of Goal Dimensions to Performance

##### *Goal Difficulty*

In an earlier review of the goal-setting literature, Locke (1968) found evidence for a positive, linear relation between goal difficulty and task performance (assuming sufficient ability), and more recent studies have supported these findings. Four results in three experimental field studies demonstrated that harder goals led to better performance than easy goals: Latham and Locke (1975) with logging crews; Yukl and Latham (1978) with typists; and a simulated field study by Bassett (1979). In a separate manipulation, Bassett also found that shorter time limits led to a faster work pace than longer time limits.

Twenty-five experimental laboratory studies have obtained similar results with a wide variety of tasks: Bavelas (1978), with a figure-selection task; Bavelas and Lee (1978) in five of six experiments involving brainstorming, figure selection, and sum estimation tasks; Campbell and Ilgen (1976) with chess; Hannan (1975) with a coding (credit applications) task; LaPorte and Nath (1976) with prose learning; Latham and Saari (1979b) with brainstorming; Locke and Bryan (1969b) with simple addition; Locke, Cartledge, and Knerr (1970) in four studies, three with reaction time and one with simple addition; Locke, Mento, and Katcher (1978) with perceptual speed; London and Oldham (1976) with card sorting; Masters, Furman, and Barden (1977) in two studies of 4- and 5-year-old children working on a color discrimination task; Mento, Cartledge, and Locke (1980) in two experiments using a perceptual speed task; Rothkopf and Billington (1975) and Rothkopf and Kaplan (1972) in more complex prose-learning studies than that of LaPorte and Nath (1976); and Sales (1970), using anagrams. In Sales's

study, task rather than goal difficulty was manipulated by means of varying the work load given to the subjects. Presumably subjects developed implicit goals based on the amount of work assigned to them. Ness and Patton (1979) also found that a harder task led to better weight-lifting performance than an easier task when subjects were deceived as to the actual weights.

Four studies found conditional<sup>2</sup> support for a positive relation between goal difficulty and performance. Becker (1978) with an energy conservation task, Erez (1977) with a clerical task, and Strang, Lawrence, and Fowler (1978) with a computation task, all found that only subjects who had high goals and who received feedback regarding their performance in relation to those goals performed better than subjects with low goals. This pattern of results seems also to have been present in Frost and Mahoney's (1976) first study using a reading task (see their Table 1, p. 339). Subjects with high and moderately high goals who apparently received frequent feedback performed better than those with average goals, whereas the opposite pattern was obtained for subjects given no feedback during the 42-minute work period (interaction  $p = .11$ ;  $t$  tests were not performed).

Six experimental laboratory studies found no relation between goal level and task performance. Bavelas and Lee (1978) allowed only 15 minutes for an addition task and gave subjects no information either before or during the task of how fast they needed to go to attain the goal. Frost and Mahoney (1976) found negative results with a jigsaw puzzle task, although their range of goal difficulty was limited: from medium to hard to very hard (actual probabilities of success were .50, .135, and .026, respectively). The same narrow range of difficulty (very difficult to moderately difficult) may explain the negative results of Oldham (1975) using a time sheet computation task. Moreover, not all subjects accepted the assigned goals in that study, and it is not clear that ability was controlled when Oldham (1975, pp. 471-472) did his post hoc analysis by personal goal level. Organ (1977) also compared moderate goals with hard goals using an anagram task. However, since no group average

even reached the level of the moderate goal, the hard goal may have been totally unrealistic.

The fifth negative study, by Motowidlo, Loehr, and Dunnette (1978), using a complex computation task, examined the goal theory-expectancy theory controversy. Goal theory predicts that harder goals lead to better performance than easy goals, despite their lower probability of being fully reached. In contrast, expectancy theory predicts (other things being equal) a positive relation between expectancy and performance, the opposite of the goal theory prediction. Motowidlo et al. found a positive relation between expectancy and performance, which is in agreement with expectancy theory. One possible confounding factor is that the subjects in the Motowidlo et al. study did not make their expectancy ratings conditional upon trying their hardest to reach the goal or to win (pointed out by Mento et al., 1980, based on Yates & Kulick, 1977, among others). Thus, low expectancy ratings could mean that a subject was not planning to exert maximum effort, whereas high ratings would mean the opposite. This would yield a spurious positive correlation between expectancy and performance. Furthermore, Motowidlo et al. did not provide their subjects with feedback regarding how close they were coming to their goals during task performance. (The importance of this factor is documented below.) The two studies by Mento et al. (1980), which avoided the errors of the Motowidlo et al. study and incorporated other methodological improvements, found the usual positive relation between goal level and performance and no relation between expectancy and performance.

Forward and Zander (1971) used goals set by groups of high school boys on a team-coding task as both independent and dependent variables. Success and failure as well as outside pressures were covertly manipu-

<sup>2</sup> Partially or conditionally supportive studies were distinguished from nonsupportive studies as follows: A study was called partially supportive if the treatment was significant for one subsample of the full sample of subjects or for one of several experimental treatments or criteria. If an entire sample or study found no significant effects, it was called nonsupportive.

lated to influence goal setting, which occurred before each trial of the task. Under these somewhat complex conditions, goal discrepancy (goal minus previous performance level) was either unrelated or negatively related to subsequent performance.

The results of the experimental studies were, to varying degrees, supported by the results of 15 correlational studies. Andrews and Farris (1972) found that time pressure was associated with high performance among scientists and engineers. Hall and Lawler (1971), with a similar sample, found no relation between time pressure and performance but found a significant relation between both quality and financial pressure (implied goals?) and work performance. Ashworth and Mobley (Note 2) found a significant relation between performance goal level and training performance for Marine recruits. Blumenfeld and Leidy (1969), in what also could be called a natural field experiment, found that soft-drink servicemen who were assigned higher goals serviced more machines than those assigned lower goals. Hamner and Harnett (1974) found that subjects in an experimental study of bargaining who expected (tried?) to earn a high amount of money earned more than those who expected (tried?) to earn less money. Locke et al. (1970), in the last of their five studies, found a significant correlation between grade goals on an hourly exam and actual grade earned.

The majority of the correlational studies found only a conditional positive relation between goal difficulty and performance and/or effort. Carroll and Tosi (1970) found a positive relation only for managers who were mature and high in self-assurance; Dachler and Mobley (1973) found it only for production workers (in two plants) with long tenure (1 or 2 years or more); Dossett, Latham, and Mitchell (1979), found it in two studies of clerical personnel, but only for those who set goals participatively; Hall and Hall (1976) found it for the class performance of second through fourth grade students in high-support schools; and Ivancevich and McMahon (1977a, 1977b, 1977c) found it for skilled technicians who had higher order (growth) need strength, were white, and had higher levels of education.

Negative results were obtained by Forward and Zander (1971) with United Fund campaign workers, Hall and Foster (1977) with participants in a simulated management game, and Steers (1975) with first-level supervisors.

All the correlational studies are, of course, open to multiple causal interpretations. For example, Dossett et al. (1979) implied that their results may be an artifact of ability, since ability was considered when setting goals in the participative groups but not in the assigned groups. In fact, none of the correlational studies had controls for ability. Also, many relied on self-ratings of goal difficulty or performance. The Yukl and Latham (1978) study found that only objective goal level, not subjective goal difficulty, was related to typing performance. None of the correlational studies measured the individual's personal goal level, a measure that Mento et al. (1980) found to be the single best motivational predictor of performance. Their measures of subjective goal difficulty did not explain any variance in performance over and above that explained by objective and personal goal levels.

### *Goal Specificity*

*Specific hard goals versus "do best" goals or no goals.* Previous research found that specific, challenging (difficult) goals led to higher output than vague goals such as "do your best" (Locke, 1968). Subsequent research has strongly supported these results, although in a number of studies, no distinction was made between groups told to do their best and those assigned no specific goals. The latter were typically labeled *no goal* groups. We have not found any differences in the results obtained by studies in which no goals are assigned and those in which subjects are explicitly told to do their best. No goal subjects, it appears, typically try to do as well as they can on the assigned task.

