Goal Setting as a Strategy for Health Behavior Change

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This article discusses the beneficial effects of setting goals in health behavior change and maintenance interventions. Goal setting theory predicts that, under certain conditions, setting specific difficult goals leads to higher performance when compared with no goals or vague, nonquantitative goals, such as "do your best." In contrast to the graduated, easy goals often set in health behavior change programs, goal setting theory asserts a positive linear relationship between degree of goal difficulty and level of performance. Research on goal setting has typically been conducted in organizational and laboratory settings. Although goal setting procedures are used in many health behavior change programs, they rarely have been the focus of systematic research. Therefore, many research questions still need to be answered regarding goal setting in the context of health behavior change. Finally, initial recommendations for the successful integration of goal setting theory in health behavior change programs are offered.

INTRODUCTION

Although goal setting procedures have been a part of health education programs for many years, sufficient attention has not been devoted to determine the utility of goal setting procedures, or to the optimal use of goal setting. Specific strategies for setting health-related goals are rarely described in the intervention research literature. Moreover, goal setting procedures for health-related behaviors are seldom linked with the large body of goal setting research carried out in industrial (focusing on job performance) and laboratory settings. Although these industrial and laboratory studies do not focus on

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Health Education Quarterly, Vol. 22 (2): 190-200 (May 1995)

outcomes considered relevant to health educators, many of the outcomes studied involve cognitive and behavioral elements similar in principle to those in health-related behaviors. In addition, the goal setting procedures are directly applicable to health behavior change and maintenance programs.

The purposes of this article are to (1) examine the mechanisms underlying behavior change and maintenance through goal setting, (2) examine the necessary conditions for effective goal setting, and (3) offer recommendations for developing goal setting strategies in health behavior change and maintenance programs. It is important to note that we are not advocating exclusive use of goal setting in health education programs. We suggest that goal setting be viewed as one component of a larger, orchestrated group of behavior change and maintenance strategies (e.g., skills development, education, relapse prevention, reattribution training).

There are not enough controlled studies of goal setting in the health behavior area to draw conclusions regarding its efficacy in this context. In the more general area of human performance, however, careful reviews and meta-analyses have been conducted;[1-4] enough is known to make practical initial recommendations for the inclusion of specific goal setting strategies in health behavior change and maintenance programs.

GOAL SETTING AND GOAL ACHIEVEMENT

Lee, Locke, and Latham[5] define a goal as "that which one wants to accomplish; it concerns a valued, future end state." Using this definition, it is clear to see that goals can vary by degree of difficulty—by both perceived and by actual standards. Goals can also vary by degree of specificity, or degree of precision required by the goal. For example, a vague smoking cessation goal might be to "quit smoking," whereas a more specific cessation goal would be "total abstinence from smoking for a period of 6 months." Goals can also vary in complexity. Goals requiring a large number of intended outcomes (e.g., dietary control for 6 months) are more complex than goals requiring a smaller number of intended outcomes (e.g., quitting smoking for 6 months).

Motivation Mechanisms and Goal Setting

Setting a goal does not automatically instill motivation to achieve the goal. For example, setting an exercise goal for a person not interested in exercising (i.e., a "precontemplator") will probably have little effect, or may even be counterproductive. Even if a person is interested in changing their behavior, setting a goal may not be effective if the goal conflicts with other goals. For example, the goal of quitting smoking for 6 months may conflict with other goals such as maintaining weight or coping with stressful situations. However, once a person is interested in achieving the goal, and is relatively free of significant goal conflict, goal setting can motivate higher performance than if goals were not set. This is a central tenet of goal setting theory: that for many tasks, setting specific goals to achieve a task, in combination with performance feedback, leads to higher performance than does no goal or a vague goal such as "do one's best."[2,6] Research in the field of human performance supports this tenet.

