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The Role of Proximal Intentions in Self-Regulation of Refractory Behavior[1]

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The present experiment tested the hypothesis that self-regulation of refractory behavior varies as a function of goal proximity. Obese subjects were assigned to conditions in which they either monitored their eating behavior, monitored their eating behavior and set subgoals for reducing the amount of food consumed, or received no treatment. Within the goal-setting conditions, subjects adopted either distal goals defined in terms of weekly goal limits or proximal goals specifying the goal limits for each of four time periods during each day. Goal setting enhanced self-directed change as measured by reductions in both eating behavior and weight. The higher the goal attainments, the greater were the losses in weight. Proximal and distal goal setting yielded comparable overall results because the majority of subjects assigned remote goals altered this condition by adopting proximal goals to augment control over their own behavior. Within the distal goal-setting condition, the adherents to distal goals achieved relatively small changes, whereas those who improvised proximal subgoals for themselves attained substantial reductions on the multifaceted measures of self-directed change. The combined evidence lends support to the motivational and regulative functions of proximal intentions and highlights the reciprocal influence processes that operate in self-directed change.

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Among the conceptual issues receiving increasing attention in recent years is the role of intention in the self-regulation of behavior. An *intention* is defined here as the determination to perform certain activities or to attain certain future conditions. According to social learning theory (Bandura, 1977), intentional control of behavior operates principally through two cognitively based sources of motivation. The capacity to represent future consequences in thought provides a necessary condition for one cognitive source of motivation. Through cognitive representation of future outcomes individuals can generate current motivators for courses of action that are instrumental in attaining valued external incentives.

A second cognitively based source of motivation operates through the intervening processes of goal setting and self-evaluative reactions to one's own performances. Self-motivation arising from internal contingencies requires goals or standards against which to evaluate performance. By making self-rewarding reactions conditional on a certain level of behavior, individuals create self-inducements to persist in their efforts until their performances match self-prescribed standards. Perceived negative discrepancies between performance and standards create dissatisfactions that motivate corrective changes in behavior. Both the anticipated satisfactions of desired accomplishments and the negative appraisals of insufficient performances thus provide incentives for action.

Goals do not automatically activate the self-evaluative processes that govern performance. In the social learning analysis (Bandura, 1977), certain properties of goals determine the likelihood that self-evaluative contingencies will become enlisted in any given activity. The degree to which goal setting creates incentives and guidelines for performance is partly determined by the specificity of the goals. Explicitly defined goals regulate performance by designating the type and amount of effort required to attain them, whereas general intentions provide little basis for regulating one's efforts or for evaluating how one is doing.

The amount of effort and satisfaction that accompanies variations in goals also depends upon the level at which they are set. When self-satisfaction is made contingent upon attainment of difficult goals, more effort is likely to be expended than if easy ones are adopted as adequate. Although theorists agree that goal difficulty raises performance, they differ on whether the relationship between goal level and performance is linear (Locke, 1968) or curvilinear (Atkinson, 1966). Social learning theory distinguishes between end goals and subgoals. End goals serve a general directive function, but it is specific subgoals that determine people's immediate choice of activities and how hard they will work at them. The relationship between probability of goal attainment and effort expenditure will differ for subgoals and end goals. Subgoals that are challenging but attainable

through extra effort are likely to be most motivating and self-satisfying. Therefore, a high level of self-motivation can be sustained through progressively increasing subgoals even though the terminal goals are exceedingly difficult to realize (Jeffery, 1977). In an ongoing process, however, the perceived difficulty of an ultimate goal does not remain constant. The rate and pattern of progress alters subjective estimates of eventual success.

In the social learning view, the effectiveness of intention in regulating behavior depends largely on how far into the future they are projected. Immediate goals mobilize effort and direct what one must do in the here and now. Distal goals, on the other hand, are too far removed in time to serve as effective incentives and guides for present action. By focusing on the distant future, it is easy to put off efforts at change in the present—one can always begin in earnest or make amends tomorrow. Exercising control over behavior in the present increases the likelihood that desired futures will be realized. The stronger the momentary inducements against engaging in the goal-directed activity, the greater the necessity for proximal goals to enlist internal contingencies for actions that lead toward a future condition.

