

Mediating Roles of Self-Set Goals, Goal Commitment, Self-Efficacy, and Attractiveness in the Incentive-Performance Relation

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The effects of monetary incentives on performance were examined in 2 studies. These effects were hypothesized to be through the intermediary motivational processes of self-efficacy, attractiveness ratings, goal level, and goal commitment. In Study 1, 80 subjects worked solving anagrams on 8 trials under 1 of 4 monetary incentive conditions (piece rate, hourly rate, competitive bonus, and goal attainment bonus). In Study 2, 146 subjects worked solving anagrams on 4 trials under 1 of 4 monetary incentive conditions (piece rate, informed bonus, uninformed bonus, and assigned bonus). In both studies, subjects self-set goal levels both before and after the incentive manipulation. Results from both studies indicated that tying rewards to goal attainment resulted in subjects having lower goal levels and lower self-efficacy, whereas piece-rate systems resulted in higher goal levels and higher self-efficacy. In addition, goal levels and self-efficacy partially mediated the relation between incentives and performance.

The positive relation between goal level and performance has been consistently demonstrated (Earley & Lituchy, 1991; Locke & Latham, 1990; Locke, Shaw, Saari, & Latham, 1981; Mento, Steel, & Karren, 1987; Mone

& Baker, 1992). In addition, the motivational effectiveness of monetary incentives has received substantial empirical support (Guzzo, Jette, & Katzell, 1985; Jenkins, 1986; Locke, Feren, McCaleb, Shaw, & Denny, 1980). Despite the conclusiveness of the research demonstrating that both goal setting and monetary incentives are effective motivational tools independently, little is known about how these techniques work together in determining performance. To help fill this void, this study investigated the monetary incentive-performance relation from an integrated expectancy-goal-setting perspective.

GOALS AS MEDIATORS OF THE INCENTIVE-PERFORMANCE RELATION

Locke (1968), Locke et al. (1981), and Locke and Latham (1990) hypothesized that goals (i.e., level and commitment) mediate the effect of incentives (both monetary and nonmonetary) on performance. Specifically, it was hypothesized that this mediating effect could occur by causing individuals to set higher goals, to spontaneously set goals, or have higher commitment to goals. However, the types of incentives, either monetary or nonmonetary, that would cause these effects were never specifically articulated. Therefore, an examination of how various types of monetary incentives affect goal levels is needed.

However, this examination is not as straightforward as it sounds. Currently, there is some disagreement as to what incentives should be tied. Patten (1982), on one hand, stated that incentives must be tied to goal attainment for goal levels to be most effective. Locke and Latham (1984), on the other hand, argued that tying incentives to goal attainment could lead to negative consequences such as setting lower goal levels to increase the expectancy of achieving them. In other words, Patten implied that incentives increase goal commitment by increasing the attractiveness of goal attainment, yet if Locke and Latham are correct this increase in commitment might be toward a lower goal level. Which of these views most closely depicts reality is an empirical question this study was designed to answer.

Additionally, goal-setting researchers have observed differences in results obtained when using assigned- versus self-set¹ goal levels (see Austin, 1989; Hollenbeck & Brief, 1989; Latham, Erez, & Locke, 1988; Wright, 1990). This is particularly problematic because research on incentives and goals has focused predominantly on the effects of incentives when goal levels are assigned rather than self-set (Campbell, 1984; Mowen, Middlemist, & Lu

¹We make a distinction between personal goals and self-set goals. Personal goals are the actual intentions that an individual has for performance (Tubbs & Ekeberg, 1992). Self-set goals are goals expressed by subjects as being their goals, but may or may not reflect their actual goals. This difference is illustrated by the studies presented in this article.

ther, 1981; Reidel, Nebeker, & Cooper, 1988; Terborg, 1976; Terborg & Miller, 1978; Wright, 1989, 1992).

Thus, research needs to be conducted regarding the effects of incentives on self-set goals for three reasons. First, most of the currently popular theories of self-regulation focus on personal (as opposed to assigned) goals as the most direct determinant of behavior. For example, control theory (Carver & Scheier, 1981), goal theory (Locke & Latham, 1990), and self-efficacy theory (Bandura, 1988) all recognize the importance of personal goals and argue that assigned goals affect performance only through affecting one's personal goals. Second, personal goals can affect one's commitment to assigned goals. For example, Tubbs & Dahl (1992) argued that the discrepancy between one's personal goal and the assigned goal was an accurate measure of commitment to the assigned goal, and that this discrepancy measure was strongly related to performance. Finally, past research has ignored the determinants of performance for individuals who reject the assigned goal. Recent research by Wright, Hollenbeck, Walz, and McMahan (1995) and Lee, Locke, and Phan (1992), however, has found that in these cases personal goals are accurate predictors of performance.

Our studies were designed to achieve a clearer understanding of the relations among monetary incentives, goals (i.e., commitment and level), and performance. Our hypothesized model is depicted in Figure 1.

HYPOTHESES

An expectancy theory framework has frequently been used to theoretically examine the determinants of both self-set goal level (Campbell, 1982; Locke, 1991; Locke & Latham, 1990; Wright, 1991) and goal commitment (Hollenbeck & Klein, 1987; Locke, 1991; Locke & Latham, 1990; Wright, 1991). This framework focuses on two general categories of factors as affecting goal choice and goal commitment: those that affect the perceived probability of goal attainment (i.e., expectancy or self-efficacy) and those that affect the valence or desirability of performance (i.e., attractiveness).

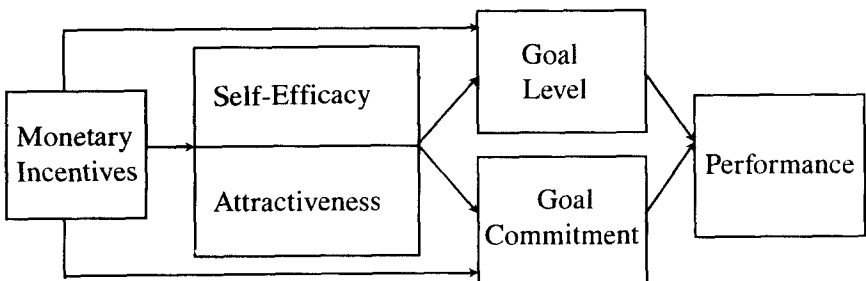


FIGURE 1 Proposed model for the effects of monetary incentives on performance.

Wright (1991) discussed how Naylor, Pritchard, and Ilgen (NPI; 1980) theory (a variation of the expectancy theory framework) might be used to more explicitly examine how different types of incentives might affect goal level. The following section uses NPI theory to develop hypotheses regarding how goal level and goal commitment might mediate the relation between incentives and performance.

Incentives

Previous research examining goal setting and monetary incentives has used three basic types of monetary incentive conditions: piece rate, goal attainment bonus, and hourly. Piece-rate conditions pay subjects for each unit of work completed, thus, pay is directly tied to performance. Hourly-rate conditions pay subjects a flat rate not contingent on performance. Finally, goal attainment bonus conditions pay subjects a bonus if they attain their goal.

An additional type of monetary incentive also was examined in this study. Campbell (1982) noted that competition might affect the level of goals that individuals might choose. For example, a competitive-bonus condition would pay workers a bonus if their production fell into a predetermined percentile (i.e., top 25%) of their group. In this case, the subjects are unaware of whether they will earn a bonus until after the production has been counted because their bonus is dependent on how well the people they were competing against performed. Hence, pay is tied directly to performance; however, performance is a moving target and not a pre-set one. This is quite similar to sales contests, where the top few salespersons receive a reward (bonus, vacation, etc.) but no one is aware *a priori* of the exact level of performance necessary to win.

The effects of these monetary incentives on performance should differ, and these differences can be explained using NPI theory. According to NPI theory, the Product Utility function describes the bivariate relation between the amount of products (performance level) and utility gained, and tends to reflect the attractiveness of various levels of performance. Wright (1991) proposed that the Product Utility functions were quite different for these different types of incentives. Under piece-rate conditions a positive linear relation exists as the utility increases at a constant rate with each additional unit of product. Under hourly-rate conditions a flat linear relation exists as the amount of utility is constant across all levels of product. Goal attainment bonus conditions result in a flat linear relation up to the point of the goal. At this point a large jump in utility is observed as the individual earns the bonus. The competitive-bonus condition is similar to the goal attainment bonus condition with the exception that the individual is not aware *a priori* of the performance level at which the increase in utility will be observed. These utility functions are depicted in Figure 2.

Because the Product Utility functions are different for the different types of incentive systems, it seems likely that this would affect the level of goal that an individual might set. However, this requires examining the expect

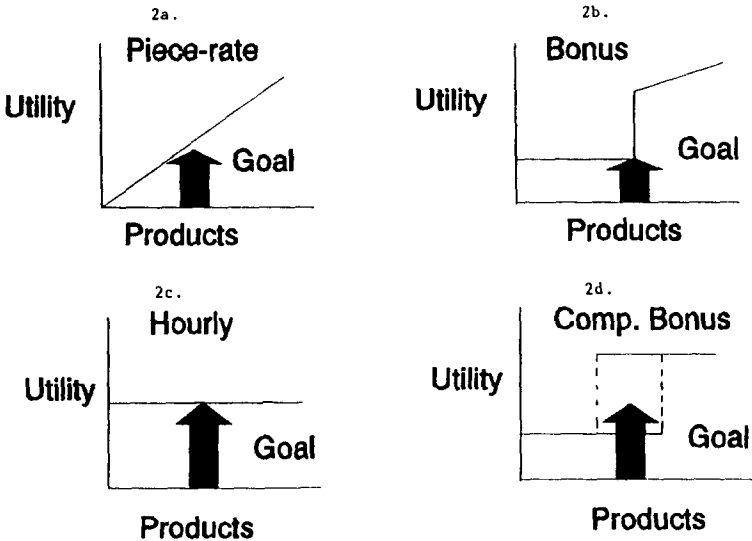


FIGURE 2 (a) Product utility function for piece-rate incentive; (b) Product utility function for goal attainment bonus incentive; (c) Product utility function for hourly incentive; (d) Product utility function for competitive-bonus incentive.

tancy aspect of the motivational process. Naylor and Ilgen (1984) noted that individuals assess the “feasibility” of various levels of performance by estimating how additional commitment to acts (such as time and energy) will result in the ability to attain a given performance level. Thus, the different Product Utility functions result in different attractiveness for goal attainment. This, in turn, has an effect on the level of risk individuals might be willing to assume in terms of setting a goal they might not attain.

