INDIVIDUAL GOAL SETTING AND PERFORMANCE IN A GROUP CONTEXT

by

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Extensive research has been conducted through the years to attempt to determine why some individuals devote so much time, energy, and effort to the performance of their jobs, while others do not. In other words, a major concern of many researchers has been the study of what motivates workers to carry out their jobs. Likewise, industrial management has been very interested in the investigation of work motivation (Steers & Porter, 1975). Management has considered acquisition of information about this concept very essential to the maintenance and improvement of the organization. A better understanding of work motivation and applications of its principles in the work environment have been seen as necessary factors in helping to increase the efficiency and effectiveness of employee performance. With this notion in mind, many companies have implemented various methods developed from knowledge of work motivation, such as Management By Objectives, job enrichment, and job redesign, with the intention of improving overall organizational operations and productivity (Miner, 1980).

In attempting to delve into the explanation, the "workings" of work motivation, many theories have been formulated. All of these theories have concentrated on describing the construct of work motivation, that is, "the conditions which influence the arousal, direction, and maintenance of behaviors relevant in work settings" (Muchinsky, 1983, p. 358). One possible explanation of work motivation that has been examined to a great extent is the

concept of goals and goal setting. Many definitions of a goal have been proposed. A goal has been defined as: "an image of a future state, which may or may not be brought about" (Etzioni, 1975, p. 71); "the objective or end result that a group or an individual seeks to achieve" (Barker, Wahlers, Kibler, & Cegala, 1983, p. 39); and "what an individual is trying to accomplish; it is the object or aim of an action" (Locke, Shaw, Saari, & Latham, 1981, p. 126). "Objective," "budget," "work norm," "performance standard," "deadline," and "quota" are some of the words that have been used synonymously with "goal." Clearly suggested by these definitions and synonyms is the basic idea that a goal is a conscious intention of an individual. This conscious idea acts to guide a person's behavior, directing it toward the attainment of the goal itself.

THE NATURE OF GOAL SETTING

In recent years, a great deal of study has concentrated upon the characteristics of the goal-directed behavior with respect to various attributes of the goal itself (Miner, 1980). Locke (1968, 1981), one of the major proponents of this approach to explaining work motivation, advanced a theory of goal setting which advocated that "the higher the intended level of achievement (the goal), the higher the level of performance." In other words, hard goals yield a higher level of performance than do easy goals.

Three experimental field studies supported this statement concerning a positive relationship between goal difficulty and task performance: Latham and Locke (1975) in a study of logging crews; Yukl and Latham (1978) with typists; and Bassett (1979) in a simulated field study. Thirty-one experimental laboratory studies have also obtained similar results using a wide variety of tasks. Some of these include: Bavelas (1978) with a figure selection task; Bavelas and Lee (1978) in five of six experiments that involved brainstorming, figure selection, and sum estimation tasks; Campbell and Ilgen (1976) with chess; Erez and Zidon (1984), Matsui, Okada, and Kakuyama (1982), Locke, Mento, and Katcher (1978), and Mento, Cartledge, and Locke (1980) using perceptual speed tasks; Garland (1982, 1983) with creativity tasks; LaPorte and Nath (1976) with prose learning; Latham and Saari (1979a) and Locke (1982) with brainstorming; Locke and Bryan (1969) with simple addition; London and Oldham (1976) with card sorting; Matsui, Okada, and Mizuguchi (1981) using a clerical task; and Sales (1970) using anagrams. Four other experimental studies also supported the idea of a positive linear relationship between goals and performance, but only when hard goals were accompanied by feedback regarding performance in relation to the goals. These studies were: Becker (1978) with an energy conservation task; Erez (1977) using a clerical task; Strang, Lawrence, and Fowler (1978) with a computation task; and the first part of Frost and Mahoney's study (1976) with a reading

task.