The effects of goal level and specificity on behavior have been amply documented under both laboratory and naturalistic conditions (Locke, 1968; Steers & Porter, 1974). However, goal proximity, which is perhaps the most critical factor in the self-regulation of behavior through intentions, has not been examined systematically. The present experiment was designed to eluicidate the role of goal proximity in the process of self-directed change.

Most of the research on goal setting involves performances that are readily amenable to voluntary control. It cannot be assumed that evidence of intentional control of easily manageable behavior is generalizable to goal-directed activities that are difficult to sustain over an extended period. For this reason, this study investigated the sustaining influence of proximal intentions on behavior that is notoriously resistant to change—namely, excessive eating behavior by people burdened with severe obesity (Stunkard, 1975).

Obese subjects were randomly assigned to conditions in which they simply monitored their eating behavior, monitored their eating behavior and set progressive subgoals for reducing the amount of food consumed, or received no intervening treatment. Within the goal-setting conditions, subjects adopted either distal goals defined in terms of weekly goal limits or proximal goals specifying the goal limits for each of four time periods during each day. It was predicted that goal setting would facilitate self-regulation of eating behavior compared to self-monitoring alone. It was further hypothesized that proximal goals would prove significantly more effective than distal goals in reducing eating behavior and body weight.

METHOD

Subjects

Sixty-six subjects (9 males and 57 females) were recruited through an advertisement in a community newspaper. Only persons who were at least 25% above ideal weight were selected for this project. They ranged from 26% to 138% above ideal weight, averaging 50% overweight. This study thus dealt with cases of severe obesity who were unable to exercise much control over their eating behavior. Their mean age was 43 years, with a range of 17 to 71 years.

There is some evidence that persons who have been obese since childhood, and have thus acquired an excessive number of fat cells, encounter greater difficulty controlling their eating behavior than those who become obese during adulthood (Stunkard, 1975). Subjects were therefore blocked on the basis of juvenile onset and adult onset of obesity and were then randomly assigned from blocks to one of four conditions.

Research with obese subjects is often plagued by differential attrition across conditions, especially if the treatments extend over a long period and require repeated assessments. Such differential rates of attrition seriously distort experimental findings because it is the less successful who are most likely to discontinue or to attend irregularly (Hagen, Foreyt, & Durham, 1976). Therefore, to increase commitment to the program, subjects made a $20 deposit, $5 of which would be forfeited for each absence. Of the 66 subjects, 2 were absent at least once and were therefore disqualified from the experiment. Several other subjects were also disqualified for failure to use counter consistently (5), for loss of a record card (1), and in one case the subject was inadvertently assigned the wrong goal for the week. Except for these few cases, all subjects performed all the activities required by their treatment assignment. The distribution of subjects across conditions was as follows: control (16), self-monitoring (14), distal goals (13), and proximal goals (14).

Orientation Session

All subjects, except those in the delayed treatment control, attended a group session during which they learned the rationale for the experimental procedures and how to record their food intake. They were told that by recording and reducing the number of mouthfuls of food and beverages they consume, they can gain control over their eating habits. After the general introduction, subjects read a manual, patterned after the one developed by

Fowler and his colleagues (Fowler, Fordyce, Boyd, & Masock, 1972), which informed them that the program was devised to help them lose weight gradually but steadily by teaching them to control the amount of food they ate, and thereby to establish eating patterns they could maintain on their own. Subjects then observed a demonstration of the correct way to use a wrist counter to tally the number of mouthfuls of food and beverage they consumed. They also completed a questionnaire assessing the history of their weight problem, their prior involvements in weight control programs, and the strength of their motivation to alter their eating habits. At the conclusion of the orientation session, subjects were measured for height and weighed on a standard medical balance scale to the nearest quarter pound.

Subjects practiced recording their food intake for 2 days before beginning the baseline measurement. The purpose of this practice period was to resolve any problems in using the counter before the formal study began. It also gave subjects an experiential basis for deciding whether or not they wished to participate in the program. Beginning with the baseline period, subjects came in individually at scheduled intervals to be weighed and to receive instructions for the procedures they were to follow until the next appointment. Two female experimenters conducted the study through its various phases.

