# PARTICIPATIVE GOALS AND ASSIGNED GOALS ON INSPECTION PERFORMANCE

by

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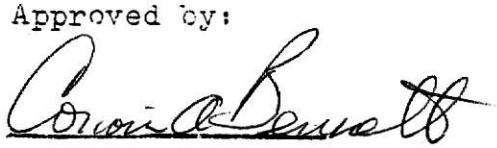

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# INTRODUCTION

## General.

The majority of any organization's problems are human performance problems. The major method for tackling these problems has been the "internal approach",that is, looking inside the individual in determining his or her needs and interests. Behavior occurs when people try to satisfy one or more needs. The relationship among needs, goals, and behavior can be thought of as shown in Figure 1.

Herzberg (1965) has developed a theory which provides a useful framework for describing the needs of Industrial Employees. This theory which has been termed- a "motivation/ maintenance" theory, states that there are two categories of needs that influence employee motivation and job satisfaction. As shown in Figure 2, the first category contains maintenance needs - those aspects of work environment that are not directly related to the job itself, Maintenance needs involve orientation, security, status, social factors, physical sorroundings, and economic benefits that are not directly related to merit or performance. The theory suggests that these factors can serve as sources of dissatisfaction if they are not maintained above certain minimum levels, but they cannot be used to create high levels of motivation.

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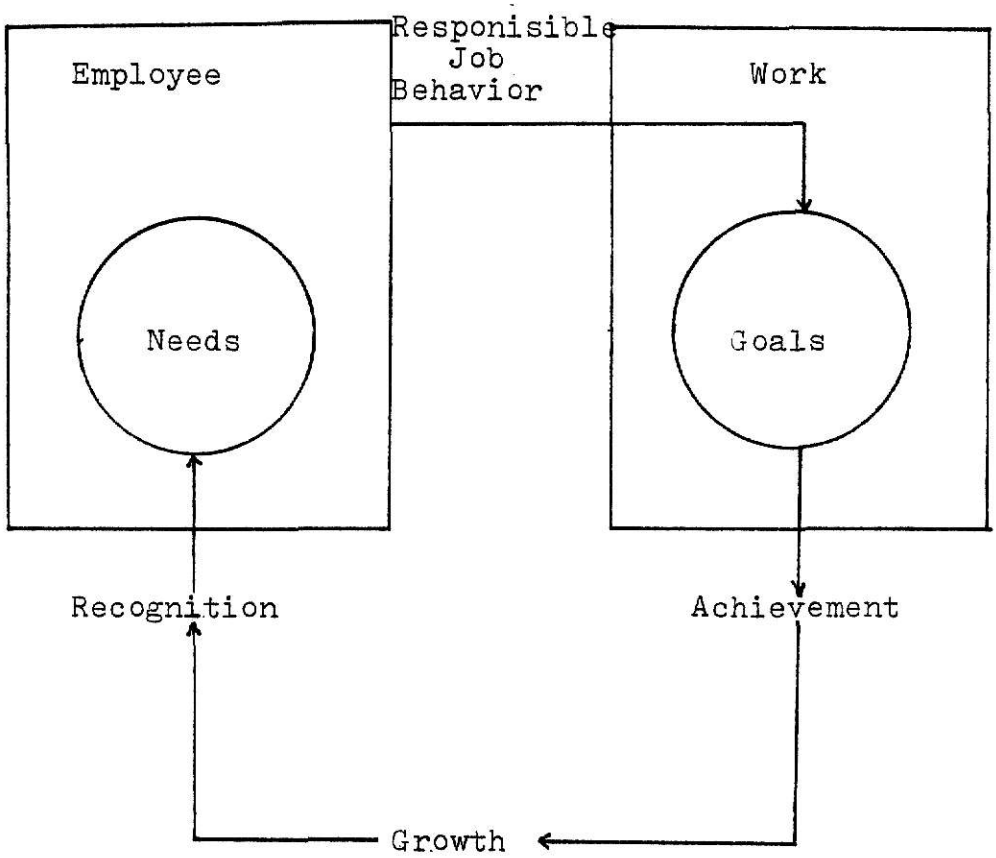