Twenty-four field experiments all found that individuals given specific, challenging goals either outperformed those trying to do their best or surpassed their own previous performance when they were not trying for specific goals: Bandura and Simon (1977)

with dieting; Dockstader (Note 3) with key punching; Dossett et al. (1979) in two studies, one using a clerical test and the other performance evaluations for clerical workers; Ivancevich (1977) with maintenance technicians; Ivancevich (1974) in two plants with marketing and production workers (for one or more performance criteria); Ivancevich (1976) with sales personnel; Kim and Hamner (1976) with telephone service jobs; Kolb and Boyatzis (1970) with personality change in a T-group; Latham and Baldes (1975) with truck loading; Latham and Kinne (1974) with logging; and Latham and Yukl (1975a) with woods workers who participated in goal setting; Latham and Yukl (1976) with typing; Latham, Mitchell, and Dossett (1978) with engineering and scientific work; Migliore (1977) with canning (press department) and ship loading (two studies); Nemeroff and Cosentino (1979) with performance appraisal activities; Umstot, Bell, and Mitchell (1976) with coding land parcels; Wexley and Nemeroff (1975) with managerial training; and White, Mitchell, and Bell (1977) with card sorting. The studies by Adam (1975) with die casters, Feeney with customer service workers ("At Emery Air Freight," 1973), and Komaki, Barwick, and Scott (1978) with pastry workers are also included in this group. Although these investigations claimed that they were doing behavior modification, the major technique actually used was goal setting plus feedback regarding goal attainment (Locke, 1977).

A negative result was obtained by Latham and Yukl (1975a) with one sample of woods workers. Either individual differences or lack of organizational support may have been responsible for this failure. (Ivancevich, 1974, also cited differences in organizational support as the reason for obtaining better results in one of his plants than the other.)

The generally positive results of the field studies were supported by the results of 20 laboratory studies: Chung and Vickery (1976; their KR condition included implicit goal setting) with a clerical task; Frost and Mahoney (1976) with a reading task (but only for subjects given frequent feedback) and with a puzzle task; Hannan (1975) with a coding task; Kaplan and Rothkopf (1974)

and LaPorte and Nath (1976) with prose learning; Latham and Saari (1979a) with brainstorming; Latham and Saari (1979b) with brainstorming again, but only for subjects who set goals participatively (though this may have been an artifact since the authors reported that the assigned goal subjects may not have understood the instructions clearly); Locke and Bryan (1969a) with a driving task; Locke et al. (1978) with perceptual speed (comparing the hard-goal vs. do-best groups only); Mossholder (1980) using two assembly tasks; Organ (1977) with anagrams; Pritchard and Curtis (1973) with card sorting; Reynolds, Standiford, and Anderson (1979) with learning prose; Rosswork (1977) with a sentence construction task used with sixth graders; Rothkopf and Billington (1975) and Rothkopf and Kaplan (1972), again with learning prose; Strang, Lawrence, and Fowler (1978) with arithmetic computation (but only for hard-goal subjects who had feedback); and Terborg and Miller (1978) with tinker-toy assembly.

A negative result was obtained by Organ (1977) on a proofreading task. Evidently the goals set were moderate rather than hard, since they were set at the median scores for pretest subjects and were surpassed by subjects in all conditions. Moderate goals are not predicted to lead to higher performance than do-best goals. Locke et al. (1978), for example, found that although hard-goal subjects exceeded the performance of do-best subjects, moderate-goal subjects did not.

Seven correlational field studies also supported or partially supported the superiority of specific hard goals over do-best goals or no goals: Blumenfeld and Leidy (1969) with soft drink servicemen; Brass and Oldham (1976) and Oldham (1976) with foremen; Burke and Wilcox (1969) with telephone operators; Ronan, Latham, and Kinne (1973) with pulpwood producers; Steers (1975) with supervisors (but only those high on need for achievement); and Terborg (1976) with students studying programmed texts.

*Clear versus unclear goals or intentions.* Relatively few studies have been concerned with the effect of goal clarity on performance. Two experimental studies (Kaplan & Rothkopf, 1974; Rothkopf & Kaplan, 1972) found that specific prose-learning

goals led to more learning than generally stated goals. Carroll and Tosi (1970) found that goal clarity correlated with increased effort only for managers who were mature and decisive and who had low job interest and low support from their managers. Ivancevich and McMahon (1977a, 1977b, 1977c) found that goal clarity correlated with performance mainly for technicians who were black, less educated, and high on higher order need strength. These correlational studies seem to provide no consistent pattern, which is not surprising in view of the problems inherent in concurrent, self-report designs.

The borderline and negative results of Hall and Hall (1976) and Hall and Foster (1977) with respect to goal difficulty and performance may have been because their goals did not consist of clear objectives but of the self-rated strength of the subjects' intentions to perform well.

The findings of these studies involving vague intentions can be contrasted with the organizational studies by H. Miller, Katerberg, and Hulin (1979), Mobley, Horner, and Hollingsworth (1978), and Mobley, Hand, Baker, and Meglino (1979). They found significant longitudinal correlations between the specific intention to remain in or leave the organization and the corresponding action.

### Conclusions

Overall, 48 studies partly or wholly supported the hypothesis that hard goals lead to better performance than medium or easy goals; 9 studies failed to support it. Fifty-one studies partially or wholly supported the view that specific hard goals lead to better performance than do-your-best or no goals; 2 studies did not support it. Combining these two sets of studies, we found that 99 out of 110 studies found that specific, hard goals produced better performance than medium, easy, do-your-best, or no goals. This represents a success rate of 90%.

Most of these studies (at least the experimental ones) were well designed; they included control groups, random assignment, negligible attrition, controls for ability, objective performance measures, and a great

variety of tasks and situations. Thus, considerable confidence can be placed in them in terms of both internal and external validity.

### Mechanisms for Goal-Setting Effects

Given that goal setting works, it is relevant to ask how it affects task performance. We view goal setting primarily as a motivational mechanism (although cognitive elements are necessarily involved). The concept of motivation is used to explain the direction, amplitude (effort), and duration (persistence) of action. Not surprisingly, all three are affected by goal setting. One additional, indirect mechanism is also described.

### Direction

Most fundamentally, goals direct attention and action. Perhaps the most obvious demonstration of this mechanism is the study by Locke and Bryan (1969a) in which drivers were given feedback regarding five different dimensions of driving performance but were assigned goals with respect to only one dimension. The dimension for which a goal was assigned showed significantly more improvement than the remaining dimensions. Similarly, Locke et al. (1970) found that subjects modified their speed of reaction (to make it faster or slower) on a simple reaction-time task in the direction of their overall objective. Reynolds et al. (1979) found that subjects spent more time reading prose passages that were relevant to their goals (consisting of questions inserted in the text) than to reading parts that were not relevant. Terborg (1976) found that subjects with specific goals spent a greater percentage of the time looking at the text material to be learned than did subjects with nonspecific goals or no goals. (Terborg labeled this measure *effort* in his study.) Rothkopf and Billington (1979) found that subjects with specific learning goals, as compared with subjects with no specific learning goals (do-your-best instructions), spent an equal or greater amount of time inspecting passages with goal-relevant material and significantly less time looking at incidental passages.



### *Effort*

Since different goals may require different amounts of effort, effort is mobilized simultaneously with direction in proportion to the perceived requirements of the goal or task. Thus, as Kahneman (1973) and Shapira (Note 1) have argued, more effort is expended on hard tasks (which are accepted) than on easy tasks. Sales (1970) found that higher work loads produce higher subjective effort, faster heart rates, and higher output per unit time than lower work loads. Latham and Locke (1975) and Bassett (1979) found that people work faster under shorter than under longer time limits. In summary, higher goals produce higher performance than lower goals or no goals because people simply work harder for the former (Locke, 1968; Terborg, 1976; Terborg & Miller, 1978; for earlier documentation see Locke & Bryan, 1966).

This hypothesis of a positive linear relation between motivation or effort and performance (also stated in Locke, 1968, and Yates & Kulick 1977), contradicts the Yerkes-Dodson inverted-U "law," which asserts that performance is maximal at moderate levels of motivation. Although it is true that with any given subject, performance eventually will level off as the limit of capacity or ability is reached (Bavelas & Lee, 1978; Kahneman, 1973), this is a separate issue from that of motivation. Of course, subjects may abandon their goals if they become too difficult, but the hypothesized function assumes goal commitment. Performance may also drop if subjects become highly anxious, especially on a complex or underlearned task. But a state of high anxiety should not be labeled *high motivation* in the positive sense because it represents a state of conflict rather than of single-minded goal pursuit.