Baseline Phase

In order to provide a baseline against which to measure the effectiveness of the treatment conditions, subjects were instructed to record on their wrist counter every mouthful of food and beverage that they consumed. The present study focused on how much, rather than what, subjects ate. However, to ensure that subjects were altering eating habits that would affect their weight, a designated list of foods that were very low in calories (e.g., beverages without cream and sugar, diet soft drinks, vegetable juices, fresh vegetables, and other low calorie foods) were exempted from the count.

One-half of the subjects recorded their cumulative food intake for the entire week. The other half recorded the number of mouthfuls consumed during each of four periods each day. These proximal time intervals included: (1) breakfast to lunch, (2) lunch to dinner, (3) dinner to 9:00 p.m., and (4) 9:00 p.m. to breakfast the next morning. Subjects were provided with record cards on which they recorded, depending on their treatment assignment, either their aggregate weekly count or the amount they ate each day during each of the four time intervals.

Subjects were weighed at the beginning and at the end of the baseline phase, which lasted for 1 week. To control for any possible variations in

weight due to extraneous factors, at each assessment subjects were weighed at about the same time of the day without shoes, jewelry, and outer clothing. Subjects received a chart for graphing their weight at weekly intervals.

Treatment Conditions

At the end of the baseline period, subjects were assigned to one of the following treatment conditions, each of which continued for a period of one month:

Distal Self-Monitoring. These subjects simply continued recording their food intake as they did during the baseline period. Because performance assessment is a necessary constituent of goal-setting activities, the self-monitoring conditions were included to determine what changes, if any, might be produced by intensive self-observation alone.

Proximal Self-Monitoring. These subjects also continued to record their mouthful count for each of the four daily time intervals.

The distal and proximal self-monitoring subgroups did not differ significantly during either the baseline or the treatment phases on any measure, so they were combined into a single self-monitoring group in the statistical analyses.

Distal Goal Setting. Subjects in this condition were given progressive weekly subgoals to meet: they were to reduce their food intake by 10% of their baseline aggregate amount, and by an additional 10% on each of the 3 succeeding weeks. To increase the strength of subjects' goal commitment, if they exceeded their weekly goal, they were instructed to reduce their food intake in the next week by the amount they had overeaten. If they had not made up for eating beyond their goal limit by then, they were to write off any remaining excess.

Proximal Goal Setting. Subjects in the proximal goal condition pursued the same goal levels as those assigned distal goals except that the subgoals were computed for each of the four daily time periods. Thus, these subjects reduced their intake by 10% of their mean baseline amount for each of the four time intervals during the 1st week, and by an additional 10% for each period on each of the 3 succeeding weeks. If they exceeded any of their subgoals, they were to reduce their food intake by a comparable amount in the next time period. Should they overeat so excessively that they could not make up for it in the next period, they had 2 days in which to do so. Then they were to write off any remaining excess.

Subjects in the distal conditions recorded their aggregate count at the end of the week on a record card; those in the proximal conditions recorded the number of mouthfuls of food they consumed in each of the time inter-

vals. The completed record cards were mailed to the experimenter every week. This procedure underscored the importance of keeping precise records of their eating behavior.

Subjects were again weighed midway through the treatment and at the end of the 4-week period. In addition, questionnaires were administered measuring the extent to which subjects altered their treatment conditions by adopting goals in the self-monitoring group, or by transforming distal goals into proximal ones in the remote goal-setting treatment. They also described any other strategies they might have devised for controlling their weight.

Delayed Treatment Control. Subjects assigned to the delayed treatment control group were weighed at the beginning and end of the experimental phase but received no intervening treatment. They were informed that they would be contacted later as openings in the treatment program developed.

Supplemental Phase

At the completion of the formal experiment, subjects who were previously in the self-monitoring, distal goal-setting, and control groups received the proximal goal-setting procedure. Those who were assigned originally to the proximal condition simply continued following their treatment program. They had the option, however, of either pursuing their previous goals or of raising them further if they had not as yet reduced their level of overeating sufficiently.

At the end of the transition week, the experimenter weighed each subject and planned an individualized program for them using the proximal goals format.

