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Effects of Perceived Power of those Assigning Goals on Goal Attainment

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EFFECTS OF PERCEIVED POWER OF THOSE ASSIGNING
GOALS ON GOAL ATTAINMENT

by
Larry L. Langeland

A Thesis
Submitted to the
Faculty of The Graduate College
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EFFECTS OF PERCEIVED POWER OF THOSE ASSIGNING GOALS ON GOAL ATTAINMENT

Larry L. Langeland, M. A.
Western Michigan University, 1983

The purpose of this study was to present and test with a field experiment the hypothesis that the perceived power of those assigning goals has a significant effect on goal attainment. A survey was used to determine three levels of the independent variable perceived power of three individuals who assigned tasks to subjects. The dependent variables were the number of responses on the tasks of listing 15 specific responses each for increasing cost-effectiveness, improving morale, and improving communication. Forty-three office and management personnel were randomly assigned to three groups, with each group receiving all levels of power type and task. A latin square ANOVA was used to analyze the responding under each power type condition. The results indicated that there was no significant effect of the perceived power of those assigning goals on goal attainment in this experiment. Reasons for the non-significant effect were discussed.
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Larry L. Langeland
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INTRODUCTION

Statement of the Problem

Goal setting has been documented as a successful motivational tool to increase task performance in 90% of 110 studies in which specific and challenging goals had been set (Locke, Shaw, Saari, & Latham, 1981). Broad theories of motivation that have been based on drive, instinct, cognitive processes, and conditioning are slowly being replaced by more specialized approaches to explaining motivation. The study of goal setting is one of these approaches.

During the last 15 years there has been a great deal of interest and research in the use of goal setting to increase task performance. Investigators of goal setting are approaching and investigating many specific areas of the goal setting domain in an attempt to explain the motivation phenomena. Laboratory and field experiments have begun to address the problem areas of goal setting such as the effect of goal difficulty, the necessity of feedback as being essential in using goal setting to increase performance, individual differences in subjects involved in goal setting experiments, the acceptance of assigned goals, the supportive nature of those assigned the goals, and other problem areas to be discussed later.

This study will focus on one of the areas of uncertainty in using goal setting as a motivational tool to increase performance. How goals are set remains an area of uncertainty in goal setting. Although research has indicated that the fact goals are set usually increases
performance, it is unclear whether assigning goals has a greater or lesser impact on performance than goals that are participatively set. In particular, this study will investigate and test the hypothesis: The perceived power of the supervisor assigning the goal will have a significant effect on goal attainment. By determining the effect of the perceived power of the supervisor on goal attainment, the knowledge of how to set goals (assigned versus participatively set) to increase performance will be more complete and its application and/or implementation in organizational settings more efficient.

Theories of Motivation

Research in the behavioral sciences, particularly in psychology, has led to the development and application of several theories and constructs to explain motivation in the work setting. Maslow (1954) introduced a theory of motivation in which five hierarchical levels of needs formed the framework of an individual's drives and desires. This theory of motivation views the work setting as providing the basic physiological and safety needs for its employees with the possibility of providing self-actualization needs for the employees. Although many organizations do provide the resources for their employees to reach the highest level of needs (self-actualization), many employees are motivated to reach these needs outside of the organization. Thus, Maslow's theory may address questions about the development of motivation, but not necessarily about increasing performance in the work setting.

The motivation-hygiene theory was developed by Herzberg (1966) to test the concept that man has two sets of needs: his need as an animal
to avoid pain and his need as a human to grow psychologically. This theory deals with the factors that lead to job satisfaction and to job dissatisfaction. Since the theory addresses the issue of job satisfaction and turnover, it cannot be assumed to apply to job performance. Herzberg's theory may reveal factors that lead to job satisfaction, but these factors cannot be assumed to prevent or cause an increase in job performance because the wrong questions are asked and the wrong correlations attributed. Those who score high on factors leading to job satisfaction under the motivation-hygiene model may be very good workers. This is not to say the employees are very productive because of their high job satisfaction, perhaps the opposite situation exists where the employees are very satisfied because of their high productivity. Thus, the motivation-hygiene theory does not adequately explain motivation in the work setting.

Vroom (1964) created a theory of motivation to explain the choice and direction of human behavior. The expectancy theory views people as motivated to choose alternative courses of action depending on the relative strength of forces. Each force is hypothesized to be equal to the sum of the products of the valence of the outcome and the expectancy that the outcomes will be attained. The expectancies involved in this process are the expectancy of the individual that he possess the ability to perform the behavior required to obtain the outcome, and the expectancy that the behavior he performs will lead to the desired outcome; the valence involved in the process is whether or not the outcome is worth obtaining. In this model the choices, decisions, and reports made by the person are measured and the valence and expectancy
of a course of action are assigned numbers to be used in determining an algebraic sum. The sum is an indice of the motivation relative to the person and the task.

The work of B. F. Skinner was the driving force behind the development of our knowledge of the law of effect. This law states that stimulus events are reinforcers if when presented after a response, the result is an increase in the performance of the response. Thus, reinforcers are stimuli which have been demonstrated to have unique qualities which affect behavior in a particular way under a certain set of conditions. From this context a theory of behavior and motivation evolved and has been tested in laboratory and applied settings. The empirical law of effect is one of the few theories of motivation that directly addresses work performance; to improve performance, identify and define the response needed to increase performance and reinforce the response (on a correct schedule of reinforcement).

Although the law of effect may adequately explain methods to increase performance, there are specific question areas that make the theory difficult to apply. First, it is not always easy to immediately identify and define reinforcing stimuli. Second, the "transitiuationality assumption" coined by Meehl (1950) which states that a stimulus event with a demonstrated reinforcer effectiveness in one context will function as a reinforcer in many other situations, has not been empirically proven and is not theoretically sound (Konarski, Johnson, Crowell, & Whitman, 1981). Third, the description and application of the law of effect most frequently leads to improvement of socially important behaviors (dependent variable) but leads to little analysis of the
contingencies of which they function (independent variable), thus not adequately providing evidence for the underlying variables that cause the reinforcement effect (Dietz, 1978; Pierce & Epling, 1980). This is supported by Timberlake and Allison (1974) and led to their development of the response deprivation theory when they stated:

The probability of the instrumental response is the only independently defined variable in the empirical law of effect. The other variable, the reinforcer, is defined by the effect it is assumed to have on the probability of the instrumental response. If a particular consequence is associated with an increase in the probability of the instrumental response, then it is a reinforcer; otherwise, it is not. Employed in this fashion, the empirical law of effect only defines a reinforcer; it is not a law. (p. 146)

Fourth, because the theory is not exact but is more toward an applied science rather than a technology (like the physical sciences), to label the theory an empirical law of effect is premature (Dietz, 1978). Dietz goes on to say that the necessary information is not yet available to support a technology, and a re-emphasis on analytic, investigative research in applied behavior analysis is needed to move toward a technology.

Other Theories of Reinforcement

There have been several other theories and principles to further understand, explain and empirically validate the law of effect and the work of B. F. Skinner. Modifications of the law of effect and added principles have been created to explain and predict a technique of motivation to improve performance. Premack (1959) in an attempt to further develop the law of effect created the Premack principle which simply stated highly reinforcing events function as reinforcers when made contingent on lower probability behavior response. Although the

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Premack principle has been supported by some research, Konarski, Crowell, Johnson, and Whitman (1980) conducted an applied study in which lower probability behaviors did act as reinforcers for higher probability behaviors. Probabilities were measured as the likeliness of the subject to perform a given task based on the preference of the subject in choosing between two tasks to perform. The same results were obtained in a laboratory setting (Timberlake & Allison, 1974).

The response deprivation hypothesis evolved out of the studies and research of the law of effect and the Premack principle. Konarski et al. (1980) conducted research that led to the hypothesis that the reinforcement effect will occur when the terms of the schedule result in reduced access to the contingent response relative to its own baseline level if the subject performs the instrument response at or below its baseline level. In other words, the response deprivation hypothesis states that the reinforcement effect will occur only when the condition of response deprivation is present in the contingency. The response deprivation hypothesis is also supported by experiments by Timberlake and Allison (1974) where it was found that instrumental performance to obtain a contingent response appeared to be directly related to the amount of response deprivation.

