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Goal Origin: Effects of Initial Goal Origin and Shifts in
Origin

on Behavioral and Subjective Responses

by

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Dissertation submitted to the Faculty of the
Virginia Polytechnic Institute and State University
in partial fulfillment of the requirements for the degree of

Doctor of Philosophy

in

Psychology

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June, 1987

Blacksburg, Virginia

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HG 10-8-87

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(ABSTRACT)

Many previous studies have examined the effects of goal attributes on subsequent behavior and performance, with consistently positive findings. However, there are few studies of goal processes, i. e., how reactions to goal origin and subsequent shifts in goal origin are exhibited in behavioral and subjective domains. The present research viewed reactions to goal origins (self-set or assigned) and to shifts in goal origin within a theory of personal control/psychological reactance. In addition, two individual difference constructs, locus of control and Type A Behavior Pattern, were measured to study their relationships with the dependent variables.

A laboratory experiment was conducted to examine several hypotheses drawn from the psychological reactance literature concerning the joint effects of Initial Goal Origin and subsequent Shifted Goal Origin on subjective and behavioral responses. The subjective responses included task and performance satisfaction, goal acceptance, preferences for increasing employee self-control in the workplace, and preferred

method of goal-setting. Behavioral measures included two different operational definitions of performance: quantity and goal attainment.

The analyses revealed weak support for the hypotheses. The manipulation check composite revealed that the groups perceived the manipulations along the Initial Goal Origin dimension. There were statistically significant differences for goal acceptance, with the two shift groups displaying a crossover pattern between trial blocks. Simple interaction effect analyses conducted at each level of the Shifted Goal Origin factor revealed a statistically significant interaction between Initial Goal Origin and Trial Blocks for the Shift level only. Goal attainment scores revealed an apparently practical, yet statistically nonsignificant, effect for the three-way interaction of the manipulated factors over trial blocks. Moreover, the pattern of correlations between goals and performance reversed in the predicted direction over trial blocks for the two shift groups. However, there were no significant differences for the factors on the raw performance, satisfaction, or preference variables. The individual difference variables did not make a significant contribution to the prediction of the dependent variables after the effects of group membership were statistically controlled.

The results are discussed in terms of the limitations of the method used, the weak support for the framework which guided the research, and implications for further research and implementation of goal-setting systems in organizations.

ACKNOWLEDGEMENTS

I wish to acknowledge the contribution of all those who aided the long germination of this research. First, I would like to express my gratitude to Joseph A. Sgro for his perseverance and guidance. I would also like to thank the other members of the committee, Christopher Peterson, Dennis Hinkle, Stephen Zaccaro, and Roseanne Foti, for their support and assistance in reading numerous drafts and for the able comments that resulted. Steve Zaccaro assisted me in developing the goal-performance correlational hypothesis. They all helped to make this research better.

Concerning my fellow graduate students, a special word of thanks must go to _____ whose comments and support helped me through difficult hours. Also, I relied on the expertise and good nature of several colleagues, including

The data which provided the tests of the hypotheses would not have been collected if it were not for the hard work of several individuals.

and

all helped me in collecting the data reported herein.

Finally, my family has played a invaluable role in my education, and I appreciate their encouragement, both emotionally and financially.

To my parents, _____, and to all my siblings,

and _____ a sincere vote of thanks.

TABLE OF CONTENTS

Introduction	1
Goal-Setting and Perceived Personal Control	4
Research on Goal Origin	7
Conclusions on goal origin research	11
Psychological Reactance	13
Organizational science research involving reactance	15
A Model of Shifts in Goal Origin	17
Individual Difference Variables	19
Locus of control	20
Type A coronary prone behavior pattern	22
Hypotheses	24
 Method	 28
Subjects	28
Experimental task	29
Designs	29
Procedures	30
Shift manipulation	32
Measures	33
 Results	 35
Analysis of the Manipulation Check Composite	35

Tests of Hypotheses	36
Individual difference variables	42
Secondary analyses	43
Discussion	45
Methodological Limitations	45
Theoretical Limitations	47
Implications for Future Research	49
Implications for the Application of the Results	50
References	52

LIST OF ILLUSTRATIONS

1. The Two Experimental Designs	31
2. Manipulation Check Means by Condition over Trial Blocks	65
3. Goal Acceptance Means by Condition over Trial Blocks	66
4. Goal Attainment Means by Condition over Trial Blocks	67

LIST OF TABLES

1. Demographic Characteristics of the Sample	68
2. Reliabilities of the Self-report Measures	69
3. Analysis of Variance Summary for the Manipulation Check	70
4. Cell Statistics for the Manipulation Check Composite	71
5. Analysis of Variance Summary for Repeated Measurements	72
6. Cell Statistics for Repeated Measurements	73
7. Simple Effects Analysis for Goal Acceptance	74
8. Goal-Performance Correlations by Condition over Trial Blocks .	75
9. Analysis of Variance Summary for Nonrepeated Measurements	76
10. Cell Statistics for Nonrepeated Measurements	77
11. Hierarchical Regression Analyses for Performance Satisfaction	78
12. Goal Attainment-Performance Satisfaction Correlations	79

INTRODUCTION

In current models of work motivation, goal constructs are often used to explain motivation and performance (cf. Evans, 1986; Organ, 1977; Terborg, 1976; Terborg & Miller, 1978). Goals can direct effort (Locke & Bryan, 1969), can enhance strategy development (cf. Latham & Baldes, 1975; Terborg, 1976), and can clarify roles and performance criteria (cf. Quick, 1979). Therefore, goal-setting researchers try to develop explanations for the variation in goals or aspirations related to systematic variation in experimental conditions. The present research examined the effects of initial goal origin and subsequent shifts in goal origin on goal attainment, goal acceptance, and satisfaction within a framework of psychological reactance theory. The conceptual framework also included individual difference constructs that should be related to the elicitation of reactance.

Historically, there have been two major research programs in the study of goal-setting. The first program is based on Lewin's concept of level of aspiration and focuses on goals as dependent variables (cf. Frank, 1941; Lewin, Dembo, Festinger, & Sears, 1944). The other program is based on Locke's synthesis of Ryan's (1958, 1970) work on intentionality and Mace's (1935) work on incentives. Locke's research program focuses on goals as independent variables. A goal is defined as an intended level of performance and can encompass a deadline, a

budget, or any other conceivable standard (Locke, Shaw, Saari, & Latham, 1981).

Goals are further characterized by Locke et al. (1981) on two attribute dimensions: "content" and "intensity". Content attributes of goals include difficulty, specificity, conflict, and complexity of the goal(s). Intensity attributes refer to the scope of the cognitive processes that are involved in goal-setting. Goal acceptance and goal commitment are considered attributes of the intensity dimension.

As concrete examples of goal-setting, industrial workers often set personal goals on specific criterion dimensions, e.g., output quantity or output quality, or might be assigned goals by their supervisors. Also, students could be assigned grade point average (GPA) goals by parents or guidance counselors or they might establish their own goals. In addition, psychologists might establish therapeutic goals for clients or the clients might set their own goals. The difficulty and specificity of these goals, conflicts among multiple goals, and the complexity of the goals represent the content dimensions defined by Locke et al. (1981). Intensity aspects of these goals, on the other hand, include factors that influence an individual's cognition of the goal attributes over time. These factors include goal acceptance and commitment, the origin of the goal(s), and shifts in goal attributes over time.

There is substantial empirical support for the predictions of goal setting models. These predictions are confirmed by the results of over 100 experimental and correlational studies in both laboratory and field

settings (e.g., Latham & Yukl, 1975; Locke et al., 1981; Steers & Porter, 1974). A recent meta-analysis by Tubbs (1986) also yielded support for Locke's contentions. However, predictions related to the effects of goal intensity are rarely tested. Based on this lack of study, investigations of the processes involved in goal-setting are recommended by several writers (e.g. Austin & Bobko, 1985; Erez & Kanfer, 1983; Mitchell, 1979; Naylor & Ilgen, 1984).

One factor which might be influential in studying goal-setting processes is the origin of the goal. In other words, who establishes the attributes of the goal? For example, goal difficulty levels may be internally, externally, or jointly established (cf. Earley, 1985b; Erez & Kanfer, 1983; Naylor & Ilgen, 1984). Earley (1985b) uses "goal-setting methods" to refer to the origins of goals. In the discussion below, the term origin is used to refer to the source of an individual's goals, i.e., what person or persons were responsible for setting the goal difficulty level.

In addition, goal-setting writers often claim wide effectiveness and utility for goal-setting programs (e.g. Locke, Feren, McCaleb, Shaw, & Denny, 1980; Locke & Latham, 1984). However, these claims are usually made without consideration of potential negative outcomes related to goal-setting. It is possible that there are drawbacks associated with different types of goal-setting procedures. Assigning impossible goals, providing no feedback to workers, or creating situational constraints are examples of such inhibiting factors.

There appears to be a need to integrate shifts in goal origin with other goal-setting constructs and to predict the effects of shifted goal origin on dependent variables. A rationale for the investigation of goal origin shifts is developed, partially based on a conceptual model of personal control in organizations (Greenberger & Strasser, 1986).

The present research takes as its points of departure from current goal-setting models (a) the lack of process research, (b) the potential for negative effects of goals, and (c) the effects of shifted goal origin on motivation. Moreover, although goal content dimensions are not neglected, goal intensity dimensions are the primary focus of the present research.

A laboratory experiment is then outlined to test hypotheses related to the effects of reactance (induced through shifts in goal origin) on goal acceptance, satisfaction, and performance. Relevant individual difference constructs are included in the conceptual framework.

Goal-Setting and Perceived Personal Control

Greenberger and Strasser (1986) constructed a dynamic model of personal control based on recent work in clinical, social, and organizational psychology. These writers supported their model with the large amount of evidence concerning the relationships between personal control and several different dependent variables, including performance, stress, and depression (Greenberger & Strasser, 1983, p. 164).

In the Greenberger and Strasser model, personal control is viewed as the beliefs of individuals that they can effect changes on the environment. This analysis is similar to the analyses of White (1959) on "competence" motivation, those of deCharms (1968) on the self-perceptions of "pawns" and "origins" and those contained in Deci's "cognitive evaluation theory" (e.g. Deci, 1975; Deci & Ryan, 1986). This cluster of theorists has converged on the notion that personal control over activities in a wide sphere of domains is beneficial for motivation, behavior, and satisfaction. Brehm's (1966) reactance theory is a special case of the overall personal control model, just as goal-setting is one domain of several in which personal control can be exercised in an organizational setting. Brehm's psychological reactance theory maintains that, not only do persons desire to maintain control over their behaviors, but that they are motivated to regain control when they perceive that it is threatened.