### *Persistence*

Persistence is nothing more than directed effort extended over time; thus, it is a combination of the previous two mechanisms. Most laboratory experiments on goal setting have not been designed to allow for the measurement of persistence effects, since time

limits typically have been imposed; field studies to date have measured only the end results of goal setting rather than how they were obtained. LaPorte and Nath (1976) allowed some subjects unlimited time to read a prose passage. Those asked to read the passage to get 90% of 20 postreading questions correct spent more time on the passage than subjects asked to get 25% of the postreading questions correct. Rothkopf and Billington (1979) found that more time was spent on goal-relevant than on incidental passages. More studies of this type would be highly desirable.

### *Strategy Development*

Whereas the first three mechanisms are relatively direct in their effects, this last mechanism is indirect. It involves developing strategies or action plans for attaining one's goals. Although strategy development is motivated by goals, the mechanism itself is cognitive in essence; it involves skill development or creative problem solving.

Bandura and Simon (1977), for example, found that dieting subjects with specific quotas for number of mouthfuls eaten changed their eating patterns (e.g., by eating more low-calorie foods that did not count in their quotas). They also engaged in more planning (e.g., by saving part of their quota for a dinner out). Latham and Baldes (1975) observed that some of the truck drivers assigned specific hard goals with respect to truck weight recommended minor modifications of their trucks to help them increase the accuracy of their judgments of weight.

In Terborg's (1976) study, the subjects who set specific goals were more likely to employ relevant learning strategies (e.g., writing notes in the margins) than those who did not set goals. A unique aspect of Terborg's (1976) design was that he was able to obtain separate measures of direction of effort (which he called "effort") and of strategy use (which he called "direction"). He found that when these mechanisms were partitioned out, there was no relation between goals and task performance. This supports the argument that these are some of the mechanisms by which goals affect performance.

In a similar vein, Kolb and Boyatzis (1970) found that behavior change in a T-group was greatest for participants who developed plans for evaluating their performance in relation to their goals. Such plans evidently were developed only for behavior dimensions that the subjects were trying to change.

Bavelas and Lee (1978) made detailed analyses in three experiments to determine the strategies subjects used to attain hard goals. They found that subjects would frequently redefine the task in a way that would permit them to give "looser" or lower quality answers. For example, subjects asked to list very large numbers of "white, hard, edible objects" were more likely to list objects that were white but not very hard or hard but not very edible than were subjects given easier goals. Similarly, with appropriate training, subjects given hard addition goals would more often estimate rather than calculate their answers as compared to subjects with easy goals.

Subjects given hard goals in Rosswork's (1977) study simply wrote shorter sentences to meet their quota, which was expressed in terms of total sentences written. The subjects in Sales's (1970) study who were given a high work load made more errors, presumably by lowering their standards, than those given a low work load. Christensen-Szalanski (1980) found that subjects who were given a short time limit in problem solving used less complex and less adequate strategies than subjects given a longer time limit. Strategy development is especially important in complex tasks. If the requisite strategies are not developed, the increased motivation provided by the goals will not be translated into effective performance.

We now examine the influence of feedback, money, and participation on the effectiveness of goal setting.

#### Knowledge of Results (Feedback)

In early goal-setting studies, attempts were made to separate the effects of feedback (i.e., knowledge of results [KR]) from the effects of goal setting to determine whether KR directly influenced performance or whether its effects were mediated by goal-

	KR	No KR
Specific hard goal	1	2
No specific goal or do-best goal	3	4

Figure 1. Model for analyzing goal-KR studies. (KR = knowledge of results.)

setting activity (Locke, 1967; Locke & Bryan, 1968, 1969a, 1969b; Locke, Cartledge, & Koepfel, 1968). In the most carefully controlled of these studies, all subjects with specific goals also received knowledge of their performance in relation to their goals; individuals in the KR conditions received knowledge of their actual scores presented in such a way as to preclude their use in setting goals. Such knowledge of scores did not lead to better performance than no knowledge of scores. The evidence from these and related studies indicated that knowledge of scores was not sufficient to improve task performance. However, since groups with goals and no KR were not included, these studies did not test the possibility that KR may be a necessary condition for goals to affect performance. Few studies relevant to this hypothesis had been conducted at the time of the Latham and Yukl (1975b) review.

A number of such studies have since been completed in both the laboratory and the field. Figure 1 illustrates the conditions of interest. Cell 1 represents specific, hard goals combined with KR; Cell 2, specific, hard goals without KR; Cell 3, KR with no specific goals (or do-best goals that are equivalent to no assigned goals); and Cell 4, neither specific goals nor KR.

The studies reviewed here included at least three of the four cells in Figure 1. Table 1 summarizes the results of these comparisons.

Two types of studies are evident in Table 1. The first set consists of comparisons between Cells 1, 3, and 4. Consistent with Locke's (1968) mediating hypothesis, these studies indicate that although KR alone is not sufficient to improve performance (3 =

Table 1  
*Studies Comparing the Effects of Goals and KR on Performance*

Study	Comparison performed			
	1 vs. 2	1 vs. 3	2 vs. 4	3 vs. 4
Bandura & Simon (1977)		1 > 3		3 = 4
Dockstader (Note 3)		1 > 3		3 = 4
Latham, Mitchell, & Dossett (1978)		1 > 3		3 = 4
Nemeroff & Cosentino (1979)		1 > 3		3 = 4
"At Emery Air Freight" (1973)	1 > 2		2 = 4	
Komaki, Barwick, & Scott (1978)	1 > 2		2 = 4	
Becker (1978) <sup>a</sup>	1 > 2		2 = 4	
Strang, Lawrence, & Fowler (1978) <sup>a</sup>	1 > 2		2 = 4 2 < 4 <sup>b</sup>	

Note. KR = knowledge of results. 1 = specific, hard goals combined with KR; 2 = specific, hard goals without KR; 3 = KR with no specific goals (or do-best goals); 4 = neither specific goals nor KR.

<sup>a</sup> Included both hard and easy goal plus KR conditions. The performance of easy-goal subjects was no better than that in the control condition. <sup>b</sup> Results differed, depending on performance criterion utilized.

4), KR plus goals results in performance increases (1 > 3).

In a study of overweight clients in a weight clinic, participants who kept daily records of all the food they consumed but did not set goals to reduce food intake did not alter their eating habits and performed no differently than a control group who kept no records and set no specific goals (Bandura & Simon, 1977). However, participants who set goals based on their daily records significantly decreased food consumption compared with the KR-only group.

Dockstader (Note 3) found no apparent effect of KR alone on the performance of key punch operators, but those provided with KR and a performance standard significantly exceeded their own previous performance and that of the KR-only group.

Latham et al. (1978) found no differences between engineers and scientists with do-best goals who were provided with feedback concerning their performance on certain appraisal criteria and those who received no feedback; however, the subjects who set or were assigned specific, hard goals in response to the feedback performed significantly better than those in the do-best and control groups.

Nemeroff and Cosentino (1979) found that supervisors who were provided with feedback concerning their behavior during performance appraisal sessions but who did not use the KR to set specific goals did not

improve subsequent performance. Those supervisors who set specific goals in response to the feedback performed significantly better on the 12 behaviors for which they set goals and conducted significantly more successful appraisal interviews.

This first set of studies demonstrates that KR without goals is not sufficient to improve performance (3 = 4), but given KR, goals are sufficient for performance to be improved (1 > 3). Thus, goals seem necessary for KR to improve performance.

The second set of studies consists of comparisons between Cells 1, 2, and 4. In what was called a "positive reinforcement" program ("At Emery Air Freight," 1973), employees in the customer service department and on the shipping docks were given a group-performance goal, progress toward the goal was posted, and each employee also kept a personal record of performance. Performance levels increased markedly, but when KR was removed and self-reports were not kept, employee performance returned to baseline levels "or was almost as bad" ("At Emery Air Freight," 1973, p. 45), even though the performance target remained in effect (1 > 2, 2 = 4).

In another behavior modification program (actually a goals and KR study; see Locke, 1980), Komaki, Barwick, and Scott (1978) examined safe behavior in the making and wrapping of pastry products. The authors introduced a specific, hard safety goal and

displayed performance results on a graph in view of all the workers. Substantial performance improvements occurred, but when the KR was eliminated in a reversal phase, performance returned to baseline levels.