In an attempt to address the underlying variables of the law of effect Deci (1978) developed the cognitive evaluation theory which attempts to provide a meaningful account of the psychological processes of intrinsic and extrinsic motivated behaviors. According to this view intrinsic motivation occurs when the individual locates the cause of his behavior within himself while extrinsic motivation occurs when the
individual locates causality outside the person. Deci (1975) also states that there are negative effects of extrinsic rewards upon intrinsic task motivation when rewards are contingent upon task performance. This effect is due to the diminishing feelings of competence and control over performance. This effect has not been supported though, as Wimperis and Farr (1979) present data that clearly indicate an enhancement effect of extrinsic rewards on intrinsic motivation.

Goal Setting as a Motivational Technique

As evidenced above, there is no one theory that is generally recognized as clearly defining and explaining the motivational processes that can be used to increase performance in the work setting. Many of the theories of motivation are very broad and general, and do not specify the actual steps needed to apply the theory on a day-to-day basis while satisfactorily explaining the underlying processes that gives the motivation theory validity. One relatively new approach to motivation that satisfies and meets the criterion of being a useful motivational theory in the work setting is that of goal setting.

Goal setting addresses the relationship between known goals and intentions and task performance. The basic foundation of setting goals is that an individual's ideas about known, stated goals regulate their actions. The theory also views goals and intentions as mediators of the effects of incentives on task performance (Locke, 1968).

A goal is a specific standard on a task that an individual is trying to accomplish. There are several forms a goal can take, such as a budget, deadline, standards, objective, task, quota, or anything that
is easily measured and has the concept of purpose or intent. The concept of purpose is explained as consciously held goals and is properly inferred only in living organisms possessing some type of information from their senses (Locke, 1969). Knowledge of set goals can be viewed as immediate regulators of human behavior. The problems that arise in using goals to obtain desired behavior in an organizational setting are not a one-to-one correspondence between goals and actions because people vary in ability and goal acceptance. People have different values attached to each goal resulting in several different courses of action, dependent on the goal acceptance (value they give to the goal).

Feedback

There are several components to effective goal setting to increase performance. Feedback is essential in using goal setting as a motivational tool. Feedback shows the performance of a task in relation to the goal that has been set. Neither feedback alone, nor goal setting, is as effective in increasing task performance as using goal setting and feedback (Becker, 1978; Bandura & Simon, 1977; Ivancevich & Mahon, 1982; Komake, Barwick, & Scott, 1978; Locke, 1980; Locke et al, 1981; Nemeroff & Costantino, 1979). The integration of evidence from these and related studies indicates that feedback was not sufficient to improve task performance, but when used with the setting of goals, performance increased. Feedback facilitates the self-mediated rewards process and enhances performance confidence (Pavett, 1983), while goal setting provides the target of the performer's effort and persistence.
Elements of Motivation

A second component of goal setting to increase performance is the parallel relationship to the key concepts of motivation. According to Locke et al. (1981), most theories of motivation have three common underlying elements—direction, effort, and duration. All three of these elements are affected by goal setting. Goals direct the performer's attention and action to the task around which the goal has been set. It follows then, that the more specific the goal is, the more specific the direction of the performer's attention and action will be focused. This has been demonstrated by Locke and Bryan (1969) where drivers were given feedback regarding five different dimensions of driving performance but were assigned goals with respect to only one dimension. The dimension for which a goal was assigned showed significantly more improvement than the remaining dimensions. This has been supported in studies by Rothkopf and Billinton (1979), involving the use of specific learning goals vs. do-your-best instructions in an educational context. Terborg (1976) found similar results with reading subjects. Twenty-four field experiments and twenty laboratory studies supported the fact that subjects in conditions where specific goals were assigned outperformed those who were not assigned specific goals, but do-your-best goals (Locke et al., 1981).

In one field study, Bandura and Simon (1977) found specific goals set for dieting subjects resulted in greater and faster weight loss than those who were told to lose weight. In another field study, Latham and Baltes (1975) found a significant increase in truck loading performance where the desired weight was the specified goal. The
performance of the truck loaders given a goal (in weight) was significantly greater than those given no goal.

The motivational element of effort is also present in goal setting. When more difficult goals are set, more effort is expended on the part of the performer. Locke (1966) conducted three experiments with goal difficulty and task performance and found a linear relationship between the two even though the "hard" conditions were beyond the reach of the subjects. In a careful replication of these experiments Garland (1982) found identical results. In a recent study (Locke, 1982) fourteen levels of goal difficulty were manipulated, with the top nine levels being unattainable. Subjects did not perform significantly better than those given goals equal to their ability ceiling, but they did not perform any less well either, just insignificantly better. Also, subjects assigned goals beyond their immediate reach did not evidence any decrease in intrinsic motivation when compared with those assigned easier goals (Garland, 1983). One principle of goal setting is evident, more difficult goals will tend to lead to greater effort than low or moderately difficult goals as this has been supported by twenty-five laboratory studies and several field experiments on goal difficulty (Locke et al., 1981).

The element of duration in the concept of motivation is present in goal setting that is both difficult and specific. The duration element is nothing more than directed effort over time and can be achieved by setting specific and difficult goals. Laporte and Nath (1976), along with Rothkopf et al. (1979), conducted experiments involving goal setting and time spent reading prose passage which support the setting of
difficult and specific goals to increase the duration of performance. Singer, Korienek, Jarvis, McColsky, and Candeletti (1981) found persistence on tasks to be greater when goals were set high and were also specific.

The final element in motivation involves the development of strategies and action plans to attain the set goal. There is a close parallel between the elements of motivation and the elements of feedback, where feedback is defined as useful information on the performance of working toward a specified goal. It is of little surprise, then, that feedback and motivation have a common element in the development of strategies to reach set goals. The process of strategy development is motivated by the setting of goals, and is an important process because it involves a great degree of skill development or creative problem solving to reach the goal. Latham and Baldes (1975) observed that some of the truck drivers assigned specific hard goals with respect to truck weight made some minor modifications of their trucks to help them increase the accuracy of their judgments of weight on the trucks. This process was also observed in an experiment with dieting subjects (Bandura & Simon, 1977) in which subjects with specific quotas for the number of mouthfuls eaten changed their eating patterns (by eating more low calorie foods that did not count and by saving part of their quota for dinner). This evidence indicates that if correct strategies are not developed, the increased motivation provided by the goals will not be translated into effective performance.
Uncertainties

Feedback and motivational elements are the two major components of goal setting used to increase performance. A third major component is that of uncertainty. This component is composed of question areas and resulting research that is attempting to further explain and reveal goal setting as a motivational tool. It is the elements and concepts of this component of uncertainty that make the implementation and application of goal setting nontransituational, thereby keeping goal setting from being an exact science to be used in the motivation and management of people in work settings. These uncertainties may result from the variance in ability and goal acceptance between performers as previously mentioned. For example, the use of monetary rewards for the attainment of set goals is still unclear. In the work of B. F. Skinner and in most experiments the use of incentives has increased task performance, and there may be several reasons for the increase. First, rewards of money may affect the level at which the goals are set. Pritchard and Curtis (1973) found there was no difference in the performance levels between no incentives and low incentives conditions, but those offered high incentives performed significantly better than those offered no/low incentives. Mowen, Middlemist, and Luther (1981) ran experiments that supported Pritchard and Curtis' results, but only for piece rate workers. They found little or no effect with salary/bonus incentives.

A second reason why monetary rewards may affect goal attainment is by affecting an individual's goal commitment (Locke, 1968). Using money as an incentive may increase the willingness to direct more
effort to attain the goal (and reward). As indicated earlier in this study, there is research that both supports and rejects the hypothesis that there are negative effects of extrinsic rewards upon intrinsic task motivation when rewards are contingent upon task performance.

Third, money may cause more spontaneous goal setting than if no money or incentives were used (Locke et al., 1981). Thus it can be seen that there is considerable support for making monetary rewards contingent upon goal attainment. It cannot be assumed, however, that monetary rewards are significantly more reinforcing than certain rewards other than monetary rewards. Latham (1979) found there was not a significant difference in the use of monetary rewards and praise to significantly increase the participation behavior on performance appraisals of engineers over a six month period. From a cost/benefit standpoint praise proved to be the most effective in improving performance. Recent research and application of behavior modification principles have begun to answer questions with respect to types and effectiveness of reinforcers, but as stated, there are no clear, specific, and trans-situational reinforcers that can be made contingent on performance that insures increased task performance.