Specific evidence for the position that control is desired by individuals is presented by Rodin, Rennert, and Solomon (1980), who found that control was desired when it leads to positively valent outcomes. Skowronski and Carlston (1982) extended this finding in a series of three studies that manipulated outcome valence on choice and nonchoice trial blocks. The results of these studies suggest that individuals do perceive control differentials and do desire to maintain control.

Organizational science researchers have advocated increased self-control and lowered organizational control in the workplace. Mary Parker Follett, an early management theorist, has argued that the op-

timal form of an organizational control system involves a large self-management component (cited in Parker, 1984). Another early writer (Barnard, 1938) has argued that cooperation should guide the relations between managers and workers. Third, the empirical work of Tannenbaum (1968) suggests that organizational members consistently report desires for control, although as he points out, "organization is impossible without some form of control." Fourth, Lawler (1976) discusses some dysfunctional aspects of control systems and points out that self-control makes external control less needed in organizations. Thus, institutionalizing self-control systems through self-set goals could be a positive benefit for an organization.

The need to consider goals as a necessary component of self-management systems has been suggested by several investigators (e.g. Davis & Luthans, 1979; Manz, 1986; Manz & Sims, 1980). In many self-management cycles, individuals (a) establish standards (goals); (b) monitor and evaluate their progress toward goal achievement; and (c) provide self-reinforcement based on goal attainment (e.g., Kanfer, 1980). Therefore, if self-management is to be implemented successfully in organizations, systems of self-management must be accepted and implemented by individual employees. Since an organizational member's goal origin might shift over time, research that examines individual reactions to shifting goal-setting systems is theoretically and practically useful.

A potential avenue for research on self-control may be the origin of goal-setting. If perceptions of choice precede perceived control

(cf. Harvey & Harris, 1975; Steiner, 1979), personal goal-setting should provide free choice of goal difficulty levels. If the three goal origins, i. e., internal, joint, and external, are ordered along a continuum of perceived control, the assigned versus self-set goal origin provides the largest potential for a perceived discrepancy. Shifts in origin might increase the salience of loss or enhancement of control over goal difficulty levels.

Research on Goal Origin

The major concern of this research is whether shifts in goal origin will influence the way individuals behave. Goal origin refers to the source of a person's goal and can be divided into internal, participative, and external regions along a continuum of personal control over goal-setting methods (cf. Erez & Kanfer, 1983; Naylor & Ilgen, 1984). Shifts in goal origin might occur as a function of changes in supervision within work organizations. If a new supervisor is more task-oriented and directive than a former supervisor, a likely consequence is the shifting of goal origin from the workers to the supervisor. The converse might also hold true. Shifts in the origin of goal-setting over time may influence levels of goal acceptance and resultant cognitions through a mechanism of psychological reactance (Brehm, 1966), i. e., individuals might "react" against a perceived threat to their control of goal establishment and attempt to restore control over their goals.

According to the continuum of Erez and Kanfer (1983), participative or joint goal-setting is located between the extremes of external assignment and internal establishment of goals. Naylor and Ilgen (1984) also differentiate between internal and external sources of goals. Interest in comparing the effects of various goal origins has prompted several investigations (e.g., Latham, Mitchell, & Dossett, 1979; Latham & Steele, 1983; Locke, Frederick, Bruckner, & Bobko, 1984; Lopes, 1976).

However, several problems recur consistently in these studies. First, researchers generally have made static comparisons of joint and external origin levels using between-subject designs. Second, researchers often have failed to study several possible contrasts between goal origins, i.e., between internal and external origins or between internal and joint origins. Using the Erez and Kanfer continuum, there are three possible pairwise comparisons. Third, few studies specifically examined dynamic patterns of motivation under goal-setting over time. The effects of goal origin may not be observable unless there is a salient shift in the origin of goal-setting.

Two general propositions have been examined in research on goal origin. First, it has been argued that joint goal-setting methods may lead to the establishment of higher goals than other goal-setting methods (Latham, Mitchell, & Dossett, 1978). Second, others have argued that the effects of joint goal-setting on performance are mediated by goal acceptance and that an individual who has not accepted a goal cannot be influenced by that goal (Erez & Kanfer, 1983; Locke, 1968).

However, both groups of researchers have apparently not considered negative responses to goals that are rejected.

The results of research on participation in general (Locke & Schweiger, 1979), and participative goal-setting in particular (Latham & Steele, 1983; Locke et al., 1981), are inconsistent. These results do not provide strong support for the argument that participation in goal-setting should be widely used. In a review of approximately ten studies conducted by Latham and his colleagues, the major finding is that when goal difficulty is controlled through yoking, there are no effects for participation in goal-setting (cf. Latham et al., 1983).

Erez et al. maintain that a two-step process is operating in studies of joint goal-setting: (1) participation leads to acceptance of the goal, which leads to (2) performance increments (Erez, Earley, & Hulin, 1985; Erez & Kanfer, 1983; Erez & Zidon, 1984). In contrast to the Latham group, the Erez group consistently reports positive relationships between goal acceptance and performance. When goal acceptance is statistically controlled, they find no relationship between participation and performance. This finding suggests that goal acceptance mediates the effects of participation. A second study demonstrated support for the positive effects of information and choice factors on goal acceptance and performance (Earley, 1985). A third study (Erez & Zidon, 1984) demonstrated a predicted positive linear relationship between performance and goal difficulty when goals are accepted. When goals were not accepted, the investigators found that the relationship between performance and goal difficulty was negative.

Three other studies appear relevant to a consideration of goal origin. The first study (Bassett, 1979) used a simulation design to investigate the effects of (a) task goal level, (b) work schedule, and (c) choice over schedule and goal on output and error rates. Covariance analysis indicated that error rates were not related to the manipulated variables, but there were several significant effects on output rates. Specifically, the two-way interactions between Choice-Work Schedule and Task Goal-Work Schedule were statistically significant. However, Bassett (1979) also found that performance was highest in the non-choice level of the goal choice factor. Since Bassett's manipulations did not shift the goal origin, this factor was constant in this study. Additionally, goal acceptance and other attitudinal variables were not measured. The need to measure such variables is indicated by the results of Erez and her coworkers.

Cosier and Aplin (1980) found no reliable effects for goal choice or schedule choice on prediction accuracy. The effects of goal level (subject choice of goal difficulty levels) were statistically reliable, but this goal level effect explained only four percent (4%) of the variance in predictive accuracy. On the other hand, the repeated trials exerted a larger (also reliable) effect on prediction accuracy. Cosier and Aplin concluded that delegation of goal choice, which can be viewed as the use of an internal goal origin, may be beneficial since individuals appear to perceive goals as an important part of jobs. Unfortunately, this study also measured performance without assessing attitudes and did not manipulate the origin of goal-setting.

A third laboratory study used a single, assigned goal trial (external goal origin) followed by a second trial in which subjects were instructed that they could change their assigned goals (Locke, Frederick, Bruckner, and Bobko, 1984). Results showed that subjects with difficult goals on Trial 1 reported a greater desire to change goals than those with lower goals on Trial 1. Patterns of goal change indicated that, on the average, those with lower goals raised them and those with higher goals lowered them. Additional regression analyses showed that expectancy, previous assigned goals, pretrial performance score, previous performance, and desire to change goals contributed significantly to the estimation of Trial 2 personal goal levels. A problem with this study was that no reactions to the shift were assessed; another problem was that few trials were used to assess the effects of shifted goal origin.

Conclusions on goal origin research

In summary, three general conclusions about the literature on the effects of different goal origins are offered. First, much of the research on participation in goal-setting compares a "joint" origin to an external, assigned goal origin. The predominance of this type of comparison in the empirical literature implies that most research on the origin continuum has neglected a potentially useful comparison. Furthermore, most comparisons are static in the sense that there is no

shift in origin during the experiment. Second, relatively few studies examine the effects of internal goal origins (for exceptions, see Garland, 1983; Hannan, 1975; Lopes, 1976; Walker, Zaccaro, & Austin, 1985). Furthermore, only one study to date has studied the effects of shifts in goal origin (Locke et al., 1984). Third, Locke et al. (1981) argued that self-set goals are preferable to assigned goals in assessing the effects of personality constructs on goal-setting, since the freedom to set goals might reveal variance otherwise obscured by an external goal origin.

Thus, there are at least two major reasearch questions related to the effects of goal origins and shifts in goal origin. The examination of self-set goals stems from a focus on self-management tactics. Do individuals set difficult goals that match the content of assigned goals that are known to be effective? Are there performance and attitudinal differences attributable to the shifts in origin? Locke et al. (1984) examined whether a shift from external to internal goal origin influenced goals and performance, but only manipulated one shift direction. This oversight provides an incomplete picture of the effects of shifts in goal origin.

Locke et al. (1981) suggested that self-set goals might be superior to assigned goals in the study of personality constructs related to goal-setting systems. The variance associated with self-set goals should be greater than that associated with assigned goals, which usually do not vary within the conditions of an experimental design. This greater variability should increase the chances of finding significant

relationships. Moreover, shifts in goal origin might also increase these correlations through the elicitation of strong individual motivational states. The present research is concerned with reactions to such shifts, based on a framework of psychological reactance (Brehm, 1966).

Psychological Reactance

In a situation such as that described above, the origin of goal setting may be shifted from an individual to a supervisor, or vice versa, over time. The theory of psychological reactance developed by Brehm (1966) provides a framework for conceptualizing the loss of control associated with shifts in goal origin. The fundamental postulate of reactance theory is that perceived threats to freedoms elicit motivational states which affect behavior (Brehm & Brehm, 1981; Wicklund, 1974). These effects may be behavioral, subjective, or both. Behavioral responses stem from an individual's overt attempts to restore threatened freedoms. Subjective responses can include differential evaluation of the threatened/eliminated freedom, hostility, or increased perceptions of self-control (Brehm & Brehm, 1981, pp. 98-111). Below, the basic structure of reactance theory, its conceptual links to goal setting models, and relevant research studies are outlined.

There are two basic constructs in reactance theory: freedoms and threats. Freedoms consist of perceived free behaviors. They can be

defined as the set of behaviors that the person could engage in at a given time. Freedoms must be known to the person and must also be perceived as potentially executable (personal competence). Freedoms vary in their strength and in whether they are absolute (widely available) or conditional (limited scope). Thus, choice of work methods, selection of coworkers, or self-set goal establishment are arguable freedoms if perceived as such by those employees.

