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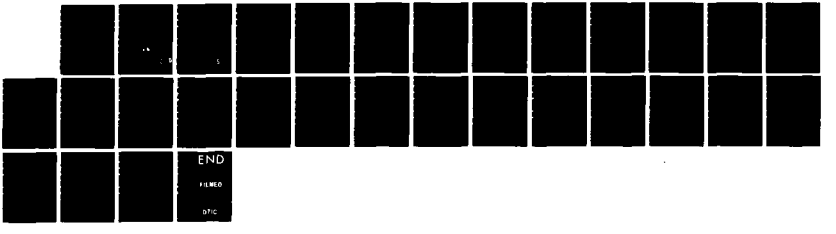

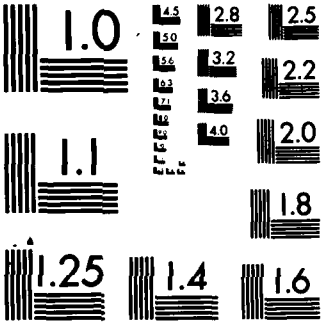

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The Passage of Time; A Neglected Factor in the Goal Setting-to-Performance-to-Feedback Sequence

by

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Research in both the laboratory and field settings has clearly demonstrated that performance goals affect performance. Yet, for the most part, performance has been measured for a relatively short time period following the introduction of goals. The present paper addresses goal-related performance from a long term perspective. Behavior is viewed from the perspective of a continuous flow or stream of events where goals presented at any one time are compared to the stream of events that preceeded them. Performance at any time, t_1, after the presentation of a goal is seen as a function of performance, feedback and other conditions

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that have occurred before t. Current developments in motivational theory and control theory are first presented and related to goal directed performance. This is followed by an evaluation of recent goal setting research from a time perspective.

The Passage of Time: A Neglected Factor in the Goal Setting-to-Performance-to-Feedback Sequence

Setting performance goals that are relatively difficult and specific increases task/work performance. There are few, if any, interventions in performance settings that have been so consistently successful as goal setting. Quite simply, goal setting works.

In spite of our belief in the above, there are some significant gaps in our knowledge of goal setting effects. One of the most severe is related to limited knowledge about the effects of goals on performance over time. Much of the goal setting research has been conducted in the laboratory over very brief time periods--most commonly an hour or less. Field research has used a much longer time period but has tended not to preserve time effects in the data analyses. For example, goals are set and performance is observed over a specific time period (e.g., one month) but the observations are collapsed to form mean performance scores for each person over the time period thus the opportunity to assess possible changes in adherence to goal standards over time is lost. There are, of course, some exceptions to this, for example, Latham and Baldes (1975). However, even in these cases, the primary concern was usually with the main effects for goals and the simple check to insure that performance was not varying too drastically over time. To our knowledge, only Campion and Lord's (1982) control theory treatment of goals addressed changes over time directly.

Our purpose today is to explore more fully changes in performance and goals over time. Our dynamic longitudinal position is based, in large part, on the integration of three theoretical positions addressing performance behavior over time. The three theories are: control theory, Atkinson and Birch's (1970) dynamic theory of motivation, and Naylor, Pritchard, and Ilgen's (1980) theory of behavior in organizations. Before proceeding with a discussion of goal

setting per se, we shall present a brief and admittedly cursory overview of each of these three positions.

Theoretical Positions

Control Theory

Control theory is a generalized theory that has been used as a model for the behavior of many types of systems including human ones. These systems are seen as possessing the following four essential features: (1) inputs from outside the system that initiate action within the system, (2) processes--some means of dealing within the system with the inputs, (3) products or outputs that result from the processing of the inputs, and (4) a feedback loop that serves as a conduit for information about the quality of the products resulting from the operation of the system. The most familiar abstraction of a generalized control system is Miller, Galanter, and Pribrum's (1960) classic description of the test-operate-test-exit sequence best known by its acronym, TOTE. Altering the TOTE system somewhat to illustrate goal conditions, Figure 1 shows a set of goals as inputs that serve as performance standards. In an ongoing process the standards are compared with feedback about performance on the immediately preceding performance cycle. The result of the comparison leads to some action, normally in the form of performance-related behaviors. The information that the person receives about the performance behaviors serves as the feedback that is looped back, and the next cycle begins. In this case, the feedback serves as the input to the new cycle.