Another area of uncertainty is the organizational climate in which the goal setting is implemented to increase performance. It is assumed that a supportive climate would obtain the best results, and this has been supported to some extent by the research of Lee and Ofshe (1981) in which it was determined that supervisor demeanor (support, use of praise) had a significant effect on employee satisfaction and productivity. There also have been some experiments that indicate a
supportive organizational support has a positive effect on employee satisfaction and turnover, but not necessarily task performance (Freedman, 1981; Brief, Alday, & Russell, 1979; Arnett, Higgins, & Priem, 1981). This is not always true as Latham and Wexley (1981a) point out that certain employees cannot make a decision without checking with a supervisor because they are used to and secure in an organizational climate that functions in a nonsupportive manner, and any attempt to function otherwise results in a resistance to change by those employees. Again, managers seeking to use goal setting as a motivational tool to increase performance must realize and assess the effect that their organization's climate will have on goal attainment, as there is no body of research that clearly indicates the best climate for implementation of goal setting.

Demographic variables may also effect goal setting used to increase performance. Goal setting appears to be effective for individuals of all educational levels (Masters, Furman, & Barden, 1977; Latham & Yukl, 1975; Latham, Mitchell, & Dossett, 1978). It was found that the effects of race and sex on goal setting have not been researched enough to make any conclusive statements of the effect of race and sex on goal setting. More studies are needed before any interpretation can be verified (Locke et al., 1981). Age (Ivancevich & McMahan, 1977) and job tenure (Latham & Yukl, 1976) have no significant effect on goal setting to increase task performance.

Another area of uncertainty is the individual differences that exist when goal setting is applied to a work setting. One of the few consistent results of the studies of personality variables is its
inconsistency. In study of female supervisors, Steers (1975) found results that indicated that high need achievers perform best when they are allowed to participate in the goal setting process. This may be due to the fact that the low need achievers are less confident when they do not participate in goal setting. In an experiment with anagrams it was determined that productivity for subjects high in need for achievement was not higher than the productivity for subjects low in need achievement (Sales, 1970). Overall the results were inconsistent and unreliable. Need for independence generally was found to not have a moderating effect on performance (Dossett, Latham, & Mitchell, 1979), whether the goal was assigned or participatively set (Searfoss & Monczka, 1973). An earlier study by French, Kay and Meyer (1966) indicated that employees with a high need for independence had a greater goal acceptance when participation in goal setting was increased than when participation was reduced or not changed, while goal acceptance was not affected by changes in participation for employees with a low need for independence. Again, the research is too inconsistent to draw any reliable conclusions about the effect of the need for independence on goal attainment in assigned or participative conditions.

Self-esteem is another personality variable that can confound the application of goal setting. Desirable outcomes are not perceived to be contingent upon goal attainment. Subjects with high self-esteem show greater performance improvement than subjects with low self-esteem (Yukl & Latham, 1978). The principle that may exist here is that people with high self-esteem will work hard without high rewards, while people with low self-esteem will not. This is supported in a study by
Carroll and Tosi (1970) indicated that subjects with high self-assurance increase effort in the face of increasingly difficult goals, while subjects with low self-assurance work less hard as goals become harder. Dossett et al. (1979) found that high self-esteem word processing operators handled positive and negative feedback better than low-esteem operators. One conclusion that may be drawn from the review of the literature on the effects of self-esteem on goal attainment is that it is logical to expect that a subject's self-esteem would affect the goals that the subject chooses depending on other variables, mentioned above, that have a confounding effect on the variable of self-esteem.

Up to this point, this study has reviewed literature on several different areas all of which concern themselves with motivation to increase performance in the work setting. Theories of motivation have been discussed in an attempt to identify and define a motivational tool to use in the work setting that will be relatively predictable and reliable. The work of Skinner, Vroom, Premack, Deci and Konarski with the law of effect and the offshoots of the theory, and the work of Locke and Latham with goal setting offers a potentially effective and applicable motivational tool to increase performance in the work setting. Three components of goal setting were discussed: the necessity of feedback, elements common to motivation and goal setting, and the uncertainties of goal setting. Monetary rewards, organizational climate, demographic variables, and personality variables have been the uncertainties with respect to goal setting and subsequent attainment that have been discussed. One other area of uncertainty that exists is how goals are set; should a goal be assigned by a supervisor or
should the employees being effected by the goal have any input in the setting of goals? To date the most important point in the analysis and discussion of assigned versus participative goal setting has not been centered around how the goal is set, but whether a goal is set (McGlynn, 1982).

There is a large body of research that indicates there is no significant difference in performance between subjects in an assigned goal condition versus a participative goal condition. Experiments with government employees (Latham & Marshall, 1982), employees in a manufacturing setting (Carroll & Tosi, 1970; Ivanecich, 1976), typists (Latham & Yukl, 1976), scientists (Latham et al., 1978), subjects in a laboratory study using a brainstorming task (Latham & Saari, 1979) all support the hypothesis that it does not make a significant difference in performance as to how goals are set, but it does make a significant difference in performance that goals are set. However, Dosset et al. (1979), when studying performance appraisal results, found that people with assigned goals performed higher than those who had participatively set goals, although the difference was insignificant. Over an eight month period they found the performance of those with assigned goals to be significantly higher than those who had participatively set goals.

Just as there is a large body of research that indicates there is no difference in assigned versus participative goals, there is some evidence that suggests participative goal setting leads to significantly higher increases in performance than assigning goals. Latham and Yukl (1975) found that participative goal setting resulted in higher performance than assigned goal setting for uneducated loggers.
The results of this experiment may have been due in part to higher goals being set by the participative group. In another study by Latham (1979) with engineers, the results generally supported the fact that participative goal setting produced significantly better performance than assigned goal setting. Also in 1979, Latham and Saari found participative goal setting to lead to significant increases in performance over assigned goal setting by increasing the subjects' understanding of how to attain the goal and higher goals being set. Meyer, Kay, and French (1965) found that goals were attained more often when the employees had input in goal setting than when goals were assigned by a supervisor, but this was only true for employees with a supervisor whose style encouraged employee participation in decision making. Also, just as in a supportive organizational climate, participative goal setting is positively linked to job satisfaction, turnover (Dipbone & Ponteblid, 1981), and trust (Jenkins & Lawler, 1981), but not necessarily to increased performance (Latham & Marshal, 1982). There has been related research on goal setting that indicates participative goal setting has been observed to establish higher goals than did assigned goals (Latham et al., 1978; Latham & Yukl, 1975, 1976). Therefore, participative goal setting may increase performance more than assigned goal setting because it leads to the setting of higher goals.

There are some negative side effects of participative goal setting if not applied correctly. Participative goal setting should not be used as an exclusive decision making tool. A group involved in participative goal setting should not be asked to participatively set goals.
that must be set, but are unpopular. This would result in the group being viewed as a convenient scapegoat of management and decrease the credibility of any group involved in any goal setting. The use of participative goal setting as an avoidance mechanism of management will also result in lower goal acceptance/commitment by workers affected by the goals. Participative goal setting must not be confused with the demeanor of the organization either. The group involved in the goal setting process must not be a token display of the organization's wish to involve its employees in the vital functioning of the company. Again, this will effectively lower the commitment and acceptance of the goals that are set by the group. There must be a mixture of decision making, planning, and problem solving in the areas of daily functioning, social events, and even community events to counteract the possibility of stagnation, decreased credibility, and loss of power that may occur in use of groups.

Before one can assume that cautious application of participative goal setting will increase performance significantly more than assigning goals, there is research that suggests just the opposite. Most recently Latham and Marshal (1982) conclude from their study that people with assigned goals performed higher than those who participated in goal setting. This comes after Maslowski (1980) found that assigned goals have a positive effect on task performance on both boring and interesting tasks, more so than participatively set goals. It was also found that employees with a supervisor who did not normally encourage participation performed better when goals were assigned to them (Latham & Wexley, 1981b). As mentioned above there may be some
negative side effects with respect to intrinsic motivation when goals are assigned accompanied by rewards.