Threats, the second component of the theory, derive their meaning from perceived freedoms. Threats are forces on the individual that prevent the exercise of freedoms. Thus, threats can consist of social influence attempts, impersonal events, or behaviors on the part of individuals themselves that act to eliminate freedoms. Brehm and Brehm (1981) categorized threats into two groups, internal and external, based on the source of the threat. Internal threats are threats that individuals create themselves. For example, having a choice among alternatives can be perceived as a threat if such choices remove other alternatives. External threats are threats that are not self-generated. External threats are further classified under two continua: personal-impersonal (based on intentionality) and social-nonsocial (based on the interpersonal nature of the threat).

Brehm and Brehm (1981) proposed four general predictions from reactance theory. These four propositions, together with some supporting citations, are:

- 1) Freedoms are defined as expectancies of control (Hammock & Brehm, 1966; Brehm, Stires, Sensenig, & Shaban, 1966),

- 2) The amount of reactance aroused by a threat depends on the valence of alternatives available to the person, or on the importance of the freedom (Brehm & Cole, 1966; Brehm & Mann, 1975),
- 3) The amount of reactance aroused by a threat increases as a result of the number of freedoms threatened,
- 4) Freedoms may also be threatened by implication and the magnitude of reactance increases with implied threats. (Brehm & Sensenig, 1966; Sensenig & Brehm, 1968).

Linkages between psychological reactance and goal-setting appear to be straightforward. Internal goal origin can be viewed as a freedom with respect to task performance. If this freedom is threatened through a shift in goal origin, reactance theory may be useful in accounting for responses to the threat. These responses could include dissatisfaction or diminished output. It is important to note that reactance is a short term response to the perceived loss of freedom and that persistent threats are believed to lead to learned helplessness rather than continued reactance (cf. Wortman & Brehm, 1975). Therefore, the reactance effects mentioned above should only occur in a short time period and a continued lack of control over perceived freedoms (i. e. , goal-setting processes) should lead to learned helplessness in the workplace (cf. Martinko & Gardner, 1982).

Organizational science research involving reactance

Brehm and Brehm (1981) argue that applying reactance theory requires the explanation of freedoms and threats that are perceived by

individuals in a wide variety of contexts. These authors discussed power relations in organizations as an example of such an application of the theory. Brehm and Brehm (1981) cite work by several researchers who had studied reactance in organizational contexts (cf. Mowday, 1978; Organ, 1974; Rosen & Jerdee, 1975).

Organ (1974) examined the effects of social exchange and closeness of supervision in a simulated corporation. A positive social exchange effect was expected in the loose supervision condition; under close supervision a reactance effect was predicted. The data failed to support the predictions.

Rosen and Jerdee (1975) studied the effects of employee gender and type of appeal on the evaluation of grievances by managers. Two different grievances were made by male or female employees. The results revealed that managerial responses to grievances were a joint function of complainant gender and form of the appeal, however the results were in the reverse direction. The polite approach, executed by females, was the approach received least positively by the participants.

Mowday (1978) proposed and tested a model that related power motivation, characteristics of the influence attempt, and the effectiveness of influence to perceived upward influence. In a survey design, school principals were asked about perceptions of and intended actions for three common educational decisions: budget allocations, reclassification of a subordinate, and securing additional resources for a special project.

The analyses revealed significant effects for the type of decision but no effects for stage of the decision process. Manipulation, defined as an indirect influence attempt, was the method of influence that differentiated high and low influence effectiveness subjects. This study suffers from its correlational strategy, as reactance-producing threats were not manipulated. Also, there seemed to be little rationale for testing reactance theory, since few of the questionnaire items appeared to operationally define reactance constructs.

A Model of Shifts in Goal Origin

The concept of psychological reactance can be applied to the question of the effects of shifted origin in goal-setting. The elimination of the freedom to set goals, where the freedom to set goals was previously established, will elicit psychological reactance. In turn, reactance arousal should have effects on subsequent behaviors. A possible model of this process appears below:

FREEDOM	----->	FREEDOM	---->	REACTANCE	---->	BEHAVIORAL &
ESTABLISHED		REMOVED		AROUSAL		SUBJECTIVE
(INTERNAL ORIGIN)		(EXTERNAL ORIGIN)				EFFECTS

In order to investigate the research questions raised above, it is useful to elaborate a model of the relationships that might be involved in mediating responses to shifts in goal origin. First, individuals are familiarized with different tasks. This familiarity would

provide the individual with a feeling of competence, better capacity to estimate future levels of performance, and a more realistic level of aspiration. Individuals are then exposed to either external or internal goal origins. An internal origin is a choice trial, with the choice being one of goal difficulty level. Finally, the origin of goal-setting can be shifted or consistent.

If the shift is from an internal to an external goal origin, there should be lower perceptions of control over goal-setting and thus lower goal acceptance. This variation in goal acceptance should be greater than the minimal variation in goal acceptance that has been obtained to date (e.g., Erez & Zidon, 1984, pp. 69-70).

If the shift is from an external to an internal origin of goal-setting, participants are able to control their goal levels as desired. With this direction of shift in goal origin, expectations of control should be increased through the exercise of the freedom to set the goal in contrast to the previous experiences with an external goal origin. Some evidence to support this argument was provided by Skowronski and Carlston (1982), who showed that previous experience with choice leads to later preferences for choice. Thus, groups which shift from an external to an internal origin should exhibit greater goal acceptance (essentially the opposite of reactance). It is also expected that origin shifts per se would produce larger effects on reactance and satisfaction than consistent goal origin.

Some evidence to support the reactance prediction was provided by Stedry (1960), who found that individuals who were instructed to set

personal goals and then assigned goals tended to reject the assigned goals, and by Strube and Werner (1984), who found that reactance states undermined the relinquishment of control by subjects. When given false feedback indicating low performance to induce psychological reactance, subjects were less likely to relinquish control to a partner.

Individual Difference Variables

Most research on goal-setting phenomena is apparently guided by the "experimental" approach, which consists of applying uniform treatments to groups (Cronbach, 1957). Based on Cronbach's distinction, aptitude by treatment interactions (ATI's) are plausible rival hypotheses in many goal-setting experiments (Cronbach & Snow, 1981). That is, individuals may respond differently to the same experimental conditions. Where goal origin is studied, one class of individual differences that appears neglected is personality variables (Locke et al., 1981, p. 139).

However, there are at least three signs indicating that this focus has changed. Campbell (1982) recently called attention to the role of individual differences in goal-setting. There is also some evidence that individual differences are related to psychological reactance (cf. Brehm & Brehm, 1981). Weiss and Adler (1984) have also argued for the utility of examining individual difference (ID) variables within organizational research. These authors have noted further that the most

efficient use of ID variables in current organizational psychology lies in the embedding of such personality constructs within theories.

Although reactance theory was developed within an experimental tradition, this genesis does not preclude the incorporation of ID constructs within the model of shifts in goal origin. The Type A behavior pattern (Friedman & Rosenman, 1959) and locus of control (Rotter, 1966) should be related to the extent of reactance elicited by shifts in goal origin.

Locus of control

The construct of locus of control was defined by Rotter (1966) to reflect generalized perceptions of reinforcement contingency. Internals tend to believe that their own actions determine reinforcements, whereas externals tend to believe that reinforcements are contingent on environmental events. Brehm and Brehm (1981) concluded that internals are more resistant to influence and exhibit more reactance arousal than externals, especially in cases where the importance of the freedom is large. Internals, since they believe that reinforcement is largely contingent on their own actions, should prefer greater control over their goals. Research has also shown that the job satisfaction of internals is more affected by intrinsic job characteristics (i. e., challenge, job scope) rather than by extrinsic job characteristics such as pay (cf. Spector, 1982).

Ruble (1976) found that internals performed at higher levels on a clerical task (in triads) when allowed to participate in planning their own task performance. Externals performed better under the planning supervision of another person. Second, Runyon (1973) found that internals reported more satisfaction with participative styles of leadership while externals reported greater satisfaction with directive leadership styles. A third study found that internals complied less than externals under coercive supervision, but there were no differences reported for the noncoercive condition (Cravens & Worchel, 1977). Finally, a fourth study by Harrison, Lewis, and Straka (1984) examined the effects of choice and locus of control on task satisfaction. The analyses indicated that internals reported higher levels of task satisfaction when allowed a choice in performing a proofreading task. Externals tended to report greater task satisfaction under no-choice conditions.

Following the logic outlined above, it was predicted that individuals with an internal locus of control would prefer to maintain control over their goal origin and would therefore exhibit more behaviors associated with reactance. Those with an external locus of control orientation, however, were not expected to be as sensitive to control over goal-setting. In addition, an interaction was predicted, since it was believed that the shift would particularly affect internals due to their greater sensitivity to influence attempts.

Type A coronary prone behavior pattern

Type A Coronary Prone Behavior Pattern (CPBP) is defined as a motive to control behavioral outcomes (Glass, Snyder, & Hollis, 1974). According to a review by Matthews (1982), research has confirmed three components of the Type A behavioral profile: (a) competitive achievement orientation, (b) time urgency, and (c) hostility. Type A CPBP differs from locus of control in that the Type A CPBP reflects a motivational construct (Manuck, Craft, & Gold, 1978). Recent research suggests that Type A's and Type B's respond differently to threats to important freedoms (Carver, 1980; Rhodewalt & Davison, 1983).

Strube and Werner (1985) found that Type A's were less likely to relinquish control to a partner than were Type B's, especially when they were led to believe via false feedback that their partners had performed at a higher level. This finding provides evidence that Type A's desire control over outcomes and that their perceptions of control may be more sensitive than those of Type B's.

Strube, Berry, & Moergen (1985) used the same paradigm, where of pairs of individuals work independently and receive false feedback about their partner's performance as well as their own performance. This study added a performance evaluation phase to the design. Three levels of evaluation timing were manipulated: (1) before initial performances, (2) without knowing about a control decision, and (3) with knowledge of a control decision. After receiving feedback showing that their partner had performed at a superior level, Type A's were less

likely to relinquish control than Type B's in levels (1) and (2) but not with knowledge of the impending control decision. Strube et al. (1985) concluded that the tendency for Type A's to relinquish control depends on attention to relevant information before control decisions.

These findings suggest that several dysfunctional reactions might characterize Type A control decisions and decision processes. These dysfunctional results might occur in two ways: (a) the behavioral pattern may maintain day-to-day work problems such as failures to delegate, and (b) the relatively stable pattern might lead to the coronary problems that are linked to the Type A behavior pattern (Rosenman & Friedman, 1974, p. 272).