Fading Procedure

After subjects had gained control over their eating behavior, they received instructions for gradually reducing their reliance on recording with goal limits. During the 1st week they continued using the counter, but only in the time periods they tended to overeat. In the next 3 weeks they used the counter only in the potential overeating periods every 2nd, 3rd, and 4th day, respectively. After the 4th week, they could discontinue using the counter altogether but were instructed to monitor their weight and to reinstate the goal-setting procedure during overeating periods until they regained control over their eating behavior. Because the supplemental and fading procedures were conducted in an individualized fashion for the subjects' benefit, only the data obtained during the formal phase of the experiment are analyzed.

A number of the subjects in the proximal goals condition recorded their eating behavior regularly for 5 additional weeks of treatment and participated in the fading procedure for an additional month. Data from these subjects are also presented because they provide some evidence regarding the self-regulation of refractory behavior through proximal goals over an extended period.

RESULTS

Statistical analyses disclosed no significant initial differences between groups in percent overweight, absolute weight, or age. Nor did subjects show any significant changes in weight during the baseline phase either within or between treatment conditions. The effects of goal proximity on self-regulation were measured in terms of changes both in eating behavior and in body weight.

Regulation of Eating Behavior

The mean percent change in food intake was computed by dividing the number of mouthfuls eaten during the final week of treatment by the amount eaten during the baseline week. The changes achieved in amount of eating behavior under self-monitoring and goal-setting conditions are summarized graphically in Figure 1.

Intragroup analyses show that subjects in the self-monitoring ($t_{(13)} = 2.58$; $p < .05$), distal goal ($t_{(12)} = 11.48$; $p < .001$) and proximal goal ($t_{(13)} = 23.77$; $p < .001$) conditions all reduced their consumption of food and beverages compared to their baseline levels. However, analysis of variance of intergroup changes in eating behavior ($F_{(2,38)} = 10.87$; $p < .001$), further reveals that those who set goals for themselves achieved the greater reductions in eating behavior. Subjects who simply recorded how much they ate were surpassed by those in the proximal ($t_{(25)} = 4.43$; $p < .001$) and distal ($t_{(25)} = 3.45$; $p < .01$) goal-setting conditions, who did not differ significantly from each other.

Inspection of the questionnaire data revealed that, although subjects in the distal condition were instructed to focus their efforts solely on weekly goals, many in fact set highly proximal goals for themselves. Five judges rated independently the protocols in terms of whether subjects adhered to the remote goals or segmented the weekly goals into proximal ones. The raters were in virtually complete agreement ($r = .96$) that 7 of the 13 subjects in the distal goal condition set themselves proximal goals in terms of upper limits either for each meal, for different periods of the day, or for each day.

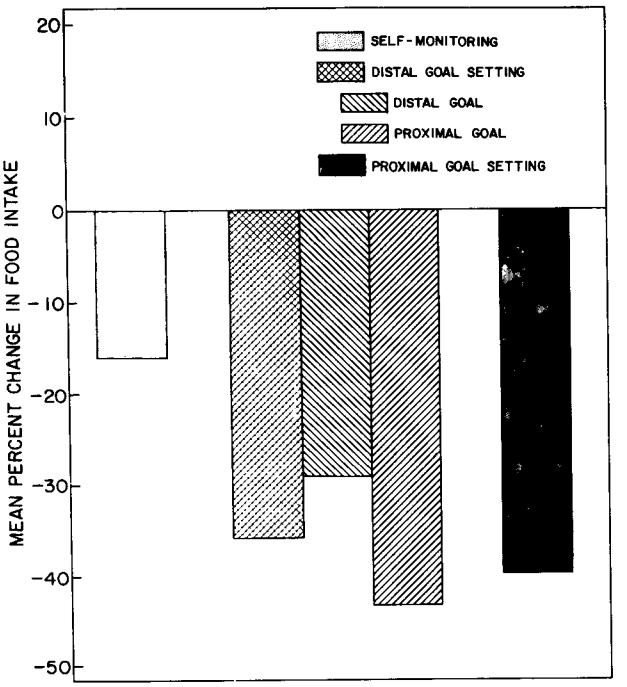

Fig. 1. Reductions in eating behavior achieved by subjects in self-monitoring and goal-setting conditions, and by adherents to distal goals and those who improvised proximal subgoals within the remote goal-setting condition.