Piece-rate subjects would have motivation to set the highest goals, as these goals should motivate higher performance. This will maximize their earnings and there will be no negative consequences for failing to attain the goal. Similarly, competitive-bonus subjects might be expected to set high goal levels in order to maximize their performance in an effort to increase the probability of being a top performer and earning the bonus, and failure to attain the goal presents few negative consequences. On the other hand, goal attainment bonus subjects would be motivated to set low goals in order to ensure that they are able to earn the bonus. Failure to earn the bonus would certainly be perceived as a negative consequence, particularly when the goal was under the individual’s control. Finally, because hourly-rate subjects have no monetary reason to set either high or low goal levels, they are expected to set more realistic goal levels based on their previous, actual performance and experience with the task.

Similarly, the differing Product Utility functions also should affect an individual's commitment to the goal. According to Wright (1991), goal attainment bonus subjects would be expected to express the highest goal commitment because the monetary incentive is only earned if the goal is achieved. Piece-rate and competitive-bonus subjects would have some degree of commitment, but because there is no direct relation between their payoff and goal attainment, their commitment should not be as high as goal attainment bonus subjects. The goal is only working as a motivating factor, not as a performance standard. Finally, hourly-rate subjects should express the lowest commitment because they are paid the same regardless of the congruence between their personal goal level and performance. Thus, the following hypotheses are proposed:

Hypothesis 1a: Monetary incentives will affect goal level such that piece-rate and competitive-bonus subjects will set the highest goal levels, followed by hourly-rate and goal attainment bonus subjects, respectively.

Hypothesis 1b: Monetary incentives will affect goal commitment such that goal attainment bonus subjects will express the highest goal commitment, hourly subjects will express the lowest commitment, and piece-rate and competitive-bonus subjects will express relatively moderate levels of commitment.

Self-Efficacy and Attractiveness

Substantial evidence implies that the effects of incentives on self-set goals and goal commitment takes place through affecting self-efficacy and attractiveness. Most recent research on the relation between perceived probability of success and goals has used self-efficacy as opposed to simple expectancy measures (Earley & Lituchy, 1991; Gist & Mitchell, 1992; Klein, 1991; Lee et al., 1992). Self-efficacy is a broader construct that includes all factors that would lead one to believe that she or he will perform well on the task. It has been consistently shown to be related to self-set goals (e.g., Earley & Lituchy, 1991), goal commitment (e.g., Earley, 1986; Locke, Frederick, Lee, & Bobko, 1984), and performance (e.g., Locke et al., 1984).

The attractiveness of different levels of performance also should affect an individual's self-set goal and commitment to that goal, although the findings regarding this relation are mixed. For example, Matsui, Okada, and Mizuguchi (1981) found that higher goal levels were associated with higher instrumentalities than lower goals. Earley and Lituchy (1991) found a strong negative relation between attractiveness (valence) ratings and goal level, but this relation was not observed in their full model. With regard to goal commitment, Wright (1992) found that valence was positively related to goal commitment.

Thus, both self-efficacy and attractiveness have been found to be related to self-set goals and goal commitment. In addition, these variables are both

affected by incentives. Locke and Latham (1990) noted that incentives can affect the attractiveness of goals, as well as the expectancies of success. Subjects offered incentives for higher performance are more likely to increase their subjective estimates of the probability that they can achieve those levels of performance. In addition, the incentives increase the attractiveness of a given level of performance (Wright, 1992). The relations just described imply that self-efficacy and attractiveness mediate the relation between monetary incentives and goal level and between incentives and goal commitment.

However, the effect of incentives on self-efficacy may differ depending on the type of incentive offered. For example, when an incentive exists for higher performance (such as in piece-rate or competitive-bonus conditions), individuals might express higher self-efficacy (Locke & Latham, 1990). However, when the bonus is contingent on one's self-set goal, impression management processes may occur, with individuals expressing a lower self-efficacy to justify a lower goal. In other words, it is possible that when a bonus is contingent on attaining the goal one self-sets, one would decrease their reported self-efficacy. Thus, hypotheses 2a and 2b are proposed:

Hypothesis 2a: Self-efficacy and attractiveness will mediate the relation between monetary incentives and self-set goal level.

Hypothesis 2b: Self-efficacy and attractiveness will mediate the relation between monetary incentives and commitment to a self-set goal.

Incentives and Performance

Finally, Locke (1968) originally proposed that goal levels completely mediate the relation between monetary incentives and performance. More recently, however, Locke et al. (1981) stated that incentives exert an independent effect on performance in addition to the indirect effect through goal levels. Locke (1988) stated that it is still quite unclear as to why this independent effect is observed. One reason might be that other cognitive variables are affected by incentives, and that these variables mediate the relation between incentives and performance. For example, Klein (1991) observed that self-efficacy and attractiveness were strongly related to performance. Given the fact that incentives should strongly affect these variables, it is conceivable that an individual's self-efficacy and attractiveness perceptions also might mediate the relation between monetary incentives and performance. Thus, the following hypothesis is proposed:

Hypothesis 3: Goals (level and commitment), self-efficacy, and attractiveness will mediate the relation between monetary incentives and performance.

STUDY 1

Method

Participants

Subjects were 80 undergraduates enrolled in a Principles of Management class at a large midwestern university. Subjects received extra credit for their participation in addition to any money earned in the study.

Task

The task was solving anagrams. Subjects worked for eight 3-min trials. Each trial contained 20 five-letter and 20 six-letter anagrams. The eight trials were combined into one practice block (Trials 1 and 2) and three experimental blocks (Trials 3 and 4, 5 and 6, and 7 and 8, respectively).

Variables

Monetary incentives. Monetary incentives was a manipulated variable with four conditions. Piece-rate subjects were paid \$.75 for every anagram they solved on each of the four experimental trials. Hourly-rate subjects were paid \$3 for each of the four experimental trials. Goal attainment bonus subjects were paid \$3 for each of the four experimental trials on which they met or exceeded the goal that they set. Finally, competitive-bonus subjects were paid \$3 for each of the four experimental trials on which they performed in the top one-third of their group. Based on a pilot study, the pay of \$3 was approximately equal to what the average performer would have made in the piece-rate condition (average performance = 4 anagrams). This made the potential pay equal across the monetary incentive conditions.

It is important to note that although the potential pay for individuals was equal across conditions, the actual pay (and expected value) across conditions was quite unequal. This was because only one-third of the subjects in the competitive-bonus condition received the bonus on any given trial. However, consistent with past research (e.g., Campbell, 1984; Pritchard & Curts, 1973; Reidel et al., 1988; Wright, 1989, 1992), it was decided that the potential rather than actual pay should be equalized due to the fact that the perceived payoff (as opposed to actual payoff) was the more important construct relevant to its effect on the dependent variables.

Manipulation check. Subjects indicated the basis of their pay by checking one of five boxes ("I was paid for every anagram I solved," "I was paid a bonus for achieving my goal," "I was paid a bonus if I was one of the

top performers in my group," "I was paid a flat rate regardless of my performance," and "I received no pay at all").

Self-efficacy. Self-efficacy was measured by asking subjects to rate their certainty (0 to 100) that they could attain 12 different levels of performance. This measure is identical to that used by Klein (1991) and was obtained following Trials 2, 4, and 6. The scale used was the summated expectancy across the different performance levels. This is the common method for operationalizing self-efficacy (Bandura & Cervone, 1983), yet it has also been used in some studies as an expectancy measure (Klein, 1991).

Attractiveness. Attractiveness was also measured similar to Klein's (1991) measure, which was also referred to as an *achievement valence* measure in Mento, Locke, and Klein (1992). Subjects rated how attractive they viewed 12 different levels of performance on an 11-point scale ranging from -5 to 5 following Trials 2, 4, and 6. The scale used was the summated attractiveness across the different performance levels.

Self-set goal. Self-set goal was measured by asking subjects to set a goal for each trial of a particular block of trials. They indicated their goal levels after Trials 2, 4, and 6.

Goal commitment. Goal commitment was measured with the 7-item scale developed by Hollenbeck, Williams, and Klein (1989) following Trials 2, 4, and 6. The construct validity of this measure has been demonstrated by Hollenbeck, Klein, O'Leary, and Wright (1989). To increase the reliability to acceptable levels, one item was deleted from this measure ("It may be necessary to revise this goal") resulting in coefficient alpha reliabilities of .78, .67, and .72, for the three administrations, respectively.

Performance. Performance was measured as the number of anagrams solved on each block of trials. Each block consisted of two trials, and these two trials were summed to compute the performance for each block of trials.

Procedure

Subjects arrived at the experiment in groups of approximately 40. Upon their arrival, the experimenter explained that the basic purpose of the study was to examine some different determinants of performance and subjects were asked to sign an informed-consent form. Next, subjects were randomly assigned to one of the four experimental conditions and then moved to a separate classroom for each condition. Graduate assistants led the experiments in these classrooms.