Finally, Miller, Lack, and Asroff (1985) discovered that Type A's prefer control and are willing to "do it themselves." In the first stage of their experiment, feedback level was manipulated. Participants were led to believe that a confederate had performed at a higher level on a reaction time task. Then, in the second stage, participants were yoked to receive aversive stimulation. The yoking was accomplished so that the participant could yield control of a switch that eliminated the aversive stimulus. Thus, the false feedback supported the adaptiveness of yielding control to a competent partner. Results showed that Type A individuals were less likely to yield control, even when it was functional to do so.

These findings, taken together with the body of theory accumulating on the Type A behavior pattern, suggest that desires for control and for the maintenance of perceived control play a major role in this

disposition. Type A individuals are also sensitive to control manipulations, thus they should react in a similar manner as do those subjects with an internal origin of control. It could also be the case that those individuals who score high on both the internal origin of control construct and on the Type A construct will manifest the most extreme reactions on the subjective dimensions assessed by self-report, while those low on both constructs should exhibit the least extreme reactions.

Hypotheses

Goal setting researchers have ignored the potential effects of past goal origin on reactions to subsequent shifts in goal origin. Thus, no research specifically addresses the potential role of reactance within the goal-setting paradigm. The purpose of the present study was to test several hypotheses related to behavioral and subjective effects of reactance elicited through shifts in goal origin.

Several hypotheses were based on the motivational nature of the reactance construct. The reasoning for these hypotheses is as follows. First, individuals are presumed to be motivated to attempt to regain control over freedoms if those freedoms are threatened. Second, if participants are shifted from a self-set to an assigned goal-setting method, the major prediction of this study was that individuals would reject their assigned goals relative to the group that shifted in the opposite direction. Therefore, two predictions are advanced concerning performance. The first pertains to the statistical correlation between

goals and quantity performance. In the reactance condition, the goal-quantity performance correlation should shift between the two experimental trial blocks. That is, the correlation should change from positive and significant to near-zero or negative between the first and second blocks of experimental trials, after the shift in goal origin has occurred. In addition, the reverse predictions can be made for the condition in which the shift in goal origin is reversed. That is, the pattern of correlations between goals and quantity performance should shift in the reverse direction for this group, which is experiencing an enhancement of personal freedom.

Another performance dependent variable is goal attainment. This measure represents the difference between the goal, or intended level of performance, and actual performance for a given trial or trial block. Individuals who experience reactance when their goal origin is shifted away from personal control may choose to reject their assigned goals and deliberately not achieve their goals. Thus, as well as subjective goal rejection effects, there may be performance reactions in response to shifts in goal origin.

Based on the previous discussion, the following hypotheses regarding repeated measures were tested:

- Hypothesis 1: Goal acceptance will vary as a function of shifted origin over the two trial blocks. That is, there will be crossover patterns on reports of goal acceptance for the shifted origin conditions, with higher levels reported for the internal origin trial blocks.

- Hypothesis 2: There will be a significant interaction between initial goal origin and subsequent shifts, such that goal-performance discrepancy scores will be highest for the reactance cell and lowest for the enhancement and consistent self-set cells.
- Hypothesis 3: Correlations between goals and performance will show opposite patterns over trial blocks for the two shift conditions, implying that the correlations will shift from a positive and significant magnitude during the self-set goal trial block to a nonsignificant magnitude during the assigned goal trial block.

Based on the conceptual linkages between goal-setting and psychological reactance developed above, this study tested the following hypotheses related to subjective responses.

- Hypothesis 4: If an internal goal origin is presented to participants, they will report higher task satisfaction than those individuals who experience an external goal origin.
- Hypothesis 5: If participants experience a shift from an external to an internal goal origin, they will report higher performance satisfaction, greater expectations of control over goal setting within the experiment, and higher goal acceptance than those participants who shift from an internal to an external origin.
- Hypothesis 6: Participants who shift from an external to and internal origin of goal-setting will report higher performance satisfaction than participants in the other three conditions.

Based on the previous discussion, the following hypotheses regarding the personality constructs were tested:

- Hypothesis 7a: Individuals with an internal locus of control will report a higher desire for control over goal-setting than externals.

- Hypothesis 7b: Internals will display more reactance than externals when shifted from self-set to assigned goals. This will manifest itself in an increment in explained variance when locus of control scores are added to hierarchical regression analyses that control for group membership.
- Hypothesis 7c: Internals will report higher levels of task satisfaction under self-set goal conditions and externals will report higher levels of task satisfaction under assigned goal conditions.
- Hypothesis 8a: Type A CPBP individuals will report a higher desire for control over goal-setting than Type B CPBP individuals.
- Hypothesis 8b: Type A CPBP persons will display greater reactance than Type B CPBP individuals when shifted from self-set to assigned goals. This effect will be shown as an increment in explained variance when Type A scores are added to regression analyses that control for group membership.
- Hypothesis 9: Individuals who are both Internals and Type A's will exhibit more reactance than those who are Externals and Type B's. This hypothesis predicts an interaction between the two personality variables.

METHOD

The present research examined different outcome constructs than those typically found in goal-setting research. These measures included: (a) task satisfaction, (b) performance satisfaction, and (c) preferences for goal origin. This selection was made because there is no compelling reason to expect differences in performance based on goal initial origin alone, although the possibility of such effects following shifts in origin has not been experimentally studied.

Pilot testing of the procedures and measures was undertaken in order to ensure that the various measures and manipulations were workable and to generate some normative data for the experimental task. Two potential confounds, task and goal difficulty, were controlled in the research design.

Subjects

The subjects were 160 undergraduates who received credit toward their grade in a course. Ninety-one males and sixty-nine females participated in the study; almost one-half (.49) of the participants were first year students. Distributions of the demographic variables did not differ significantly from chance levels across the four cells of the design, as shown by Table 1.

Experimental task

The experimental task involved word construction. Each task trial involved forming words from the contiguous letters in a 4 X 4 matrix (16 letters) in a 2-minute time period. The task was scored to yield a measure of objective quantity (e.g., words found). Furthermore, the task shows evidence of being intrinsically attractive to research participants (cf. Harackiewicz, Sansone, & Manderlink, 1985; Manderlink & Harackiewicz, 1984). The task was pilot tested on a sample of 133 undergraduates during the academic term preceding the collection of the present data. Task difficulty for the present study was controlled by constructing all trial blocks to have equal means.

Designs

The experiment consisted of two experimental designs. The first was a two-factor between-subjects design, with two levels of Initial Goal Origin (Self-set or Assigned) and two levels of Shift in Goal Origin (Shifted or Not Shifted). This design was used for the analysis of scales measuring task and performance satisfaction, goal origin preferences, attitudes toward increasing employee self-control, and self-set goals. Forty subjects were used per cell of the 2 X 2 design, yielding a balanced design.

The second design added a repeated measurement factor (consisting of two blocks of four trials) to the two between-subjects factors. This

design was used to analyze the performance data and goal acceptance self-reports, since the nature of the research hypotheses called for this design. The two designs are depicted in Figure 1.

Procedures

The research was presented as an investigation of the effects of various work procedures and personal characteristics on perceptions of tasks. Informed consent was obtained prior to the start of the study in accordance with established procedures (APA, 1982). Debriefing was carried out in two phases: (1) initially following each session, and (2) a longer, written explanation obtainable after the completion of data collection. Subjects were informed that they would be allowed to view their data at a time after data collection was completed.

The data were collected in three major phases: (a) the administration of informed consent and preliminary measurements; (b) the experiment proper; and (c) the administration of the post-experimental questionnaire. Three of four research participants were randomly assigned to treatment combinations; the exception was the individual who was run first each day of data collection. This subject was assigned to the Internal Origin-No Shift condition and his or her self-set goals were used to control for assigned goal difficulty levels of the remaining participants. During the experiment proper, participants first performed a practice block of four trials during which no goals were established. Then, a second block of four trials was conducted.

Design 1: 2 X 2 Factorial (Type CRF 2-2)

		GOAL ORIGIN SHIFTED? (Factor B)	
		YES	NO
INITIAL GOAL ORIGIN (Factor A)	INTERNAL		
	EXTERNAL		

Design 2: 2 X 2 X 2 Split-plot Factorial (Type SPF 22-2)

		GOAL ORIGIN SHIFTED? (Factor B)		
		YES	NO	
INITIAL GOAL ORIGIN (Factor A)	INTERNAL	SS-ASS	SS-SS	TRIAL BLOCKS (Factor C)
	EXTERNAL	ASS-SS	ASS-ASS	

Figure 1. The Two Experimental Designs

During this block, one-half of the subjects were exposed to an external goal origin, while the other half were exposed to an internal goal origin. Next, a third block of four trials followed, during which half of the participants remained under a consistent goal origin while the other half were shifted to the opposite goal origin.

Shift manipulation

The shift was accomplished by changing the origin of goal-setting just after the participants had either established their personal goals or had been assigned external goals for the final Trial Block. Participants in the Shifted Origin conditions were interrupted and told that they were supposed to be in a group which received the opposite goal origin. They were either assigned goals or asked to set their own goals, depending on the direction of the shift. Consistent Goal Origin subjects were not interrupted after they set their goals for the second trial and proceeded as they had during the first Trial Block.

Participants received feedback on quantity performance for each trial and by trial blocks. Delivery of the feedback was accomplished by asking participants to write the number of words that they found after each trial was completed and after each trial block was completed by having participants sum the four trial totals.

After the final block of four trials, participants were asked to generate four personal goals for an upcoming Trial Block (which was not actually conducted). They then completed a 61-item questionnaire con-

taining the scales that served as dependent variable and manipulation check measures. Participants were then partially debriefed and pledged to confidence.

Measures

Three categories of response measures were used: (a) individual difference and concomitant variable measures; (b) manipulation checks on the independent variables; and (c) performance, satisfaction, and goal acceptance. The concomitant variables were measured prior to treatment and intended to increase the precision of the design.

At the beginning of the experiment, subjects completed a demographic questionnaire, Rotter's (1966) Locus of Control scale, and the Jenkins Activity Survey (Krantz et al. 1974). In addition, other measured covariates were the scores on the practice trials, on an Embedded Figures Exercise (Karp, 1962) and on a Vocabulary Exercise. Finally, participants were asked to respond to a dichotomous item which asked if they had any experience with the game on which the task was based.

The measurement of perceived control over goal-setting served as a check on the manipulations. A six-item Likert scale was used to assess participant perceptions of control over goal-setting methods during the experiment.