Locke and Latham[2] describe three motivational mechanisms by which setting goals has a beneficial effect on performance: effort, persistence, and concentration. In other

words, goal setting encourages a person to try harder and for longer periods of time, with less distraction from the task at hand. The three motivational mechanisms intensify as more difficult goals are set, leading to the linear goal difficulty–performance relationship shown in Figure 1. Thus another central tenet of goal setting theory is that, in general, the higher the goal set, the better people perform, even when the goal is very high (see Figure 1).[2,6] This linear relationship has been replicated in hundreds of studies in a variety of cultures, using a broad range of tasks.

In relatively straightforward tasks, one can see how the motivational mechanisms of effort, persistence, and concentration would influence achievement. For example, if you are trying to help a person to begin a walking regimen, it is likely that a properly set goal (e.g., to walk around the block seven times per week) would likely lead to greater adherence to the new walking regimen than being told or deciding to "do your best." Under the goal setting condition, it is plausible that the person would devote greater effort preparing for the walking regimen (e.g., clearing his or her schedule, telling others about the regimen), would focus more on the goal, and would persist in the face of inconvenience, boredom, or other possible barriers.

We would also predict that if the goal one is committed to is not achieved, dissatisfaction would occur, and that this dissatisfaction would motivate greater subsequent effort, concentration, and persistence. Taking the example of the walker again, we could envision dissatisfaction by the walker from not achieving the goal, resulting in greater effort the next time the regimen is initiated. This, in fact, is just what is found in laboratory studies of goal achievement processes.[2]

There are conditions in which goal setting does not enhance performance. The effects of goal setting and the goal difficulty–performance relationship are not as strong when (1) tasks that are complex for an individual are set as goals,[7,8] (2) the individual is unable to perform behaviors related to the goals,[9] and (3) as mentioned previously, the individual is not committed to the goals.[10]

The three mechanisms of goal setting—effort, persistence, and concentration—do not always lead to increased performance when the task is complex or exceptionally difficult for the individual. In fact, goal setting may interfere with the performance of such tasks.[11] Setting goals to achieve a behavior involving a great deal of technical skill may result in greater initial effort, concentration, and persistence. However, these mechanisms can lead to premature attempts at highly complex behaviors, leading to reduced self-efficacy and negative attributional states.[12,13,14] When a goal related to a complex task is not achieved, dissatisfaction occurs just as it does with simple tasks. However, dissatisfaction with previous performances appears to impair subsequent performance on complex tasks.[7,8,12,14,15]

Cognitive Mechanisms and Goal Setting

Setting high goals has cognitive, in addition to motivational, benefits in terms of stimulating strategic analysis.[2] Strategic analysis in this case refers to a cognitive activity that breaks down a goal into a concise series of tasks that can be approached in a stepwise manner. These tasks, in turn, can be framed as "proximal goals" or subgoals. A goal may be strategically analyzed either by the person alone, or with assistance from an outside agent. Either way, the function of strategic analysis is to develop and orchestrate a series of subgoals in the process of achieving a longer term goal.

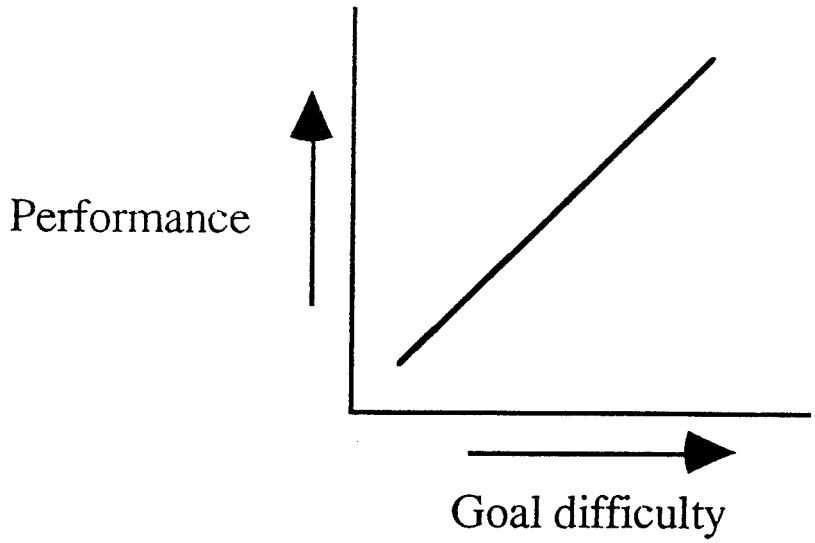

Figure 1. Suggested goal difficulty–performance relationship.