Trials 1 and 2 were practice trials. These two trials served as a practice block. Following Trial 2, subjects were asked to set a goal level for the next few trials and to complete the self-efficacy, attractiveness, goal level, and goal commitment measures. The experimenter then instructed them to work on Trial 3 and then Trial 4. These two trials served as Block 1. Following Trial 4 the experimenter informed subjects of their monetary incentive condition and once again asked them to complete the self-efficacy, attractiveness, goal level, and goal commitment measures. The experimenter then had them work on Trials 5 and 6. These trials served as Block 2. Following Trial 6 they were reminded of their monetary incentive condition and asked to complete the four measures again. Finally, they worked on Trials 7 and 8. These trials served as Block 3. Subjects were asked to write down the number of anagrams they solved following each trial to ensure that they received feedback on their performance. The experiment was concluded by having the subjects complete the manipulation checks before being debriefed.

Results

Manipulation Checks

A contingency coefficient of .79 ($p < .01$) was observed between the subjects' responses to the manipulation check item and their respective group membership, indicating that the manipulation was successful.

Tests of Hypotheses

For the purposes of the tests of hypotheses the monetary incentive groups were dummy coded as three variables (piece rate, competitive bonus, hourly rate, and goal attainment bonus coded 1, 0, 0; 0, 1, 0; 0, 0, 1; and 0, 0, 0, respectively). The hypotheses were tested through the use of multiple regression. Table 1 contains the means, standard deviations, and intercorrelations among the experimental variables. Figure 3 displays a plot of the means for different monetary incentive groups on the measured variables across the experimental blocks.²

²The repeated measures design with multiple dependent variables might best be analyzed using a multivariate analysis of variance (MANOVA). However, MANOVA would be less amenable to testing particular hypotheses and would not provide effect sizes. Thus, we chose to analyze the results using regression. However, a MANOVA was performed using all of the reported dependent variables for both experimental blocks. The MANOVA resulted in a significant overall multivariate F ($F = 1.75, p < .01$). Thus, we felt comfortable in using regression, rather than univariate analyses of variance (ANOVAs) to test the specific hypotheses. The MANOVA results are available from Patrick M. Wright.

TABLE 1
Means, Standard Deviations, and Intercorrelations Among the Experimental Variables

Variable	M	SD	1	2	3	4	5	6	7	8	9	10	11	12	13
Piece rate	.26	.44	—												
Competitive bonus	.23	.42	-.33	—											
Hourly rate	.28	.45	-.37	-.33	—										
Block 1 (preincentive)															
Self-efficacy	28.70	19.03	12	00	-.02	—									
Attractiveness	8.02	2.07	-.09	-.00	-.00	02	—								
Goal	7.54	3.04	08	-.05	09	66	00	—							
Commitment	4.05	.62	-.12	-.03	-.07	-.05	23	-.06	—						
Performance	9.25	7.02	08	-.13	05	49	-.02	44	-.02	—					
Block 2 (postincentive) ^a															
Self-efficacy	29.73	20.64	12	06	11	72	-.11	60	-.07	76	—				
Attractiveness	8.56	2.51	03	01	-.04	-.25	68	-.07	20	-.14	-.21	—			
Goal	6.65	4.17	18	13	14	44	-.01	56	-.18	52	70	-.14	—		
Commitment	4.19	.53	-.08	-.05	-.02	07	24	24	64	10	09	17	01	—	
Performance	8.93	5.77	00	-.21	06	49	08	45	09	81	60	-.07	33	15	—

Note. Decimal points have been omitted from correlations. $N = 80$, $r = 21$, $p < .05$; $r = 27$, $p < .01$; for Blocks 1 and 2, respectively.

^aDue to space limitations and similarity of correlations, only the variables for Block 2 are displayed.

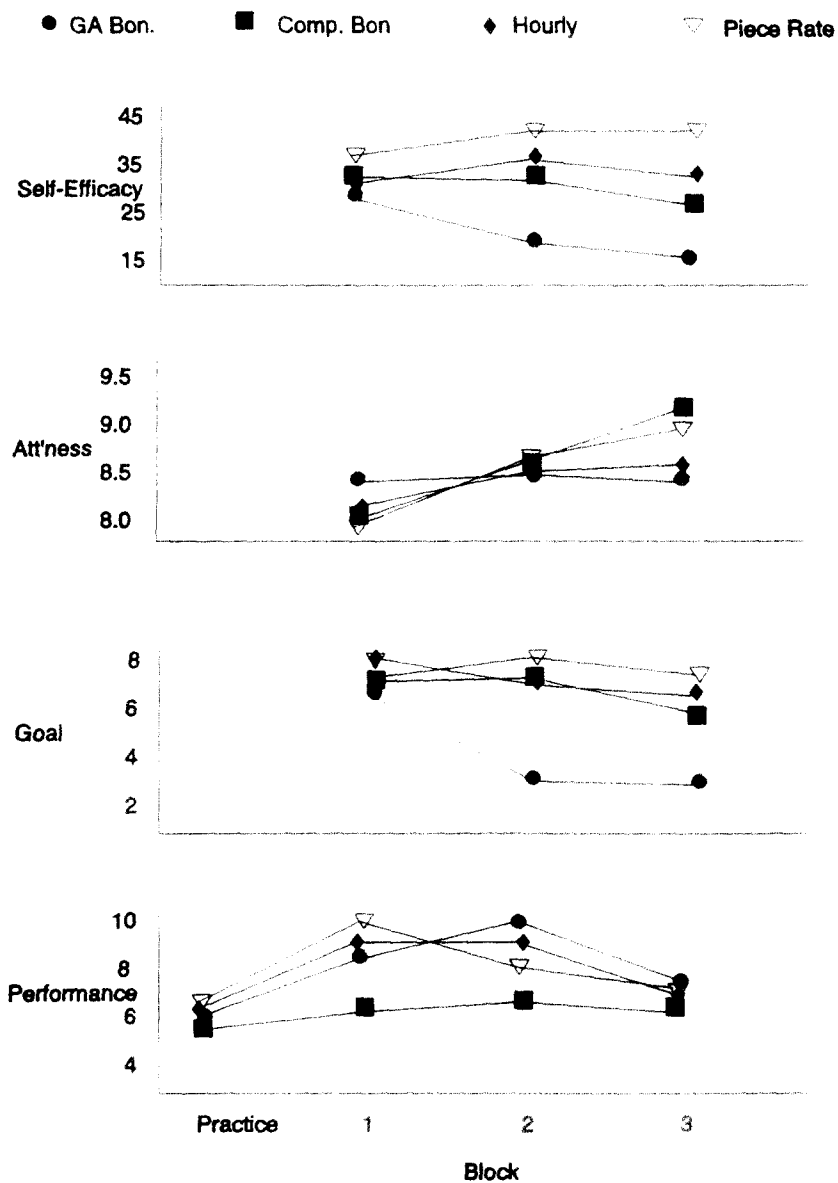


FIGURE 3 Plot of means on measured variables in Study 1

To ensure that random assignment was effective, regressions were run using the monetary incentive condition as a predictor variable. There were no significant differences in means between groups for performance on the practice block ($R^2 = .01$, ns), goals on Block 1 ($R^2 = .03$, ns), and performance on Block 1 ($R^2 = .02$, ns).

Hypothesis 1. Hypothesis 1a stated that monetary incentives would affect goal level such that the highest goals would be set by piece-rate and competitive-bonus subjects, followed by hourly-rate and goal attainment bonus subjects, respectively. Subjects' goal level for Blocks 2 and 3 (the blocks after the monetary incentive manipulation) was regressed on the dummy-coded monetary incentive variables in two separate regressions. The incentive variables explained 21% ($p < .01$) of the variance in goals for Block 2 and 19% ($p < .01$) of the variance in goals for Block 3. As predicted, examination of the beta weights revealed that piece-rate subjects set the highest goals followed by competitive-bonus, hourly-rate, and goal attainment bonus subjects, respectively. Comparisons of the B weights according to the method recommended by Cohen and Cohen (1983) revealed that all groups were significantly greater than the goal-attainment group, but no other significant differences were observed for Block 2 goals. The results for Hypothesis 1a were identical for Block 3, with the exception that hourly subjects set higher goals (though not significantly) than competitive-bonus subjects. Thus, Hypothesis 1a was supported. These results, along with the results from the regressions of goal commitment on incentives, are presented in Table 2.

TABLE 2
Study 1 Results of Hierarchical Regression Regressing Goal Level and Goal Commitment in Blocks 2 and 3 on Monetary Incentives

Variable	Goal Level		Goal Commitment	
	R^2	B-Weight	R^2	B-Weight
Block 2				
Step 1	.21**		.02	
Piece rate (Dummy 1)		4.64**		-.21
Hourly (Dummy 2)		4.33**		-.15
Competitive (Dummy 3)		4.21**		-.22
Goal attainment (Constant)		3.26**		4.32**
Block 3				
Step 1	.19**		.06	
Piece rate (Dummy 1)		4.30**		-.31
Hourly (Dummy 2)		3.68**		-.11
Competitive (Dummy 3)		2.74**		-.38*
Goal attainment (Constant)		3.31**		4.33

* $p < .05$. ** $p < .01$.

Hypothesis 1b stated that monetary incentives would affect goal commitment such that the highest commitment would be expressed by goal attainment bonus subjects followed by piece-rate, competitive-bonus, and hourly-rate subjects, respectively. To test this, goal commitment (measured before Blocks 2 and 3) was regressed on the dummy-coded monetary incentive variables. No significant variance was explained by incentives for either Block 2 ($R^2 = .02$, ns) or Block 3 ($R^2 = .06$, ns). Thus, no support was shown for Hypothesis 1b.

Hypothesis 2. Hypotheses 2a stated that self-efficacy and attractiveness would mediate the relation between monetary incentives and goal level and goal commitment. This hypothesis (as well as the other hypotheses dealing with mediating relations) was tested according to the procedure recommended by Baron and Kenny (1986). These authors proposed testing for mediating relations using the following three regression equations: regressing the dependent variable on the independent variable, regressing the mediator on the independent variable, and regressing the dependent variable on both the mediator and independent variable.