On the other hand, nine experimental lab studies found no relation between goal level and task performance. These studies were: Bavelas and Lee (1978), in one of six experiments, and Mowen, Middlemist, and Luther (1981) using addition tasks; Campbell (1984) with a managerial decision-making task; Frost and Mahoney (1976) using a jigsaw puzzle task (for part of the study); Oldham (1975) using a clerical task involving the completion of time sheets; Organ (1977) using an anagram task; Motowidlo, Loehr, and Dunnette (1978) employing a complex computation task; Jackson and Zedeck (1982) using a model building task and a computation task; and Forward and Zander (1971) using a team-coding task with groups of high school boys. A number of these failures to support the idea that "the harder the goal, the better the performance" were attributed, in general, to the restricted range of goal levels used in the studies (i.e., moderately difficult to very difficult).

In addition, Locke (1968) also stated that specific hard goals produce higher levels of the goal-directed behavior than do nonspecific ("do your best") goals or no goals at all. Twenty-four field experiments have supported this statement. A few of these studies were: Dossett, Latham, and Mitchell (1979), in two studies, using a clerical test and performance evaluations for employees; Ivancevich (1976) with sales personnel; Ivancevich (1977) with maintenance technicians; Kim and Hamner (1976) with

telephone service jobs; Latham and Kinne (1974) with logging operations; Latham and Yukl (1975) with woods workers; Latham and Yukl (1976) with typing; Latham, Mitchell, and Dossett (1978) with engineering and scientific work; Wexley and Nemeroff (1975) with managerial training; and White, Mitchell, and Bell (1977) using card sorting.

Results from twenty-one laboratory studies upheld the findings of the field studies on goal specificity. Some of these experiments included: Chung and Vickery (1976) with a clerical task; Jackson and Zedeck (1982) with the computational task in their study; Hannan (1975) using a coding task; Latham and Saari (1979b) with brainstorming; Mossholder (1980) using two assembly tasks; Organ (1977) with the anagram task used in the study; Pritchard and Curtis (1973) with card sorting; and Terborg and Miller (1978) using tinker-toy assembly tasks. Some negative results were obtained in two of these studies: Latham and Yukl (1975) with one of the samples of woods workers in their field study; and Organ (1977) on a proofreading task. Failure to support the idea that specific hard goals lead to better performance was explained in the first study by lack of organizational support and, in the second study, by the use of moderate rather than hard goals.

Goal setting, according to Locke (1968), is also most likely to improve performance when feedback is provided to show progress in relation to the goal. Some studies have shown the

interdependence of these two, that is, that knowledge of results (feedback) plus goals results in better task performance. Specifically, a few of these studies were: Bandura and Simon (1977) with overweight clients in a weight clinic; Latham et al. (1978) with the engineers and scientists in their study; Nemeroff and Consentino (1979) with supervisors concerning performance appraisal behavior; Komaki, Barwick, and Scott (1978) in a study involving the making and wrapping of pastry products; Becker (1978) with families in his study of residential electricity use; and experimental laboratory studies by Strang et al. (1978) and by Matsui, Okada, and Inoshita (1983) using arithmetic computation tasks. None of these studies, however, used and compared all four variables of feedback, no feedback, specific hard goals, and "do best" or no goals in one experiment. More studies including all of these conditions need to be conducted in order to strengthen these experimental results, showing that knowledge of results and goals are both necessary in order to enhance task performance. In light of prior results on goal specificity and knowledge of results, the combination of specific hard goals and feedback would be expected to greatly improve performance.

Other attributes of goal setting that, according to Locke et al. (1981), influence subsequent task performance are those of participation in setting the goal and acceptance of the goal. Locke and Schweiger (1979) found, in a review of participation in

decision-making literature, that there was no consistent difference in the effectiveness of "top-down" decision making and decisions made with subordinate participation. Three field studies found this statement to be true with respect to goal setting. These studies were: Carroll and Tosi (1970) using measures of perceived participation in goal setting at a manufacturing firm with a Management By Objectives program; and Ivancevich (1976, 1977) using assigned and participatively-set goals with different groups of employees. In these studies, however, the goal difficulty levels for the different goal groups were not assessed. Therefore, goal difficulty could have been confounded with the assigned versus the participative goal setting conditions.