Insert Figure 1 about here.

Three features of the control theory model are important for addressing goal setting effects over time. The first of these is the emphasis on a continuous process. Although there is a point in time where the system is

initiated, once the sequence begins, it continues to recycle until conditions external to the system cause it to cease operating. Second, the model emphasizes the fact that both behaviors and goals are influenced by each other. Although few would deny that goals can be changed, typically research on goal setting treats goals as constant once they have been set. Finally, the system has a certain inertia. For individuals as subsystems, the inertia is a habit-like property. That is, once the system is up and running in a steady state, the same standard and the same set of behaviors will tend to endure. In fact, once the pattern has stabilized, the model would predict that the same behaviors will be repeated unless/until there is some change in the external environment which either changes the goals or changes the feedback so that the comparitor is affected.

Dynamic Theory of Motivation

Atkinson and Birch (1970) observed that behaviors often remain consistent in spite of the fact that the environment in which they occur changes. Likewise, the reverse is often observed--inconsistent behaviors occur in constant environments. Thus, rather than focus on the more objective environmental features as is often done in the traditional S-O-R model of behavior, the authors focused on individuals' subjective environments for an explanation of behavior choice and change. Atkinson and Birch assumed that motivational tendencies underlie activities (behaviors) which are initiated and terminated by people. At any given time, the behaviors that are displayed are ones for which the motivational tendencies are strongest.

Each motivational tendency, according to Atkinson and Birch, is the resultant of two opposing forces--a positive "action tendency" and a negative "negation tendency." Associated with the motivational tendency is the assumption of an "inertial tendency." According to this, once an action tendency is aroused, it persists until modified by some psychological force.

The modification can either be in the positive direction of increasing the action tendency or in the negative one of decreasing it. In addition, any particular action, over time, tends to build up a negative consummatory force that may decrease the probability of the behavior continuing. The consummatory force, in many respects, is analogous to fatigue or boredom that eventually sets in with the constant repetition of a particular set of behaviors over time regardless of the nature of the behaviors themselves.

Although we have described a motivational tendency with respect to only one behavior, an important position of the dynamic theory of action is that, at any one time, an individual possesses a whole set of motivational action tendencies each associated with a different behavior. The behavior displayed at any one time is the one with the highest motivational tendency. Construing behavior as set of behaviors and/or action tendencies, has both cross-sectional and longitudinal implications. Cross-sectionally, the behaviors(s) that is displayed at any given time will be the one with the highest motivational tendency. Longitudinally, the introduction of any behavior pattern occurs only if the motivational tendency for the previous behaviors becomes less than the tendency for the ones that replace it. More specifically, a behavior is initiated only if the motivational tendency of that behavior rises above the one or ones it replaces or if the motivational tendencies for the current behaviors drop below that of the new one displayed.

Behavior Choice

In many respects, the theory of Naylor, Pritchard, and Ilgen (1980) is similar to that of Atkinson and Birch (1970). Both emphasize that behavior results from a subjective evaluation and that the behavior displayed at any one time is the one from a large set of behavior alternatives that has the greatest motivational force. According to Naylor, et al., motivational force toward a

particular action must be considered in light of the subjective utilities of all other behaviors considered by the individual at any one time. The individual is construed as a cognitively active decision-maker who chooses to distribute his time and effort across tasks in a way that will maximize his subjective perception of the likely personal payoff associated with the action. Although it is recognized that frequently the person will reduce his or her cognitive effort by not constantly evaluating the utility of each action, it is assumed that action itself, at some time in the past, was based on an evaluation of the payoff by the person.