The first equation was computed by regressing goal level on the dummy-coded monetary incentive variables. As shown in Table 2, this analysis revealed that incentives explained 21% ($p < .01$) of the variance in goals for Block 2 and 19% ($p < .01$) of the variance in goals for Block 3. Self-efficacy was then regressed on the monetary incentive variables revealing that they explained 9% of the variance in self-efficacy for Block 2 and 11% of the variance in self-efficacy for Block 3 (both $p < .05$). Attractiveness was regressed on the monetary incentive variables revealing that they failed to explain any significant variance in attractiveness for Block 2 or Block 3. These results are presented in Table 3. Finally, a hierarchical regression was performed, regressing goals on self-efficacy and attractiveness in the first step, and the monetary incentive variables in the second step. The results for Blocks 2 and 3 are exhibited in Table 4.

For Block 2, self-efficacy and attractiveness explained 49% of the variance in goals ($p < .01$) and monetary incentives explained an incremental 7% of the variance ($p < .01$). The B weights for self-efficacy, and the three dummy-coded monetary incentive variables were all significant, thus showing support for a partial mediating role of self-efficacy in the relation between monetary incentives and goals. For Block 3, self-efficacy and attractiveness explained 55% of the variance in goals ($p < .01$), and monetary incentives explained an incremental 4% ($p = .06$). The B weights for self-efficacy, and the hourly-rate and piece-rate dummy-coded variables had significant regression weights, again indicating support for a partial mediating role of self-efficacy in the monetary incentive-goal relation. Thus, partial support was demonstrated for Hypothesis 2a.

Hypothesis 2b stated that self-efficacy and attractiveness mediated the role of monetary incentives on goal commitment. As indicated regarding

TABLE 3
Study 1 Results of Hierarchical Regression Regressing Self-Efficacy and Attractiveness in Blocks 2 and 3 on Monetary Incentives

<i>Variable</i>	<i>Self-Efficacy</i>		<i>Attractiveness</i>	
	<i>R</i> ²	<i>B-Weight</i>	<i>R</i> ²	<i>B-Weight</i>
Block 2				
Step 1	.09		.00	
Piece rate (Dummy 1)		15.21*		.13
Hourly (Dummy 2)		14.89*		-.19
Competitive (Dummy 3)		12.93		.10
Goal attainment (Constant)		18.60**		7.58
Block 3				
Step 1	.11		.01	
Piece rate (Dummy 1)		18.68**		.47
Hourly (Dummy 2)		16.18**		.19
Competitive (Dummy 3)		10.44		.79
Goal attainment (Constant)		16.41**		7.42**

p* < .05. *p* < .01.

TABLE 4
Study 1 Results of Hierarchical Regression Regressing Goal Level and Goal Commitment in Blocks 2 and 3 on Self-Efficacy, Attractiveness, and Monetary Incentives

<i>Variable</i>	<i>Goal Level</i>		<i>Goal Commitment</i>	
	<i>R</i> ²	<i>B-Weight</i>	<i>R</i> ²	<i>B-Weight</i>
Block 2				
Step 1	.49**		.05	
Self-efficacy		.12**		.00
Attractiveness		-.01		.05*
Step 2	.07**		.04	
Piece rate (Dummy 1)		2.75**		-.29
Hourly (Dummy 2)		2.47**		-.22
Competitive (Dummy 3)		2.60**		-.29
Goal attainment (Constant)		1.04		3.87**
Block 3				
Step 1	.55**		.08*	
Self-efficacy		.12**		.01
Attractiveness		-.02		.07**
Step 2	.04		.10*	
Piece rate (Dummy 1)		2.12**		-.44**
Hourly (Dummy 2)		1.79**		-.20
Competitive (Dummy 3)		1.53		-.49*
Goal attainment (Constant)		1.52**		4.33

p* < .05. *p* < .01.

Hypothesis 1b, the regression examining the relation between monetary incentives and goal commitment indicated that monetary incentives did not significantly affect goal commitment. The results for Blocks 2 and 3 are displayed in Table 2.

Again, as noted earlier and presented in Table 3, incentives explained significant variance in self-efficacy, but not attractiveness for both Blocks 2 and 3. In the hierarchical regression for Block 2, self-efficacy and attractiveness explained 5% (ns) of the variance in goal commitment, and incentives explained an incremental 4% (ns). In the hierarchical regression for Block 3, however, self-efficacy and attractiveness explained 8% of the variance in goal commitment ($p < .05$) and incentives explained an incremental 10% ($p < .05$). As can be seen in Table 4, significant regression weights were observed for the attractiveness, the competitive-bonus, and piece-rate variables, indicating a suppressor role for attractiveness in the relation between incentives and goal commitment. This suppressor relation indicated that after controlling attractiveness, tying bonuses to goal attainment seems to increase commitment. Thus, partial support was observed for Hypothesis 2b.

Hypothesis 3. Hypothesis 3 stated that the cognitive variables of goal level, goal commitment, self-efficacy, and attractiveness would mediate the relation between monetary incentives and performance. Two hierarchical regressions were computed to test this hypothesis. Performance was first regressed on monetary incentives, but the dummy-coded incentive variables did not explain any significant variance in performance. Performance was regressed on goal level, goal commitment, self-efficacy, and attractiveness

TABLE 5
Study 1 Results of Hierarchical Regression Regressing Performance on
Self-Set Goal, Goal Commitment, Self-Efficacy, Attractiveness, and Monetary
Incentives on Blocks 2 and 3

Variable	Block 2		Block 3	
	<i>R² Change</i>	<i>B-Weight</i>	<i>R² Change</i>	<i>B-Weight</i>
Step 1	.39**		.31**	
Self-set goal		.01		.06
Goal commitment		.11		.22
Self-efficacy		.20**		.14**
Attractiveness		.20		.08
Step 2	.13**		.06*	
Piece rate (Dummy 1)		-.4.57**		-.3.14*
Hourly (Dummy 2)		-.3.95**		-.3.17*
Competitive (Dummy 3)		-.6.64**		-.3.64*
Goal attainment (Constant)		4.75		4.00
Total <i>R²</i>	.52**		.37**	

* $p < .05$. ** $p < .01$.

in the first step and on the dummy-coded monetary incentive variables in the second step. The cognitive variables explained 39% of the variance in performance ($p < .01$) with the only significant regression weight being observed for self-efficacy. The monetary incentive variables explained an incremental 13% of the variance in performance ($p < .01$), with all three dummy variables exhibiting significant regression weights. These B weights indicated that the goal attainment bonus subjects exhibited the highest performance, followed by hourly-rate, piece-rate, and competitive-bonus subjects, respectively. Goal attainment bonus subjects were significantly different from the other three groups, but no other significant differences were observed among the monetary incentive groups. The results for Block 3 performance were similar to those of Block 2, with the exception of the monetary incentive variables that exhibited a significant, but slightly weaker effect on performance. This indicates partial support for Hypothesis 3. These results are displayed in Table 5.

Discussion

The results of this study indicated that monetary incentives can affect goal level, and that this effect is partially mediated by the effect of monetary incentives on self-efficacy. The effect of monetary incentives on both self-efficacy and goal level occurred primarily by causing subjects who earned bonuses for goal attainment to express lower self-efficacy and, consistent with Hypothesis 1a, set lower goal levels. Although Wright (1989) did not study self-efficacy and attractiveness, the results with regard to self-set goals were similar to those found by him. However, the differences were magnified in our study. In this study, there was a large and significant difference between the goals set by goal attainment bonus subjects relative to all other groups.

Also, similar to Wright (1989), monetary incentives did not directly affect performance in this study. However, in our study, it appeared that there were performance differences after controlling for the cognitive variables of goals, goal commitment, self-efficacy, and attractiveness. The cognitive variables "suppressed" the relation artificially, in that the lower goals and self-efficacy for the goal-attainment group resulted in the appearance of higher performance for that group relative to the other groups. This is not a true performance difference, but an apparent difference based on the linear composite including goals and self-efficacy.

The results with regard to the specific mediation relations (Hypotheses 2a, 2b, and 3) were somewhat unexpected. Although it might seem more logical that monetary incentives would affect attractiveness by increasing an individual's attractiveness to a goal level that would ensure a payoff, monetary incentives had a significant effect on subjects' self-efficacy ratings.

Under piece-rate conditions, subjects tended to express higher self-efficacy. This may be an artificial inflation of self-efficacy as their performance did not necessarily increase in line with their increase in self-efficacy. In other words, piece-rate individuals may have been using their higher goal levels and self-efficacy as a way of convincing themselves that they could perform at a level higher than was actually possible.

Goal attainment bonus subjects, on the other hand, expressed lower self-efficacy and lower goals. The goal attainment bonus condition may have caused a splitting of motivational activities. Personal goals in most situations serve to energize effort. However, in the goal attainment bonus condition, the goal was influenced by two competing aims: the desire to energize effort and the desire to ensure task success. Because subjects actually had control over whether or not they would receive the monetary reward (i.e., they were able to set a low enough goal level to ensure reaching it), they may have battled with whether or not to set a motivating goal level or an easy-to-achieve goal level. This exemplifies the importance of distinguishing among the various types of personal goals that individuals can have, particularly when incentives are tied to goal attainment (Wright, O'Leary-Kelly, Cortina, Klein, & Hollenbeck, 1994).