Aside from these three studies, most research on goal participation has implied that there is an indirect relationship between participation in setting a goal and performance. Several of these studies have concluded that participation in goal setting may affect task performance by way of its influence on the difficulty of the goal. That is, a higher goal may result when it is participatively set than when assigned by a manager or supervisor. Some of the field and laboratory studies that have suggested this relationship include: Latham and Yukl (1975, 1976) with logging crews and typists, respectively; Latham and Marshall (1982) using a brainstorming task with government employees; Dossett et al. (1979) with clerical workers; Latham,

Steele, and Saari (1982) using an arithmetic task; Latham and Steele (1983) with a toy assembly task; and Latham and Saari (1979 a & b) using brainstorming in both studies.

Other studies of participation in setting a goal have implied that this factor might indirectly influence task performance by increasing goal acceptance. Locke (1968) has stated that "the most direct effect of participation is probably to commit a subject to the decision reached [about the goal]" (p. 185). The importance of goal acceptance to improvements in performance has been repeatedly asserted. In order for goals to be effective in improving performance, they must be accepted by the individuals working toward them (Locke, 1968; Locke et al., 1981). As Muchinsky (1983) stated, "Acceptance of the goal implies the individual intends to engage in the behavior needed for goal attainment" (p. 382).

Mixed results have been obtained in studies of goal acceptance. Although a number of studies have failed to find that goal acceptance enhances performance (e.g., Frost & Mahoney, 1976; Mento et al., 1980), such a result was obtained in a study by Erez and Zidon (1984). They found a positive linear relationship between performance and goal difficulty when goals were accepted, and a negative linear relationship when they were rejected. In addition, goal acceptance and performance displayed a positive relation in the results of Erez, Earley, and Hulin (1985).

Yet, if acceptance of the goal does tend to enhance performance, as suggested by goal setting theory and the latter studies, it seems possible that any technique that might increase goal acceptance could be instrumental in improving performance. Locke (1968) and Locke et al. (1981) implied that one such technique might be participation in setting the goal. The results of research on this idea, however, have also been mixed. Some studies, such as those by Latham et al. (1978), Latham and Saari (1979 a & b), and Dossett et al. (1979), have found that participation in goal setting does not lead to greater goal acceptance or performance than does assignment of goals. On the other hand, studies by Hannan (1975), Erez, Earley, and Hulin (1985), and Earley (1985) have found that goal participation tends to enhance goal acceptance, which, as observed in the latter two, appears to improve performance.

A possible reason for the discrepancy in the experimental results (suggested by both Locke et al., 1981, and Erez, Earley, & Hulin, 1985) involves the limited range of acceptance scores in most of the studies. In the majority of the earlier studies, nearly all of the subjects indicated complete or substantial goal commitment, which might have led to the inability to find a relationship between participative goal setting and goal acceptance and/or between goal acceptance and performance. The studies that found these relationships obtained more variance in goal acceptance scores by acquiring measures of acceptance on

both the experimentally-assigned or participatively-set goal and on subjects' personal goals. Still, in view of these mixed results, the relationships between goal setting participation, goal acceptance, and performance appear to be somewhat uncertain.

GOAL SETTING IN A GROUP CONTEXT

As is evident from the preceding discussion, a great number of goal-setting studies have been conducted since Locke's first conceptualization and examination of the ways in which the difficulty, specificity, and other aspects of goals and goal setting affect task performance (Locke et al., 1981). After reviewing these studies, it is obvious that the majority of them have been primarily concerned with assigned goals.

To a lesser extent, participatively-set goals (involving the joint decision of the individual and an experimenter or supervisor) and, in a few cases, self-set goals have also been examined. In other words, a great deal of the research has focused upon individual performance in relation to goals set by or in conjunction with an authority figure, with much of the emphasis upon assigned goals. This line of research on goals allocated to individuals appears to be quite relevant, since these types of goals are very often encountered in work situations. Frequently, however, the goals assigned by a manager or supervisor represent long-range goals, primarily in reference to productivity. In order to attain these overall organizational

goals, short-term goals or subgoals are set by the individual worker. In some cases, too, the assigned goal may not be accepted by the worker, perhaps because it is judged to be too easy or too difficult. When this occurs, the worker may set his/her own goal and work to achieve it. Therefore, it appears that the study of personal goals, how they are set, and how they influence performance, would also be important in the investigation of the work motivation generated by goal setting.