Naylor and Ilgen (1984) addressed goal setting effects directly from the perspective of this theory. Figure 2 illustrates the utility of committing time and effort to a range of levels of performance. The ordinal of Figure 2 represents the amount of utility while the abscissa represents performance. Line A is the utility associated with various performance levels when no goals are present.[1] Line B represents the displacement from line A resulting from setting goals. This suggests that performance levels immediately below a particular goal have considerably lower subjective utility under the goal condition than when goals are absent, while levels above the goal have greater utility. According to the model, performance at the goal has the greatest change in utility when goals are introduced.

Insert Figure 2 about here.

Integration of Theoretical Constructs

In this section, the three general theories or models of behavior just described are addressed to the specific condition of maintaining task performance over time using performance goals. Four generalizations are considered. Each of these is discussed below.

1. Systems Perspective. Task goals affect performance over time through the interaction of both goals and performance in an ongoing system. This system includes not only these two elements but two additional necessary elements--feedback and a comparator that compares goals to performance and either leads to an adjustment of one, the other, or both or leads to a decision to maintain the current levels of both. This system is internal to the individual. That is to say, the person who is performing the task must address all four of these elements and reach his or her own decision about performance on the following cycle of the system.

   At first glance, the individual reference of the control theory system, differs somewhat from typical emphases in goal setting research. In particular, goal setting research has focused almost exclusively on goals set by persons other than the individual who is performing the task (*Hollenbeck and Williams*, 1985). However, this difference is easily reconciled by the fact that one necessary condition for set goals to affect performance is that the goals must be accepted by the performer (Locke, Shaw, Saari, & Latham, 1981). If the goal is accepted, we can assume that the externally set goal, at least at the time of acceptance, becomes an internal goal for the performer. Thus, the requirement for goal acceptance provides the necessary condition for the control theory model to apply to most if not all typical goal setting conditions.

2. Behavior is Costly. Atkins and Birch (1970) and Naylor et al. (1984) stress that simply performing any given set of behaviors builds up some level of inhibitory force that, over time, decreases the propensity of the individual to repeat the behavior. This fact is important for conditions of performance under specific goal conditions

over time because of the typical desire, when goals are used, to maintain performance over time at the level of the goals. To the extent that the attractiveness of performance at a particular level drops over time, there becomes a need to infuse more resources that are valued by the performer into the performance setting if a constant level of performance is to be maintained.

3. Stream of Behavior. Both Atkinson and Birch (1970) and Naylor, Pritchard, and Ilgen (1980) enlarge the set of behaviors relevant in the goal episode. Typically, goal setting research looks only at performance and performance at one point in time. The theories just mentioned stress that all behaviors displayed at any given time are but a few of the possible behaviors that the individual might display. Recognizing this simple but often overlooked condition leads to a somewhat different, but by no means trivial, perspective on task performance. Performance behaviors must be seen as those that are in competition with other behaviors. In order to initiate goal relevant performance behaviors, the individual not only must begin to perform the tasks mandated by the goal, he or she must both cease to perform the behavior currently engaged in and must resist substituting other behaviors (e.g., reading a magazine, talking to a co-worker, or daydreaming) if these inhibit goal accomplishment. Such a perspective has been analogously described as a continuous stream of behaviors flowing by over time from which the individual chooses at any one time to engage in a few of them. Over time, new behaviors are selected and old ones rejected often to be picked up at some later point in time (Fichman, 1984).