In an effort to settle this battle, individuals may have decided to make it look like they were less capable than they actually were by expressing a lower self-efficacy. This form of self-handicapping is actually an impression management tactic that has been found to be used in a variety of settings (Arkin & Shepperd, 1989; Ferris, Russ, & Fandt, 1989; Higgins & Snyder, 1989). In essence, the subjects who wanted to ensure goal attainment to receive the monetary reward used any factor available (in this case a lower self-efficacy rating) to reduce personal responsibility for not working to their actual potential (Arkin & Shepperd, 1989). Further, these individuals may be using a reduced self-efficacy rating as a means of defraying their own internal dissonance about setting a goal they knew they could achieve while passing it off as a more difficult goal (Tedeschi & Rosenfeld, 1981).

If this is true, then subjects who earn a bonus based on their personal goal should express both low goals and self-efficacy as a means of ensuring that they receive the bonus. Further, it appears that these goals may not reflect their true (i.e. personal) goal, and their self-efficacy ratings represent an impression-management tactic. Piece-rate subjects, on the other hand, may be inflating both their goals and self-efficacy as a way to motivate themselves to earn the maximum reward.

These findings led us to ask even more questions about the effects of monetary incentives on personal goals. For instance, were subjects actually setting goals that were consistent with how they felt they could actually perform? In other words, were the subjects' personal goals the same as their self-set goals? The findings from Study 1, as well as past research (Earley & Lituchy, 1991; Mone & Baker, 1992; Tubbs & Ekeberg, 1991), suggest that this is not the case, especially for bonus condition subjects.

Past research has suggested that although self-set goals may be based on past performance or pre-established standards, they also include a component of intent (Tubbs & Ekeberg, 1991). Tubbs and Ekeberg refer to this component of intent as personal goal levels and suggested that because of this component of intent, personal goals are the strongest determinant of behavior. In other words, personal goals, in our view, are the motivating force for an individual. It is the reason people work. Personal goals are always present; however, they may not be vocalized when individuals are asked to self-set goals.

Obviously, the type of monetary incentive offered will impact the relations between personal and self-set (expressed) goals. When bonuses are contingent on the self-set goal, there may be more discrepancy between their personal and self-set goal level as they self-set lower goal levels to ensure goal attainment (Locke & Latham, 1984). However, when the bonus is contingent on the attainment of an assigned goal, there should be little discrepancy between their true personal goal and their self-set goal. This is because there is no incentive for being deceptive in expressing the self-set goal.

To test these contentions, a second study was designed. In Study 2 we used the same goal attainment bonus and piece-rate conditions as in Study 1. However, we replaced the hourly-rate and competitive-bonus conditions with two other conditions. In the bonus-uninformed group, subjects were paid a bonus if they achieved their self-set goal level, yet they were not informed of the bonus until after they had set the goal level and expressed their self-efficacy and attractiveness.³ This condition made it possible to determine if knowledge of the bonus was causing the lowered goal levels and self-efficacy. If, in fact, there is the splitting of motivational activities referred to earlier, one would expect that subjects informed that their monetary incentive is tied to attainment of their personal goal levels should actively set goal levels that they perceive to be easy relative to those who are under the same pay condition, but are not informed of it until after setting their goal levels.

In the assigned-bonus condition, subjects were paid a bonus if they achieved a goal level that was assigned by the experimenter. This condition allowed us to determine if the lowered self-efficacy was, in fact, driven by the lower personal goal levels. If subjects are expressing lower self-efficacy to justify their lower goal levels, then we would expect that higher self-efficacy would be expressed by those whose bonus is contingent on reaching an assigned goal level relative to those whose bonus is contingent on reaching their self-set goal level. Finally, efforts were made to actually tap the subjects' personal goal levels. Thus, Study 2 tested the following hypotheses, where Hypotheses 1 and 3 are replications and extensions of findings in Study 1:

³Special thanks to Edwin A. Locke for suggesting this manipulation.

Hypothesis 1. Subjects informed that their pay is based on attaining their self-set goal level will express goal levels that are lower relative to other groups.

Hypothesis 2. Subjects informed that their monetary incentives will be tied to goal attainment will set goal levels that are lower in perceived difficulty relative to the other groups.

Hypothesis 3. Subjects informed that their monetary incentives will be tied to goal attainment will express significantly lower self-efficacy relative to other groups.

STUDY 2

Method

Participants

Subjects were 146 undergraduates enrolled in a Principles of Management class at a large southwestern university. Subjects received extra credit for their participation in addition to any money earned in the study.

Task

The task, solving anagrams, was the same as that used in Study 1, with the following exception. In Study 1, four blocks of two 3-min trials were used, whereas in this study each block was combined to be one trial that lasted twice as long (6 min). Thus, subjects worked for four 6-min trials. Each trial contained 40 five-letter and 40 six-letter anagrams.

Variables

Monetary incentives. Monetary incentives was a manipulated variable with four conditions. Piece-rate subjects were paid \$.50 for every anagram they solved on each of the four experimental trials. Three variations of the goal attainment bonus condition were used in this study. First, bonus-informed subjects were told prior to setting their goal that they would be paid \$5 for each of the two experimental trials on which they met or exceeded the goal level that they set. In the bonus-uninformed condition subjects were also paid a \$5 bonus if they attained their self-set goal level. However, these subjects were not told of this until after they had set their goal and completed the self-efficacy, attractiveness, and goal commitment measures. It is important to note that this difference between the bonus-informed and bonus-uninformed only existed following Trial 2. Following Trial 3, the bonus-uninformed group was obviously aware of their pay condition prior to setting their goal level for the final trial. Finally, bonus-assigned goal condi-

tion subjects were paid a bonus of \$5 if they attained an assigned goal level of 10 anagrams.

Based on the results of the previous study, the pay of \$5 was approximately equal to what the average performer would have made in the piece-rate condition (average performance across a block of trials = 10 anagrams). This made the potential pay relatively equal across the monetary incentive conditions.

Manipulation check. Subjects indicated the basis for their pay by checking one of three boxes ("I was paid \$.50 for every anagram I solved," "I was paid a \$5 bonus for achieving my goal," and "I was paid a \$5 bonus if I solved 10 anagrams").

Self-efficacy. Self-efficacy was measured identical to Study 1 by asking subjects to rate their certainty (0 to 100) that they could attain 12 different levels of performance. This measure was obtained following Trials 1, 2, and 3. The scale used was the average expectancy across the different performance levels.

Attractiveness. Attractiveness also was measured as it was in Study 1. Subjects rated how attractive they viewed 12 different levels of performance on an 11-point scale ranging from -5 to 5 following Trials 1, 2, and 3. The scale used was the average attractiveness across the different performance levels.

Self-set goal. Self-set goal was measured by asking subjects to set a goal level for each trial.

Goal commitment. As in Study 1, goal commitment was measured with the 7-item scale developed by Hollenbeck, Williams, et al. (1989) following Trials 1, 2, and 3. One item was again deleted in order to increase the reliability of the scale to observed coefficient alpha reliabilities of .66, .73, and .69 for the three administrations, respectively. Although the reliabilities are lower than that observed in Study 1, this measure was not the focus of any of our hypotheses, and thus was not used in any of the analyses presented here.

Goal difficulty. Subjects were asked to complete a six-item measure about their goal level at the conclusion of the experiment. An example item is "The goal I set helped me perform at my maximum." This measure was used to assess if, in fact, subjects in the bonus-informed group were setting

easy goals they knew they could attain and as an effort to tap personal goal level to see if it differed from the reported self-set goal. To determine if goal-attainment subjects had set goals that they perceived as being less difficult than subjects who were not paid on the basis of goal attainment, we constructed a three-item measure (from the original six) of perceived difficulty of the self-set goal level, completed by subjects at the end of the experiment. The items ("The goal I set was extremely difficult," "The goal I set was unrealistically high," and "I set a goal that I knew I could attain") referred to the goal on the last trial, and exhibited an internal consistency reliability of .71.

Performance. Performance was measured as the number of anagrams solved on each trial.

Procedure

Subjects arrived at the experiment in groups of approximately 20. Upon their arrival, the experimenter explained the basic purpose of the study by stating that it was examining some different determinants of performance and asked participants to sign an informed-consent form.

Trial 1 was a practice trial. Following Trial 1, subjects were asked to set a goal level for the next trial and to fill out the self-efficacy, attractiveness, goal level, and goal commitment measures. The experimenter then instructed them to work on Trial 2. Following Trial 2 the experimenter informed subjects of their monetary incentive condition and once again asked them to complete the self-efficacy, attractiveness, goal level, and goal commitment measures. In the goal attainment uninformed condition, subjects were first asked to complete the measures, and then were informed of their monetary incentive condition. The experimenter then had them work on Trial 3. Following Trial 3 they were reminded of their monetary incentive condition and asked to complete the four measures again. Finally, they worked on Trial 4. The experiment was concluded by having the subjects complete the manipulation checks and the perceived goal difficulty measure before being debriefed.

Results

Manipulation Checks

To determine if subjects were aware of their monetary incentive condition, a contingency coefficient was computed between the monetary incentive conditions and the responses to the manipulation check. For the purpose of this analysis, the informed-bonus and uninformed-bonus conditions were combined. A contingency coefficient of .81 ($p < .01$) was observed between

the subjects' responses to the manipulation check item and their respective group membership, indicating that the manipulation was successful.