In a study of residential electricity use, Becker (1978) manipulated specific goals and KR. Families included in his study represent Cells 1, 2, and 4 of Figure 1; he also included easy-goal groups with and without KR. The only families whose conservation performance improved significantly from baseline levels were those with hard goals plus KR. All other groups performed no better than a control group. Strang et al. (1978) conducted a laboratory study utilizing a design similar to Becker's (Cells 1, 2, and 4 plus the same two easy-goal conditions as above). Subjects worked on an arithmetic computation task. The performance of subjects with hard goals and feedback was significantly better than that of the goals-only subjects ( $1 > 2$ ). Using time to finish as a criterion, there were no differences between the performance of the goals-only subjects and that of control group subjects ( $2 = 4$ ). In terms of number of errors, however, the control group's performance was significantly better than that of the goals-only group ( $4 > 2$ ), suggesting that goals without KR may even inhibit accurate performance.

The results of this second group of studies indicate that goals without KR are not sufficient to improve performance ( $2 = 4$ ), but given goals, KR is sufficient to effect performance improvement ( $1 > 2$ ). Thus, KR seems necessary for goals to affect performance.

Although her study is not included in Table 1 because she used a correlational analysis, Erez (1977) was the first to suggest that KR is a necessary condition for the goal-performance relation. In her laboratory study, subjects worked on a number comparison task. At the end of one performance trial, they set goals for a second trial. Half of the subjects were provided with KR at the end of the first trial and half were not. Erez used a multiple regression analysis to identify the unique contribution of the Goal  $\times$  KR interaction. The regression equation included Stage 1 performance, the two main effects variables (goals, KR), and the

Goal  $\times$  KR interaction. When all four variables were placed in the regression simultaneously, the interaction effect was significant, but beta weights for goals and KR were not significantly different from zero. The goal-performance correlation in the KR group was .60 and in the no-KR group, .01. These findings led Erez to conclude that KR is necessary for goals to affect performance.

Kim and Hamner's (1976) study of goals and feedback was not included in this analysis because they acknowledged that their goals-only group actually may have received informal feedback. Thus, their study only includes two cells: Cell 1, with different groups having different amounts and types of feedback, and Cell 4, which comprised the "before" scores of the various groups. In this study, as in the one by Frost and Mahoney (1976, Task A), providing explicit or frequent feedback clearly facilitated performance.

Integrating the two sets of studies points to one unequivocal conclusion: neither KR alone nor goals alone is sufficient to improve performance. Both are necessary. This view of goals and feedback as reciprocally dependent seems more useful and more accurate than Locke's (1968) earlier position, which viewed goals as mediating the effects of feedback on performance. Together, goals and feedback appear sufficient to improve task performance (given the obvious contextual variables such as adequate ability and lack of external blocks to performance). The studies demonstrate that action is regulated by both cognition (knowledge) and motivation.

Table 1 demonstrates that not a single study was designed to allow all of the four possible comparisons. In other words, no study involved a complete  $2 \times 2$  design with KR/no-KR and specific, hard goals/"do-best" goals, or no goals as the variables. Even the studies reported did not always involve total control over the variables; for example, spontaneous goal setting among KR-only subjects was not always prevented. Such a complete, controlled study is now being conducted by two of the present authors. It is predicted that Cell 1 (see Figure 1) will show better performance than the remaining cells,

which should not differ among themselves. This would parallel the results of Becker (1978) and Strang et al. (1978) using KR/no-KR and hard/easy goal conditions.

Other issues remain to be explored regarding the role of KR. For example, Cummings, Schwab, and Rosen (1971) found that providing KR can lead to the setting of higher goals than not providing KR; this indicates that subjects may underestimate their capacity without correct information about their previous performance. Related to this, Greller (1980) found that supervisors incorrectly estimated the importance of various sources of feedback to subordinates. These issues deserve further study.

One issue that does not seem to deserve further study is that of feedback as a reinforcer. The findings and arguments of Annett (1969), Bandura (1977), and Locke (1977, 1980) speak convincingly against the thesis that feedback conditions behavior. It seems more useful and valid to treat feedback or KR as information, the effect of which depends on how it is processed (e.g., see Locke, Cartledge, & Koepfel, 1968).

A recent article (Ilgen, Fisher, & Taylor, 1979) specifies several dimensions along which KR can vary: amount, type, frequency, specificity, timing, source, sign, and recency. Experimental studies of these dimensions could reveal the most effective form in which to provide KR in conjunction with goals. Unfortunately, the studies to date have not been systematic enough to allow any conclusions about these dimensions.

Our major conclusion, that both goals and KR are necessary to improve performance, provides a clear prescription for task management. Not only should specific, hard goals be established, but KR should be provided to show performance in relation to these goals. The "At Emery Air Freight" (1973), Komaki et al. (1978), Latham and Kinne (1974), and Latham and Baldes (1975) studies emphasize how inexpensive such goals-plus-KR programs can be in field settings relative to their benefits.

#### Monetary Rewards

It is known that money can be a powerful motivator of performance. Locke, Feren,

McCaleb, Shaw, and Denny (1980), for example, found that individual money incentives increased worker performance by a median of 30%. Locke (1968) argued that goal setting may be one mechanism by which money affects task performance.

There are several possible ways that this might occur. First, money could affect the level at which goals are set or the level at which intentions are established. In five studies, Locke, Bryan, and Kendall (1968) found that in some cases, money did affect goal or intention level. Furthermore, in line with the mediating hypothesis, goals and intentions affected performance even when the effects of incentives were partialled out, whereas incentives were unrelated to performance when goal and intention level were controlled.

Generally these results have not been replicated. For example, Pritchard and Curtis (1973) found that although there was no difference in the performance effects of no incentive versus a small incentive, subjects who were offered high incentives performed better on a sorting task than those offered small or no incentives even when goal level was controlled. Similarly, Terborg (1976) found that partialing out the effects of self-set goals in a programmed learning task failed to vitiate the difference between contingent and noncontingent pay on performance. Terborg and Miller (1978) found similar results using a toy assembly task, assigned goals, and piece-rate versus hourly pay. Latham et al. (1978) found a significant main effect for an anticipated monetary bonus independent of a significant goal-level effect on the job performance of engineers and scientists. In all four of these studies, goals and money had independent effects on performance. This was also the case in London and Oldham's (1976) study, although their incentive effects were not easily interpretable. Chung and Vickery (1976) also found independent effects for money and goals (their KR condition included a goal-setting treatment).

A second possibility is that money might induce more spontaneous goal setting than would occur without incentives. In support of this hypothesis, Saari and Latham (Note 4) found that the introduction of an incentive system led mountain beaver trappers to set

specific goals for themselves. However, in the laboratory studies by Terborg (1976) and Terborg and Miller (1978), incentive pay did not lead to more specific goal setting than hourly pay.

A third possibility, which was stressed by Locke (1968), is that rather than increasing the likelihood of spontaneous goal setting or increasing the level at which goals are set (an hypothesis that has not yet been fully tested), incentives affect the individual's degree of goal commitment. In other words, offering money may arouse the willingness to expend more effort to attain a given objective than not offering money. In terms of expectancy theory, money rewards endow goal success with a higher valence or value than no money. This is our interpretation of the results obtained by Latham et al. (1978), London and Oldham (1976), Pritchard and Curtis (1973), Terborg (1976), and Terborg and Miller (1978).

Attempts to measure this commitment effect through self reports have not been successful (e.g., Latham et al., 1978; Pritchard & Curtis, 1973). The whole issue of why goal commitment measures have not been related to performance in goal-setting research will be discussed at length in a later section of this article.

The effectiveness of money in mobilizing effort undoubtedly depends on the amount of money offered. Pritchard and Curtis (1973) found an incentive effect only when they offered \$3 compared with 50¢ or no money at all for 10 minutes of work. Similarly, Rosswork (1977) found a substantial goal effect but no incentive effect when school children were offered up to 6¢ for each sentence composed during two 5-minute periods.

The findings indicate that money can affect task performance independently of goal level. The most plausible mechanism for this effect appears to be goal commitment, with the degree of increased commitment depending on the amount of the incentive offered. Although direct questions regarding commitment used in several studies do not support this interpretation, the fault may lie in poor experimental design, poor measures, or poor introspection by subjects (issues we discuss later). Incentives may also increase

the likelihood of spontaneous goal setting or of setting high goals, but there has not yet been enough research to provide support for these mechanisms.

### Participation and Supportiveness

Participation has long been recommended by social scientists as a means of obtaining employee commitment to organizational goals and of reducing resistance to change. Nevertheless, an extensive review of the participation in decision-making literature by Locke and Schweiger (1979) found no consistent difference in the effectiveness of top-down ("autocratic") decision making and decisions made with subordinate participation. We specifically review those studies that involved participation in goal setting.