Many factors might tend to influence an individual when he/she sets a personal goal. Certainly, the goal assigned by the person's supervisor would be taken into account. Another possible influence affecting an individual in deciding upon a personal work goal is the person's ability or perceived ability on the task. An additional factor which may not be as apparent as the previous ones is the fact that the individual is setting his/her goal within a group context. Every employee within an organization can actually be considered a member of some group or groups at work; these include a department within the company, the individual's peers on the job--other individuals holding the same or similar jobs--or, ultimately, the organization itself.

Membership in these groups may be formally acknowledged, as when a committee meets to decide upon production goals, for example. This affiliation can also be rather informal, involving discussion over lunch among fellow employees about the work that they are performing. Therefore, many of the personal work goals

are being established by the individual within a group situation, where some type of formal and/or informal interaction is occurring.

Taking the group situation into consideration, other possible influences on a person's own work goal, then, may be: the goal of the group(s) of which the individual is a member; group discussion of the work, the assigned and/or individual goals, and each person's performance; and, perhaps, simply the actions of others in similar positions. In summary, there appears to be a myriad of factors that may affect an individual's decision concerning the setting of his/her personal work goal.

GOALS IN A GROUP SITUATION

Since the individual is actually in a group situation when he/she sets this personal work goal, aspects of the group setting itself may exert an influence upon his/her decision on this goal. One of these aspects may be the goals that are present within the group environment. Zander (1971) pointed out that there are a number of goals in any group setting. These goals are: the group's goal; the group's goal for the member; the member's goal for self; and the member's goal for the group.

The group's goal refers to its behavioral norm, representing an end state that is desired by a majority of the members. This goal is established either formally (e.g., in a meeting of all members) or informally (e.g., through some casual conversation

during lunch), depending, to some extent, on whether the group structure is explicit or implicit, respectively. The group goal is very often achieved through some aggregate of individual member performance. The group's goal for the member is the goal that the individual member is expected to attain in order for the group to reach its goal. This goal usually constitutes the contribution in performance required of the different individual members.

The member's goal for self naturally refers to the individual's own goal. The individual sets this personal goal while being aware of the performance that is expected of him/her by the rest of the group. Consequently, the member might tend to set his/her goal at a level similar to the one that the group has decided on for the member. Finally, the member's goal for the group is the level of performance that the person hopes the group will attain.

In a work situation, then, an employee is confronted by several goals, with the primary ones appearing to be the goal for self and the group goal. Since both of these goals are present in the work situation, do they tend to affect one another? More specifically, do the individual's own goals and expectations act to influence the group's goal setting and, hence, performance? Since individuals are setting personal goals in a group situation, a more relevant question would appear to be: "Do the goals that the group sets affect the individual's particular

goals and resulting performance?" An examination of the major attributes of goal setting as they affect performance in a strictly individual situation, and then in a group setting, might prove useful in attempting to answer these questions.

GOAL DIFFICULTY

With respect to the concept of goal difficulty in individual goal-setting situations, it has been found that, for the most part, harder goals lead to better performance than do medium or easy goals (Locke, 1968; Locke et al., 1981). So, for example, the greater the number of parts to be produced per hour that an assembly-line worker sets for him-/herself (which may or may not be the same as the goal assigned by the supervisor), the more parts he/she will produce. In this example, the higher goal appears to increase the worker's motivation to manufacture more parts.