Tests of Hypotheses

For the purposes of the tests of hypotheses the monetary incentive groups were dummy coded as three variables (bonus informed, bonus uninformed, bonus assigned and piece rate coded 1, 0, 0; 0, 1, 0; 0, 0, 1; and 0, 0, 0, respectively). The analyses were conducted using multiple regression. Table 6 contains the means, standard deviations, and intercorrelations among the experimental variables. Figure 4 displays a plot of the means for different monetary incentive groups on the measured variables across the experimental blocks.⁴

Hypothesis 1. The effect of monetary incentives on goal level was tested by regressing goal level on the three dummy-coded monetary incentive variables for each of the two experimental trials. The dummy-coded monetary incentive variables explained 14% ($p < .001$) of the variance in goal level for the first experimental trial (Trial 3) following the manipulation, and 21% ($p < .001$) of the variance in goal level for the second experimental trial (Trial 4) following the manipulation. Comparisons of the B weights according to the method recommended by Cohen and Cohen (1983) indicated that in the first regression, both the bonus-informed and bonus-uninformed groups set significantly lower goal levels than both the piece-rate subjects and the bonus-assigned subjects. The bonus-informed subjects also set significantly lower goal levels than the bonus-uninformed subjects.⁵ On the second trial, the results were the same, with the exception that there were no significant differences between the informed and uninformed groups. These results indicate, as predicted, that after having been informed of the monetary incentive condition on the previous trial, the uninformed group had lowered their goal levels to be closer to the informed group. Thus, Hypothesis 1 was supported. The results for this as well as the other two hypotheses are presented in Table 7.

⁴Similar to Study 1, we chose to analyze the results using regression. However, a MANOVA was performed using all of the reported dependent variables for both experimental trials. The MANOVA resulted in a significant overall multivariate F ($F = 3.70$, $p < .01$). Thus, we felt comfortable in using regression rather than univariate ANOVAs to test the specific hypotheses. The MANOVA results are available from Patrick M. Wright.

⁵It should be noted that the lower goals for the uninformed group relative to the piece-rate and assigned-bonus groups are not unexpected. At the time they set their goal levels, they had not been informed of any monetary incentive, and thus, their expressed intentions could be considered having been made under a no-pay condition. However, because they were told of their pay condition prior to the experimental trial, their performance would be considered to have been under the bonus system.

TABLE 6
Means, Standard Deviations, and Intercorrelations Among the
Experimental Variables in Study 2

Variable	M	SD	1	2	3	4	5	6	7	8	9	10	11	12	13
Informed bonus	.24	.43	—												
Uninformed bonus	.22	.42	-.30	—											
Assigned bonus	.29	.46	-.36	-.34	—										
Trial 2 (preincentive)															
Self-efficacy	41.4	22.1	-.04	-.08	-.07	—									
Attractiveness	8.24	3.42	-.10	.15	.04	-.24	—								
Goal	8.91	3.43	-.06	-.12	.08	.70	-.16	—							
Commitment	3.80	.45	.01	.04	-.07	.28	-.13	.18	—						
Performance	7.85	4.80	-.02	-.12	.04	.46	-.17	.58	.22	—					
Trial 3 (postincentive) ^a															
Self-efficacy	46.8	24.5	-.09	-.11	-.05	.76	-.22	.71	.20	.72	—				
Attractiveness	8.54	1.85	-.09	.13	.08	-.25	.37	-.33	-.02	-.32	-.30	—			
Goal	9.28	5.59	-.28	-.12	.10	.32	-.08	.47	.10	.53	.55	-.15	—		
Commitment	4.00	.50	-.02	-.07	-.01	.23	-.01	.24	.63	.33	.33	.03	.27	—	
Performance	9.83	5.91	-.13	-.00	.10	.47	-.09	.58	.38	.79	.66	-.30	.46	.21	—

Note. Decimal points have been omitted from correlations. $N = 146$; $r = .17$, $p < .05$; $r = .23$, $p < .01$, for Trials 2 and 3, respectively.

^aDue to space limitations and similarity of correlations between Trial 2 and Trial 3, only the variables for Trial 3 are displayed.

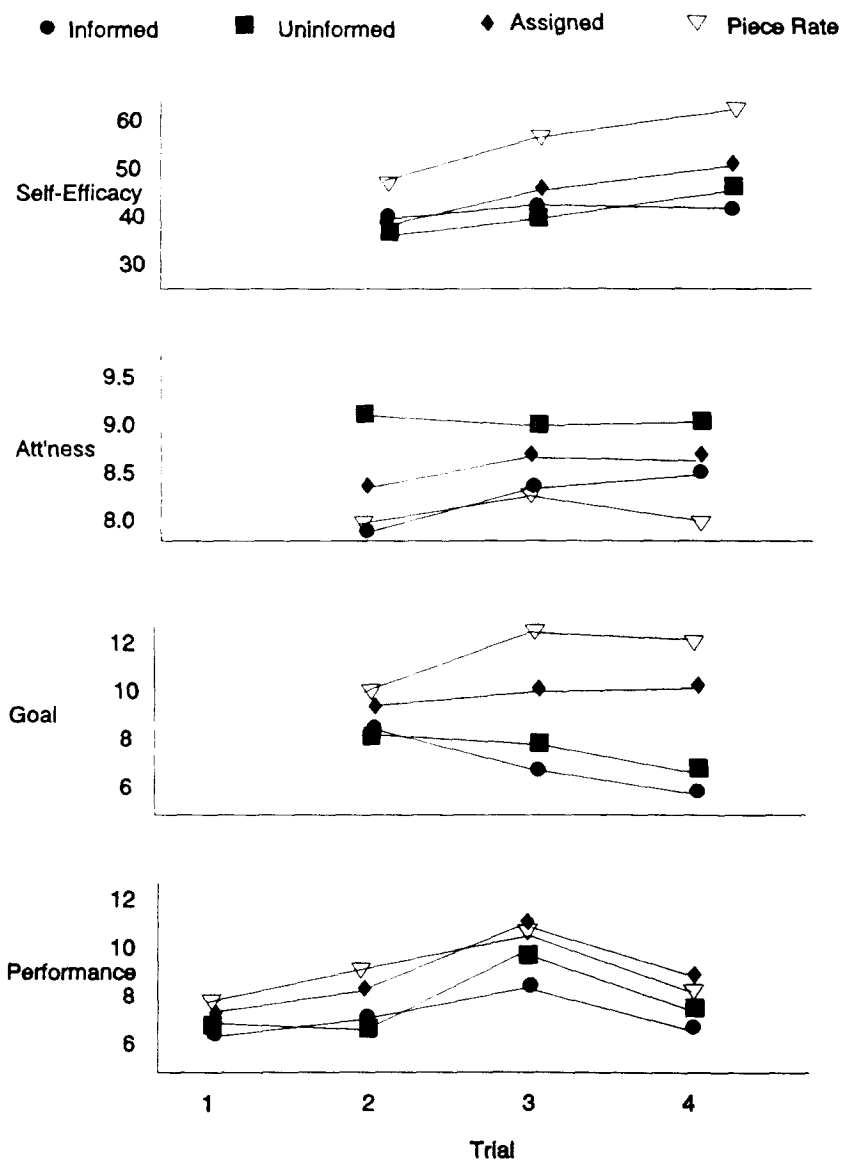


FIGURE 4 Plot of means on measured variables in Study 2.

Hypothesis 2. To assess whether or not the monetary incentive conditions were causing a splitting of the motivational activities into energizing action versus ensuring task attainment, the perceived goal difficulty measure was regressed on the dummy-coded monetary incentive variables. Results indicated that the monetary incentive variables explained 7% ($p < .01$) of the variance in perceived goal difficulty. Both the informed-bonus and uninformed-bonus groups expressed having set significantly less difficult goal levels than the assigned-bonus and piece-rate subjects, with no significant differences observed between the latter two groups. This finding supports Hypothesis 2. The failure to observe significant differences between the informed and uninformed groups is somewhat expected due to the fact that the uninformed subjects were actually informed for the second experimental trial, and the goal difficulty measure was not administered until after that trial.

Hypothesis 3. To test the effect of monetary incentives on self-efficacy, two regression equations were computed regressing self-efficacy from the last two trials on the dummy-coded monetary incentive variables. The monetary incentive variables explained 6% ($p < .05$) of the variance in self-efficacy on Trial 3, and 7% ($p < .05$) of the variance on Trial 4. On Trial 3, all of the bonus groups expressed lower self-efficacy than the piece-rate condition, but none were significantly different from one another. On Trial 4, all of the bonus groups expressed lower self-efficacy than the piece-rate subjects, however, the assigned-bonus group was also significantly higher than the bonus-informed and bonus-uninformed groups. Overall, these results indicate support for Hypothesis 3.

TABLE 7
Study 2 Results of Hierarchical Regressions Regressing Goal, Self-Efficacy,
and Attractiveness in Blocks 2 and 3 on Monetary Incentives

Variable	Goal		Difficulty		Self-Efficacy	
	R^2	B-Weight	R^2	B-Weight	R^2	B-Weight
Block 2						
Step 1	.14**				.06*	
Assigned (Dummy 1)		-1.86				-12.5*
Uninformed (Dummy 2)		-4.00**				-15.8**
Informed (Dummy 3)		-5.51**				-14.3**
Piece rate (Constant)		12.02**				57.32**
Block 3						
Step 1	.21**		.07**		.07*	
Assigned (Dummy 1)		-1.10		-.03		-11.5*
Uninformed (Dummy 2)		-4.71**		.54**		-16.6**
Informed (Dummy 3)		-5.56**		-.43*		-18.2**
Piece rate (Constant)		11.56**		2.95**		61.71**

* $p < .05$. ** $p < .01$.

TABLE 8
Study 2 Results of Hierarchical Regression Regressing Performance in
Blocks 2 and 3 on Self-Set Goal, Self-Efficacy, Attractiveness, and
Monetary Incentives

<i>Variable</i>	<i>Block 2</i>		<i>Block 3</i>	
	<i>R² Change</i>	<i>B-Weight</i>	<i>R² Change</i>	<i>B-Weight</i>
Step 1	.46**		.48**	
Self-set goal		.15		.44**
Self-efficacy		.14**		.06**
Attractiveness		-.47*		.05
Step 2	.04**		.05**	
Assigned (Dummy 1)		2.96**		2.46**
Uninformed (Dummy 2)		2.89**		2.88**
Informed (Dummy 3)		1.17		2.48**
Piece rate (Constant)		4.11		-1.27
Total <i>R²</i>	.50**		.53**	

* $p < .05$. ** $p < .01$.