One performance dependent variable was performance quantity scores, which were operationally defined as the number of words con-

structed on each trial. A second measure of performance was constructed by subtracting goal levels from performance scores for each trial. A negative value for this variable meant a failure to attain the goal for that trial, while a score of zero and above indicated meeting or exceeding the goal. Both performance measures were aggregated over trial blocks.

Task and performance satisfaction were assessed with a ten-item semantic differential scale developed by Stone (1977). This scale has been used before and possesses some evidence for reliability and validity. This scale does not confound task description with affective evaluation. The same ten items were presented to subjects twice: (a) for task satisfaction, anchored by "This task" and (b) for performance satisfaction, anchored by "My performance". Goal acceptance was measured twice, immediately after goal establishment for the first and second experimental trial blocks, using a four-item scale used previously by Earley (1985a). Summated total scores were used for all analyses.

RESULTS

One-way analyses of variance were conducted on several variables to check for mean differences. These analyses revealed no significant effects for groups prior to the manipulations, strengthening the argument that the randomization procedures were effective.

Internal consistency reliabilities for the self-report and individual difference variables were estimated with Cronbach's alpha coefficient. Scale characteristics and reliability estimates are presented in Table 2. The estimated reliabilities for the goal acceptance scale were .77 and .80 for the respective Trial Blocks. The estimated reliabilities for the task and performance satisfaction scales were high (.93 and .94, respectively) and the manipulation check composite also exhibited acceptable levels of internal consistency (.76). These values are mostly acceptable for research purposes; the exceptions are the Vocabulary Skills Test (.62), the Goal Origin Preference composite (.59), and the Increasing Employee Self-Control scale (.67).

Analysis of the Manipulation Check Composite

The manipulation check composite consisted of six 7-point Likert items, which assessed participant perceptions of control over goal-setting methods. A two-way analysis of variance (Initial Origin X Shifted Origin) on this composite indicated a significant two-way

interaction $F(1,156) = 15.13, p < .0001$. The interaction accounted for seven percent (7%) of the variance in manipulation check scores. Table 3 shows the summary of this analysis and Table 4 presents the relevant statistics. Inspection of the group means, which are plotted in Figure 2, reveals that the consistent self-set goal condition on the average reported the greatest perceived control ($M = 33.45$), while the Assigned/Self-set shift condition mean ($M = 28.47$) was intermediate and the means of the consistent assigned origin and Self-set/Assigned shift condition were lowest (M 's = 26.42 & 27.47).

Tests of Hypotheses

Before conducting overall tests of the hypotheses, the assumption of homogeneity of within-group regressions was tested for practice trial scores as a potential covariate for raw performance and goal attainment scores. The results of this analysis revealed no interaction of covariates and treatment for raw performance scores. However, when the analysis was conducted for practice scores with goal attainment scores, a significant three-way interaction was observed. The relevant test statistics were as follows: (a) Trial Block 1 $F(3,152) = 5.65, p = .0011$, and (b) Trial Block 2 $F(3,152) = 3.55, p = .0159$. Therefore, the use of analysis of covariance with practice scores as the covariate was appropriate for raw performance scores and inappropriate for goal attainment scores.

To report the tests of hypotheses, each hypothesis will be restated and the appropriate analyses for testing the hypothesis will be given. Then the results of the test will be stated.

Hypothesis 1: Goal acceptance will vary as a function of shifted origin over the two trial blocks. That is, there will be crossover patterns on reports of goal acceptance for the shifted origin conditions, with higher levels reported for the internal origin trial blocks.

Hypothesis 2: There will be a significant interaction between initial goal origin and subsequent shifts, such that goal-performance discrepancy scores will be highest for the reactance cell and lowest for the enhancement and consistent self-set cells.

Hypotheses 1 and 2 predicted significant interactions between Initial Origin and Shifted Origin on goal acceptance and goal attainment scores over Trial Blocks, with the effects of loss or enhancement of control being shown mainly along the Shifted Origin factor. The tests of these hypotheses were conducted using 2 X 2 X 2 analyses of variance.

The results of the analyses on these three measures are summarized in Table 5, with the relevant condition statistics presented in Table 6. Goal acceptance, measured twice with a four-item composite, showed a statistically significant three-way interaction, $F(1, 155) = 16.29$, $p < .001$. Figure 3 displays a plot of the cell means for goal acceptance over the two trial blocks.

Since a significant three-way interaction was observed, followup analyses were conducted to isolate the source of the interaction. The first step was to perform two-factor analyses at each level of the Shifted Origin factor. The results of this followup analysis are re-

ported in Table 7. The analysis revealed a significant interaction between Initial Origin and Trial Blocks at the Shift level, $F(1,78) = 13.75$, $p < .001$. No significant effects were observed at the No Shift level. Interpretation of this interaction via the condition means suggests that a crossover occurred, with the reports of goal acceptance increasing over Trial Blocks for the Assigned/Self-set group (from 21.27 to 23.60) and decreasing over Trial Blocks for the Self-set/Assigned group (from 22.30 to 21.25). Thus, Hypothesis 1 was supported.

For goal attainment scores, there was no statistically significant overall interaction observed, although the probability value for the three-way interaction was .063. Furthermore, inspection of the condition means for goal attainment over Trial Blocks in Figure 4 reveals an apparently "practical" yet statistically nonsignificant effect. That is, a crossover occurs for the two shift cells such that the reactance condition mean goes from +3.00 to -3.17, while the enhancement condition mean goes from -5.85 to -1.85. Thus, although these latter participants missed achieving their goals by an average of two words on the second trial block, they did improve by about four words on the average between the first and second trial blocks. No similar pattern was observed for the consistent origin cells. The results do not support Hypothesis 2, although the practical crossover effect is suggestive of an effect. In addition, there were no significant effects of the manipulated factors on raw performance scores. The lack of effects

appeared to be due to the large within cell variability of the experimental task.

Since the previous analyses were conducted on aggregate scores, they may not have been as sensitive to the conditions occurring directly at the trial level. A more appropriate analysis is one which tests the systematic between-group variance associated with the shift in goal origin between Trials 8 and 9 with a better estimate of experimental error. This analysis was performed for quantity performance and goal attainment scores. The results of the analysis indicated no significant three-way interaction.

Hypothesis 3: Correlations between goals and performance will show opposite patterns over trial blocks for the two shift conditions, implying that the correlations will shift from positive and significant magnitude during the self-set goal trial block to a nonsignificant magnitude.

Hypothesis 3 predicted a significant crossover of goal-performance correlations for the reactance and enhancement cells over Trial Blocks. Tests of dependent and independent correlations were performed to test this hypothesis. Table 8 presents the applicable zero-order correlations for all four groups. Inspection of the table reveals that, as predicted, the patterns of correlations for the two shift cells did reverse over Trial Blocks. The results of a test for dependent correlations indicated statistically significant within-group differences in correlations for both cells over Trial Blocks ($Z^* = 3.82$ for the reactance condition; $Z^* = 2.35$ for the enhancement condition); Second,

a Fisher's r to z transformation was used to test the difference between independent correlations within each of the two Trial Blocks. The independent group tests revealed significant differences at both time phases, with the Trial Block 1 difference in correlations significant at the .01 level of significance ($Z = 3.64$, $p < .01$) and the difference in correlations at Trial Block 2 significant at the .05 level ($Z = 2.27$, $p < .05$). This finding supports Hypothesis 3.

Despite the fact that this analysis revealed the predicted pattern, the correlations for the two consistent groups across Trial Blocks were puzzling. As Table 8 shows, the consistent internal origin group did not display a high positive correlation for both Trial Blocks, nor did the consistent assigned origin group reveal a coherent pattern. The consistent internal group's correlation between goals and performance was .52 for Trial Block 1 but only .13 at Trial Block 2. Meanwhile, the data for the consistent external origin group indicated zero correlation over the first Trial Block and a significant, negative correlation (-.32) over the second Trial Block.

Hypothesis 4: If an internal goal origin is presented to participants, they will report higher task satisfaction than those individuals who experience an external goal origin.

Hypothesis 5: If participants experience a shift from an external to an internal goal origin, they will report higher performance satisfaction, greater expectations of control over goal setting within the experiment, and higher goal acceptance than those participants who shift from an internal to an external origin.

Hypothesis 6: Participants who shift from an external to and internal origin of goal-setting will report higher performance satisfaction than participants in the other three conditions.

Hypotheses 4 through 6 predicted significant interactions between Initial Goal Origin and Shifted Goal Origin for several subjective report variables and the personally-generated set of task goals. Two-factor analyses of variance were conducted on these variables to assess the main and interaction effects of Initial Origin and Shift in Origin. The variables analyzed included task and performance satisfaction scores, reported self-set goals for the hypothetical third trial block, scores on the "Increasing Employee Self-Control" scale, and scores on the goal origin preferences scale.

The results of these analyses are summarized in Table 9, with the relevant condition statistics shown in Table 10. Few statistically significant effects were noted for any of the subjective response variables, although reports of task satisfaction indicated a main effect for Shifted Origin $F(1,156) = 4.89, p = .0285$. Inspection of the condition means revealed that participants who did not experience a shift in goal origin reported higher task satisfaction. Performance satisfaction and IESC scores revealed no significant effects when analyzed. Thus, Hypotheses 4 through 6 were not supported by these analyses.

Additionally, all participants generated self-set goals for four future trials of similar difficulty. The results of a two-factor analysis of variance on these goals revealed no significant effects for the manipulated factors or their interaction.

Individual difference variables

- Hypothesis 7a: Individuals with an internal locus of control will report a higher desire for control over goal-setting than externals.
- Hypothesis 7b: Internals will display more reactance than externals when shifted from self-set to assigned goals. This will manifest itself in an increment in explained variance when locus of control scores are added to hierarchical regression analyses that control for group membership.
- Hypothesis 7c: Internals will report higher levels of task satisfaction under self-set goal conditions and externals will report higher levels of task satisfaction under assigned goal conditions.
- Hypothesis 8a: Type A CPBP individuals will report a higher desire for control over goal-setting than Type B CPBP individuals.
- Hypothesis 8b: Type A CPBP persons will display greater reactance than Type B CPBP individuals when shifted from self-set to assigned goals. This effect will be shown as an increment in explained variance when Type A scores are added to regression analyses that control for group membership.
- Hypothesis 9: Individuals who are both Internals and Type A's will exhibit more reactance than those who are Externals and Type B's. This hypothesis predicts an interaction between the two personality variables.