Subgoals cue a person to use a certain strategy that responds to effort. When a person is working on distal or long-term goals, subgoals may also provide the person with frequent feedback and may be more psychologically "real" than more global, complex, or distal goals. Subgoals are more tangible and can in this manner prevent hesitation or postponement of goal-related activities.[1] Furthermore, social rewards or self-gratifications of distal goals may be too far away in time. Setting subgoals makes the rewards come sooner. Setting subgoals also appears to enhance self-efficacy and satisfaction with performance.[16,17] However, the strategic analysis required to perform complex tasks is sometimes beyond the abilities of an individual. Research suggests that the goal difficulty–performance relationship is weaker for subjects with low actual ability.[2,6,9,11] Moreover, complex tasks are often perceived as impossible to achieve and people may think that it is inefficient to invest much energy in tasks they think they cannot perform. Previous failures can also elicit negative emotions that lead to low performance. These negative emotions might, for example, lead to an impairment in the use of cognitive capacities (e.g., information processing) and a shift in attention from problem solving or task-related activities to thoughts about personal shortcomings and/or the consequences of possible failure.[7,15,18] Under these circumstances, a person might also lower the goal, or judge the goal as "unimportant" and consequently abandon it.[19-22] Assisting a client in strategy development through careful analysis of complex tasks may circumvent these problems. Earley, Connolly, and Ekegren[23] found that training and information to assist in strategy development enhanced the effect of goal setting.

Studies by Wood and Bandura[18,24,25] show that perceived self-efficacy influences analytical thinking and problem solving on complex tasks. A person with high self-efficacy will develop more effective strategies than a person who feels less efficacious. Individuals with high levels of self-efficacy also learn more from feedback; they are better able to translate performance feedback into subsequent improved performance—the process of learning from one's experiences. Enhancement of self-efficacy produces greater effort and persistence in goal-related tasks, which, in turn, leads to higher actual performance.[7,16,26] Greater self-efficacy is also associated with setting higher goals.[25,27] Thus a positive cycle of enhanced self-efficacy leading to high goals, leading to high performance, leading to higher self-efficacy is suggested by these findings.

Self-Set versus Counselor-Set Goals: Who Should Set the Goals?

Goals can be assigned (e.g., by a dietitian, physical therapist, physician, health educator), arrived at through mutual participation of the client and health care provider, or the client can self-set a goal. Empirical evidence suggests that when goal difficulty is held constant, there are virtually no differences in goal commitment or performance regardless of whether the goal is assigned, set participatively, or self-set.[2,28] Research comparing the relative effectiveness in bringing about goal commitment and an increase in performance is needed in the health behavior area, since these findings run counter to existing clinical lore about the importance of client participation. Alexy[29] found that letting patients select their own health behavior change goals (offering a choice of health behaviors, including smoking cessation, weight reduction, exercise, alcohol reduction, seatbelt use, and breast self-examination) did not enhance behavior change over provider-assigned goals. Further studies with larger sample sizes and longer follow-up periods, however, are needed in this area before conclusions can be drawn.