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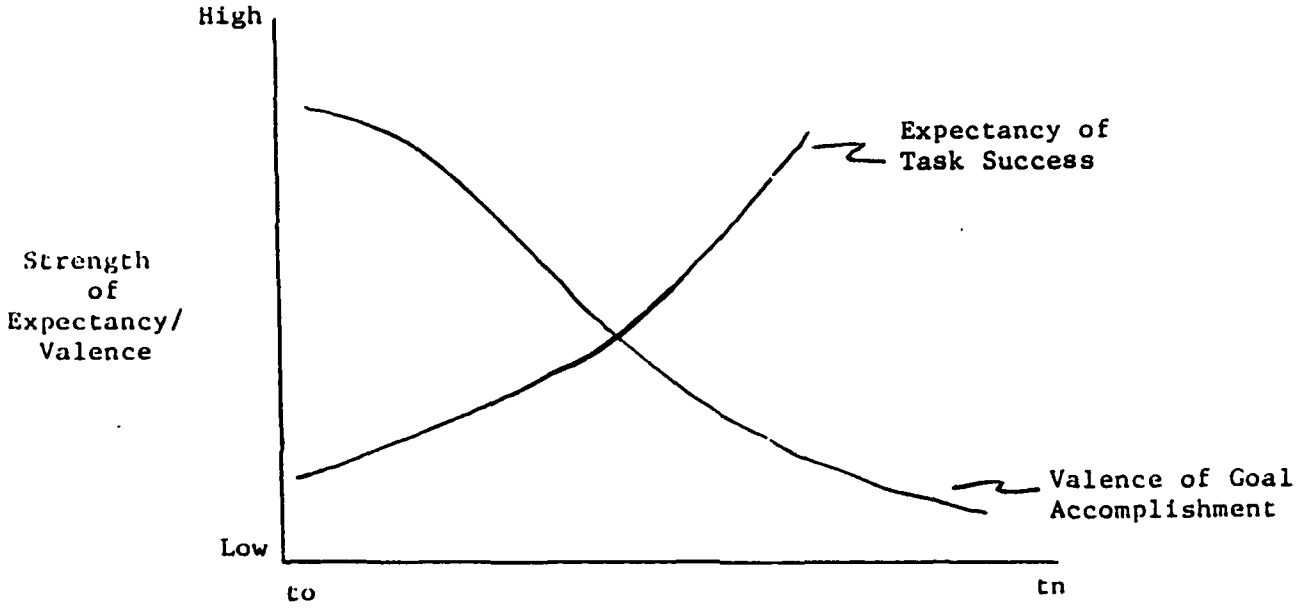

Figure 3. Changes in Expectancies and the Valence of Task Accomplishment over Time for Difficult but Possible Goals.