Figure 1. Relationships among employee needs, job behavior, and goal achievement

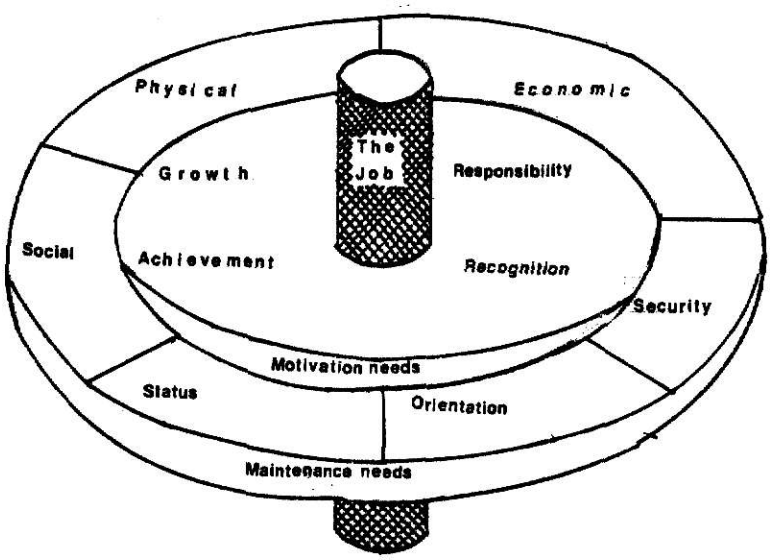


Figure 2. A classification system for employee needs

The second category includes motivation needs such as achievement, earned recognition, responsibility, and opportunity for personal growth. Herzberg says that these needs which are directly related to the job itself are the most potent source of motivation. In other words, the theory suggests that the most effective way to motivate employees is to give them jobs that challenge their capabilities and to provide rewards that are tied directly to their accomplishments.

The concept of goal setting provides a framework for relating both motivation and maintenance needs to the objectives of the organization. Positive job motivation exists when an individual is working towards goals that he thinks he can obtain and feels will satisfy his needs. One requirement for implementation of this approach is a company goal setting system that establishes meaningful objectives for each level of management. This approach to motivation is based on the assumption that most people will identify with the company's goal, or a portion of the company's goals, as a means of satisfying some of their personal needs.

## Review of literature.

Research in the field of goals and goal setting has been carried out for a long time. A major portion of the work has been concerned with the study of the effects of goals and goal setting on other aspects of behavior like

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Knowledge of Results, Level of Aspiration and Achievement.

Interest in the study of goals as a prerequisite of human performance on the job began to develop in the late nineteen sixties. Specific reasons cannot be given for the late interest on this topic. But the important aim was to develop a general theory of goal setting and make it applicable to industrial situations.

One of the pioneers in this field was Locke (1968). He conducted several studies in collaboration with Bryan. He also integrated the literature available on the topic of Hard goals and "Do-best" goals in a paper presented in 1968.

In this paper, Locke collected all the existing work done on conscious goals or intentions and task performance. In his own experiments conducted along with Bryan, they used the following method for goal setting:

Goals can be assigned by the experimenter before performance and the subjects acceptance of these scores checked later.

Subjects can be given a limited choice of goals before task performance and asked to choose one of them.

Subjects can be allowed to set any goals they wish on the task and then asked to indicate what their goal was after the performance.

Locke and Bryan's studies involved predominantly simple tasks in which learning complex new skills and making long-term plans and strategies were not necessary

to achieve goals.

Goal difficulty and Level of performance. The studies in this section are concerned with the relationship between the level of difficulty of goals the subject is trying for and the quantitative level of his performance. If goals regulate performance, then hard goals should produce a higher level of performance than easy goals. Figure 3. shows the combined results of the 12 studies on this topic by Locke and his colleagues. In all cases goals were expressed in terms of some specific quantitative score that the subject was trying to achieve on each trial or on the task as a whole. Goal difficulty is expressed in Figure 3. in terms of the percentage of trials on which subjects trying for a particular goal actually beat that goal. Performance level is expressed in terms of the within-study z-score for performance for the particular goal group in question. Thus each point represents a particular group(á particular goal) in a particular study.

The results show that the harder the goal, the higher is the level of performance. This was also true within each study as shown in Table 1. Although the subjects with very hard goals reached their goals far less often than subjects with very easy goals, the former consistently performed at a higher level than the latter.