Carroll and Tosi (1970) included a measure of perceived participation in goal setting in a questionnaire administered at a manufacturing firm that had a Management by Objectives program. The results indicated that participation did not correlate significantly with employee perceptions of goal attainment or employee perception of increases in effort.

Negative results were also obtained in a field experiment by Ivancevich (1976). This study compared participative and assigned goal setting for sales personnel. Goals were set for each of four quantitative performance criteria. Although both goal-setting groups showed performance increases, no significant differences in performance were found between the participative and assigned goal conditions.

In a second study, Ivancevich (1977) obtained mixed results with maintenance department technicians. Four performance variables were measured. With regard to service complaints and costs, the assigned goal-setting group showed more improvement than the participative group; however, for safety the participative goal group performed better than the assigned group. There was no significant difference between the two groups in absenteeism.

A possible drawback of these studies is that goal difficulty levels were not assessed for the different goal groups. Conceivably, goal difficulty could have been confounded

with the assigned versus participative manipulations.

The following studies all included measurements of goal difficulty. In a field experiment involving logging crews, Latham and Yukl (1975a) found that participative goal setting resulted in higher performance than assigned goal setting for uneducated (less than 9 years of education) loggers in the South. The superiority of participative goal setting may have been due in part to the higher goals that were set in the participative rather than the assigned condition.

In a second field experiment, Latham and Yukl (1976) found no significant differences in the performance of typists with participative and assigned goals. Consistent with these results, there was no difference in the difficulty levels of the goals in each condition. Both groups, however, improved their performance significantly after specific goals had been set.

Latham et al. (1978) found that engineers and scientists in a participative goal condition set more difficult goals than their peers who had assigned goals. However, the perceptions of goal difficulty did not differ, and no significant differences in goal acceptance were found between the two goal conditions. The participative and assigned groups did not differ significantly in performance, although only the participative group significantly outperformed the control group.

These three studies indicate that participation in goal setting may affect performance through its influence on goal difficulty. Thus, if goal difficulty is held constant, participation should not affect performance. Participation may affect performance only if it leads to higher goals being set than is the case when a supervisor assigns them unilaterally.

Latham and Saari (1979a) systematically tested this hypothesis in a laboratory study using a brainstorming task. Goal difficulty levels were held constant across the participative and assigned goal conditions. As predicted, no significant differences in performance were found between the two goal setting groups. Moreover, no difference on a measure of goal acceptance was found.

Dossett et al. (1979) replicated this finding in two field experiments involving testing

and performance appraisal. In the first experiment employees who participated in setting their goals on a test attained the same performance level as individuals who were assigned goals of the same difficulty level. This same finding was obtained in a second study, which involved setting goals on a performance appraisal form.

Hannan (1975), using a simulated credit application evaluation task, also found that assigned and participatively set goals led to the same level of performance when goal level was controlled. (There was a small Goal  $\times$  Participation interaction, however.)

Likert (Note 5) has pointed out that when assigned goal setting is effective, it may be because the supervisors who assign the goals behave in a supportive manner. Latham and Saari (1979b) tested this assumption in a second laboratory study using a brainstorming task. Goal difficulty again was held constant between the participative and assigned goal groups. However, the supportiveness of the experimenter was varied. The results indicated that a supportive supervisory style led to higher goals being set than a nonsupportive style. It was also found that it took significantly longer to set goals in the participative goal conditions than in the assigned conditions because the subjects asked more questions regarding what answers were acceptable. Latham and Saari (1979b) concluded that the importance of participation in goal setting may be that it not only leads to the setting of high goals but it can also lead to increased understanding of how to attain them—two variables that can have a direct impact on performance.

Although few consistent differences in task performance appear between assigned and participatively set goal groups, several tentative conclusions regarding the influence of participation can be drawn. There appear to be two possible mechanisms by which participation could affect task motivation. First, it can lead to the setting of higher goals than would be the case without participation, although theoretically, assigned goals can be set at any level the supervisor or experimenter chooses. Second, participation could, in some cases, lead to greater goal acceptance or commitment than assigned goals. The first effect has been found twice (La-

tham et al., 1978; Latham & Yukl, 1975a). (We discuss the second effect in the section on goal acceptance.)

It may be that supportiveness, as discussed in studies by Latham and Saari (1979b), Hall and Hall (1976), and Ivancevich (1974, who called it "reinforcement"), is more crucial than participation in achieving goal acceptance. Participation itself, of course, may entail supportiveness. Other factors, such as the power of the supervisors and the rewards and punishments given for goal attainment and nonattainment, also may be important, but these have not been systematically investigated.

Further, it is possible that the motivational effects of participation are not as important in gaining performance improvement as are its cognitive effects. Locke et al. (1980) found that the single most successful field experiment on participation to date stressed the cognitive benefits; participation was used to get good ideas from workers as to how to improve performance efficiency (Bragg & Andrews, 1973). The potential cognitive benefits of participation are discussed in some detail in Locke and Schweiger (1979) and were implied in the Latham and Saari (1979b) study.

### Individual Differences

Thus far we have been discussing goal setting as though it affected every individual in the same manner. To date, individual differences have received minimal attention in the goal-setting literature, although several variables have been examined in one or more studies.

### *Demographic Variables*

Of the few goal-setting studies that have investigated demographic variables, most have dealt with the effects of education, race, and job tenure.

*Education.* In a study involving electronics technicians, Ivancevich and McMahan (1977b) found that perceived goal challenge was significantly related to performance only for educated technicians (12 years or more of education). In contrast, perceived goal clarity and goal feedback

were significantly related to performance only for less educated technicians (fewer than 12 years of education).

In their field experiment with loggers, Latham and Yukl (1975a) compared assigned, participative, and do-best goal-setting conditions for educated white (12–16 years of education) and uneducated black (0–9 years of education) logging crews. Participative goal setting significantly affected the performance of the uneducated crews but did not affect the performance of the educated crews. The goal-setting program may not have been administered effectively in the latter sample, however; in addition, education was confounded with race.

These findings were not replicated in Latham and Yukl's (1976) field experiment involving female typists. In that study education did not moderate the effects of either participative or assigned goal setting. Similarly, Steers (1975) found no moderating effect of education on goal setting in a study of 113 female supervisors.

Although Latham et al. (1978) did not examine education as a moderator variable, we mention the study here because of the education level of the subjects: Goal setting had a significant effect on the performance of engineers and scientists with master's and doctoral degrees.

We must conclude that there is no consistent evidence for the effect of education as a moderator of goal setting, nor is there any convincing theoretical reason why there should be. Goal setting appears to be effective for individuals of all educational levels, ranging from elementary school children (Masters et al., 1977) to loggers with a mean education of 7.2 years (Latham & Yukl, 1975a) to engineers and scientists (Latham et al., 1978) with advanced degrees.

*Race.* As already noted, Latham and Yukl (1975a) found that less educated black loggers who participated in setting their goals were more productive and attained their goals more frequently than crews who were assigned goals by their supervisors or told to do their best. However, for the more educated white loggers there were no significant differences among the goal-setting conditions.

A study by Ivancevich and McMahan



(1977a) of technicians supported these findings. Perceived participation in goal setting was related to several measures of performance for black technicians but not for whites. Goal clarity and feedback were also related to performance for blacks only, whereas goal challenge was related to performance for the whites only. Perhaps goal clarity, feedback, and participation affected the performance of blacks because, as Ivancevich and McMahon (1977a) stated,

It has been found that blacks have a higher need for security in performing their jobs. . . . One way to derive more security in a goal setting program is to have goal clarity, receive feedback, and participate in the process. (p. 298)

Clearly more studies are needed before this interpretation can be verified. If it is valid, then the racial factor would be reducible to a personality attribute that presumably would cut across racial lines.

*Job tenure.* Five studies have examined tenure as a moderator variable in the goal-setting process. Three of them (Ivancevich & McMahon, 1977a; Latham & Yukl, 1976; Steers, 1975) found no moderating effect. Two studies by Dachler and Mobley (1973), found no significant relation between stated goals and productivity for short-tenure employees (less than 1–2 years), but a significant relation between these measures for long-tenure employees (1–2 or more years). Their explanation for this difference was that longer tenure employees have more accurate perceptions of their chances of reaching various levels of performance and of performance-outcome contingencies. Nevertheless, it is not clear why it would take 1 or more years for these perceptions to become accurate. In sum, the evidence to date does not show much promise with respect to job tenure as a moderator.