One can think of situations in which self-set goals would result in poorer outcomes than provider-assigned goal setting. Self-set goals might be off base—either too easy or too difficult. A trained counselor who understands the barriers of the client and understands how other clients have addressed these barriers may have a more realistic sense of the range of goals to set. A counselor can also assist in the goal setting process through facilitating the strategic planning required to break complex goals into a series of simpler goals.[23]

On the other hand, the counselor may not always possess knowledge of the real difficulties a client is likely to experience (e.g., a difficult home situation, negative attributions for previous failures) and consequently set goals that are inappropriate for the client. Moreover, a process that sets a goal for the client may ultimately reduce the client's commitment to achieving the goal. Individuals may sometimes have a greater commitment to self-set or participatively set goals.[30]

A final possibility involves setting goals based on recommendations from health risk appraisals, personalized risk assessments or other "expert" systems. Research should be conducted on the relative advantages and disadvantages of using such automated procedures, as these processes often have high credibility among consumers and will be used with increased frequency in the future.

Goal-Related Feedback and Rewards

Effective goal-based programming does not end with the setting of a goal. Among the strongest set of findings in the goal setting literature is the importance of feedback. Setting goals and then providing no information about goal attainment defeats the rationale for setting goals. In many cases, goal progress feedback is a relatively simple, natural occurrence (e.g., quitting smoking or using seat belts every time one is in an automobile). In other cases, feedback is not as self-evident and may require external assistance (e.g., assessing intake of saturated fats or environmental tobacco smoke).

Goal setting and feedback may have a complementary nature. In a study of engineers and scientists, Latham and colleagues[31] found that performance feedback did not influence subsequent performance when no goals were set. Feedback made a substantial difference in performance only when goals were set. The type of goal feedback provided

is also of great importance. Bandura and Jourden[32] found that providing feedback about others (fabricated by the investigators to look better, the same, or worse than the subject's personal performance) in addition to feedback about one's personal performance had a strong influence on subsequent cognitions and behavior. Providing feedback that a person was doing progressively better compared to others (starting below and ending above the norm) enhanced self-efficacy, efficient analytic thinking, challenging goal setting, satisfaction with performance, and actual performance. Feedback that a person was doing worse compared to others produced the opposite, negative effects.[32]

What should the rewards be for achieving a goal? Bandura[1] distinguishes two kinds of motivators for achieving goals: the expectation of reduced outcomes, and the self-evaluative reactions to one's own behavior. The consideration of future outcomes generates courses of action that are instrumental in attaining valued outcomes. Regardless of external outcomes, however, individuals also make self-satisfaction conditional on a selected level of performance, creating their own incentives to persist until their performances match internal standards. This orientation on self-mastery and learning is likely to be sustaining because the incentives are not conditional on unstable environmental reinforcers.

Focusing entirely on external outcomes (e.g., money, succeeding over others) may shift a mastery/learning orientation to a competitive/evaluative orientation. These different orientations appear to influence long-term outcomes of goal setting. Research in school settings demonstrates that goal feedback structured in a competitive format leads to stable, ability-based attributions, with a subsequent decline in challenging goal setting and performance. Goals set in a competitive format can produce negative outcomes as compared to goals set in a mastery/learning format. Elliot and Dweck[33] found that goals focusing on learning (i.e., "you'll probably make a bunch of mistakes, get a little confused, maybe feel a little dumb at times—but eventually you'll learn some useful things") produced a mastery-oriented response to tasks, including the formulation of more sophisticated problem-solving strategies. Among subjects with low perceived ability (induced by the investigators), goals for the same tasks, framed in a competitive/evaluative format (i.e., "it will really show me what kids can do") resulted in ability-based attributions for their mistakes ("I'm not very good at this"), negative affect, and passing up opportunities to increase their skills on tasks.