The effects of the individual difference variables were assessed with a series of hierarchical regression analyses in which the effects of the manipulated factors were entered in the regression equation before the individual difference variables were entered. The test of the hypothesis is then conducted by examining the increment in explained

variance (SMC) associated with the full model. The two personality variables were uncorrelated in the total sample ($r = -.01$). The results of the regression analysis demonstrated no significant effects for either locus of control or Type A CPBP on either behavioral or subjective responses. No significant increments in explained variance were associated with the addition of these two variables to the prediction equation. This finding fails to support Hypotheses 7 and 8.

There were also no significant increments in the SMC due to the addition of the crossproduct term involving locus of control and Type A scores. Thus, Hypothesis 9 was not supported.

Secondary analyses

Several other analyses were conducted to follow up on certain speculation not related to the stated hypotheses; therefore, these analyses are frankly exploratory. For example, what was significantly related to reports of performance satisfaction was whether or not the participants attained their goals for Trial Block 2. In a regression analysis which controlled for group membership, gender, locus of control, and Type A scores, goal attainment scores for Trial Block 2 significantly increased the SMC between performance satisfaction reports and the linear combination of predictors ($F = 18.26$, $p < .0001$), increasing the squared multiple correlation from .042 to .145. A corresponding increment was not observed for task satisfaction scores. The results of this regression analysis are presented in Table 11. In ad-

dition, correlations within groups between goal attainment on Trial Block 2 and performance and task satisfaction are displayed in Table 12.

Another analysis was performed to test the cell variances across the two trial blocks. The results revealed that the variances for the shift groups were significantly different across Trial Blocks. An interpretation of this difference suggests that the variances were higher for the assigned goal trial blocks for both shift groups (t 's of -4.03 and 5.66, respectively, for the reactance and enhancement groups, $p < .001$ for both). No statistically significant differences in variances were observed for the consistent goal origin groups.

Regression analyses were also conducted to determine whether past goals and performance could predict the self-set goals that subjects had generated after finishing the experiment. Addition of past performance scores to a regression equation which already included group membership vectors resulted in an statistically significant increment in the squared multiple correlation (SMC) from .031 to .438, $F(2,154) = 55.76$, $p < .001$. Adding previous goals to the equation increased the SMC to .65, which was also statistically significant.

DISCUSSION

The hypotheses received weak support from the analyses. Only Hypotheses 1 and 3 were confirmed. Therefore, this section attempts to explain the absence of predicted effects based on methodological and theoretical grounds.

Methodological Limitations

Perhaps the most serious methodological limitation for the analyses involved the experimental task, which displayed a large inherent variability even over multiple trials. If we regard the F-value as the ratio of "signal" to "signal plus noise" then there may have been so much noise associated with the task that only a much larger systematic effect would have revealed the reactance effect. A larger number of practice trials might have reduced this variability. Application of analysis of covariance to the within-subjects phase of the analysis could be implemented for increased precision. Another solution would involve increasing the sample size (while assuming that the variance associated with the task remains the same), thus reducing the error variance. A more practical solution would consist of changing the experimental task to one that exhibits less variability, perhaps a commonly used goal-setting research task such as verbal fluency or card sorting.

Several of the measures exhibited low internal consistency, especially the scale used to assess preferences for goal origin. Since this scale has not been used before, the lack of systematic variance might have reduced the power of the statistical tests and may have led to some of the nonsignificant findings. Correction of this problem would require the development of more homogeneous composites.

Finally, the analysis conducted at the shift point between Trials 8 and 9 was more appropriate for short-term effects such as might be expected for reactance. However, the task was equated for difficulty at the level of trial blocks, and not at the level of trials. This suggests that there may have been a confound, task difficulty, which varied along with the shift in goal origin. Nonetheless, an examination of the means for Trials 8 and 9 (8.97 and 8.03, respectively) from the pilot study revealed that they were equal within sampling error limits. For goal attainment scores, there was a significant main effect for Initial Origin at Trial 8, such that those groups with a self-set goal origin experienced smaller discrepancies between intended and actual levels of quantity performance. These condition means were also above zero, implying goal attainment. However, this main effect disappeared after the shift and the groups exhibited almost identical goal attainment scores for Trial 9.

Theoretical Limitations

Another possible explanation for the failure to find significant results may lie in the theoretical framework that guided the research. The puzzling pattern of results implies that the effects of goal origin shifts are not yet completely specifiable. It may be that goal origin and shifts in goal origin are not important in the relationship between goals and behavior. Although the manipulation check composite appeared to reflect differences due to Initial Origin, these differences were not translated into behavioral or subjective differences on the response measures.

One need is for a stronger manipulation perceived along the Shifted Origin factor. This problem might be solved through modeling the experiment more along the lines of a work simulation, with actual supervisor-subordinate interactions (as opposed to the experimenter-subject interactions used in the present study). Recall that the manipulation were stronger for the pilot study (.26 vs .07), with the major difference between the two procedures the fact that the pilot study presented the manipulations to groups of four subjects, all in the same condition. It may be that the public nature of the pilot study manipulation increased the salience of the shift in goal origin. Another explanation may be that the participants did not regard the personal goal origin as a "freedom" in the sense that Brehm and Brehm (1981) define "freedoms".

Also, the fact that the predicted differences did not occur for most subjective variables is puzzling, since it may be easier for participants to react subjectively than to react behaviorally. Another possibility is that important variables which might have reflected the effects of goal origin shifts were not measured. One such variable might be goal commitment, which reflects motivation associated with the goal over time rather than initial acceptance or rejection. Along this line of reasoning, perhaps a trial-by-trial analysis would be more sensitive to the effects of reactance.

A second theoretical framework which also appears capable of explaining the present set of results is "control theory". This theory has been applied to industrial psychology by Lord and Hanges (1987) and to goal setting processes by Campion and Lord (1983). Control theory applied to goal-setting predicts that past behavior and social cues combine to influence goal difficulty levels. According to Campion and Lord (1983), goals that are accepted serve as reference standards for the evaluation of behavior/performance. These authors found support for several predictions derived from control theory in a study of proximal (test) and distal (course) goals with a college student population.

Given the strong influence of past behavior and goal attainment on future goals and affective reactions observed by Campion and Lord (1983), Locke, Frederick, Bruckner, & Bobko (1984), and by the present researcher, conceptualization and test of a model of shifts in goal origin within control theory seems warranted. In addition, should such

a test yield supportive results, a competitive test of personal control/reactance and control theory predictions might also be productive.

Implications for Future Research

Concerning further research, a first requirement is for conceptual replications of this study. Conceptual replications enable substantially similar tests to those conducted herein and also provide new information. One possibility would include adding another shift block for a total of three blocks, where the reactance and enhancement conditions would experience Self-set/Self-set/Assigned or Assigned/Assigned/Self-set Origin trial blocks to increase the salience of shifts in origin. A second possibility would include a participative goal-setting level to the initial origin factor. A third possibility would employ a "within and between" design involving simultaneous within-subject and between-subject components of an overall design. This design was first discussed by Grice and Hunter (1964) and was refined by Erlebacher (1977) and by Rosenthal and Rubin (1980).

The results of this experiment also have the capability to resolve inconsistent findings regarding the relationship between goal-setting and satisfaction (cf. Locke, Cartledge, & Knerr, 1970). In this study, goal attainment predicted performance satisfaction and not task satisfaction in regression analyses. This finding suggests that previous researchers may have been measuring the incorrect variables; whether

or not individuals achieved their goals and performance satisfaction are the more appropriate variables to be examined.

Although the laboratory experiment presents advantages for the causal interpretation of results, it is not without its disadvantages. The research described in this manuscript appears to be acceptable on three of the four validity types proposed by Cook and Campbell (1979). Specifically, the internal, statistical conclusion, and construct validity of the research were protected at the expense of external validity. Thus, one immediate question is the extent to which the present results are generalizable to other persons, settings, and variables.

To increase the external validity of research on goal-setting in general, field experiments testing these hypotheses might be performed. A second improvement might consist of implementing the present study within a group goal-setting framework. This paradigm might provide a more realistic view of performance situations in organizations and might easily be implemented as a business simulation.

Implications for the Application of the Results

Although the results must be qualified by the nature of the research design and the lack of support for the hypotheses, it is possible to speculate concerning actual work contexts. If an organization is interested in initiating goal-setting with its members, the origin of the goal is a factor which should be considered in the design and implementation of the program. Since the goals of the organization cannot

simply be assumed to be isomorphic with the goals of an individual, some consideration of the types of personal goals that may exist in organizations is crucial. The degree of congruence between these two sets of goals may have to be assessed in considering how best to implement a goal-setting program. Furthermore, levels of goal difficulty may have to be monitored so that organization members do not perceive inequities in the actual day-to-day administration of the program.

The findings of the present study suggest that previous performance levels and prior goals exert the strongest effects on future goals. Thus, supervisors should be trained to attend to these factors when assigning goals or consulting with subordinates concerning joint goal-setting. Training in supervision should include strategies and tactics for ensuring that attainable goals are established by the subordinates.

Finally, it cannot be overemphasized that goals are but one component of a motivational system in an organization. Other influences and their possible interactions with goals should be researched.