*Age.* In the study by Ivancevich and McMahon (1977b) on technicians, age was not related to goal setting or performance. To our knowledge no other studies have investigated the moderating effects of age. However, as previously noted, goal setting has been shown to be effective for children (e.g., Masters et al., 1977; Rosswork, 1977) as well as adults.

*Sex.* No study has systematically examined sex differences as a moderator of

goal setting, though goal setting has been shown to significantly increase the performance of both males (e.g., Ivancevich & McMahon, 1977b; Latham & Yukl, 1975a) and females (Latham & Yukl, 1976; Steers, 1975).

### *Personality Variables*

*Need for achievement.* Steers (1975), in his study of female supervisors, found that performance was related to feedback and goal specificity only for high-need-achievement individuals. Participation in goal setting, on the other hand, was related to performance only among low-need-achievement supervisors. These findings indicate that high need achievers perform best when they are assigned specific goals and receive feedback on their progress toward these goals. Conversely, low need achievers (who are perhaps less confident) perform best when they are allowed to participate in the setting of their goals.

In his study using anagrams, Sales (1970) varied the work load given to subjects. Overall, productivity for subjects high in need for achievement was not higher than that for subjects low in need for achievement. However, an interaction occurred between work load and need for achievement. Sales reported a positive linear relation between need for achievement and productivity in the underload condition and a curvilinear (inverted-U) relation between need for achievement and productivity in the overload condition. Since high need achievers prefer goals of moderate difficulty, they presumably considered the overload condition too challenging for their liking.

In a laboratory experiment, Singh (1972) found that students with high need for achievement set higher goals for themselves over repeated trials of a mathematical clerical task than did low need achievers. Yukl and Latham (1978) obtained comparable results in their study involving typists. High need achievers who were allowed to participate in the goal-setting process set more difficult goals than did low-need-achievement typists, though they did not perform any better than low need achievers.

In the two experiments involving word

processing operators, Dossett et al. (1979) found no moderating effects of need for achievement on performance appraisal measures or on performance on a selection test measuring mathematical ability. Goal difficulty was not examined in these studies because it was held constant across goal-setting conditions. Overall, the results again are inconsistent and unreliable.

*Need for independence.* An earlier study by French, Kay, and Meyer (1966) found that employees with a high need for independence had greater goal acceptance when participation in goal setting was increased than when participation was reduced or not changed. Goal acceptance was not affected by changes in participation for employees with a low need for independence.

The moderating effect of need for independence has not been found by other researchers. For example, Searfoss and Monczka (1973) found no moderating effect of need for independence on the relationship between perceived participation on the part of managers in setting specific budgetary goals and subsequent motivation to achieve those goals. Similarly, in their study with typists, Latham and Yukl (1976) found that need for independence did not moderate the effects of either participative or assigned goal setting on performance. Dossett et al. (1979) also found no moderating effects of need for independence on the performance of word processing operators.

*Higher order need strength.* Higher order need strength is defined as the degree to which a person desires enriched work (variety, autonomy, task identity, and feedback; see Hackman & Lawler, 1971). To our knowledge, only one study has examined this need as a possible moderator of goal setting.

In the study by Ivancevich and McMahan (1977c) involving technicians, initial analyses revealed no consistent relationships between various goal attributes and performance measures. However, when higher order need strength was used as a moderator, goal clarity, feedback, and challenge were related to effort (toward quantity and quality) and attendance for technicians with high higher order need strength. Conversely, for technicians with low higher order need strength, goal acceptance was related to ef-

fort (toward quality) and attendance. No obvious interpretation can be made of this finding.

*Self-esteem.* In the study involving typists (Latham & Yukl, 1976), self-esteem did not moderate the effects of participative and assigned goal setting on performance. However, it was found that self-esteem and goal instrumentality interacted in their effects on performance (Yukl & Latham, 1978). Instrumentality was defined as "the extent to which desirable outcomes (e.g., job security, pay, promotion) are perceived to be contingent upon goal attainment" (Yukl & Latham, 1978, p. 312). Specifically, when goal instrumentality was low (goal attainment not perceived as linked to important outcomes), typists with high self-esteem showed greater performance improvement than individuals with low self-esteem. There was no self-esteem effect when instrumentality was high. When self-esteem was low, typists who perceived high goal instrumentality showed greater performance improvement than those with low goal instrumentality; when self-esteem was high, there was no instrumentality effect. The integrating principle here may be that people with high self-esteem will work hard without practical rewards (for pride?), whereas people with low self-esteem will not.

Carroll and Tosi (1970) found in a correlational study that individuals with high self-assurance increased effort in the face of increasingly difficult goals, whereas those with low self-assurance worked less hard as goals became harder. It is likely that different self-perceptions regarding ability underlie the self-assurance measure.

Dossett et al. (1979) found that word processing operators with high self-esteem who were given performance feedback attained their goals significantly more often than individuals with low self-esteem. These results are consistent with those of Schrauger and Rosenberg (1970), who found that shifts in performance following feedback depend on the self-esteem of the individual. Specifically, high self-esteem people improved their performance more than low self-esteem people following positive feedback; the performance of low self-esteem individuals decreased more than high self-esteem

individuals following negative feedback. Thus, high self-esteem individuals are influenced more by positives, whereas low self-esteem people are influenced more by negatives.

These results are congruent with Korman's (1970) thesis, which asserts that individuals are motivated to behave in a manner which is congruent with their self-concept. Thus, people respond more to feedback that agrees with their self-concept, whether it is positive or negative, than they do to feedback that is inconsistent with their self-concept.

*Internal versus external control.* In the study of typists (Latham & Yukl, 1976), belief in internal versus external control was found to have no moderating effect on performance. Dossett et al. (1979) also found no moderating effects for locus of control on job performance appraisal measures or on test performance for word processors. However, Latham and Yukl (1976) found that typists with participatively set goals who were "internals" set more difficult goals than "externals."

### Conclusions

The only consistent thing about the studies of individual differences in goal setting is their inconsistency. A number of reasons for this can be offered.

First, the studies were not specifically designed to look for individual difference effects. The very fact that most studies assigned goals to the subjects means that any individual differences that did exist were probably masked by the demand characteristics of the design. When goals are assigned, subjects typically respond to situational demands rather than act in accordance with their own styles and preferences. The best design for revealing individual differences would be one in which there is free (or a considerable amount of) goal choice rather than assigned goals. Note that the personality variables in the goal-setting studies reviewed previously were most likely to emerge in the participative conditions (where the subject has some input into the decision) or in the self-set goal conditions.

Second, most of the individual difference

variables included in the studies were not based on any clear theoretical rationale; thus, even when differences were found, they were hard to explain. Perhaps the most theoretically plausible of the variables discussed earlier is that of need for achievement. Need for achievement theory (e.g., McClelland & Winter, 1971) would predict, for example, that people high in need for achievement would (a) choose moderate goals; and (b) work hardest when probabilities of success were moderate, when task performance was in their control, when there was performance feedback, and when intrinsic rather than extrinsic rewards were emphasized. Although there is some support for these predictions in the need for achievement literature, goal-setting studies have not been designed to test them.

The results for self-esteem are also intriguing. This variable seems worthy of further study, since it is logical to expect that one's self-concept would affect the goals one chooses. Self-esteem, of course, must be carefully separated from ability.

Third, there are difficulties with regard to the measures used for assessing personality variables. For example, the personality measures used were not consistent across studies. Steers (1975) used the Gough-Heilbrun Adjective Check List (Gough & Heilbrun, 1965) to measure need for achievement, whereas Latham and Yukl (1976) modified a questionnaire developed by Hermans (1970). Therefore it cannot be determined whether the different results obtained in these two studies were due to differences in the measures or in the population. Further, the reliability and validity of personality measures are often inadequate or not reported. In addition, some personality measures were administered after the experimental manipulations had taken place. This procedure can result in a confounding of responses to the personality measures with the experimental treatment.

Fourth, there may be confounding of individual differences in some studies. To draw firm conclusions regarding an individual difference variable, it must be independent of other individual difference variables of interest. Researchers often do not report the intercorrelations of individual differences,

yet they draw conclusions on various individual difference variables obtained from the same sample.

Fifth, many studies report that an individual difference variable correlates with performance for people who score high on that variable but not for those who score low. However, generally no test of significance between the two correlations is reported. To establish a moderating effect, a test of significant differences between correlation coefficients should be made (Zedeck, 1971).