Although this positive relationship between goals and performance has been found in several studies, there has been some question concerning the difficult goals used in many of these experiments. In addition to employing procedures that tended to restrict performance at the assigned goal level, several of these studies used hard goals which were actually set at a level of performance displayed under a no goal or "do your best" condition. Performing at the level of this "hard" goal, at the baseline level on the task, could only be considered an

improvement under conditions where performance had already been reduced below the typical average level. In this case, the goal would have improved performance by restoring it to this average level. (Downey, Isensee, Levett, & Silver, 1985)

This idea, that harder goals lead to better performance, seems to make some intuitive sense because a goal, by definition, is the objective or aim of an action. If accepted, the goal should induce action on the part of the individual to attain it. In order to achieve a hard goal, the individual would find it necessary, in most cases, to exert more effort in this activity, i.e., in performing the task. Depending upon individual differences, this increased effort should, in most cases, lead to increased performance. Without a doubt, though, there would be a certain limit beyond which a person could not proceed on a particular task. This ability or capacity to do the task at any given point in time is only one of the determinants of the best level of performance the individual could achieve in response to a goal. Fatigue, as well as demographic variables, such as amount of education (Ivancevich and McMahon, 1977), and personality variables, like need for achievement (Sales, 1970; Singh, 1972), would also enter into the level of goal-directed performance that one could produce. As Garland (1983) pointed out, however, one's ability to perform a task does not affect the increased motivation produced by a difficult goal. In general, then, performance exerted to attain a hard goal is superior to

that in response to a medium or easy goal.

In a group situation, would the difficulty of the goal also affect the performance level of the group? In other words, would the statement that "the harder a group's goal, the better its performance" be true? The answer to this question might be found through an examination of the essence, the gist, of a group.

A group is defined as "a unit composed of two or more persons who come into contact for a purpose and who consider the contact meaningful" (Mills, 1967, p. 2). Another definition offered by Prohansky and Seidenberg (1965) is the following:

> A group is two or more individuals who share a common set of norms, beliefs, and values; they exist in implicitly or explicitly defined relationships to one another such that the behavior of each has consequences for the others. These properties in turn emerge from and have consequences for the interaction of individuals who are similarly motivated with respect to some specific objective or goal. (p. 377)

In most instances, then, a group is conceived to be a collection of individuals who are interacting in some manner. Quite often, they are working together in order to achieve some purpose, some goal or goals. In addition to this group goal, the individual members possess their own goals. Within the group, then, these individuals are usually working towards these personal goals as well as their group's goal. This group goal is usually decided upon through group discussion (Zander & Medow,

1963). Typically, the group goal seems to be some composite of the individual members' goals, an end state desired by a majority of the members (Blalock & Wilken, 1979; Shaw, 1981; Zander, 1971). Since the group's goal represents some combination of members' goals and is mutually set, acceptance of this goal should more than likely be high among members, which suggests that they would strive, in their performance, to help reach that goal (Cartwright & Zander, 1968). Therefore, it seems reasonable that the harder the goal that is set by some sort of group consensus, the higher the level of performance the group, as a whole, would produce.

High Group Goal

In order to attain better performance, then, the group, during discussion, might decide to set a high goal. Attainment of this high goal would be a source of great satisfaction and of high prestige to the group. Undoubtedly, there would be some members whose ability at the designated task is better than that of others in the group. Their contribution to the group performance on the task would assuredly raise the level of that performance. Therefore, the goal might be set high simply because it is known through the discussion that some members are able to perform better than others at the task. This method of setting a group goal is based upon the "best" model of group decision making (Einhorn, Hogarth, & Klempner, 1977). Through discussion, the group is able to identify the members who are

best at the task and, based on knowledge about their task performance, set the group goal in accord with this performance.

Along similar lines, the setting of a higher or more difficult group goal appears to be suggested by the research that has been conducted on the "risky shift" phenomenon. Basically, this group polarization phenomenon consists of the willingness or decision on the part of group members following discussion to take a greater risk as compared to this same type of decision made on a strictly individual basis. As a result of the discussion, the group arrives at a riskier decision than would have been made by the members individually. One explanation that has been offered for this phenomenon is diffusion of responsibility. According to Wallach, Kogan, and Bem (1962, 1964), Bem, Wallach, and Kogan (1965), and Wallach and Kogan (1965), this greater degree of risk-taking brought about by group discussion is precipitated by a diffusion of responsibility among the members of the group. Thus, any possible losses from the failure of these risky strategies seem less severe in the group than in the individual situation. When a failure occurs after a risk has been taken in a group, there is no specific person upon whom all the blame can be placed, since all the group members potentially had a part in the decision to take the risk when they discussed the situation. This is not so when an individual makes a decision to take a risk on his/her own, because, if a failure occurs here, then the person only has him-/herself to blame.