Do external incentives enhance goal attainment? Reinforcement has long been considered a powerful method of inducing desired responses and has proven beneficial in some health behavior change studies (e.g., Mahoney[34]). However, a number of potential long-term problems may occur when building an incentive system into a goal setting program. First, the reward system in a clinical setting will probably not exist in the real world. Transferal of reward systems into normal environments is often discussed but rarely accomplished. Second, providing incentives may have a tendency to externalize the source of motivation, ultimately reducing goal commitment and performance. Curry and colleagues[35] found that smokers trying to quit for external reasons (e.g., family/peer/health provider pressure) had far lower success rates than subjects reporting internal reasons for quitting. If provided in such a way that commitment is not undermined, however, incentives may play a role in motivating persons to set goals in the first place. For example, Klesges, Vasey, and Glasgow[36] found that adding incentives to an employee smoking cessation program increased the participation rate among employees (and did not adversely affect cessation rates among participants), thus increasing company-wide smoking cessation rates.

SETTING GOALS IN HEALTH BEHAVIOR CHANGE INTERVENTIONS

Research

There are a number of research-based examples of goal setting to change health-related behaviors. These studies include workplace safety,[37] adherence to medical regimens for diabetes,[38] exercise,[29,39,40] smoking,[29] seat belt use,[29] and losing weight.[41-45] However, research studying specific elements of goal setting in health behavior change interventions is needed. We think that the goal setting area should receive further research attention and that results of this research would yield important knowledge for future health behavior change interventions. If goal setting strategies are to improve in the health behavior area, a number of research questions should be answered including the following:

1. Does the linear goal difficulty–performance relationship predicted by goal setting theory exist for health-related behaviors? Which health-related behaviors are most influenced and which are least influenced by goal setting procedures?
2. To what extent does commitment to a goal moderate the goal difficulty–performance relationship?
3. Who should set the goal (e.g., self-set, provider-set, recommendation from computerized health risk appraisal, participatory)? Does the source influence commitment to health-related outcomes?
4. Does strategic analysis to break complex goals into simpler, stepwise goals enhance the efficacy of goal setting?
5. What types of feedback (e.g., comparative vs. noncomparative) are important to encourage and reinforce goal attainment?
6. To what extent do attributions regarding the causes of success and failure influence continued work on a goal?
7. Is the setting of group goals more beneficial than the setting of individual goals in the same situation?

Many of these questions could receive significant attention through relatively small-scale research studies. Both field and laboratory-based studies would be relevant venues for addressing these questions. Advanced communications strategies, such as interactive computer-based interventions, could be programmed to provide varying types of goals and goal-based feedback.[46] In addition to provider-based research interventions, computer-based interventions offer the the advantages of providing standardized data collection, interventions, and feedback to subjects and are likely to be used more frequently in health education efforts.[47] Carefully designed instructional print materials could also incorporate goal setting procedures and could manipulate, through different materials, various goal setting alternatives.

Practice

Many of the health behaviors on which we typically intervene are highly complex and will require careful planning to develop an appropriate goal setting strategy. For example, in adopting a goal setting approach for a diet control program, one would first need to determine which dietary behaviors would be amenable to the motivational mechanisms

involved in the goal setting process. Does diet control behavior require effort, persistence, and/or concentration to accomplish, or is it a more complex behavior first requiring careful strategic planning? Adherence to a simple medication regimen, many exercise regimens, or seat belt use, for example, may not require a great amount of strategic planning. Achieving these behaviors may require largely effort, persistence, and/or concentration. These mechanisms, which are enhanced through goal setting, should help a person in changing relatively simple health-related behaviors. Other health-related behaviors, however, are complex and require strategic planning to break down the behavior into subbehaviors that involve simpler, effort-related tasks.

Rushing into a goal to reduce the amount of saturated fat in your diet may be nonproductive or even counterproductive. Dietary behavior is highly complex, involving a moderate to high level of knowledge of one's own eating behavior, problem foods to focus on, and dietary cues, among many other factors. Nutritional counseling generally involves careful assessment of diet, identification of problem foods, discussion of the environmental cues influencing consumption of these problem foods, and creation of an action plan. Based on our experiences in developing a dietary-based goal setting program, we would recommend that goals be considered only at the action plan stage. In other words, setting a goal to reduce one's fat intake by 15%, without careful attention to the behavioral factors associated with high-fat consumption, is likely to fail. However, proximal or subgoals set for specific behaviors related to specific problem foods should have a greater likelihood of success. Commitment to the goals and confidence in achieving them should be determined as part of the goal setting process.