Future research must overcome these difficulties before any clear conclusions can be drawn regarding the role of individual differences in goal setting.

#### Goal Acceptance, Commitment, and Choice

Goal acceptance and commitment are similar though distinguishable concepts. Goal commitment implies a determination to try for a goal (or to keep trying for a goal), but the source of the goal is not specified. It could be an assigned goal or a participatively set goal or a goal that one set on one's own. Goal acceptance implies that one has agreed to commit oneself to a goal assigned or suggested by another person. Both acceptance and commitment presumably can exist in varying degrees. Since most studies have used assigned goals, the two concepts can often be used interchangeably.

Most recent studies of goal setting have used goals as an independent variable. However, since it is assumed that assigned goals must be accepted before they will affect task performance, it is also relevant to examine the determinants of goal commitment or acceptance. Generally, attempts to measure degree of goal commitment in a manner that will differentiate between experimental treatments and/or relate to task performance have failed. None of the experimental conditions in the studies by Latham and Saari (1979a, 1979b), Latham et al. (1978), Yukl and Latham (1978), or Dossett et al.'s Study 1 (1979) affected self-report measures of goal acceptance. Dossett et al.'s (1979) Study 2 found an initial difference, with assigned goals showing greater acceptance than participatively set goals, a prediction

contrary to expectations. However, this difference disappeared by the end of the experiment. Frost and Mahoney (1976), London & Oldham (1976), Mento et al. (1980, two studies), Oldham (1975), and Yukl & Latham (1978) found no relationship between measures of goal acceptance and performance. Organ (1977) found that goal acceptance correlated with performance within some of his assigned goal subgroups, but the pattern of correlations was uninterpretable theoretically.

There are several possible reasons for these negative results. First, the measures of goal acceptance (which consisted typically of direct, face-valid questions such as, "How committed are you to attaining the goal?") may not have been valid. Some evidence that the measures of goal acceptance may be at fault was obtained in a study by Hannan (1975) in the credit application evaluation task noted earlier. He measured goal acceptance not by a rating scale but by the degree of difference between the subject's external (i.e., assigned or participatively agreed upon) goal and his or her personal goal (as determined from a questionnaire given after external goals were set). Hannan found that participation did lead to greater goal acceptance (though it had no main effect on performance) than assigning goals and that the effects of participation became progressively stronger as the difficulty of the external goal increased. The goal acceptance measure was related to one measure of performance. Hannan also found that personal goals predicted performance better than assigned goals, as did Mento et al. (1980). These findings suggest that indirect measures of goal acceptance may be more valid than direct measures.

Second, in most of the studies where acceptance was measured, nearly all subjects showed complete or substantial goal commitment; thus the range of scores was quite limited. Small differences on the scales typically used may not reflect genuine differences in psychological states.

Third, due to limitations in introspective ability, most (untrained) subjects may not be able to discriminate small differences in psychological commitment (see Nisbett & Wilson, 1977; but see also Lieberman, 1979,

for a more sanguine view of the usefulness of introspection). Recall that in the studies by Latham et al. (1978) and Pritchard and Curtis (1973) described earlier, there appeared to be significant commitment effects for monetary incentives based on actual performance, but these were not reflected in the direct goal commitment questions.

The solution to the last two problems may be to modify the design of the typical goal-setting experiment. Designs that encourage a wide range of goal commitment, such as those with a choice of various possible goals, with commitment to each being measured after choice, may reduce the introspective burden and increase the variance of the answers on the commitment scale. Within-subject designs, which involve assigning different goals (under different conditions) to the same subjects at different times, might also make the commitment responses more accurate by providing a clearer frame of reference for the subject. In addition, when a subject is less than fully committed to a given goal, it is important to determine what other goals he or she is committed to. For example, a subject who is not fully committed to a moderately difficult goal could be trying for a harder goal, an easier goal, or no specific goal. Each alternative choice would have different implications for performance.

Different degrees of goal commitment might be induced by varying types or degrees of social influence (e.g., approval, disapproval). Such influences undoubtedly have profound effects on goal choice and commitment among certain individuals, but a detailed discussion of the social-psychological literature is outside the scope of this review.

Goal acceptance or commitment can be considered a form of choice, (i.e., the choice between accepting or rejecting a goal that was assigned or set participatively). In this sense these studies tie in with the more traditional studies of what is called "level of aspiration," which allowed subjects to freely choose their own goals after each of a series of trials on a task (e.g., see Frank, 1941; Hilgard, 1958). The factors that affect goal acceptance and goal choice are basically the same. They fit easily into two major cate-

gories, which are the main components of expectancy theory (Vroom, 1964).

### *Expectations of Success*

Other things being equal, individuals are more likely to accept or choose a given goal when they have high rather than low expectations of reaching it (Mento et al., 1980). Such expectations evidently stem from self-perceptions about ability on the task in question (Mento et al., 1980). Presumably these perceptions are inferences from past performance. Past performance has consistently been found to predict future goals (Cummings et al., 1971; Lopes, 1976; Wilsted & Hand, 1974; Ashworth & Mobley, Note 2). Individuals are more likely to become more confident and to set higher goals after success and to become less confident and to set lower goals after failure (Lewin, 1958), although failure may lead to higher goals in pressure situations (Forward & Zander, 1971; Zander, Forward, & Albert, 1969) or even due to self-induced pressure (Hilgard, 1958). Generalized self-confidence may also affect goal acceptance and choice.

### *Values*

When the perceived value of attaining or trying for a goal is higher, the goal is more likely to be accepted than when the perceived value is low (Mento et al., 1980). The valued outcomes involved may range from intrinsic rewards like the pleasure of achievement to extrinsic rewards following performance, such as money, recognition, and promotion. Instrumentality in expectancy theory is the belief that goal acceptance or goal attainment will lead to value attainment. Theoretically, goal choice and goal acceptance should be predictable from the expectancies, values, and instrumentalities the subject holds with regard to the various choices (Dachler & Mobley, 1973).

This is clearly a maximization-of-satisfaction model, which is not without its critics (e.g., Locke, 1975). Nevertheless, treating expectancy theory concepts as factors that predict an individual's goal choices does suggest a way of integrating the expectancy and goal-setting literatures (Dachler & Mobley, 1973; Mento et al., 1980).

Although external factors such as rewards and pressures presumably affect the individual through their effects on expectancies, instrumentalities, and values, it is worth emphasizing *pressures* because they have played a major role in most of the goal-setting studies. For example, the typical laboratory goal-setting study simply involves asking the subject to try to reach a certain goal. The subject typically complies because of the demand characteristics of the experiment (probably reducible to beliefs regarding the value of extra credit and the desire to help the experimenter).

Similarly, in field settings subjects are typically asked to try for goals by their supervisor. The supervisor, of course, is in a position to reward or punish the employee; furthermore, employees know they are being paid to do what the organization asks them to do. Ronan, Latham, and Kinne (1973) found that goal setting among woods workers was only effective when the supervisor stayed on the job with the employees. The mere presence of the supervisor could be considered a form of pressure in this context. In the studies by Forward and Zander (1971) and Zander et al. (1969), competitive or community pressures led to setting goals that were unrealistically high.

Although pressure is something that social scientists generally have been against, Hall and Lawler (1971) argued that if used appropriately (e.g., by combining it with responsibility), it can facilitate both high commitment and high performance. Pressure, of course, also can be self-imposed as in the case of the Type A personality who appears to be a compulsive goal achiever (Friedman & Rosenman, 1974).

#### Summary, Conclusions, and Directions for Future Research

Based on the findings to date, the following conclusions about goal setting seem warranted:

1. The beneficial effect of goal setting on task performance is one of the most robust and replicable findings in the psychological literature. Ninety percent of the studies showed positive or partially positive effects.

Furthermore, these effects are found just as reliably in field settings as in the laboratory.

2. There are at least four mechanisms by which goals affect task performance: by directing attention and action, mobilizing energy expenditure or effort, prolonging effort over time (persistence), and motivating the individual to develop relevant strategies for goal attainment. The latter two mechanisms are most in need of further study.

3. Goals are most likely to affect performance under the following conditions:

*Range and type of goals.* Individuals with specific and hard or challenging goals outperform individuals with specific easy goals, do-best goals, or no assigned goals. People with specific moderate goals show performance levels between those of people with easy and hard goals but may not perform better than individuals with do-best goals. A common problem with easy-goal subjects is that their goals are so easy that once they are reached, they set new, higher goals to have something to do, which means that they are no longer genuine easy-goal subjects. Perhaps easy-goal subjects should be told not to try to exceed their goals or not to set new goals when the easy goals are reached.