Additional analyses. Finally, because the results regarding the effect of monetary incentives and goal levels on performance seemed to be somewhat surprising in Study 1, we attempted to replicate these results in Study 2. To test the mediating role of goal levels, self-efficacy, and attractiveness in the monetary incentive-performance relation, we first computed regressions to determine the relation between monetary incentives and performance. Performance on each of the two trials following the manipulation was regressed on the dummy-coded monetary incentive variables. Similar to Study 1, no significant variance was explained in either equation, indicating that there were no differences in performance across monetary incentive groups.

Two hierarchical regressions were then computed, regressing performance for each of the last two trials on goal levels, self-efficacy, and attractiveness in the first step, followed by the monetary incentive variables in the second step. These results are presented in Table 8. Goal levels, self-efficacy, and attractiveness explained 46% and 48% (both $p < .01$) of the variance in performance on the two trials, respectively, with monetary incentives explaining an incremental 4% and 5% (both $p < .01$). In both cases, the B weights indicated that the lowest performance was observed for the piece-rate subjects after controlling for the lower goal levels and self-efficacy of the other three groups respectively.

Discussion

The results of Study 2 support the predictions made based on the intriguing results of Study 1. Monetary incentives strongly affected both goal levels and self-efficacy, primarily by causing piece-rate subjects to inflate both

their goal levels and self-efficacy, whereas goal-based monetary incentive subjects tended to deflate their self-efficacy. The different goal-based monetary incentives had different effects on goal levels, as the goal levels of uninformed-bonus and assigned-bonus subjects were higher than those of subjects in the informed-bonus condition. In addition, the lower goal levels among subjects informed that their monetary incentive was based on the attainment of their personal goal levels stemmed from these subjects actively setting goal levels that they perceived to be of lower difficulty.

Also, similar to Study 1, although there were no differences in actual performance (as is obvious from Figure 3), there appeared to be performance differences after controlling for goal levels and self-efficacy, indicating a suppressor role for these cognitive variables.

CONCLUSIONS

The results of these studies indicated that monetary incentives can affect self-set goals, and that this effect is mediated by the effect of monetary incentives on self-efficacy. Goals, goal commitment, self-efficacy, and attractiveness suppressed the relation between monetary incentives and performance, as indicated by a strong effect of monetary incentives on performance being observed only after controlling for these mediating variables. These results provide insights into how monetary incentives and goal levels might simultaneously affect performance under self-set goal conditions that are relevant to both researchers and managers.

Locke and Latham's (1984) belief that tying rewards to goal attainment could result in setting lower goals received empirical support in these studies. Goal attainment bonus subjects set significantly lower goals than all other groups. Certainly no organization would allow employees to self-set goals if their rewards were contingent on attaining that goal. However, the results of Study 2 demonstrated that even when the monetary incentive is based on the assigned goal, subjects still expressed lower self-efficacy and goals than subjects whose pay was tied directly to performance through piece-rate conditions. Thus, this might imply that in systems where participative goal setting is used, employees might attempt to influence the level of the goal to be lower than they would under different pay systems. Combined with Lee et al.'s (1992) finding that goal attainment bonus subjects who reject assigned goals set lower goals relative to piece-rate subjects, our results point to the great need to understand determinants (particularly incentives) of self-set goals in organizations. This notion suggests a variety of future research that needs to be done.

For example, when individuals act in self-serving ways, politics is said to occur. Obviously, there will be political implications for the participative goal-setting activities performed in organizations. This needs to be examined more fully. For example, it would be interesting to learn if there are some

organizations in which politics is so prevalent that goals can actually be manipulated. Similarly, individuals who are good impression managers may be able to convince a supervisor of the difficulty of a goal that, in actuality, is quite easy to attain (Ferris & Porac, 1984; Huber, Latham, & Locke, 1989; Larson, 1986). Evidence of this is found in the fact that subjects expressed lower self-efficacy when paid a bonus contingent on attainment of the self-set goal. It appears that individuals were seeking to manage the impression of their own ability to perform in order to justify the lower goals.

Two issues might be discussed regarding the frequently cited strong positive relation between goals and performance. First, although the bivariate relation between goal level and performance was strong and significant, when considered in conjunction with the other cognitive variables it did not significantly predict performance. This seems quite curious given the well-established relation between goal level and performance that led Mento et al. (1987) to conclude that it might be worthy of the status of a scientific law of nature. However, this was most likely due to the multicollinearity among the dependent variables, particularly between self-efficacy and self-set goals ($rs > .50$).

Second, although we expected the cognitive variables to exhibit a mediating role in the relation between monetary incentives and performance, in fact, they acted as suppressors. These lower expressed expectations resulted in the observed suppressor relation such that there were no raw performance differences between monetary incentive groups, but performance differences were observed after controlling for the cognitive variables. This seemed to be due to the fact that the piece-rate expressed higher self-efficacy and goal levels whereas goal attainment bonus subjects expressed lower self-efficacy and goal levels. Separately, both self-efficacy and goal levels were strongly related to performance. Both theoretical and statistical explanations for this result exist.

As previously discussed, it seems that the goal attainment bonus condition may have caused a splitting of motivational activities resulting in individuals having both public and private goals. In a situation involving self-set goals, it is apparent that individuals have two competing Product Utility functions, one for the intrinsic rewards associated with higher performance, and one for the extrinsic rewards such as the monetary incentive. One can either combine the two functions to set a goal at the point that the combined function has the greatest change in utility, or one can simply publicly express a goal reflecting the extrinsic product utility function that will maximize the extrinsic payoff, while making private decisions regarding a personal goal with regard to their own intrinsic Product Utility function.

Support for this explanation was observed in Study 2. In that study, the results indicated that not only did the subjects set objectively less difficult goals, but that they set these goals knowing that they were less difficult as evidenced by the significantly lower perceived goal difficulty. Thus, to ensure that these subjects attained their goals, they set goals they were

relatively certain they could attain. This is especially interesting when considering that these subjects were expressing lower self-efficacy when completing the self-efficacy measures prior to task performance. Under this payment condition, it seems that self-report measures of personal goals may be a poor indicator of an individual's true personal goal because they serve a dual purpose.

In addition, this splitting of motivational activities resulted in the observed suppressor relation found. Because goals and self-efficacy are strongly and positively related to performance in a bivariate sense, then the linear composite would predict low performance for subjects who express low goals and self-efficacy (in this case, goal attainment bonus subjects). However, because the goal-attainment subjects performed equal to the other subjects (as depicted in Figures 2 and 3), this variance is attributed to the monetary incentive condition, and is operationalized as a strong positive beta weight for the goal attainment dummy-coded variable. Thus, one should not infer, based on these results, that goal-attainment bonuses result in higher performance. Rather, this implies the validity of self-efficacy, attractiveness, and self-set goal measures may be somewhat problematic when rewards are contingent on attaining those goals.

One potential criticism of the study might be the external validity of using a goal attainment bonus condition where the bonus is contingent on a self-set goal level. Whereas the other monetary incentive conditions are likely to be found in work organizations, this type of goal attainment bonus condition probably is not. However, the condition was examined for two reasons. First, Locke and Latham (1984) stated specifically that one dysfunctional aspect of tying rewards to goal attainment is that it may result in individuals setting lower goal levels. Thus, at the very least, this study was able to test (and found support for) that hypothesis.

Second, both practitioners and researchers have recommended that goal levels should be set participatively. This participative goal-setting process, in some sense, entails a negotiation in which the employee and manager are attempting to find a goal level on which both can agree. Although the goal the employee has in mind going into that negotiation may not be the final goal decided on, it certainly may influence the final goal (Tubbs & Ekeberg, 1991). Because of this, it is important to understand the factors (i.e., self-efficacy or attractiveness) that influence the level of goal for which an individual seeks to negotiate. For example, in Study 2, when the monetary incentive was based on an assigned goal, individuals still expressed lower self-efficacy than piece-rate subjects.

An additional limitation of the study was the failure to find a direct effect of incentives on performance. It is likely that this is due to the fact that the task was quite ability-laden. In fact, the correlations in performance across trials (in Study 1) and blocks (in both studies) are quite high, usually in excess of .65. Thus, we think that at least part of the reason for the failure to find differences in performance across incentive groups is due to a large

amount of variance being explained by ability. (We should note that the results are still significant after controlling for ability). However, this task is one used in a significant number of past goal-setting studies. Also, if this is the full explanation, it only argues that the mediating effect would be stronger on a less ability-laden task (where the effects of incentives on the motivational variables of goals, self-efficacy, and goal commitment would have a stronger observed effect on performance).

Future research should be aimed at further examining the role of self-efficacy and attractiveness as mediators of the relation between monetary incentives and both goal and goal commitment. Conceptual models of determinants of self-set goals (Campbell, 1982) and goal commitment (Hollenbeck & Klein, 1987; Locke & Latham, 1990) have used self-efficacy and attractiveness to explain how incentives affect these variables. However, although the results of this study demonstrate some support for this, they also indicate that these relations may not be exactly as Campbell, Hollenbeck, Klein, and so forth conceived. As demonstrated by this article, as well as Wright (1991, 1992), NPI theory may provide a fruitful avenue for examining the effects of monetary incentives on expectancy and goal-related constructs.