As the literature and research indicate there is no consensus on the best way to set goals; however, there is abundant evidence that suggests that goal setting is an effective way to increase performance in work settings. The result of increased performance to an organization can be increased profits. If research indicates that either assigning goals or participatively setting goals is the more effective method of goal setting there will be several benefits. First, the organization will be able to use the method that will insure the greatest increase in performance. Second, the cost effectiveness of the two methods can be determined. Participative goal setting is a more time consuming and expensive method of goal setting than assigning goals, but if it is proven to result in higher performance versus assigning goals then perhaps it may be more cost effective (depending on the nature and time span of the goal) than assigning goals. In the opposite situation assigning goals will be more cost effective than participative goal setting. Third, goal setting as a motivational technique to increase performance will approach a more scientific base as the uncertainty of the process and procedure become more clear.

Perceived Power of the Supervisor

In an attempt to answer the question of how to set goals and obtain the benefits of determining which method of goal setting is more effective, this study will address a variable involved in assigning goals. Research will be presented to test the hypothesis: The
perceived power of the supervisor assigning the goal will have a significant effect on goal attainment.

There is a definite distinction between status and perceived power. Status is the organizationally defined position in which the supervisor functions in the work setting. Power is potential influence; it is the capacity to exert influence to change the action of others. Power does not refer to a single act, but to a set of influence transactions. This definition makes it possible to utilize the five-fold typology of Student (1966) as introduced by French and Raven in the late 1950's as a framework for the analysis of supervisory power. The five bases of power in an organization setting are: (a) Reward Power, the perception of the supervisor to mediate rewards; (b) Coercive Power, the perception of the supervisor to mediate punishment; (c) Legitimate Power, organizationally defined power; (d) Referent Power, the degree to which the subordinate desires to be like the supervisor and please him; and, (e) Expert Power, perception of the supervisor to possess expertise in a given area.

One would think that perceived power would be a function of the status of the supervisor assigning the goal, but this is not true. Research does not indicate a linear relationship of perceived power and status in the organizational hierarchy. Blyton, Nicholson, and Ursell (1981) found that job status did have a significant effect on behavior of union members. Higher status workers engaged in more grievance raising behavior than lower status workers. Studies using the status of those providing feedback in an educational setting (Cansler & Stiles, 1981), status of those giving feedback on
perceptual discrimination of line lengths (Larsen, Triplett, Brandt, & Langenberg, 1979), and status of group members relaying feedback (Snyder & Newberg, 1981) support the logic that higher status individuals possess more power to affect goal acceptance and performance change than do low status individuals.

There are other studies, however, that indicate that perceived power, not status, can function as an independent variable on behavior and task performance. An experiment by Dossett, Latham, and Saari (1980) using survey questionnaires to be answered and returned, found the return rate and speed of return of questionnaires to be positively correlated to goal setting and to the power of those who requested the questionnaire to be completed. Zeren and Bradley (1982) found that the prestige and sex of diagnosticians giving personality feedback had a significant effect on whether or not patients accepted the feedback, not the organizational status of the diagnostician. This is supported by the study of Yinon, Dovrat, and Anvi (1981) in which the status of the subject had no effect on whether other individuals in the experiment were willing to help the subject or not. The last two studies do not provide direct evidence of power as an intervening variable as they support the fact that organizational status is not the only variable that has an effect on performance changes. Power as an intervening variable can also be detected at an organizational level as indicated by Anderson and O'Reilly (1981) in their study of performance appraisals as a control system to be used by the personnel department. Their main concern was the administration and acceptance of the performance appraisal due to the perceived position of low power.
of the personnel department which results in a lack of credibility.

By definition, the perceived power of a supervisor is much more comprehensive than the status of the supervisor. The inconsistencies in the literature and research dealing with status may reflect research that is actually studying legitimate power in organizational positions, thus the research in perceived power versus status of the supervisor and the effect the perceived power of the supervisor assigning goals has on goal attainment.

Since there is support that the perceived power of the supervisor may have an effect on behavior and task performance, the question of why perceived power of the supervisor may be a variable in goal attainment must be addressed. One reason power may be a variable is because the supervisor is in a position to reward or punish the subordinate. In work settings where there is a performance-contingent reward structure, the subordinate must direct his behavior in such a way as to perform all of the tasks assigned to him by the supervisor. A field experiment (Greene & Podsakoff, 1981) was conducted to investigate the effects of the removal of a performance-contingent reward on subordinate's perception of their supervisors' sources of influence. A significant increase was found in perceptions of supervisors' use of punishment, but reward, referent, and legitimate power declined significantly. The subordinates viewed the supervisors as being weaker when the reward system was taken out of the supervisors' control because the supervisors had less influence over the rewards available to the subordinate. As a result, the subordinates were less willing to comply to what the supervisors prescribed their behaviors to be,
and the use of punishment increased.

The perception of the power of the supervisor depends on the valence of the rewards and punishments controlled by the supervisor. In the experiment by Yinon et al. (1981) results indicated that the potential to arouse reciprocal behavior did not depend on the status of the individual seeking help, but reciprocal behavior was found to be a function of the value of behavior the helping person could receive as a payback for helping the subjects seeking assistance. Thus, physicians, youth counselors, and firemen had greater potential to arouse reciprocal behavior than accountants, insurance salesmen, and gas attendants. Again, if the organization had a compensation structure and a performance-contingency system that does not allow the supervisor to have a significant input, the rewards and punishments that the supervisor does control may be very low in valence. Therefore, the value of attaining a goal assigned by that supervisor is lowered. When the perceived value of attaining a goal is low the goal is less likely to be accepted, as opposed to a goal with high value (Mento, Carledge, & Locke, 1980).

Another reason the perceived power of the supervisor may have an effect on goal attainment is because the perception of the supervisor may act as a pressure on the subordinate to perform effectively. The mere presence of the supervisor may effect performance. Ronan, Latham, and Kinne (1973) discovered that goal setting with wood workers was only effective if the supervisor was present. Goal setting implies demand characteristics that create pressure on the subordinate to perform will be enough to reach the goal assigned. In a study by Dossett

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and Greenberg (1981) involving the effects of goal setting on supervisor's evaluations of employee performance, it was pointed out that when goals were assigned versus participatively set, the rating discrepancies were greater for the assigned rather than the participative set goal condition. Success or failure of the employee in reaching the assigned goals had a positive or a negative consequence for the supervisors. Such a failure may be a threat to the supervisor's self-esteem, thus causing the supervisor to create pressure on the employee to attain the goal, establishing a defensive mechanism to avoid the threat. Rakestraw and Weiss (1981) conducted a study which demonstrated that observed achievement by others can serve as a standard by which individuals set and evaluate their goals. In this context, the supervisor can direct the attention of the subordinate to the performance of his peers and formally or informally demand the same performance from the subordinate.

Finally, the perceived power of a supervisor has an effect on goal attainment because the subordinate is in a position to reward or punish the supervisor by (not) attaining the set goals. Abdel-Halim (1983) found data to indicate that the subordinate's perception of their effort to reach a goal in decision making performance was positively related to their perceived and desired power equalization, in terms of hierarchical power differentials between subordinates and supervisors. If the subordinate is not comfortable with the power difference between himself and his superior, there may be two ways to pursue power equalization to lessen the difference. One method of power equalization is confrontive in which the subordinates will consciously not attain set
goals. If the power dyad of the subordinate and the supervisor is placed in a negative context, the person in the low power position will feel insecure about his position which may result in negative attitudes and subsequent behavior demonstrated by the low power person towards the high power person in the dyad (Tjosvold, 1981). It is logical to assume that the negative attitude and behavior of the low power person in a work setting would effect performance to attain a goal set by the high power person in the power dyad.

Another method to lessen the power difference is through ingratiating by the subordinate of the supervisor to gain power because of the increased attraction of the supervisor to the subordinate. Ingratiation reduces the decision freedom and the power of the target person (supervisor, who has power to give rewards). The ingratior becomes more powerful due to the increased attraction of the supervisor to the subordinate (Pandey, 1981).