The nature of the experiments from which the above data were obtained are summarized in Table 1. For their

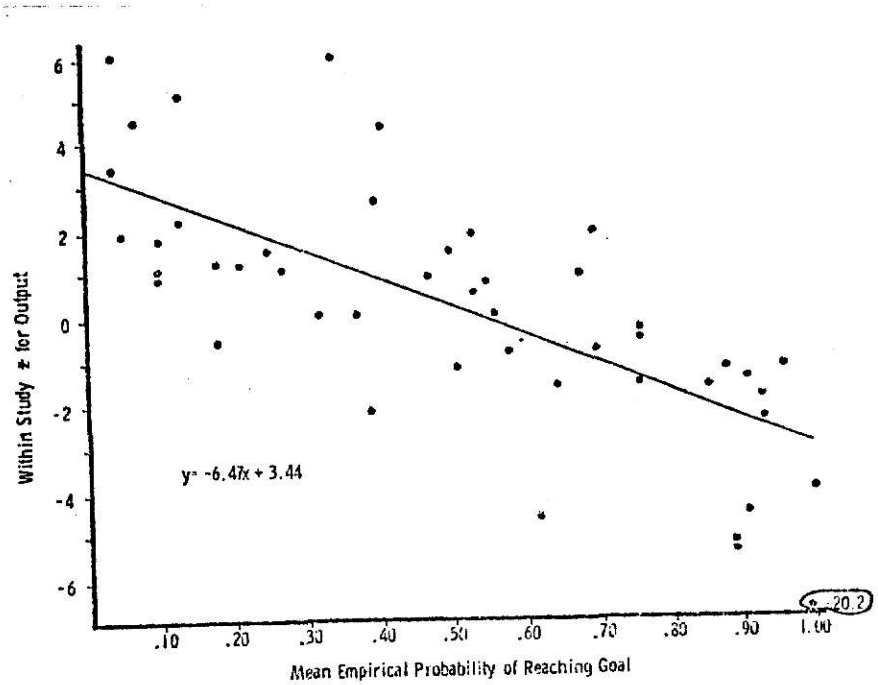


Figure 3. Output as a function of goal difficulty for 12 studies combined

TABLE 1 Summary of 12 Studies of the Relationship of Goal Difficulty to Performance Level

| STUDY | TASK | TRIALS & LENGTH | GOAL GROUP | NO. OF SUBJECTS | GOAL SOURCE | | SUCCESS | | PERFORMANCE MEASURE | OUTPUT RANK | RHO: SUCCESS RANK VS OUTPUT RANK |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | E[a] | S[a] | % | RANK | | | |
| LOCKE 1966a # 1 | Listing objects in a given category | 15 1-minute trials | Easy | 26 | * | | 93 | 1 | Total objects listed | 3 | - 1.00 |
| | | | Medium | 22 | | | | | | | |
| | | | Hard | 23 | | | | | | | |
| # 2 | Listing uses for objects | 20 1-minute trials | Easy | 27 | * | | 91 | 1 | Total uses given | 4 | - 0.80 |
| | | | Self-set | 27 | | * | 53 | 2 | | 2 | |
| | | | Progressive | 29 | * | | 18 | 3 | | 3 | |
| | | | Hard | 29 | * | | 7 | 4 | | 1 | |
| # 3 | Listing uses for objects | 6 1-minute trials per goal | Easy | 23 | Same * | | 89 | 1 | Total uses given | 3 | - 1.00 |
| | | | Self-set | 23 | Ss | * | 76 | 2 | | 2 | |
| | | | Hard | 23 | Ss * | | 04 | 3 | | 1 | |
| LOCKE AND BRYAN 1966b | Complex computation | 6 10-minute trials | Hard Improve over Prev. Perf. | 5 | | * | 13 | 2 | Total problems correct | 1 | - 1.00 |
| | | | | 24 | | * | 70 | 1 | | 2 | |