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REFERENCES

- Arkin, R., & Shepperd, J. (1989). Self-presentation styles in organizations. In R. A. Giacalone & P. Rosenfeld (Eds.), *Impression management in the organization* (pp. 143-170). Hillsdale, NJ: Lawrence Elbaum Associates, Inc.
- Austin, J. (1989). Effects of shifts in goal origin on goal acceptance and attainment. *Organizational Behavior and Human Decision Processes*, 44, 415-435.
- Bandura, A. (1988). *Social foundations of thought and action: A social-cognitive view*. Englewood Cliffs, NJ: Prentice-Hall.
- Bandura, A., & Cervone, D. (1983). Self-evaluation and self-efficacy mechanisms governing the motivational effects of goal systems. *Journal of Personality and Social Psychology*, 45, 1017-1028.
- Baron, R., & Kenny, D. (1986). The moderator-mediator variable distinction in social psychological research: Conceptual, strategic, and statistical considerations. *Journal of Personality and Social Psychology*, 51, 1173-1182.
- Campbell, D. (1982). Determinants of choice of goal difficulty level: A review of situational and personality influences. *Journal of Occupational Psychology*, 55, 79-95.
- Campbell, D. (1984). The effects of goal-contingent payment on the performance of a complex

- task. *Personnel Psychology*, 37, 23-40.
- Carver, C., & Scheier, M. (1981). *Attention and self-regulation: A control-theory approach to human behavior*. New York, NY: Springer-Verlag.
- Cohen, J., & Cohen, P. (1983). *Applied multiple regression/correlation analysis for the behavioral sciences*. Hillsdale, NJ: Lawrence Erlbaum Associates, Inc.
- Earley, P. C. (1986). An examination of the mechanisms underlying the relation of feedback to performance. *Academy of Management Proceedings*, 214-218.
- Earley, P. C., & Lituchy, T. R. (1991). Delineating goal and efficacy effects: A test of three models. *Journal of Applied Psychology*, 76, 81-98.
- Ferris, G. R., & Porac, J. F. (1984). Goal setting as impression management. *Journal of Psychology*, 117, 33-36.
- Ferris, G., Russ, G., & Fandt, P. (1989). Politics in organizations. In R. A. Giacalone & P. Rosenfeld (Eds.), *Impression management in the organization* (pp. 143-170). Hillsdale, NJ: Lawrence Erlbaum Associates, Inc.
- Gist, M. E., & Mitchell, T. R. (1992). Self-efficacy: A theoretical analysis of its determinants and malleability. *Academy of Management Journal*, 17, 183-211.
- Guzzo, R. A., Jette, R. D., & Katzell, R. A. (1985). The effects of psychologically based intervention programs on worker productivity: A meta-analysis. *Personnel Psychology*, 38, 275-291.
- Higgins, R., & Snyder, C. (1989). The business of excuses. In R. A. Giacalone & P. Rosenfeld (Eds.), *Impression management in the organization* (pp. 73-85). Hillsdale, NJ: Lawrence Erlbaum Associates, Inc.
- Hollenbeck, J., & Brief, A. (1989). The effects of individual differences and goal origin on goal setting and performance. *Organizational Behavior and Human Decision Processes*, 40, 148-171.
- Hollenbeck, J., & Klein, H. (1987). Goal commitment and the goal-setting process: Problems, prospects, and proposals for future research. *Journal of Applied Psychology*, 72, 212-220.
- Hollenbeck, J., Klein, H., O'Leary, A., & Wright, P. (1989). An investigation of the construct validity of a self-report measure of goal commitment. *Journal of Applied Psychology*, 74, 951-956.
- Hollenbeck, J., Williams, C., & Klein, H. (1989). An empirical examination of antecedents of commitment to difficult goals. *Journal of Applied Psychology*, 74, 18-23.
- Huber, V. L., Latham, G. P., & Locke, E. A. (1989). The management of impressions through goal setting. In R. A. Giacalone & P. Rosenfeld (Eds.), *Impression management in the organization* (pp. 203-217). Hillsdale, NJ: Lawrence Erlbaum Associates, Inc.
- Jenkins, G. D. (1986). Financial incentives. In E. A. Locke (Ed.), *Generalizing from laboratory to field settings* (pp. 71-84). Lexington, MA: Lexington.
- Klein, H. (1991). Further evidence for the integration of goal setting and expectancy theories. *Organizational Behavior and Human Decision Processes*, 49, 230-257.
- Larson, J. R. (1986). Supervisor performance feedback to subordinates: The impact of subordinate performance valence and outcome dependence. *Organizational Behavior and Human Decision Processes*, 37, 391-408.
- Latham, G., Erez, M., & Locke, E. (1988). Resolving scientific dispute by the joint design of crucial experiments by the antagonists: Application to the Erez-Latham dispute regarding participation in goal setting. *Journal of Applied Psychology*, 73, 753-772.
- Lee, T. W., Locke, E. A., & Phan, S. H. (1992). *Explaining the assigned goal-incentive interaction: The role of self-efficacy and personal goals*. Working paper, University of Washington, Seattle.
- Locke, E. A. (1968). Toward a theory of task motivation and incentives. *Organizational Behavior and Human Performance*, 3, 157-189.
- Locke, E. A. (1988, August). Discussant's comments at session, "Goal Setting," presented at the meeting of the National Academy of Management, Anaheim, CA.

- Locke, E. A. (1991). Goal theory vs. control theory: Contrasting approaches to understanding work motivation. *Motivation and Emotion*, 15, 9–28.
- Locke, E. A., Feren, D. B., McCaleb, V. M., Shaw, K. N., & Denny, A. T. (1980). The relative effectiveness of four methods of motivating employee performance. In K. Duncan, M. Gruneberg, & D. Wallis (Eds.), *Changes in working life* (pp. 363–388). New York: Wiley.
- Locke, E. A., Frederick, E., Lee, C., & Bobko, P. (1984). Effect of self-efficacy, goals, and task strategies on task performance. *Journal of Applied Psychology*, 69, 241–251.
- Locke, E. A., & Latham, G. P. (1984). *Goal setting: A motivational technique that works*. Englewood Cliffs, NJ: Prentice-Hall.
- Locke, E. A., & Latham, G. P. (1990). *A theory of goal setting and task performance*. New York: Prentice-Hall.
- Locke, E. A., Shaw, K. N., Saari, L. M., & Latham, G. P. (1981). Goal setting and task performance: 1969–1980. *Psychological Bulletin*, 90, 125–152.
- Matsui, T., Okada, A., & Mizuguchi, R. (1981). Expectancy theory prediction of the goal theory postulate “the harder the goals, the higher the performance.” *Journal of Applied Psychology*, 66, 54–58.
- Mento, A., Locke, E., & Klein, H. (1992). Relationship of goal level to valence and instrumentality. *Journal of Applied Psychology*, 77, 395–405.
- Mento, A. J., Steel, R. P., & Karren, R. J. (1987). A meta-analytic study of the effects of goal setting on task performance: 1966–1984. *Organizational Behavior and Human Decision Processes*, 39, 52–83.
- Mone, M. A., & Baker, D. D. (1992). Cognitive, affective, and behavioral determinants and consequences of self-set goals: An integrative dynamic model. *Human Performance*, 5, 213–234.
- Mowen, J. C., Middlemist, R. D., & Luther, D. (1981). Joint effects of assigned goal level and incentive structure on task performance: A laboratory study. *Journal of Applied Psychology*, 66, 598–603.
- Naylor, J. C., & Ilgen, D. R. (1984). Goal setting: A theoretical analysis of a motivational technology. *Research in Organizational Behavior*, 6, 95–140.
- Naylor, J. C., Pritchard, R., & Ilgen, D. (1980). *A theory of behavior in organizations*. San Diego, CA: Academic.
- Patten, T. (1982). *A manager's guide to performance appraisal*. New York: Free Press.
- Pritchard, R. D., & Curtis, M. I. (1973). The influence of goal setting and financial incentives on task performance. *Organizational Behavior and Human Performance*, 10, 175–183.
- Reidel, J. A., Nebeker, D. M., & Cooper, B. L. (1988). The influence of monetary incentives on goal choice, goal commitment, and task performance. *Organizational Behavior and Human Decision Processes*, 42, 155–180.
- Tedeschi, J., & Rosenfeld, P. (1981). Impression management theory and the forced compliance situation. In J. T. Tedeschi (Ed.), *Impression management theory and social psychological research* (pp. 147–180). New York: Academic.
- Terborg, J. R. (1976). The motivational components of goal setting. *Journal of Applied Psychology*, 61, 613–621.
- Terborg, J. R., & Miller, H. E. (1978). Motivation, behavior, and performance: A closer examination of goal setting and monetary incentives. *Journal of Applied Psychology*, 63, 29–39.
- Tabbs, M., & Dahl, J. (1992). An empirical comparison of self-report and discrepancy measures of goal commitment. *Journal of Applied Psychology*, 76, 708–716.
- Tabbs, M., & Ekeberg, S. (1991). The role of intentions in work motivation: Implications for goal-setting theory and research. *Academy of Management Review*, 16, 180–199.
- Wright, P. M. (1989). Test of the mediating role of goals in the incentive–performance relationship. *Journal of Applied Psychology*, 74, 699–705.
- Wright, P. M. (1990). Operationalization of goal difficulty as a moderator of the goal difficulty-

- performance relationship. *Journal of Applied Psychology*, 75, 227-234.
- Wright, P. M. (1991). Goals as mediators of the incentive-performance relationship: A review and NPI theory analysis. *Human Resource Management Review*, 1, 1-22.
- Wright, P. M. (1992). An examination of the relationships among monetary incentives, goal level, goal commitment, and performance. *Journal of Management*, 18, 677-694.
- Wright, P. M., Hollenbeck, J., Walz, P., & McMahan, G. (1995). Effects of varying operationalizations of goal difficulty on goal setting outcomes and processes. *Organizational Behavior and Human Decision Processes*, 61, 28-43.
- Wright, P. M., O'Leary-Kelly, A. M., Cortina, J. M., Klein, H. J., & Hollenbeck, J. R. (1994). On the meaning and measurement of goal commitment. *Journal of Applied Psychology*, 79, 795-803.