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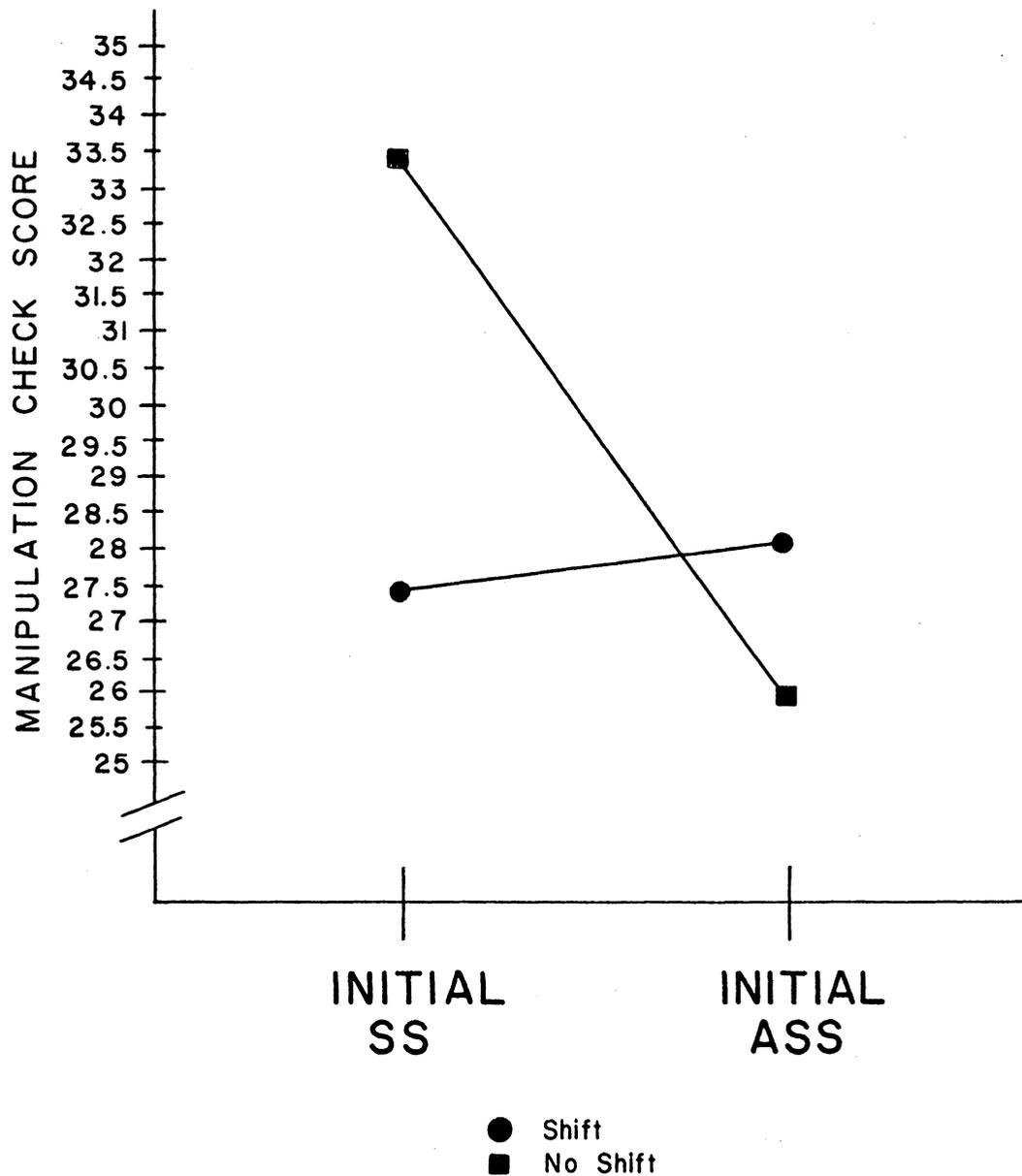


Figure 2. Plot of Manipulation Check Means by Condition

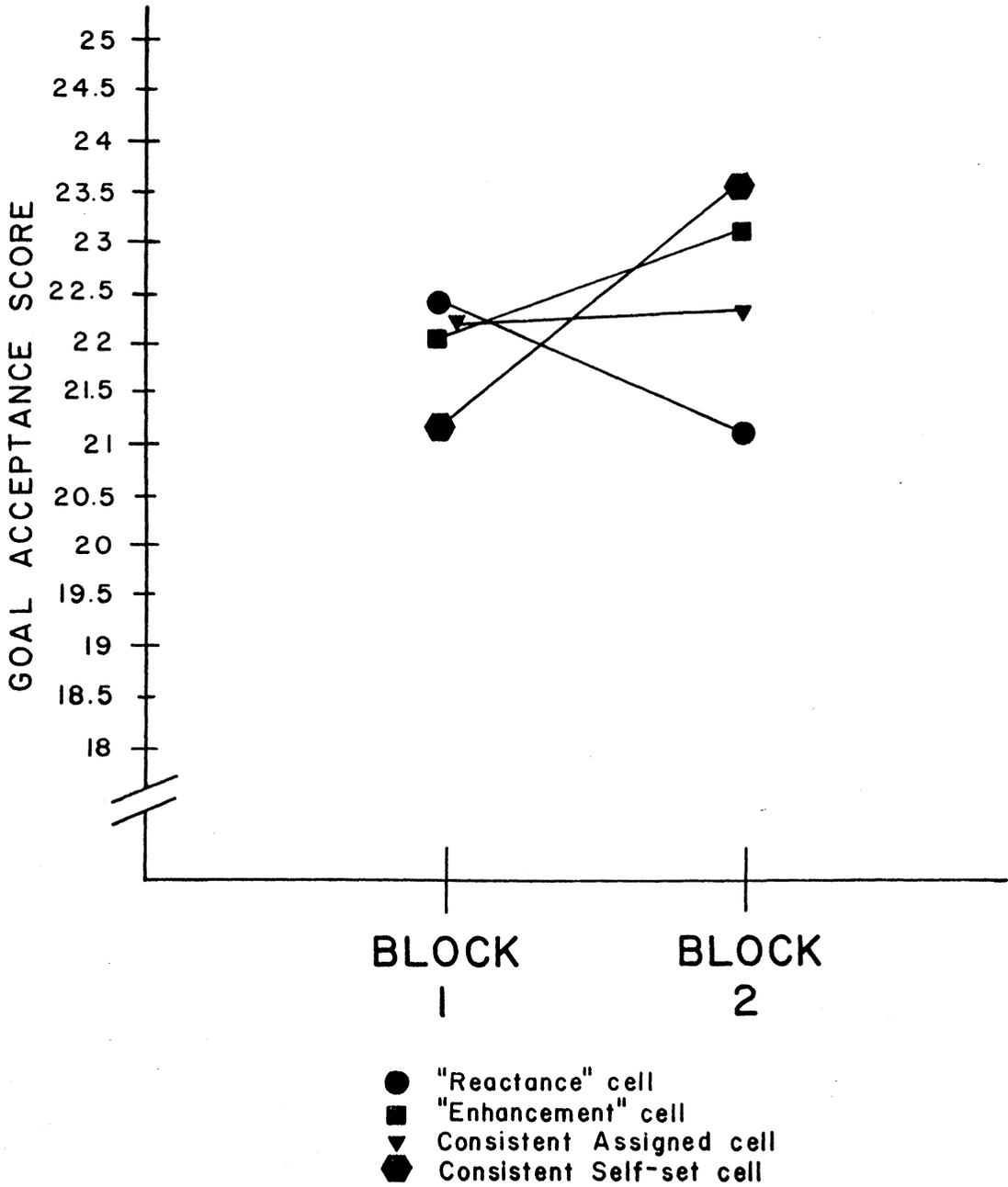


Figure 3. Plot of Goal Acceptance Means by Condition

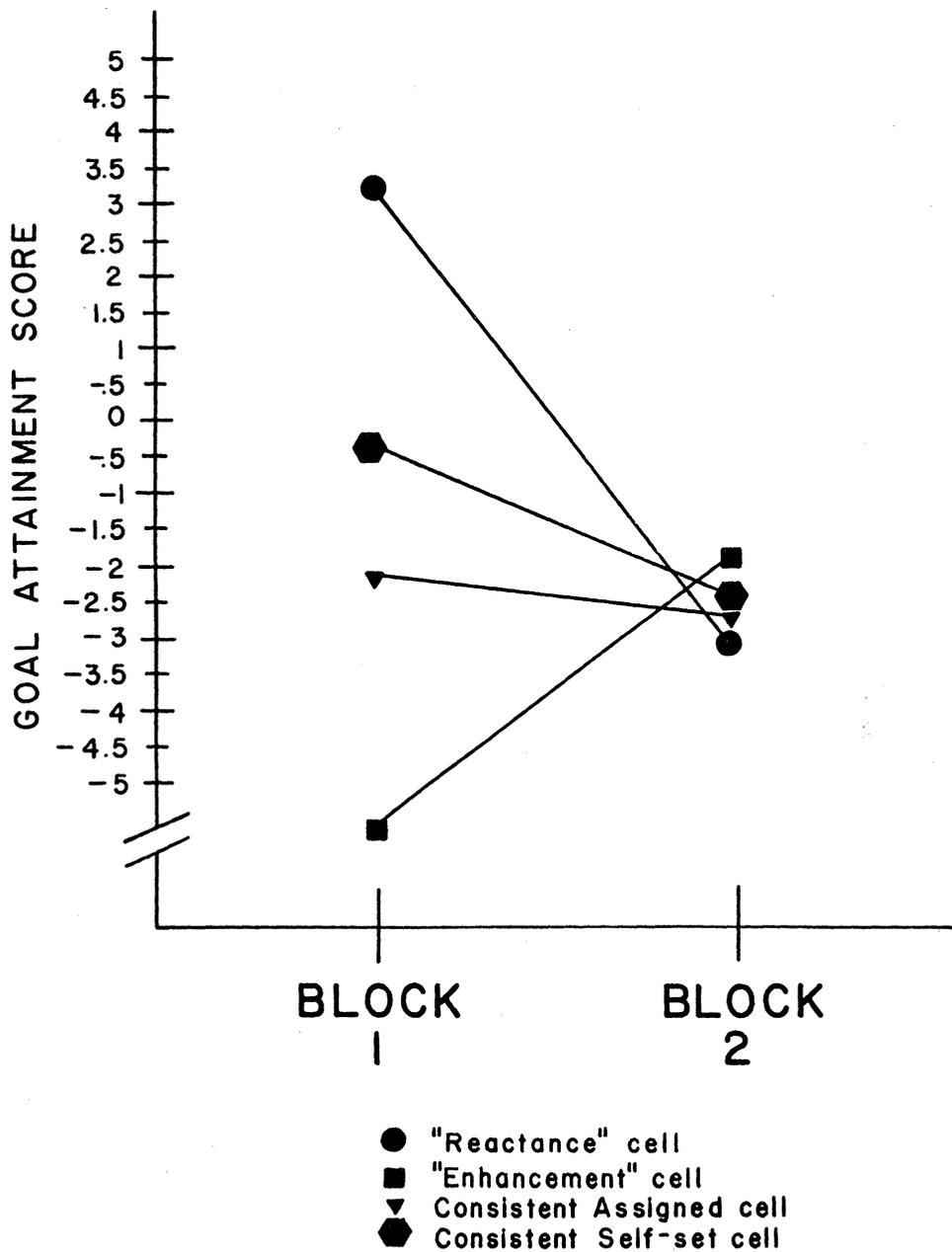


Figure 4. Plot of Goal Attainment Means by Condition

Demographic Characteristics of the Sample

	Total Sample (N=160)	Grp 1 (N=40)	Grp 2 (N=40)	Grp 3 (N=40)	Grp 4 (N=40)
Male	(0) 91	22	19	26	24
Female	(1) 69	18	21	14	16
First Year	(1) 79	15	24	23	17
Second Year	(2) 46	9	12	9	16
Third Year	(3) 30	14	12	8	6
Fourth Year	(4) 5	2	2	0	1
No Experience	(0) 90	22	26	22	20
Boggle Experience	(1) 70	18	14	18	20

Note. Numbers in parentheses represent the coded values used for the levels of the demographic variables.