The logic of the subordinate's ability to reward and punish the supervisor is supported and summarized in B. F. Skinner's presentation and explanation of the concept of countercontrol from his book *Beyond Freedom and Dignity* (1971) where he writes:

> The relation between the controller and the controlled is reciprocal. The scientist in the lab, studying the behavior of the pigeon, designs contingencies and observes the effects. His apparatus exerts a conspicuous control on the pigeon. The behavior of the pigeon has determined the apparatus and the procedures in which it is used. Some such control is characteristic of all science. . . . An employer induces his employees to work industriously and carefully with wage systems determined by their effects on behavior. . . . In a very real sense then the employee controls the employer. (P. 169)

A note concerning the type of studies used at different points in
this paper is in order at this time. Several studies present support for their hypotheses using correlational data. In using the correlational data, causal statements are made by the authors as to the effect of one variable on another. This may not only be inaccurate, but misleading to the reader. Words and concepts such as, ideas, perceptions, pressure, self-esteem, desires, perceived, comfortable, insecure, attitude, ingratiation, attraction, and valence, are used in several studies in a causal context. The problem with this is most, if not all, of the terms or variables are used without an explanation of their definition and/or measurements used to operationalize the variables. As a result much of the work is correlational with no opportunity to observe causal effects due to the manipulation of measurable variables present.

The correlations that do exist may exist for different reasons. One, the correlation between two undefined, measurable variables may exist due to chance. Second, when variables are undefined, as in a questionnaire asking subjects to rate their self-esteem, for example, the subjects may tend to respond the way other subjects and other members of their reinforcing community would have them respond. A correlation due to this process is highly likely to occur, when in fact, there may be no or little correlation between variables if the variables were well defined and measured. Third, it may be acceptable for the authors of the various studies to speak of correlations of undefined terms, and also speak of the correlations in causal language because it is an accepted verbal practice by his peers, and others in his reinforcing community. Because of the different reasons for
correlations to exist, one can easily see the potential confounding situation that can occur when speaking of undefined and unmeasurable variables that are used in various studies.

Although studies of this type are presented in this paper, causal attributions are not condoned. The existing studies are presented due to the lack of a true causal data in existing studies and research. Thus, it is with caution that any definite predictions and hypotheses are drawn from these studies.

An example of a study based on a undefined term is Dietz (1978), where he criticizes the law of effect as mere circular logic: 'Reinforcers determine the responses, and the response determines the reinforcer.' Dietz does not give his definition of the term 'law'. If he would define laws as they exist in nature, the law of effect could not be discarded as an applied science (at best) rather than a law. The law of effect is actually a law because one can enter the circular (logic) pattern at any place with a wide range of action in the form of a reinforcement menu.

The menu can offer several reinforcers of which one or more may be appropriate to increase responding. In this respect, the law of effect (and the transituational assumption) exist when analyzing responses and reinforcers. The emphasis is on how one defines law. It is evident Dietz did not give the law of effect the same meaning as he would have in studying the law(s) of nature.

Hypothesis

As indicated in the discussion above, there is literature and research that suggest that the perceived power of a supervisor is
different from the status of a supervisor, and suggests that the perceived power may be related to worker's performance. It has also been shown that the perceived power of a supervisor could effect work performance through supervisor control of rewards and punishments, the valence of the rewards controlled, pressure induced by the supervisor, and the countercontrol of the subordinate. The body of research presented leads to the logical formation of the hypothesis: The perceived power of the supervisor assigning goals has a significant effect on goal attainment.

The objectives of the study are:

1. To determine if the perceived power of those assigning goals has a significant effect on goal attainment.

2. To determine if the perceived power of those assigning goals has a significant effect on the speed at which the goals are attained.

If it can be determined that the power of the person assigning goals has an effect on goal attainment and the speed at which the goals are attained, a more cost effective approach can be taken to goal setting to increase performance. Also, factors that contribute to the perceived power of those assigning goals may be worth studying if it is found that the perceived power of those assigning goals affects goal attainment (level or speed).

The hypothesis will be tested by an experiment in an applied setting. The results of the experiment will further eliminate the uncertainty of how goals should be set by focusing on a factor that affects goal attainment of assigned goals; namely the perceived power of the supervisor assigning the goal. The study will contribute to the
enhancement of goal setting toward a science rather than an art or applied science, enabling a more effective use of goal setting in industry, business, education, and other fields in which supervisors assign goals.
METHODS

Subjects

The research was conducted in a small manufacturing firm in the Midwest with 43 nonproduction workers. The occupations of the subjects included vice president (1), managers (9), engineers (5), supervisors (5), technicians (6), clerks (5), key punch operators (2), and secretaries (7). Of the 43 subjects, 16 were female and 27 male with the age range of 24 - 56 years of age. The method of selecting an experimental site and the subsequent informal contract is described in Appendix A.

The subjects were randomly assigned into three groups. Group A consisted of seven females and eight males; group B consisted of six females and eight males; group C consisted of three females and eleven males.

All of the groups had less than 100% participation. Group A had 12 of the 15 subjects participate with one female (answering phones) and two males (supervising in plant, absent) missing. Group B had 13 of 14 subjects participating with one female (part-time) missing. Group C had 11 of 14 subjects participating with one female (part-time) and two males (out of town, supervising in plant) missing. All subjects were sent a memo stating that they were expected to participate in the experiment. It was also stated that no rewards of any kind would be given to the subjects for participating in the experiment.
Apparatus

Three rooms were used for each of the three groups to meet: an executive conference room, an engineering conference room, and an area in the central filing portion of the office. One clock and two watches were used to measure 10 minute time frames.

Independent Variable

A survey was used to measure the independent variable, which was the perceived power of the person assigning goals. Student (1966) developed the survey, based on the work done by French and Raven in the late 1950's, which measures power on five different bases. (See Appendix B.) Referent, expert, reward, coercive, and legitimate power are each measured on a five point scale to determine the power of influence of one person over another. No reliability coefficients have been taken of the survey, but Student (1966) has addressed the issue of reliability when he states:

A word regarding the reliability of the questionnaire measures is appropriate. The items used in the present study have been used previously in other studies conducted by the Organizational Behavior Program of the Survey Research Center. In these other studies the items have produced, generally, expected and predicted relationships. Consequently, we can place some confidence in the use of these items in the present research although specific item reliability data are unavailable. (p. 45)

This survey measured the perceived power of the president, personnel manager, secretaries, and a graduate student collecting data at the manufacturing firm in the experiment.

A rank ordering of the perceived power to the president, personnel manager, secretaries, and the graduate student collecting data was also
asked for in the survey. These two measurements were used to determine the perceived power of those assigning goals, which was used as the independent variable.

Dependent Variable

Three sheets were given to the three groups at different times containing specific tasks to be completed.

**Task 1.** List fifteen specific ways to increase the cost-effectiveness of operations at (company name).

Example: Decrease waste of office supplies (pencils, paper, etc.).

Nonexample: Lower costs (this is too general).

**Task 2.** List fifteen specific ways in which we could make jobs more interesting and improve morale at (company name).

Example: Establish a "worker of the week" award.

Nonexample: Build a gym and swimming pool for the workers.

**Task 3.** List fifteen specific ways in which we can improve communication between departments and between organizational levels at (company name).

Example: Write memos, to whom it may concern, for all decisions made.

Nonexample: Talk to each other more often.

The dependent variable was the number of suggestions listed by the subjects on each assigned task. The specific task to be completed was assigned to each subject to perform individually. Brainstorming was done on an individual basis, not as a group exercise. The only time the group was treated as a group was in the instructional stage in which all members of the group were exposed to unique conditions of goal assignment.
An instructional form was constructed to standardize the charge of each task to each group. Also, a question and answer form was constructed to standardize the question answering of each of the persons assigning the goals, as there was bound to be some subject questioning of the tasks (see Appendix C). This was done to insure that the only variable that would change would be the level of perceived power of those assigning the goal for each task.

Procedure

A list of the 43 office and management employees of the manufacturing firm was obtained. After listing the subjects in alphabetical order by last name, a number was randomly chosen, 39. Starting with the 39th name in the list, the remaining subjects on the list were systematically assigned to groups A, B, and C until every subject was placed in a group. This process results in systematic random sampling (Hopkins & Glass, 1978).