The wider the range of goal difficulty, the more likely goal setting is to affect performance (cf., Frost & Mahoney, 1976, with Locke et al., 1978). It is probable that longer time spans will progressively increase the difference between subjects with hard goals and those without hard goals.

One aspect of goal setting that has not received much attention to date is the usefulness of setting intermediate goals or subgoals as an aid to attaining longer term or end goals. Locke and Bryan (1967) found that on a 2-hour addition task, setting 15-minute subgoals led to slightly poorer performance than setting just end goals. Bandura and Simon (1977), however, found that setting weekly goals for weight loss only led to weight loss when daily goals (or multiple goals within days) were set as well. There is probably an optimal time span for the setting of goals depending on both the individual and the task situation. Subgoals could conceivably facilitate performance by operating as a feedback device; they might also

serve to maintain effort over long time spans. On the negative side, they might limit performance if the subgoals were treated as performance ceilings. More studies are clearly needed on this topic.

*Goal specificity.* Goals seem to regulate performance most predictably when they are expressed in specific quantitative terms (or as specific intentions to take a certain action, such as quitting a job) rather than as vague intentions to "try hard" or as subjective estimates of task or goal difficulty.

*Ability.* Individuals must have the ability to attain or at least approach their goals. (In complex tasks they must choose appropriate strategies, as noted previously.) Exerting more effort will not improve task performance if improvement is totally beyond the individual's capacity. Goal-setting studies should carefully control for ability (such as by a work sample pretest) to isolate the variance in performance due to goals from that due to ability. If ability is not controlled, it becomes error variance when testing for a motivation effect. The most practical way to set goals may be to base them on each individual's ability on the task in question as measured by a preexperimental work sample. This usually insures ready goal acceptance and makes it easy to control for ability when comparing different goals.

*Knowledge of results (feedback).* Knowledge of performance in relation to the goal appears to be necessary if goals are to improve performance, just as goals are necessary if feedback is to improve performance. Feedback is probably most helpful as an adjunct to goal setting when the task is divided into trials and feedback is provided after each one, although the ideal frequency is not known. Feedforward, telling the subjects how fast they will need to work on a future trial as compared with their speed on an immediately preceding trial may be a partial substitute in some cases (e.g., see Mento et al., 1980, Study 1). Knowledge and feedback, of course, may have purely cognitive (learning) effects on performance (see Locke et al., 1968, for a discussion of this issue), but these are not the concern of this review. Clearly more research is needed on feedback, especially research based on the issues

raised by Ilgen et al. (1979), such as timing, frequency, source, interpretation, and so on.

*Monetary rewards.* Money may be an effective method of improving performance in relation to a given goal (presumably through increased commitment), but the amounts involved must be large rather than small (e.g., \$3 rather than 3¢ in a typical laboratory experiment).

Further research on money and goal setting could be tied into Deci's work on intrinsic and extrinsic motivation. Deci and Porac (1978) suggested that money rewards that encourage the attainment of competence on a task (reaching a challenging goal?) may enhance rather than decrease interest in the task.

*Participation and supportiveness.* There is no consistent evidence that participation in setting goals leads to greater goal commitment or better task performance than assigned goals when goal level is controlled, though it sometimes leads to setting higher goals than the supervisor would have assigned. One study found that participation facilitated the acceptance of hard goals (Hannan, 1975).

Supportiveness may be more important than participation, although this concept needs to be defined more clearly. Latham and Saari (1979b) defined it as friendliness, listening to subjects' opinions about the goal, encouraging questions, and asking rather than telling the subject what to do. More exploration of the nature and effects of supportiveness in goal setting is clearly warranted.

*Individual differences.* No reliable individual difference factors (other than ability) have emerged in the goal-setting literature, probably because most of the studies have used assigned goals. Thus, situational constraints have prevented personal styles and preferences from affecting performance. In free-choice situations individual personality traits may play a more substantial role. Subjects high in need for achievement should prefer to set moderate goals, whereas those low in this motive should be more likely to set easy or very hard goals. Individuals with high self-esteem should be more likely to accept and try for challenging goals than

those with low self-esteem. However, it is not clear whether a generalized self-esteem measure would show as great an effect as a more task-specific measure of perceived competence. Mento et al. (1980; based on Motowidlo, 1976) found that self-perception of ability added unique variance to performance even when expectancy, valence, and goal level were controlled.

*Goal acceptance and choice.* A basic assumption of goal setting research is that the individual accepts (is actually trying for) the goal that was assigned or was set. Personal goals usually predict performance better than related measures such as assigned (or objective) goal difficulty or subjective goal difficulty. Direct measures of goal acceptance have been found to be generally unrelated to either experimental treatments or task performance. For example, rewards such as money may affect performance, with goal difficulty controlled, even though goal acceptance questions do not indicate increased commitment. Indirect measures, such as the difference between the personal and the assigned goal, show more promise. However, better experimental designs (e.g., within-subject designs and designs allowing free choice of goals) may show effects even using direct questions.

Goal choice and acceptance are influenced by numerous factors, including pressure, all of which may work through influencing the individual's expectancies, values, and perceived instrumentalities. Support on the part of higher management for goal-setting programs in organizations seems critical for their success, as is the case for most social science interventions (e.g., see Hinrichs, 1978; Ivancevich, 1974; Woodward, Koss, & Hatry, Note 6). In an organizational context support may include insuring or securing the commitment of middle and lower managers. It is likely that the degree of continuing support for goal-setting programs will determine the duration of their effects. The Latham and Baldes (1975) study with truck drivers has continued to be successful for the past 7 years (reported in Latham & Locke, 1979, Figure 1, Footnote b).

*Other issues.* Not mentioned in the above discussion was how the type of task affects

goal-setting effectiveness. Obviously, individuals must have some control over task pace, quality, method, and so on for goal setting, or any other motivational technique, to affect performance. We do not agree with those who claim that goal setting might work only on certain types of tasks. However, it will undoubtedly be the case that the four mechanisms noted earlier are differentially important in different tasks. For example, where more effort leads to immediate results, goals may work as long as they lead the subject to work harder. On the other hand, where the task is complex, hard goals may only improve performance if they lead to effective strategies.

Regarding the relation of goals to rewards, an intriguing finding by Masters et al. (1977) was that children who were told to evaluate their performance after each trial block while speaking into a tape recorder (e.g., "I did very good [*sic*];" "I didn't do very good [*sic*]") all reached asymptote on the task regardless of their assigned goals. Self-reward ultimately vitiated what had been highly significant goal effects. This finding is clearly worthy of future study.

Competition in relation to goal setting also requires further study. Both Latham and Baldes (1975) and Komaki et al. (1978) found that goal setting plus feedback led to spontaneous competition among subjects. White et al. (1977) found that telling subjects that their performance would be compared to that of others ("evaluation apprehension," in their terminology) had a powerful effect on task performance independent of a separate goal manipulation. However, spontaneous goal setting within the evaluation apprehension condition was not measured. It is likely that competition could lead people to set higher goals than they would otherwise (other people's performances become the goals) and/or lead to greater goal commitment (Locke, 1968).

Another issue that has not been investigated is whether hard goals combined with high pressure might lead to a conflict situation and therefore high anxiety. It has been shown that anxiety disrupts performance on complex tasks when it leads subjects to worry rather than concentrate on the task



(Wine, 1971). As noted earlier, conflicts may also occur among different goals, although this has not been studied. Conflicting pressures in goal setting may vitiate the usual goal-performance relationship (Forward & Zander, 1971). Nor has the issue of individual versus group goal setting received much attention. (Group goals are discussed in Zander, 1971.)

A final note is in order with respect to the practical significance of the technique of goal setting. In a review of all available experimental field studies of goal setting, Locke et al. (1980) found that the median improvement in performance (e.g., productivity, quality) that resulted from goal setting was 16%. In one company the use of goal setting on just one job saved a company \$250,000 (Latham & Baldes, 1975). Combined with the use of monetary incentives, Locke et al. (1980) found that goal setting improved performance by a median of more than 40%—a finding of great practical significance.

A model for the use of goal setting in field settings has been developed by Latham and Locke (1979). White and Locke (in press) have documented the high frequency with which goals actually regulate productivity in business settings. Locke (1978) has argued that goal setting is recognized explicitly or implicitly in virtually every theory of and approach to work motivation.

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