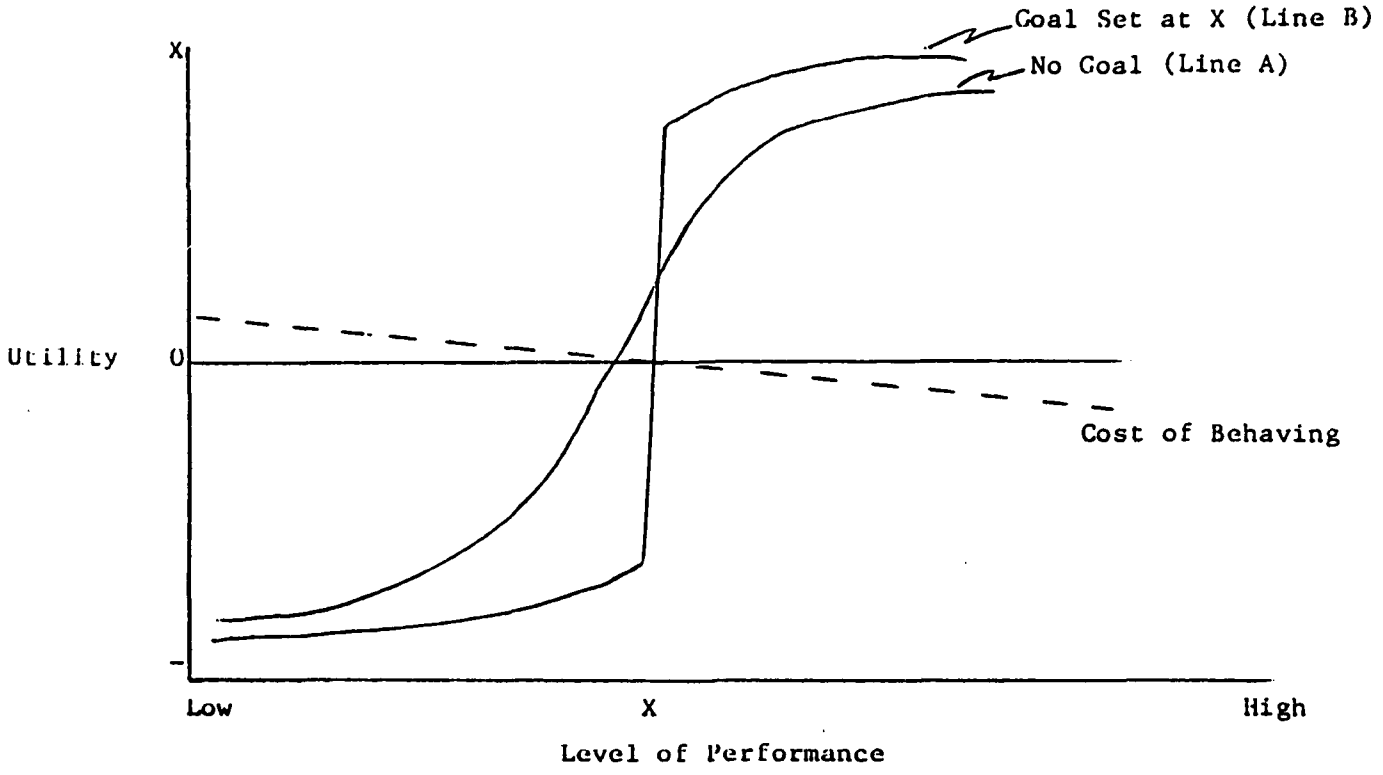

Figure 2. Hypothetical Utility Levels for Different Performance Levels When Goals are or are not Present.[1]

[1]Adapted from Naylor & Ilgen (1984)