Each subject was given the survey to measure perceived power (Appendix B) to determine if there was in fact an independent variable. The subjects were also told why they were sent a memo to meet to participate in a special project. If a subject questioned this process, the response given to the individual subject was, "(Company name) is interested in more employee involvement and input in three specific areas. At 4:30 today we are going to split into three groups and brainstorm ideas on these three areas. Because it is a brainstorming exercise, I am not going to tell you what the three areas are. In summary, the company desires more input from you and its other
employees, do you have any questions?" If any questions did arise, the statement was given again. At this time the subject was told which group he/she was in and when to report to the assigned room in which the group was to meet. Results of the perceived power survey indicated that there was a difference in perceived power of the president, personnel manager, secretaries, and the graduate student collecting data.

After the subjects were in their correct groups, the persons assigning the tasks and goals were given specific instructions on how to assign the goals. They were instructed to assign 15 suggestions for each of the tasks listed above, and to avoid answering questions pertaining to the assignment with, "Well, just try and do your best" or "That's what I was told to tell you." The instructional form (Appendix C) was used by each person assigning the task.

Each group received Task 1 on cost-effectiveness, then each group received the task on increasing morale and finally, each group received the task on increasing communications. Each group had 10 minutes to complete the task. If a subject completed the task before the 10 minutes was up, the person assigning the goal would write down the time it took the subject to complete the task. After each task the three persons assigning the tasks would move to a group they had not assigned a task to yet. Table 1 shows the task, assigning sequence, and time of the experiment.

One week after the experiment, the perceived power survey was given to each subject to determine the reliability of the measure. ANOVA tests were run to determine if there was a significant
difference in performance on each task between each group.

Table 1

Experiment Matrix

<table>
<thead>
<tr>
<th></th>
<th>Groups</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>A</td>
</tr>
<tr>
<td>4:45 - 4:45</td>
<td>President</td>
</tr>
<tr>
<td>Cost-effectiveness</td>
<td></td>
</tr>
<tr>
<td>4:50 - 5:00</td>
<td>Secretary</td>
</tr>
<tr>
<td>Increasing Morale</td>
<td></td>
</tr>
<tr>
<td>5:05 - 5:15</td>
<td>Pers. Manager</td>
</tr>
<tr>
<td>Increasing Communications</td>
<td></td>
</tr>
</tbody>
</table>

The means and standard deviations of subject responses in each group under the different power type and task conditions were listed.
RESULTS

Main Effects

The hypothesis that the perceived power of the person assigning goals has a significant effect on goal attainment was not supported, as there was not a statistically significant difference in the number of responses by each group to the goals assigned by the president, personnel manager, or the secretary in the experiment. Table 2 shows the means and standard deviations of the groups under each condition of perceived power and task levels, and the marginal means for all power and task conditions.

The overall results (Table 3) show a nonsignificant effect of the perceived power of those assigning goals on goal attainment, $F(2.66) = .03, p < .05$, where the respective means of responses to the goal assignment of the president, personnel manager, and secretary were 4.86, 4.94, and 4.77 with corresponding standard deviations of 2.60, 2.26 and 2.46.

A further analysis of the effect of power type on goal attainment under each task condition indicated a nonsignificant effect of power type under the task of increasing cost-effectiveness, $F(2.33) = .61, p < .05$; improving morale, $F(2.33) = 1.38, p < .05$; and improving communications, $F(2.33) = .82, p < .05$.

The latin square ANOVA test did, however, indicate a significant difference in the responding to each task, $F(2.66) = 29.94, p < .05$ where the mean of responses to the task concerning increasing cost-effectiveness ($M = 6.19, SD = 2.91$) was greater than improving morale

37
Table 2

Number of Responses to Tasks Assigned Under Three Conditions of Perceived Power

<table>
<thead>
<tr>
<th>Task</th>
<th>President</th>
<th>Pers. Manager</th>
<th>Secretary</th>
<th>Marginal Means</th>
</tr>
</thead>
<tbody>
<tr>
<td>Improving Cost-Effectiveness</td>
<td>Group A, n=12</td>
<td>Group B, n=12</td>
<td>Group C, n=11</td>
<td>X=6.19</td>
</tr>
<tr>
<td></td>
<td>M=5.83</td>
<td>M=6.84</td>
<td>M=5.38</td>
<td></td>
</tr>
<tr>
<td></td>
<td>SD=3.21</td>
<td>SD=2.44</td>
<td>SD=2.31</td>
<td></td>
</tr>
<tr>
<td>Improving Morale</td>
<td>Group B, n=13</td>
<td>Group B, n=11</td>
<td>Group A, n=12</td>
<td>X=4.97</td>
</tr>
<tr>
<td></td>
<td>M=5.38</td>
<td>M=4.09</td>
<td>M=5.33</td>
<td></td>
</tr>
<tr>
<td></td>
<td>SD=2.14</td>
<td>SD=1.44</td>
<td>SD=2.53</td>
<td></td>
</tr>
<tr>
<td>Improving Communication</td>
<td>Group C, n=11</td>
<td>Group A, n=12</td>
<td>Group B, n=13</td>
<td>X=3.41</td>
</tr>
<tr>
<td></td>
<td>M=3.18</td>
<td>M=3.66</td>
<td>M=3.38</td>
<td></td>
</tr>
<tr>
<td></td>
<td>SD=1.53</td>
<td>SD=2.60</td>
<td>SD=2.14</td>
<td></td>
</tr>
<tr>
<td>Marginal Means</td>
<td>X=4.86</td>
<td>X=4.94</td>
<td>X=4.77</td>
<td></td>
</tr>
<tr>
<td></td>
<td>SD=2.60</td>
<td>SD=2.62</td>
<td>SD=2.46</td>
<td></td>
</tr>
</tbody>
</table>

(M=4.97, SD=2.13), which was greater than improving communication (M=3.41, SD=2.10).

There was also a difference in the responding of each group to the three different tasks as can be seen in Table 1. Group B (M=5.20, SD=2.61) generally responded more frequently than group A (M=4.94, SD=2.87) and group C (M=4.36, SD=2.01) when the responses on all tasks were analyzed. This difference proved to be nonsignificant, $F(2.33)=.57$, $p<.05$.

The survey revealed a significant difference, $F(2,120)=21.63$, $p<.05$, between the perceived power of the president (M=15.66, SD=3.92),
Table 3
ANOVA Table for Latin Square Design of Task by Power Type by Group

<table>
<thead>
<tr>
<th>Source</th>
<th>SS</th>
<th>df</th>
<th>MS</th>
<th>F</th>
</tr>
</thead>
<tbody>
<tr>
<td>Between subjects</td>
<td>390.25</td>
<td>35</td>
<td>6.52</td>
<td>.57</td>
</tr>
<tr>
<td>Groups</td>
<td>13.03</td>
<td>2</td>
<td>6.52</td>
<td>.57</td>
</tr>
<tr>
<td>Subjects within groups</td>
<td>377.22</td>
<td>33</td>
<td>11.43</td>
<td></td>
</tr>
<tr>
<td>Within subjects</td>
<td>302.67</td>
<td>72</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Task</td>
<td>139.56</td>
<td>2</td>
<td>67.78</td>
<td>29.94</td>
</tr>
<tr>
<td>Power type</td>
<td>.16</td>
<td>2</td>
<td>.08</td>
<td>.03</td>
</tr>
<tr>
<td>Residual</td>
<td>9.15</td>
<td>2</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Error</td>
<td>153.81</td>
<td>66</td>
<td>2.33</td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>692.92</td>
<td>107</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

the personnel manager (M=12.73, SD=3.00), and the secretary (M=11.00, SD=2.66). t tests further indicated a significant difference between the president and the personnel manager, t(80)=3.79, p < .01; the personnel manager and the secretary, t(80)=2.75, p < .01; and the president and the secretary t(80)=6.29, p < .01.

Survey Reliability

The survey was given before and after the experiment. The correlation coefficient between the pre and post experiment survey scores were .87 for the president, .88 for the personnel manager, .44 for the secretary, and .84 for the graduate student collecting data. The

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correlation for the pre and post experiment rank order scores by the subjects of the levels of perceived power was .98.