As shown in Figure 1, subjects who pursued distant goals achieved smaller reductions in eating behavior, and did not differ in this regard from the self-monitoring condition. In contrast, those in the distal condition who set themselves proximal subgoals matched the achievements of the group originally instructed in the proximal system and surpassed the adherent remote goal-setters ($t_{(11)} = 2.44$; $p < .025$).

Goal Attainment

Percent of goal attainment was computed by dividing the amount actually eaten by the goal limit set for each of the 4 weeks of treatment. Over this period, subjects assigned to the distal condition exceeded their goal limit by approximately 3%, whereas those who had the benefit of proximal goal setting ate about 6% less than the upper limit ($t_{(25)} = 1.69$; $.10 > p > .05$). The difference in goal attainments is even more evident for the two subgroups within the distal goal-setting condition. Subjects

overate by 12% when they stuck to distant goals but reduced their food consumption 6% below their goal limit when they improvised proximal goals for themselves. This difference in degree of goal attainment is highly significant ($t_{(11)} = 2.67$; $p < .025$).

Weight Reduction

Changes in body weight were measured in terms of absolute number of pounds lost by the end of the treatment phase and by a weight reduction quotient. The latter index, which takes into consideration variations in height, weight, and degree of obesity, was computed by dividing the number of pounds lost by ideal weight.

Figure 2 presents the mean changes in weight displayed by subjects in the various conditions. The delayed treatment controls and the self-moni-

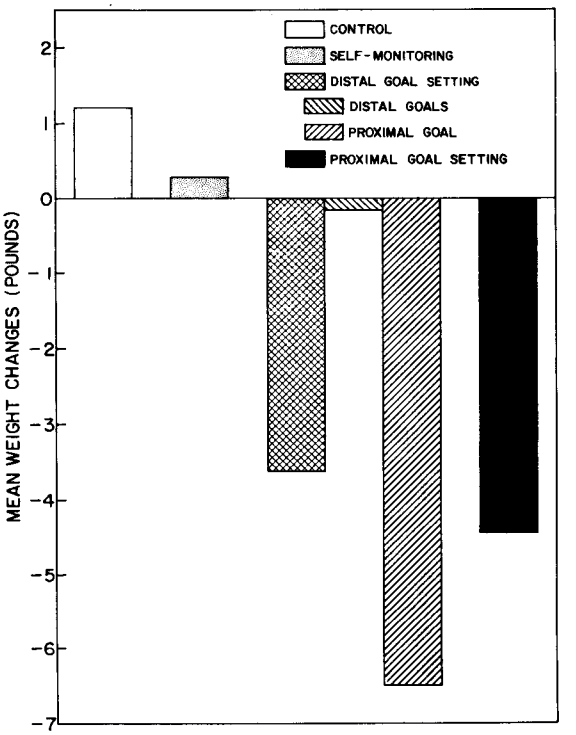

Fig. 2. Changes in weight exhibited by nontreated controls, by subjects in self-monitoring and goal-setting conditions, and by adherents to distal goals and those who improvised proximal subgoals within the remote goal-setting condition.

tors gained 1.19 lbs. and .29 lbs., respectively, but the increases in weight were not of statistically significant magnitude. Both distal ($t_{(12)} = 2.44$; $p < .025$) and proximal ($t_{(13)} = 5.39$; $p < .001$) goal setting, however, produced highly significant weight reductions.

Results of an analysis of variance performed on this measure ($F_{(3,53)} = 7.36$; $p < .001$) and further comparisons of pairs of means indicate that goal setting is a significant facilitator of self-regulation. The control condition differs from distal ($t_{(27)} = 3.28$, $p < .01$) and proximal ($t_{(28)} = 3.93$; $p < .001$) goal setting, as does the self-monitoring condition. In comparison with self-monitoring, subjects in both the distal ($t_{(25)} = 2.57$; $p < .01$) and proximal ($t_{(26)} = 3.19$; $p < .01$) goal-setting treatments lost substantially more weight. Controls and self-monitors did not differ from each other. Although subjects in the proximal condition shed more pounds than those in the distal group, the difference was not statistically significant. However, comparison of the two subgroups within the distal goal-setting condition reveals that subjects who improvised proximal goals for themselves lost a substantial amount of weight (6.5 lbs.), whereas those who adhered to distal goals achieved virtually no change (.13 lbs.). This differential weight reduction is highly significant ($t_{(11)} = 2.73$; $p < .01$).