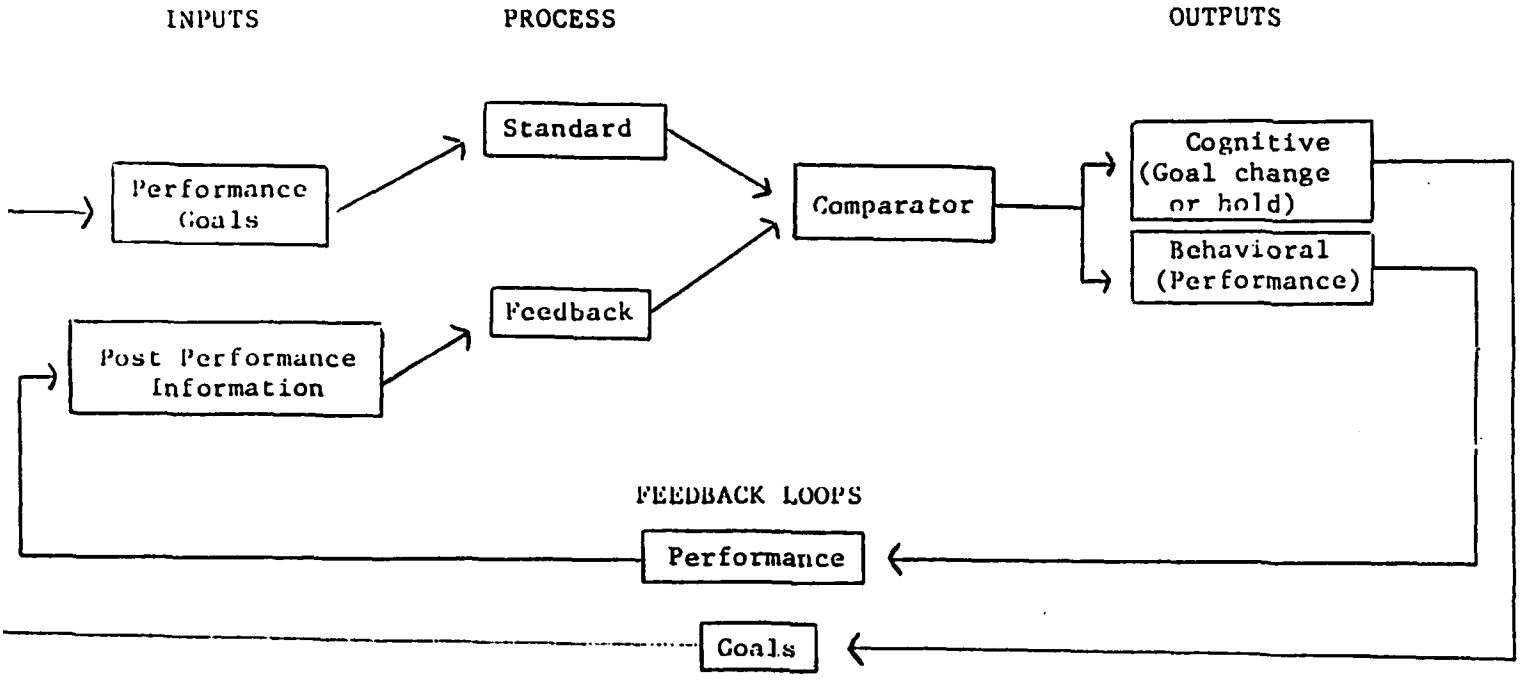

Figure 1. An Illustration of Goal Setting in a Control Theory Framework.

Footnotes

[1]The initial utility curve represented by Line A was selected as the standard no goal condition by Naylor and Ilgen because this ogive represents the commonly observed condition where the magnitude of change in utility at the extremes of performance decreases. It is assumed that there is some level of performance that is associated with no or zero subjective utility and deviations from that point lead to either positive or negative utility. However, increasing greater deviations from zero are associated with proportionally decreasing amounts of anticipated positive or negative utility.

[2]This statement is based upon the assumptions that the valence of intrinsic outcomes and extrinsic ones are additive in their effects on performance. The data tend to support this position for typical work settings (e.g., Fisher, 1978), but we recognize that our position is inconsistent with the position of cognitive evaluation theory.

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.

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Latham, G. P., & Baldes, J. J. (1975). The "practical significance" of Locke's Theory of Goal Setting. Journal of Applied Psychology, 60, 122-124.

Locke, E. A., Shaw, K. N., Saari, L. M., & Latham, G. P. (1981). Goal setting and task performance. Psychological Bulletin, 90, 125-152.

strive for a long-term goal or on the readjustment of the goal itself. Little is known about this interaction; more research is needed in this area.

Conclusions

At first glance, the ecological validity of goal setting is strong. Research has repeatedly demonstrated that setting specific and hard yet attainable goals leads to performance in line with the goals set. Yet, the implicit, if not explicit assumption with respect to the performance of employees at work is that goals once set will lead to the desired behaviors, and once these behaviors are obtained, the employees will continue to maintain them. It is our contention that it is not nearly so clear that goals will influence behavior in the same manner over extended periods of time as they do in the short run. In particular, it was suggested that performance will tend to drop off from the high level of performance advocated by difficult, specific goals and that other behaviors will compete with the performance-directed ones over time. These two conditions may call for different types of procedures and practices for maintaining performance at goal level than is required to raise performance to that level initially. Some suggestions were made for goal performance maintenance. However, it must be stressed that these suggestions are not based on sound evidence; most of them were very speculative. To gain more confidence in these speculation, research is needed that incorporates time into goal setting research. We strongly urge that future research be designed to assess some of the time-related issues that we have raised here today.

consideration may influence the level of performance that is reasonable for long term goals--a level that may be quite different from what could be expected in the short run. It may also influence the time period over which performance goals are evaluated. Longer time periods should allow the individual the opportunity to set priorities for different sets of behaviors and thus accomplish multiple goals. Hollenbeck and Williams (1985) have shown that employees do have different sets of goals and that their behavior at a given time is influenced by the goal set. Our suggestion here is that over time, the whole set needs to be considered as well as the pattern of behaviors and changes in behaviors if goals are to be effective over time.