Table 2

Characteristics and Reliabilities of Self-Report Measures

Scale Name	k	M (SD)	alpha
Locus of Control	23	34.28 (3.96)	.75
Vocabulary Skills	16	9.35 (2.58)	.62
Manipulation Check	6	28.86 (6.75)	.76
Goal Acceptance 1	4	21.98 (4.28)	.77
Goal Acceptance 2	4	22.58 (4.49)	.80
Performance Satisfaction	10	44.48 (10.56)	.94
Task Satisfaction	10	46.54 (9.51)	.93
Goal Origin Preference	4	20.97 (4.09)	.59
IESC	16	55.56 (5.81)	.67

Note. k refers to the number of items comprising the composite. Means and standard deviations for variables are based on the total sample. IESC refers to the "Increasing Employee Self-Control Scale".

Table 3

Analysis of Variance Summary on the Manipulation Check Composite

Source	SS	df	MS	F	p
Initial (I)	406.40	1	406.40	10.44	.0015
Shift (S)	182.75	1	182.75	4.69	.0318
Initial*Shift (I x S)	589.05	1	589.05	15.13	.0001
Error	6074.02	156	38.93		

Note. The composite was a summed total of six 7-point Likert items.

Table 4
Cell Statistics for Manipulation Check Composite Scores

	Shifted	Consistent
Initial Self-set	27.47 (5.25)	33.45 (5.38)
Initial Assigned	28.12 (7.29)	26.42 (6.77)

Note. Standard deviations are shown within parentheses.

Table 5
Summary of Analyses of Variance on Repeated Measurements

Source	SS	df	MS	F	p
<u>GOAL ACCEPTANCE</u>					
Initial (I)	4.05	1	4.05	.13	.7240
Shift (S)	12.80	1	12.80	.40	.5303
Initial*Shift (IxS)	19.01	1	19.01	.59	.4445
Error Between	5047.82	156	32.35		
Block (B)	28.80	1	28.80	4.85	.0292**
Block*Initial (BxI)	32.51	1	32.51	5.47	.0206**
Block*Shift (BxS)	.01	1	.01	0.00	.9635
Block*Initial*Shift	96.80	1	96.80	16.29	.0001***
Error Within	926.87	155	5.94		
<u>GOAL ATTAINMENT</u>					
Initial (I)	430.12	1	430.12	1.48	.2257
Shift (S)	12.40	1	12.40	.04	.8366
Initial*Shift (IxS)	118.82	1	118.82	.41	.5236
Error Between	45363.38	156	290.79		
Block (B)	169.65	1	169.65	1.89	.1709
Block*Initial (BxI)	585.90	1	585.90	6.54	.0115**
Block*Shift (BxS)	.07	1	.07	0.00	.9765
Block*Initial*Shift	314.02	1	314.02	3.50	.0631
Error Within	13983.83	155	89.63		
<u>RAW PERFORMANCE</u>					
Pretrial (P)	14422.88	1	14422.88	214.30	.0001***
Initial (I)	189.00	1	189.00	2.81	.0958
Shift (S)	3.13	1	3.13	0.05	.8295
Initial*Shift (IxS)	3.81	1	3.81	0.06	.8120
Error Between	10431.87	155	67.30		
Block (B)	10.19	1	10.19	0.37	.5429
Block*Pretrial (BxP)	.92	1	.92	0.03	.8545
Block*Initial (BxI)	56.97	1	56.97	2.08	.1516
Block*Shift (BxS)	22.33	1	22.33	0.81	.3683
Block*Shift*Initial	2.54	1	2.54	0.09	.7613
Error Within	4252.43	155	27.43		

Note. *** $p < .001$ ** $p < .05$ Raw performance scores were analyzed with an ANCOVA, where the covariate was constant (cf. Keppel, 1982, p. 511). F-tests for homogeneity of regression resulted in values of .01 ($p = .919$) for Block 1 and .03 ($p = .852$) for Block 2.

Table 6
Cell Means for Repeated Measurement Variables

	Shifted		Consistent	
	Block1	Block2	Block1	Block2
Initial Self-set				
(Acceptance)	22.30(3.80)	21.15(4.83)	22.07(4.28)	23.15(4.12)
(Attainment)	+3.17(9.18)	-3.00(16.9)	-0.45(11.1)	-2.60(13.4)
(Performance)	39.02(11.2)	38.30(12.2)	38.35(7.53)	39.05(7.87)
(Adjusted)	38.45	37.73	37.76	38.47
Initial Assigned				
(Acceptance)	21.27(4.81)	23.60(4.55)	22.27(4.26)	22.42(4.21)
(Attainment)	-5.05(15.4)	-1.85(9.90)	-2.27(16.3)	-2.97(15.8)
(Performance)	33.75(9.27)	35.12(10.6)	36.52(9.86)	38.55(7.37)
(Adjusted)	36.10	37.44	35.33	37.37

Note. The cell means labeled adjusted are Least Squares Marginal Means or means that are calibrated for the deviations of cell means from the grand covariate mean, 31.80. Standard deviations are shown in parentheses for all variables except the adjusted scores.

Table 7

Overall and Simple Interaction Effects for Goal Acceptance

Source	SS	df	MS	F	p
<u>OVERALL ANALYSIS</u>					
Initial (I)	4.05	1	4.05	.13	.7240
Shift (S)	12.80	1	12.80	.40	.5303
Initial*Shift (IxS)	19.01	1	19.01	.59	.4445
Error Between	5047.82	156	32.35		
Block (B)	28.80	1	28.80	4.85	.0292**
Block*Initial (BxI)	32.51	1	32.51	5.47	.0206**
Block*Shift (BxS)	.01	1	.01	0.00	.9635
Block*Initial*Shift	96.80	1	96.80	16.29	.0001***
Error Within	926.87	155	5.94		
<u>SIMPLE EFFECTS</u>					
I at S(0)	2.75	1	2.75	.08	
B at S(0)	15.00	1	15.00	2.52	
BxI at S(0)	8.55	1	8.55	1.43	
I at S(1)	20.30	1	20.30	.62	
B at S(1)	13.80	1	13.80	2.32	
BxI at S(1)	120.75	1	120.75	20.32***	

Note. *** $p < .001$, ** $p < .01$. This analysis was performed using the between-groups mean square from the simple interaction effects analysis and the error mean square from the overall analysis (5.94).

Table 8
Correlations between Goals and Performance by Condition
Over Trial Blocks

Condition:	Block1	Block2
Reactance (SS-ASS)	.72**	.02
Enhancement (ASS-SS)	.06	.49**
Consistent (SS-SS)	.52**	.13
Consistent (ASS-ASS)	.00	-.32*

Note. ** $p < .01$ * $p < .05$ for tests against zero. The reactance and enhancement cell correlations are also significantly different, both between groups within Trial Blocks and across Trial Blocks within groups.

Table 9

Summary of Analyses of Variance on Nonrepeated Measurements

Source	SS	df	MS	F	p
<u>TASK SATISFACTION</u>					
Initial (I)	16.25	1	16.25	0.18	.6687
Shift (S)	432.30	1	432.30	4.89	.0285
Initial*Shift (IxS)	138.75	1	138.75	1.57	.2122
Error	13796.37	156	88.43		
<u>PERFORMANCE SATISFACTION</u>					
Initial (I)	94.55	1	94.55	0.86	.3553
Shift (S)	232.80	1	232.80	2.12	.1478
Initial*Shift (IxS)	273.00	1	273.00	2.48	.1172
Error	17763.94	156	110.02		
<u>INCREASING EMPLOYEE SELF-CONTROL</u>					
Initial (I)	74.25	1	74.25	2.20	.1399
Shift (S)	29.75	1	29.75	0.88	.3490
Initial*Shift (IxS)	3.90	1	3.90	0.12	.7341
Error	5261.57	156	33.72		
<u>GOAL ORIGIN PREFERENCES</u>					
Initial (I)	12.10	1	12.10	0.72	.3969
Shift (S)	32.40	1	32.40	1.93	.1665
Initial*Shift (IxS)	0.10	1	0.10	0.01	.9385
Error	2615.30	156	16.76		

Note. The measures used in the analyses reported above consisted of 10-item semantic differential scales for reported task and performance satisfaction, a 16-item, 7-point Likert scale for Increasing Employee Self-Control, and a 4-item 7-point Likert scale for Goal Preferences.

Table 10
Cell Means for Subjective Self-Report Measures

	SHIFT	NO SHIFT
INITIAL SELF-SET		
(Task Satisfaction)	46.15 (9.22)	47.57 (10.50)
(Performance Satisfaction)	45.35 (9.18)	45.15 (10.98)
(IESC)	56.82 (6.21)	55.65 (6.17)
(Goal Preferences)	20.82 (3.51)	21.67 (3.39)
INITIAL ASSIGNED		
(Task Satisfaction)	43.65 (8.44)	48.80 (9.32)
(Performance Satisfaction)	41.20 (11.45)	46.22 (10.19)
(IESC)	55.15 (5.65)	54.60 (5.10)
(Goal Preferences)	20.22 (4.89)	21.17 (4.38)

Note. Standard deviations are shown in parentheses.

Table 11

Hierarchical Regression Analyses on Performance Satisfaction

Source	SS	df	MS	F	SMC
(Restricted)					
Model	755.35	6	125.89	1.13	.0425
Error	17008.58	153	111.16		

Source	SS	df	MS	F	SMC
(Full)					
Model	2578.96	7	368.42	3.68	.1452
Error	15184.98	152	99.90		
Parameter Estimates:					
		b	S.E.	t	
Gender		-.19	1.68	-.117	
Locus of Control		-.28	.212	-1.32	
Type A CPBP		+.42	.463	+.911	
Goal Attainment(2)		+.24	.056	+4.27***	

Note. Results are for a hierarchical regression analysis that controlled for group membership, gender, locus of control, and Type A CPBP before entering goal attainment scores for Trial Block 2. The F-test for increment in the Squared Multiple Correlation was statistically significant $F(1, 152) = 18.26$.

Table 12
 Correlations between Goal Attainment and Reports of
 Satisfaction by Condition

Group	Satisfaction	
	Performance	Task
Reactance	.40***	.39***
Enhancement	.33**	.30*
Consistent SS	.19	-.30*
Consistent ASS	.37**	.09

Note. *** $p < .01$ ** $p < .05$ * $p < .10$. Goal attainment scores are those from Trial Block 2. Performance and task satisfaction scores are summated totals from 10-item semantic differential scales.

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