Finally, the Spearman Rank correlation between the survey ranking scores and the rank order scores, obtained before the experiment from 40 subjects, was .82.
DISCUSSION

As the results of this experiment indicate, there are no data that suggest the perceived power of those assigning goals has a significant effect on goal attainment. There are, however, reasons why this particular experiment did not support the hypothesis under study, thus leaving a tenable hypothesis that needs further investigation.

Experimental Site

One reason why this experiment did not support the stated hypothesis may be related to the organizational climate in which the experiment was conducted. Comments and suggestion from the management personnel of the company in which the experiment was conducted indicated that the organizational climate was changing, or in a transitional stage, approaching a supportive, participative style of management. A new image of employee concern and the involvement of many levels of management in the growth of the company was emphasized. Of the personnel involved in the experiment and asked, "How often do you get a chance to give input on areas, such as last week (on the three input tasks)", half of the people responded "never" (26% or "seldom" (26%), while the other half responded "often" (36%) or "whenever I feel it is necessary" (14%). From these figures and comments made by several people (Example: "It's about time they asked us, I think we can really help"), it can be concluded that half of the subjects in the study were very anxious to be able to give suggestions and participate in the
tasks that were given. The other half of the subjects had been exposed to giving input frequently in different areas freely and willingly because they were familiar with being called on for their personal input on a specific matter. As a result the group of subjects as a whole was very receptive and willing to respond to all tasks and might have reduced the effects of perceived power variable.

As mentioned, the organizational climate of supportiveness and involvement of all levels of management in growth needs is in the transitional stage. There are still very distinct reactions to who desires certain tasks to be done. Sixty-nine percent of the subjects involved in the experiment, when asked (after the experiment) who was really assigning the goal, felt the president was actually assigning them each task and goal even though other people were telling them what to do. This perception by the subjects may have occurred for various reasons. A memo came out the morning the experiment was to be run, informing each worker of a meeting after work. During the afternoon the perceived power survey was given to each subject to be in the experiment along with a brief explanation of what the meeting was for. The explanation was to the effect that input was needed from them in three different areas (the subjects were not told what the three task areas were). Because of the memo and the presence of a graduate student administering surveys and explaining why there was to be a meeting after work, the subjects could have been under the perception that "the president was behind all of this". The subjects past experience may have told them that this process would not occur if the president had not approved and in fact supported what was being
done, thus the distorted perceptions of who was actually assigning
the tasks and the corresponding goals.

This perception distorted the independent variable in the experi-
ment. The subjects had indicated by the completed survey that there
was a significant difference in the perceived power of the personnel
to be used to assign goals in the experiment, but as mentioned above
69 percent of the subjects actually believed the president to be
assigning the goals because of what had expired during the previous
hours. As a result when the independent variable was manipulated in
the experiment, the subjects perceived the highest level of power type
to actually be assigning the tasks and goals; it remained the per-
ceived power of the president due to past experiences with the manage-
ment style and the transitional stage of the organizational climate.

Variables

Independent Variable

Another reason why the data indicates a lack of effect of power
type on goal attainment may be due to the fact that the significant
differences between perceived power of the president, personnel mana-
ger, and secretary obtained through the survey given before the exper-
iment may have not been accurate. The survey used to detect the level
of perceived power has been shown by this experiment to have a relia-
bility coefficient around .80. No validity coefficients have been
determined for the survey. The question of validity must be asked be-
cause of its inconsistency with the forced ranking that accompanied
the survey. Only 42 percent of the time did the survey reflect
identical rankings of perceived power with the forced rankings, by the same subject.

Note that this pre-experimental measure of power should reflect the true perceptions of all subjects. This is unrelated to the previous argument of "actual perceived power" when the experiment is being conducted (due to management style, supportiveness, etc.) as the survey was because no task or goal assignment had yet taken place.

The survey used (Student, 1966) measures the perceived power of a person on five bases of power: referent, expert, reward, coercive, and legitimate. The problem that arises is that each base of power is assigned to be equal as a five point Likert scale is given each power base for a possible total of 25 points. Subjects in this experiment consistently rated those assigning goals high on expert and legitimate power. Several post experiment comments to the question of whether or not subjects responded differently to the three levels of perceived power indicated that the expert and legitimate bases of power make up much more than 40 percent of one's total perception of perceived power of another individual. Assuming this may be true, it is possible to obtain a statistical significant difference of perceived power of three individuals due to the inflation of the value of three of the five power bases. Thus, the independent variable of perceived power that was tested to have a significant difference, may in fact be nonsignificant and lead to a nonsignificant effect of the perceived power of those assigning goals on goal attainment, as reflected by the latin square ANOVA test used in the study.
Dependent Variable

The dependent variable may also have an effect on the results of the experiment. Tasks involving increasing cost-effectiveness of operations, improving morale, and improving communication are tasks that may have been viewed to be important, but not essential to perform. The three tasks areas were suggested by the management of the experiment site because of an attempt to improve each of these areas and also to involve all subjects in tasks of common concern, not because there was a deficiency in performance in these areas. The tasks were not being performed at a deficient level as, for example, the task of a production worker producing n widgets per shift when he is supposed to produce 2n widgets per shift. When a goal is assigned in a condition where a deficiency exists the goal produces more contingencies, and applies more elements of motivation than if a goal is assigned as an input exercise for company growth.

When a goal is assigned to a subject in a condition where a deficiency exists, the goal provides more pressure to reach an expected and established standard because of the perceived rewards and punishments attached to the new goal of reaching the standard. These contingencies are different than the contingencies in the condition of a company desiring one's input to further the efficiency and growth of the company. It is much like the concept of giving the company some "bonus" effort.

The contingencies surrounding the task performance in this experiment were further weakened because of the time the groups received their tasks. After work tasks may cause less commitment and effort.

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because of the subjects' fatigue and the perception of going beyond
the required standard of performance.

Finally, placing the subjects in groups may have had an adverse
effect on the relationship of power type and goal attainment. Al­
though the subjects of each group worked individually to generate res­
ponses for each task, the fact that they were in a group may have
lowered the contingencies to perform at their best. This could have
a confounding effect on the relationship of power type and goal attain­
ment. The perception of the whole group suffering from poor perfor­
mance rather than the individual may result due to the thought of being
assigned the task as a group versus individually.

Conclusion

This study has tested the hypothesis that the perceived power
of those assigning goals will have a significant effect on goal attain­
ment. A body of evidence was presented to support the hypothesis and
to design an experiment to test the hypothesis. The results of this
particular experiment do not support the hypothesis. Several reasons
why the results of the experiment do not support the hypothesis were
discussed. Confounding effects of organizational climate, and opera­
tionalizing independent and dependent variables were some of the rea­
sions discussed.

Confounding variables and the resulting fluctuating effects of
variable interaction are much more difficult to control in field stu­
dies and experiments than in the laboratory setting. In a field exper­
iment there are complex interactions of everyday occurrences such as
union influence on behavior, high frequency of communication between subjects, logistics of selecting independent and dependent variables that effect the experimental design, management support of the experiment on the productivity and morale of the workers. All of these factors and others unique to specific experiments may hinder the probability of obtaining results to support a projected hypothesis.

The fact that this experiment did not support the hypothesis stated, does not prove the hypothesis to be incorrect. Further field experiments in different work settings, using different variables must be conducted to thoroughly research and prove or disprove the hypothesis generated and tested by this experiment. This experiment contributes to research on goal setting by indicating that the perceived power of those assigning goals does not have a significant effect on goal attainment in a company approaching an open and supportive management style and organizational climate among its nonunion office personnel.
APPENDIX A
LOCATING AN EXPERIMENTAL SITE
BENEFITS TO ORGANIZATION
Locating an Experimental Site

The selection of a site to conduct a field experiment need not be an off-the-cuff, luck meeting of time and location as it may sometimes seem (or be desired). On the other hand, it need not be the selection of a site owned and operated by relatives or other close friends, giving you access and control of variables to produce the statistical results you would like.

The selection of the site in which this field experiment was run was the result of the application of a method that may prove fruitful to those in search of future experimental sites. The site was one of several (9) manufacturing firms that were approached to generate interest in the area of study that the experiment addressed. The first steps of the method was to select a geographical location that was somewhat familiar and also a location that the person conducting the experiment would like to establish a career.