Long and Short Term Goals

A final consideration of the role of time in the goal setting sequence deals with the distinction between long and short term performance goals. This is perhaps best illustrated by an example. Campion and Lord (1982) looked at the effects of goals of college students with respect to course grades. Students set goals in terms of the grade they desired for a term and also set individual goals before each of a series of examinations during the semester. Here the classroom exam goals are short term ones and the final grade is a long term goal. They found that unlike much earlier work on goal setting, students who failed to reach their short-term goal on examinations early in the semester, raised rather than lowered their goal for the next examination. In the absence of considering long-term goals, this behavior appears dysfunctional; with respect to the long-term goal, it seems perfectly understandable. The students attempted to compensate for early failure by performing above the goal on later examinations in order to continue to strive for the long-term goal. Of interest for the implementation of goals over the long run is the level and pattern of performance on early repetitions of the task on the willingness to continue to

sets of vectors of utilities attached to behaviors and the choice of behaviors that have the highest utility at any one time. The important point is that over time, the behaviors chosen will vary in their utility leading to the implementation and cessession of sets of behaviors.

The total set view of behavior has two important implications for goal setting. First, in the initial introduction of performance goals, consideration must be given to the effects of performance goals on the set of competing behaviors rather than focus solely on one set of behaviors--those directly relevant to task performance. In particular, questions must be asked about the current behaviors that will be abandoned in order to substitute in the performance-related ones. Given the fact that behaviors in place tend to be repeated unless there is some interruption that causes a re-evaluation of the behaviors (Kuhl & Blankenship, 1979), it may be necessary to put more emphasis on goals initially and/or give people greater opportunities to show the goal behaviors than is necessary once the performance goal-directed behaviors are established. In addition, consideration must be given tc the possible effect on the overall goals of the organization of encouraging the abandonment of other behaviors that were in place if people do shift all or most of their attention to the behaviors targeted by the goals.

After the performance goals have been established and the individual has performed at or above the goal level, the other behaviors continue to compete with performance. It is probably unrealistic to expect that individuals in work settings will continue to focus all of their time and effort on task performance. Thus, it is necessary to appraise the types of behaviors that are likely to compete for time and effort expenditure with performance and ask questions about how performance can be maintained at a certain level given the likelihood that the individuals will need to display other sets of behaviors that may interfere with performance, at least in the short run. Such a

than to whether or not the person reached or did not reach a sales goal. Others, such as Naylor and Ilgen (1984) suggested that a major proportion of the reward (utility) would be associated with goal accomplishment. The advantage of a reward structure like they propose (See Figure 2) is that performance should tend to drop off less over time if the extrinsic reward utility shifted drastically at the level of the goal.

There is, however, one disadvantage of tying rewards too closely to goal level when considered from the long term perspective. One alternative available to the task performer for compensating for the drop in intrinsic motivation is to raise the level of the goal. Work with the dynamic effects of achievement motivation suggests that such a shift would take place (see Kuhl, 1978). However, from Figure 2 we see that the utility curve for performance above the goal level is quite flat in typical settings where rewards are closely tied to goals. This would suggest that a modification of the use of extrinsic outcomes for maintaining performance at or above goal levels over time. Such a modification could award smaller increments in amounts of rewards for performance below, the goal, a bonus for goal accomplishment, and bigger increments in returns for performance above the goal. This should allow for and encourage readjustments in personal goals above initially set goal levels. Whether this does indeed occur is an empirical issue.

Competing Behaviors

We have argued that goal setting research has focused on a singular behavior or a set of very similar behaviors that have to do with task performance. Yet, it has been stressed that individuals are capable of performing a large number of behaviors. At the risk of anthropomorphizing, these behaviors can be seen as competing for the opportunity to be displayed. Fichman (1984) speaks of a stream of behaviors which are displayed by the person while Atkinson and Birch (1970) and Naylor, Pritchard, and Ilgen (1980) describe

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Insert Figure 3 about here.

A final reason for believing that there will be a motivational force toward a drop in performance over time is that, over time, repeated success at goal accomplishment should lead to a decrease in the attention paid to performance feedback. To the extent that this occurs, the correction effects of negative feedback when the goal is not met would not be received and, thus, performance would tend to drift away from the goal level.