Behavior change goals will probably be more effective than physiological status goals. For example, it is preferable to set a goal to increase one's exercise level rather than a goal to increase HDL cholesterol by a certain percentage. Similarly, for diabetic clients, it is preferable to set goals to increase their consumption of foods high in dietary fiber rather than to improve their blood glucose levels. Behaviors are more directly under the person's control and are more strongly related to effort, concentration, and persistence than are metabolic outcomes, which are also subject to many other influences.

Setting a goal to quit smoking could be a mistake, for example, since the goal is not really related to one simple behavior requiring effort, persistence, and concentration, but a series of tasks requiring preparation and strategic planning. For example, quitting smoking will require successful coping with cravings, physical withdrawal symptoms, and external cues to smoke, such as cigarette offers or being around other smokers. Baer and Marlatt[48] suggested proximal goal setting, focusing on abstinence for one week, followed by abstinence from smoking for the next 6 months. In setting goals for these activities, it would be important to determine commitment to the goal and self-efficacy for coping with perceived barriers to cessation.

Fundamental and applied research should be carried out to gain insight in these research questions. However, we also think that enough is known from existing research to make the following practical recommendations for the inclusion of goal setting in health behavior change and maintenance programs.

1. Conduct a careful analysis of the problem. Determine the client's commitment to addressing the problem. If commitment is low, the individual is unlikely to respond to a goal setting program. In such cases, it would be best to target another behavior to which the client is committed or to explore the client's ambivalence about the goal.
2. Analyze the tasks required to address the problem. Goal setting regarding outcomes for complex tasks can be counterproductive unless it involves specific subgoals for

behavior change. An important criterion to decide whether a task is complex is the degree to which strategic analysis of the task is required. Tasks requiring a great deal of strategic analysis should be considered complex; those largely requiring effort, persistence, and concentration may be considered simple.

3. For complex tasks, specific behaviors that effectively lead to performance of the task should be delineated and organized into a strategic action plan. This may be one of the most important forms of assistance given by a provider.
4. For each behavior selected, determine the individual's self-efficacy for performing the behavior. Determine the reasons underlying low efficacy, if present. Be sensitive to words or phrases relating the problem to internal, stable, uncontrollable states such as lack of ability, willpower, or self-control. Attempt to frame the behavior more in terms of skill development; explain how skills are developed through practice and learning from previous attempts.
5. When setting goals with a client, make sure that each goal selected is difficult enough to elicit significant effort from the client. The goals selected should be considered optimistic, but, at the same time, realistic. Goals should be set within a high range of the individual's self-efficacy level. Goals that are considered impossible will not be performed; on the other hand, goals that are too easy will not be taken seriously and will produce little satisfaction.
6. Make sure that feedback regarding goal attainment progress is provided regularly. A graphic approach—charting performance—has great intuitive appeal, since progress is vividly depicted. We recommend providing feedback only about the individual's own performance. Feedback about performance relative to others can create an evaluative goal attainment orientation—an orientation to be avoided if learning and mastery are the goals.

Although there is still much to be learned about the specifics of optimal goal setting for health-related behaviors, there is reason for optimism about the benefit of these procedures. In practice, goal setting is an implicit or explicit part of almost all health-related intervention. The question is not whether goal setting will be used, but whether it will be applied inconsistently and nonspecifically, or systematically with regard to research findings. A consistent theme emerging from our discussion of goal setting strategies has been the many positive outcomes that may be accrued through effective, carefully constructed goal setting procedures. We should continue to examine the effects of goal setting as it may relate to enhancements in self-efficacy, satisfaction, positive attributions for causes of successes and failures, effective strategic analysis, and subsequent challenging goal setting—outcomes that enhance general competence and empower individuals to address new challenges.

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