TABLE 1 (Continued)

| STUDY | TASK | TRIALS & LENGTH | GOAL GROUP | NO. OF SUBJECTS | GOAL SOURCE | | SUCCESS | | PERFORMANCE MEASURE | OUTPUT RANK | RHO: SUCCESS RANK VS OUTPUT RANK |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | E[a] | S[a] | % | RANK | | | |
| LOCKE AND BRYAN 1967 | Perceptual speed (Pilot-study) | 10 2-minute trials | Hard Improve - Beat | 9 | * | * | 5 | 3 | Total rows correct in | 1 | - 1.00 |
| | | | Best previous score | 16 | | * | 21 | 2 | Relation to practice score | 2 | |
| | | | Improve - beat or equal immediate previous score | 12 | | * | 39 | 1 | | 3 | |
| LOCKE AND BRYAN 1967 | Addition (Pilot-study) | 10 2-minute trials | Very hard | 8 | * | * | 4 | 4 | Total problems | 1 | - 0.800 |
| | | | Hard | 26 | | * | 50 | 3 | correct | 2 | |
| | | | Easy | 13 | | * | 76 | 1 | in relation to | 3 | |
| | | | Very easy | 4 | * | | 62 | 2 | practice score | 4 | |

TABLE 1 (Continued)

| STUDY | TASK | TRIALS & LENGTH | GOAL GROUP | NO. OF SUB-JECTS (N) | GOAL SOURCE E | GOAL SOURCE S | SUCCESS % BLOCK II | SUCCESS % BLOCK III | SUCCESS RANK BLOCK II | SUCCESS RANK BLOCK III | PERFOR-MANCE MEASURE | OUTPUT RANK | | SUCCESS RANK VS OUTPUT RANK |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| LOCKE, BRYAN & KENDALL 1968 | 1 Listing uses for objects | 7 1-minute trials on each block (II & III) | HARD (With incentive) | 19 | * | | 76 | 25 | 2 | 10 | Total uses given | 8 | 1 | -.85 |
| | | | Hard (without incentives) | 17 | * | | 88 | 27 | 1 | 9 | | 11 | 2 | |
| | | | Self-set (with incentive) | 22 | | * | 58 | 56 | 4 | 5 | | 9 | 7 | |
| | | | Self-set (without incentives) | 12 | | * | 65 | 51 | 3 | 6 | | 12 | 10 | |
| | | | Very hard (with incentives) | 21 | * | | 32 | 18 | 8 | 11 | | 6 | 3 | |
| | | | Very hard (without incentives) | 15 | * | | 37 | 10 | 7 | 12 | | 5 | 4 | |

TABLE 1 (Continued)

| STUDY | TASK | TRIALS & LENGTH | GOAL GROUP | NO. OF SUBJECTS (N) | GOAL SOURCE E[a] | GOAL SOURCE S[a] | SUCCESS % BLOCK II | SUCCESS % BLOCK III | SUCCESS RANK BLOCK II | SUCCESS RANK BLOCK III | PERFORMANCE MEASURE | OUTPUT RANK | SUCCESS RANK VS OUTPUT RANK |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| LOCKE, BRYAN AND KENDALL 1968 | # 2 Toy construction | 1 50-minute work periods | High Imp | 15 | * | * | 53 | | 2 | | Total toys made in last 25 mts in relation to first 25 mts | 1 | -1.00 |
| | | | Low Imp | 15 | | * | 93 | | 1 | | | 2 | |
| LOCKE 1967 | Listing objects in a given category | 15 1-minute trials | 4 No.objectives to try for on each trial | 11 | * | | 99 | | 1 | | Total objects listed | 5 | -1.00 |
| | | | 8 | 17 | * | | 89 | | 2 | | | 4 | |
| | | | 10 | 15 | * | | 68 | | 3 | | | 3 | |
| | | | 12 | 41 | * | | 41 | | 4 | | | 2 | |
| | | | 13 | 21 | * | | 34 | | 5 | | | 1 | |

| STUDY | TASK | TRIALS & LENGTH | GOAL GROUP | NO. OF SUBJECTS N | GOAL SOURCE E | GOAL SOURCE S | SUCCESS % | SUCCESS RANK | PERFORMANCE MEASURE | OUTPUT RANK | RHO : SUCCESS RANK VS OUTPUT RANK |
|---|---|---|---|---|---|---|---|---|---|---|---|
| LOCKE & Bryan 1968 | Academic Performance | 1 Semester | A Minimum | 10 | | * | 40 | 4 | Grade obtained in history course | 1 | -1.00 |