The weight loss and reduction quotient yielded an identical pattern of results. In fact, the two measures were almost perfectly correlated ($r = .94$). Therefore, results based on the reduction quotient will not be presented because of their redundancy.

Correlational Analysis

Product-moment correlations were computed between indices of eating behavior, goal attainment, and weight reduction for the two goal-setting conditions, which produced the significant effects. Because the correlations obtained within these two groups were of comparable magnitude, the values were averaged by means of an r to z transformation.

The correlational analysis revealed that initial weight, baseline level of eating behavior, and age of onset of obesity were unrelated to weight loss during treatment. Nor was degree of weight loss correlated with such self-rated factors as frequency of participation in previous dieting programs, use of low caloric substitutes, and time spent in the household each day. However, changes in eating behavior proved to be significant predictors of weight reduction. The more subjects decreased their eating behavior ($r = .39$; $p < .025$) and the higher their goal attainments ($r = .45$; $p < .01$), the more pounds they lost. Had the recording procedure differentiated between foods varying in caloric value, the relationship between changes in eating behavior and weight would doubtless have been even higher.

The pattern of correlations with subjects' self-rated motivation to reduce their weight is also noteworthy. Variations in level of motivation did not affect weight loss when subjects simply counted how much they ate (r = .16) or kept track of their weight in the control condition (r = .00). By contrast, when subjects set explicit goal limits as guides for regulating their behavior, the more motivated they were to change, the more weight they lost (r = .45; $p < .01$).

Treated Controls

All of the control subjects were weighed at the end of the month, at which time the proximal goal-setting format was described in detail. Nine of the subjects expressed an interest in pursuing the full program. After completing the baseline recording of their eating behavior, they were instructed in the system of proximal self-regulation. As in the standard procedure, the subjects continually recorded their eating behavior, reduced their food consumption in the four daily periods by 10% on each of 4 successive weeks, and were weighed at the end of the month.

The beneficial changes exhibited by the treated controls replicate the results achieved by those who originally received the proximal treatment and by the subgroup within the distal condition who improvised proximal goals on their own. In contrast to the prior control month, during which these subjects gained 2 pounds, under proximal goal setting they reduced their eating behavior by 39% ($t_{(8)}$ = 7.08; $p < .001$) and lost an average of 7.1 pounds ($t_{(8)}$ = 2.93; $p < .01$) compared to their baseline level.

Extended Application of Proximal Goal Setting

Complete data are available for about half the subjects (6) in the proximal condition extending over a 2-month treatment and a 1-month follow-up, during which the proximal self-regulatory procedures were progressively phased out. These subjects did not differ during the treatment phase in amount of reduction in eating behavior and weight from the others in this condition who did not participate regularly in all the supplementary procedures. By the 3rd week of treatment subjects had reduced their food intake by 30% and effectively stabilized their eating behavior at that level on all succeeding weeks (Figure 3). The effects of the reduced food consumption are reflected in the continuing losses in weight, which are also shown in Figure 3. It is interesting to note that subjects maintained the same rate of weight reduction during the month when they were decreasing their reliance on the proximal self-regulatory system. By the end of this period, they had shed an average of 15 pounds.

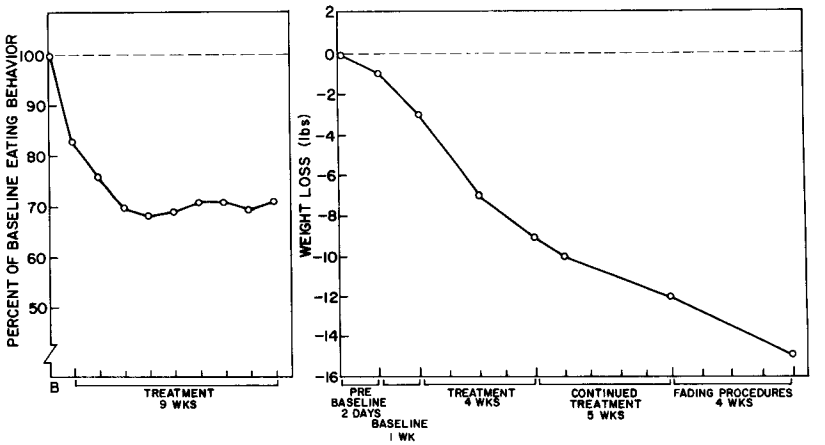

Fig. 3. Weight losses achieved by subjects using the proximal goal procedure during the treatment phases and after the proximal self-regulatory aids were progressively phased out.