Assuming that performance will drift away from goals over time and also assuming that it is desirable to maintain performance at or above goal levels, suggests that goal setting applied in the field over long periods of time needs to focus on two sets of conditions. First, special attention must be given to the nature of performance feedback provided to the performers. It is already well known that feedback is a necessary condition for successful goal setting effects (Shaw, Locke, Bobko, & Beitzell, 1981). We would suggest that the feedback must be of the type that the performer will notice and respond to over time. Given the tendency to ignore feedback as he or she gains more experience with the task, it may be necessary to infuse procedures that will force the performer to notice the feedback. Such things as requiring a brief response acknowledging receipt of feedback should enhance the possibility that it is attended to.

Second, the decrease in valence for intrinsic outcomes such as a sense of accomplishment suggests that there may be a need to compensate for this by insuring that extrinsic outcomes are associated with task performance and sufficiently high to maintain performance at or above goal level.[2] Typically, it has been advocated that valued extrinsic outcomes be attached to units of performance and not to goal accomplishment. Using the example of a salesperson, extrinsic outcomes/rewards would be attached to the number of units sold rather

inhibitory force toward performing the behavior according to Atkinson and Birch's (1970) or Solomon's Opponent Process Model (see Landy, 1978). Second, performance may drop off because of a decrease in the attractiveness of goal accomplishment. The works of Kuhl (1978) on need for achievement and those of Matsui, Okada, and Mizuguchi (1981) on expectancy theory imply that the attractiveness of any performance level is a function of its perceived difficulty to the performer. Assuming that the performer performs successfully over a period of time, that is, he or she is able to accomplish the goal over a period of repetitions of the task, such a past history of success should provide information to the person that implies the task is not particularly difficult. At the very least, knowledge of past success is likely to lead to the perception that the task is less difficult than was initially expected. To the extent that this occurs, the valence of the performance level for task accomplishment should drop. The result would be a lowering of the intrinsic satisfaction associated with goal accomplishment and a possible drop in overall motivation to perform.

The predicted drop in intrinsic motivation for goal accomplishment over time does not automatically lead to the prediction that motivation for performance at the level of the goal will drop off. As is pointed out by Matsui, et al (1981), expectancy theory would predict that performance is a function not only of the valence of the goal level but also the expectancy that putting forth effort will lead to goal accomplishment. Since the expectancy term would increase as the person experienced more success on the task, this should increase motivational force, according to the theory. At the same time, it is predicted that the dropping valence of performance level would decrease motivational force. Figure 3 illustrates a simple view of how expectancies and valences are likely to change over time. As can be seen, overall motivation should increase up to a point and then fall off.

4. Change in Commitment. Naylor, Pritchard, and Ilgen (1980) point out that the change in level of commitment necessary to perform a task is more important than the actual level itself. Using a subjective utility view of behavior choice, they argue that individuals consider the level of subjective return they receive from the present behaviors in which they are engaged and then estimate the perceived gain (or loss) associated with changing their behavior. If it is likely that there will be an increase in utility for the new behaviors, they will likely choose to devote time and effort to the new behaviors; if the perception is of either no gain or a loss, they are likely to continue the same behaviors or choose some behaviors other than those of increased performance. For the most part, goal setting research tends to concentrate on the perceived return for performance at or above the goal rather than to consider the goal setting process in light of the change it represents from some present state of performance.

Implications for Goal Setting Over Time

Performance Decreases Over Time

There are several reasons to believe that task performance initiated and influenced by the setting of performance goals will approach the level of the goal initially but then tend to drift from the goals over time. Specifically, we would predict that if the goals were specific, difficult but possible, and initially accepted by those working on the task, performance over time would tend to fall off from the levels of initial performance attained soon after the goals were in effect unless certain conditions are met to sustain the performance at or above the goal.

We reach this conclusion by extrapolating to the goal setting condition from three different perspectives. First, there is the notion that performing any behavior incurs certain costs to the performer. These costs create an

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