TABLE 1 (Continued)

| STUDY | TASK | TRIALS & LENGTH | GOAL GROUP | NO. OF SUBJECTS (N) | GOAL SOURCE E | GOAL SOURCE S | SUCCESS % | SUCCESS RANK | PERFORMANCE MEASURE | OUTPUT RANK | RHO : SUCCESS VS OUTPUT RANK |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | B Satisfactory | 32 | | * | 70 | 3 | | 2 | |
| | | | C Grade | 168 | | * | 96 | 2 | | 3 | |
| | | | D | 10 | | * | 100 | 1 | | 4 | |
| LOCKE & BRYAN | Addition | 5 Trials Length of 12 mt. each | Hard | 20 | * | | 10 | 2 | Total problems attempted in relation to practice score | 1 | -1.00 |
| | | | Easy | 20 | * | | 86 | 1 | | 2 | |
| LOCKE 1967 | Reaction time | 40 trials | Beat best prev.time | 10 | * | | 10 | 3 | Mean reaction time | 1 | -1.00 |
| | | | Beat immediate previous time | 10 | * | | 41 | 2 | | 2 | |
| | | | Beat worts prev.time | 10 | * | | 91 | 1 | | 3 | |

[a]'E' means goal was assigned by experimenter.
[a]'S' means goal was selected by subject.
If an '*' appears both in the E and S columns: This means goal was assigned by the experimenter but that only this sub-group said they accepted the goal;(that is there were other subjects who did not accept it and thus were not included).

studies Locke and Bryan used a variety of tasks: brainstorming, complex computation, addition, perceptual speed, toy construction, reaction time, grade achievement in college thus indicating the generality of the results across tasks.

In his paper Locke also reviewed other studies conducted in goals and performance.

Dey and Kaur (1965) using a letter cancellation task found hard output goals to produce a higher level of performance than easy goals. This experiment was carried out in an assigned condition of goal setting.

Another study, conducted by Mace (1935) on psychomotor performance revealed that subjects who were instructed to try to improve their scores 25 percent per day, improved at a faster rate than those instructed to improve at a rate of five percent per day.

In an experiment carried out to study the effects of specific hard goals and specific easy goals, conducted by Siegel and Fouraker (1960), with an experimental bargaining task, subjects were asked to try for a specific quantitatively high profit and others to try for a specific quantitatively low profit. The former group negotiated higher profit than the latter.

Locke (1966) reanalyzed some data gathered by Fryer in a study of code learning, in which some subjects set goals before each trial and some did not. Locke found that those subjects who set higher goals in relation to their

previous performance performed better on the task than those who set comparitively low goals.

In a target pursuit rotor task carried out by Eason and White (1961), subjects were instructed to try to stay on on target for zero, fifty, and hundred percent of the time. Results showed that they actually did so. It was also found that subjects tracking a smaller target showed greater muscular control than those tracking a larger target.

Stedry (1960) in a study of problem solving, demonstrated the importance of distinguishing between instructions and the subjec s personal goals. He told different groups of subjects to try to complete different numbers of problems in the time allowed. He also had subjects indicate their own personal level of aspiration either before or after the goals were assigned by the experimenter. He found that hard assigned goals led to a higher number of problems completed than easy goals only if the goals were assigned before the hard-goal subjects set their own personal goals. If they set personal goals first, they tended to reject the assigned hard goals and performed quite poorly on the task.

A study of real life goal setting was carried out by Zander and Newcomb (1967). They studied the United Fund campaign of 149 selected communities over a period of four years. It was found that communities who set monetory goals that were higher than their previous years's performance raised more money in relation to their previous year's

performance.

Realtionship of qualitatively different goals to levels of performance. In the same paper Locke (1968) summarized the studies concerned with the relationship of qualitatively different goals to the level of performance. Most of them deal with a comparison of "do-best" goals and a specific hard goal.

Table 2. summarizes the results of eight studies conducted by Locke and Bryan in which these two types of goals were compared. In six of the eight studies the subjects trying for specific hard goals performed at a significantly higher level than subjects trying to "do-their -best".

Thus, a "do-best" goal does not tend to produce the higher levels of performance.