At the time that the present study was initiated, a participant, who was not part of the experimental group, expressed an interest in using the proximal self-regulatory procedure. Over the years she had struggled valiantly to reduce her weight by about 10 pounds only to find her efforts repeatedly foiled by the lure of appetizing victuals. After completing the baseline recording, she used the aid of proximal goals until the desired reduction in weight was achieved, whereupon she discontinued the procedure. During the subsequent year she continued to record her weight daily and

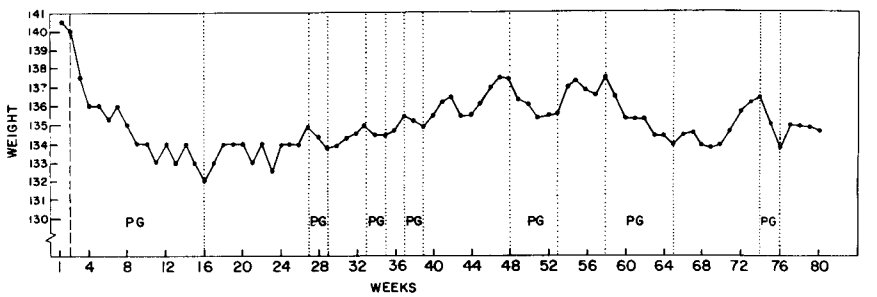

Fig. 4. Weekly weight changes during baseline (first two points on the graph), during periods when the proximal-goal procedure (PG) was used, and during intervening intervals when both recording of eating behavior and goal setting were suspended. Each point on the graph represents the mean of the daily weight scores for each week, for a period extending well over a year.

periodically reinstated the proximal self-regulatory procedure at her own discretion.

Figure 4 presents graphically the changes in weight at weekly intervals over this lengthy period. Under proximal goal setting the subject reduced her food consumption by 34%, and achieved progressive reductions in weight. This initial weight loss was well maintained over a period of three months, even though the proximal-goal system was no longer employed. Subsequent rises in weight were promptly arrested and the trend reversed by reinstating temporarily the proximal goals. As a result, the subject's weight never strayed too far beyond the selected optimal level.

DISCUSSION

Results of the present study lend validity to the general thesis that behavioral intentions or goals enhance self-regulation of behavior that is refractory to change. Subjects achieved substantial reduction in both eating behavior and weight under goal-setting conditions, but they continued to overeat and shed no pounds when they failed to set explicit goals for themselves even though they continuously monitored their eating behavior. The higher their goal attainments the greater were the reductions in weight. Further support for the influential role of goal-setting processes is provided by the motivational correlates of weight change. High motivation alone did not help subjects lose weight, whereas high motivation with the aid of goal setting did.

The supplementary evidence indicates that personal goal setting accounts for the apparent similarity of proximal and distal goals. More than half of the subjects who were assigned remote goals altered this condition by adopting proximal goals to enhance control over their own behavior. The marked differences between subjects who improvised proximal subgoals for themselves and the adherents to distal goals attests further to the motivational and regulative functions of goal proximity. Those who focused on distal goals rarely attained them, achieved relatively small reductions in eating behavior, lost no weight, and did not differ in these respects from subjects who simply recorded their eating behavior without the benefit of reductive goals. In contrast, subjects who set themselves proximal subgoals not only reduced substantially their food consumption but ate even less than their goal limit, and lost more than a pound per week. On all of these multifaceted measures of self-directed change, the informal proximal goal-setters resembled those who were originally instructed to use proximal goals in self-regulation.