Of the several firms approached to establish a site, all were approached with four specific concepts in mind. One, the president of each firm or company was the person initially contacted if at all possible. If it was virtually impossible to contact the president, then the next person in the organization hierarchy was contacted initially. Second, a general statement of the type of experiment, and the domain of the experiment was covered. An explanation of the variables to be manipulated, the participation of the company, and the time factors of conducting the experiment were explained. It is very important to keep the design of the experiment simple, as not to intimidate the company officials, and yet keep it valid and reliable.
Third, the inductive reasons for conducting the experiment were explained. This included the benefits the organization would receive by conducting the experiment in their company. To be realistic, the company must realize a benefit to accommodate a field experiment. It is up to the person conducting the experiment to "sell" the experiment. Finally, an informal contract is agreed upon. This includes the agreement to follow up on the actions that lead to the benefits to the company, and the organization and presentation of the results of the experiment.

The domain of the experiment is inherent in the description of the method of the experiment. The inductive reasons for conducting this experiment are listed under "Benefits to Your Organization". The four concepts mentioned above were the guidelines used to secure a site for this particular experiment. The validity of this process seems quite high as a site was secured without prior acquaintances of any persons working for the company or any persons related to the company in any way.
Benefits to your Organization

1. This study will investigate whether the perceived power of the supervisor assigning goals has a significant effect on goal attainment and the speed at which the goals are attained. If after statistical analysis it can be determined that perceived supervisor power does have a significant effect on goal attainment, efforts can be made to increase the perceived power of the supervisor, thereby increasing goal attainment and the speed at which goals are attained. This increase in goal attainment will result in increased performance, thus benefiting the organization.

2. The results of the three tasks to be completed by the employees in the experiment can be used to solve the problem that the charge of each task addresses, thus benefiting the organization.

3. The experiment calls for the participation of several employees. Effective participation in tasks concerning important and relevant company problems and/or policies can lead to positive results as there is considerable evidence in research that indicates that participation is positively correlated with increased job satisfaction, lower absenteeism, and lower turnover. Although this experiment is quite low in complexity, it can be viewed by the employees as your company's investment of trust and belief in the labor force. Again, this can only have positive effects for your organization.
PERCEIVED POWER SURVEY

To what extent do you do what the president of Michigan Plastics wants because he's a "nice guy" and you don't want to hurt him?

(1) not at all
(2) to a very little extent
(3) to some extent
(4) to a considerable extent
(5) to a very great extent

To what extent do you do what the president of Michigan Plastics wants because you respect his experience and good judgement?

(1) not at all
(2) to a very little extent
(3) to some extent
(4) to a considerable extent
(5) to a very great extent

To what extent do you do what the president of Michigan Plastics wants because he can give special help and benefits to those who cooperate with him?

(1) not at all
(2) to a very little extent
(3) to some extent
(4) to a considerable extent
(5) to a very great extent

To what extent do you do what the president of Michigan Plastics wants because he can penalize or make things difficult for those who do not cooperate?

(1) not at all
(2) to a very little extent
(3) to some extent
(4) to a considerable extent
(5) to a very great extent

To what extent do you do what the president of Michigan Plastics wants because he has a right, considering his position, to expect that I'll do what he wants?

(1) not at all
(2) to a very little extent
(3) to some extent
(4) to a considerable extent
(5) to a very great extent

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To what extent do you do what a secretary at Michigan Plastics wants because she's a "nice gal" and you don't want to hurt her?

____ (1) not at all
____ (2) to a very little extent
____ (3) to some extent
____ (4) to a considerable extent
____ (5) to a very great extent

To what extent do you do what a secretary at Michigan Plastics wants because you respect her experience and good judgement?

____ (1) not at all
____ (2) to a very little extent
____ (3) to some extent
____ (4) to a considerable extent
____ (5) to a very great extent

To what extent do you do what a secretary at Michigan Plastics wants because she can give special help and benefits to those who cooperate with her?

____ (1) not at all
____ (2) to a very little extent
____ (3) to some extent
____ (4) to a considerable extent
____ (5) to a very great extent

To what extent do you do what a secretary at Michigan Plastics wants because she can penalize or make things difficult for those who do not cooperate.

____ (1) not at all
____ (2) to a very little extent
____ (3) to some extent
____ (4) to a considerable extent
____ (5) to a very great extent

To what extent do you do what a secretary of Michigan Plastics wants because she has a right, considering her position, to expect that you'll do what she wants?

____ (1) not at all
____ (2) to a very little extent
____ (3) to some extent
____ (4) to a considerable extent
____ (5) to a very great extent

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To what extent do you do what the personnel manager of your company wants because he's a "nice guy" and you don't want to hurt him?

(1) not at all  
(2) to a very little extent  
(3) to some extent  
(4) to a considerable extent  
(5) to a very great extent

To what extent do you do what the personnel manager of your company wants because you respect his experience and good judgement?

(1) not at all  
(2) to a very little extent  
(3) to some extent  
(4) to a considerable extent  
(5) to a very great extent

To what extent do you do what the personnel manager of your company wants because he can give special help and benefits to those who cooperate with him?

(1) not at all  
(2) to a very little extent  
(3) to some extent  
(4) to a considerable extent  
(5) to a very great extent

To what extent do you do what the personnel manager of your company wants because he can penalize or make things difficult for those who do not cooperate?

(1) not at all  
(2) to a very little extent  
(3) to some extent  
(4) to a considerable extent  
(5) to a very great extent

To what extent do you do what the personnel manager of your company wants because he has a right, considering his position, to expect that you'll do what he wants?

(1) not at all  
(2) to a very little extent  
(3) to some extent  
(4) to a considerable extent  
(5) to a very great extent
To what extent do you do what a graduate student collecting data for your company wants because he’s a “nice guy” and you don’t want to hurt him?

(1) not at all
(2) to a very little extent
(3) to some extent
(4) to a considerable extent
(5) to a very great extent

To what extent do you do what a graduate student collecting data for your company wants because you respect his experience and good judgment?

(1) not at all
(2) to a very little extent
(3) to some extent
(4) to a considerable extent
(5) to a very great extent

To what extent do you do what a graduate student collecting data for your company wants because he can give special help and benefits to those you cooperate with him?

(1) not at all
(2) to a very little extent
(3) to some extent
(4) to a considerable extent
(5) to a very great extent

To what extent do you do what a graduate student collecting data for your company wants because he can penalize or make things difficult for those who do not cooperate?

(1) not at all
(2) to a very little extent
(3) to some extent
(4) to a considerable extent
(5) to a very great extent

To what extent do you do what a graduate student collecting data for your company wants because he has a right, considering his position, to expect that you’ll do what he wants?

(1) not at all
(2) to a very little extent
(3) to some extent
(4) to a considerable extent
(5) to a very great extent
Please rank, as you perceive the following people in order of the power that they possess. Assign the number one (1) to the most powerful person that you perceive, (2) to the next powerful, (3) to the next powerful, and (4) to the least powerful person listed below. Remember to rank them as you perceive them to have power.

* The President of Michigan Plastics ........................................

* A secretary at Michigan Plastics ........................................

* The personnel director at Michigan Plastics ......................

* A graduate student collecting data for Michigan Plastics ....

Thank you for your time and cooperation in filling out this form. Your input has been helpful.
APPENDIX C

INSTRUCTIONAL FORM

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As you were told today, Michigan Plastics wants your input in three areas that are of concern to the company. You will be given a sheet with a task that tells you to list suggestions for improvement in certain areas. You will have 10 minutes to complete the task.

Remember to be specific and realistic with your suggestions, keeping in mind the criteria of cost, timeliness, application, and practicality. Here is your task. I feel you can list fifteen items on this task. Please work on your own.

(Pass out sheet and emphasize the importance of being specific.)

Q. What if we can't think of 15 suggestions?
A. I decided that 15 suggestions should be the goal to reach.

Q. What if I don't reach this goal though, what will happen?
A. Then we won't have as many suggestions as we expect.

Q. Does this task apply to office workers or production workers?
A. Both, in either situation.

Q. How about this suggestion ________________, is that good enough?
A. You decide.
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