Mace (1935) obtained a similar finding in a study of complex computation. He gave one group of subjects specific hard goals (geared to their ability level) to aim for in each period. To a second group he simply told the subjects to "do-your-best". The results indicated that the group with hard standards improved much faster than the "do-best" group.

The results obtained by Mace were confirmed by Locke and Bryan in their own studies.

TABLE 2 Summary of Eight Studies Comparing Specific Hard Goals with "Do-best" Goals

| STUDY | TASK | TRIALS & LENGTH | GOAL GROUP | N | GOAL SOURCE E | GOAL SOURCE S | SUCCESS % | PERFORMANCE MEASURE | BEST (ABSOLUTE) PERF BY | STAT | P |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Locke & Bryan 1966 | Complex Co-ordination | 12 10-min. trials | Hard | 14 | x | | 29 | Lin slope of perf. curve | Hard goal | F=17.75 (df=1,24) | .001 |
| | | | Do Best | 14 | x | | - | | | | |
| Locke &Bryan 1966 | Complex Co-ordination | 6 10-mt. trials | Hard | 5 | x | x | 13 | Total problems correct | Hard goal | t = 1.99 | .07 |
| | | | Do Best | 17 | | x | - | | | | |
| Locke & Bryan 1967 | Perceptual Speed (Pilot-study) | 10 2-mt. trials | Hard | 9 | x | x | 05 | Total rows correct in relation to practice score | Hard Goal | t 1 | ns |
| | | | Do Best | 22 | | x | - | | | | |
| | Addition (Pilot-study) | 10 2-mt trials | Very hard | 8 | x | x | 04 | Total problems correct in relation to practice score | Hard goal | t 1 | ns |
| | | | Do Best | 21 | | x | - | | | | |
| # 1 | Perpectual speed | 1 90-mt trials | End goal | 24 | | x | 08 | Total rows correct in rela- | End goal | t = 3.49 | .002 |
| | | | Do Best | 17 | x | | | | | | |

TABLE 2 (Continued)

| STUDY | TASK | TRIALS & LENGTH | GOAL GROUP | N | GOAL SOURCE E | GOAL SOURCE S | SUCCESS % | PERFORMANCE MEASURE | BEST (ABSOLUTE) PERF BY | STAT | P |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | to prac. score | | | |
| # 2 | | | | | | | | | | | |
| | Addition | 1 2-hr trial | End goal | 18 | x | | 16 | Total problems correct | End goal | t = 4.5 | .001 |
| | | | Do Best | 18 | x | | - | | | | |
| Locke 1967 | Addition | 5 trials mean length= 12 mt ea | Hard | 18 | x | | 16 | Total problems correct in relation to practice score | Hard goal | F = 4.83 | .001 |
| | | | Do Best | 18 | x | | - | | | | |
| Bryan & Locke 1967 | Addition | 12 trials (Range 15 secs to 32 mts on each 3 days) | Hard | 6 | x | | 54 | Differences of trends across 3 days | Hard goal | F = 6.2 (df 2,20) | .01 |

E means goal was assigned by experimenter (E).
S means goal was selected by subject.
If an x appears in both the E and S columns, this means goal was assigned by E but that only this sub-group said they accepted the goal (that is there were other subjects assigned the same goal who did not accept it and thus were not included).

Practical tests. Meyer, Kay, and French (1965) examined the effects of goal setting during appraisal interviews on subsequent job performance. They found that of those performance items which were translated into specific goals, 65 percent showed subsequent improvements, while of those performance items that did not get translated into goals, only 27 percent showed subsequent improvements.

Goal setting and performance was again studied by Latham and Kinne (1974). They conducted a study in improvement of job performance through goal setting. The subjects in this study were pulp-wood logging operators. Twenty subjects in this study were matched and randomly assigned to either a one-day training program in goal setting or a control group (no training in goal setting). Measures of production, turnover, absenteeism, and injuries were collected for 12 consecutive weeks. Analysis of variance indicated that goal-setting can lead to an increase in production and a decrease in absenteeism.

Latham and Baldes (1975) examined the "practical significance" of Locke's theory of goal setting. Data was collected on the net weight of 36 logging trucks in six logging operations for 12 consecutive months. Results showed that performance improved immediately upon assignment of a specific hard goal. Company cost accounting procedures indicated that this same increase in performance without goal setting would have required an expenditure of a quarter