Proximal goal setting altered eating patterns in several ways. It encouraged the inclusion of low caloric foods, which were exempted from the count in the preparation of meals ("I prepared more vegetables"), and otherwise fostered a lower caloric diet ("I have stopped using cream in coffee and sugar in tea, I eat less starches, more salads, and drink low caloric drinks"). In addition, such goals provided a continuing basis for regulating the amount of food eaten in the midst of plenty ("I have always eaten second helpings and by counting, I couldn't do that"). They also reduced indiscriminate eating to a more controlled pattern ("When I was reaching the total number of mouthfuls I am allowed I was very careful to choose just the food I enjoyed eating rather than finishing off everything on my plate"). Explicit proximal goals not only facilitate regulation of what, and how much, is eaten but support anticipatory control of eating behavior ("When I knew I'd be having 'eating occasions,' such as dinner at a restaurant or at a friend's house, I made sure I kept my prior intake low so that a small overindulgence would do no overall harm").

Previous research has shown goal setting to have variable effects on self-regulation of refractory behavior (Mahoney & Thoresen, 1974). Some divergence in results is not entirely surprising considering that studies differ on numerous dimensions, including the nature of the activities being regulated, number of supplemental strategies, strength of goal commitment, and the susceptibility of the behavior to voluntary control. Studies in which goal setting has failed to enhance self-directed change have relied almost exclusively on distal goals. The findings of the present investigation indicate that unless participants segment remote goals on their own into proximal subgoals the prospects of success are limited.

Many of the same comments apply to the inconsistent behavioral effects accompanying self-monitoring (Bellack, 1976; Kazdin, 1974; Mahoney, 1974; Romanczyk, 1974; Romanczyk, Tracey, Wilson, & Thorpe, 1973). From the social learning perspective, self-monitoring alone is unlikely to have any appreciable impact on behavior unless it occurs under conditions in which internal self-evaluative contingencies become engaged in the activity. These include conditions in which performers set goals for themselves, the self-monitoring is temporally proximate to the behavior being regulated, the self-recording has informative value for judging one's progress, and the changes in the behavior being monitored are valued. In other words, it is not that the self-monitoring procedures are "reactive," as commonly asserted, but that people are inclined to react evaluatively to their own performances once they adopt an evaluative standard. In the present study, the self-monitoring was informative and proximate, and the behavioral changes were highly valued. However, in the postexperimental

questionnaire subjects in the self-monitoring condition rarely reported devising performance subgoals for themselves. Thus, the most critical element for the engagement of self-evaluative contingencies—the adoption of proximal subgoals—was lacking.

The findings of the distal goal-setting condition raise another intriguing issue, namely, the dual process of the influenced self and the influencing self. Through instructional means subjects were influenced to adopt goals for their performances. However, many of them improvised on this knowledge to create their own goal-setting conditions that are especially conducive to effective performance. Indeed, a major challenge to the investigation of self-regulatory processes, whether they involve self-observation, goal setting, cognitive rehearsal, or self-generated consequences, is that people do not simply react to situational inducements, they transform and augment them. Theories that attempt, through regressive causal analysis, to reduce self-regulatory processes to situational control overlook the fact that people serve as agents as well as objects of change. Social learning theory adopts a reciprocal model of self-regulation in which cognitive, behavioral, and environmental influences operate as interlocking determinants of each other (Bandura, 1977).

Results of the intensive case study suggest that, in regulating their own behavior, people do not have to apply concerted effort continuously. After desired changes are achieved, they can be stably maintained provided individuals keep track of their behavior and apply explicit criteria for instituting self-corrective measures when needed. This is why an effective program of personal change should cultivate skills at self-direction. Since people constantly preside over their own activities, they themselves best know when to bring corrective influences to bear on their behavior.

This experiment was primarily aimed at elucidating some aspects of the mechanism by which intentions regulate behavior, rather than at evaluating a weight control program. Nevertheless, the rate of weight loss under the optimal goal-setting condition compares favorably with that typically achieved by formal treatment programs. There is some evidence (Romanczyk, 1974; Romanczyk et al., 1973) to suggest that a program combining proximal goals with informative, proximal self-monitoring through a convenient counting system such as caloric intake, might prove as effective in altering eating habits and managing obesity as the more elaborate multifaceted programs that have been devised for this purpose. Because excess weight can result from underexercise as well as overeating, an exercise program combining self-monitoring with proximal goal levels for amount of physical activity can also aid in the self-management of obesity. Whatever program formats might be adopted, proximal self-influence is apt to be a critical ingredient in successful achievement of self-directed change.

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