Thus, greater risks appear to be taken when a decision is made in a group setting than on an individual basis.

Following along these same lines of thought, a group might set a higher goal, constituting a greater risk due to the fact that there is more chance of failure when striving for a difficult goal than when working toward an easier one. In group discussion, a higher goal might be decided upon because, if the group fails to achieve this goal, a source of great dissatisfaction, no one individual member's performance can be specifically singled out as having led to the failure (alluded to by Zander, 1977). Therefore, this "diffusion of responsibility" may lead to the setting of a harder goal (greater risk) by the group.

Low Group Goal

On the other hand, a group might decide to set a low group goal instead of a high one due to the presence of members who are not as adept at the task as others. Within a group, the range of member performance on a task might be fairly wide, from those who are quite proficient to those who are much less so. Hence, working to help attain an extremely high goal might place a strain upon these less skilled members. Their poorer performance may also tend to detract from the overall group performance (perhaps some shoddy workmanship would be produced or inspected and passed through for distribution and sale, for example). Furthermore, they wouldn't be able to contribute as much to the

accomplishment of the group goal, leading to a low level of personal satisfaction that might tend to alienate these poorer-performing members. So, to keep the group together as a functioning unit, the group objective might be set lower to accommodate these less adept members.

Studies by Myers and Lamm (1975), Morgan and Aram (1975), and Ebbesen and Bowers (1974) offer another possible explanation of why groups might set a low goal. Their results suggest that there is a shift toward caution which may occur in group decision making (the opposite, so to speak, of the "risky shift"). In the group discussion, social comparisons are made among members' earlier decisions concerning the task, as Zander and Medow (1963), Teger and Pruitt (1967), Shaw (1981), and many others have indicated. If exercising caution appears to be important to most members, then a more cautious or conservative group decision is made. Depending upon the degree of caution desired by the majority of the group, a low goal may be set.

Regardless of the reason for setting a low goal, this situation could potentially be detrimental to the group because the more competent members would soon become bored and dissatisfied with this easy goal. Their level or rate of work would probably be severely restricted in order to conform to this goal (Whyte et al., 1955). Also, group performance with a very easy goal would be fairly low, which more than likely would result in lower levels of satisfaction with performance on the

part of group members than might be the case with a higher goal (Zander, 1971). These feelings may lead to general dissatisfaction with the group as a whole.

Medium Group Goal

In either of these cases, where group goals are set quite high or quite low, it appears that goal acceptance, group cohesiveness, and, perhaps, group performance could be adversely affected. Therefore, it would seem to be reasonable to effect a compromise between these extreme positions when setting a group goal. Zander and Medow (1963) seemed to suggest this when they talked about how the group decides upon its "level of aspiration." Through the group discussion, a set goal level, consisting of some composite of the individual members' goals for the group (their expectations of the performance the group can achieve), is established. Since the setting of the group goal involves some sort of agreement among the group members, a median group objective might be decided upon. This type of decision, representing an average of the individual group members' judgments about the level of the group goal, is reached by means of the "equal weight" or "mean" decision-making process (Einhorn, Hogarth, & Klempner, 1977).

When setting a medium goal, the group may do so as a result of a slight "shift toward caution" in its decision making (a phenomenon discussed earlier in regard to a low goal). Zander (1971) likewise implied that there is often a somewhat cautious

decision on the part of the group with respect to its goal: "The chosen level is one that best resolves conflict between attractiveness of success, repulsiveness of failure, and perceived probabilities of success and failure" (pp. 179-180). In order for these probabilities to have a substantial basis, information concerning the knowledge, skills, and goals of the individual group members with respect to the task is required. Through group discussion, this information is undoubtedly gained and made known to all members. Therefore, after considering each member's ability on the task and members' goals for the group, it seems likely that a medium difficulty goal would be set. This goal might not only result in greater goal acceptance and morale on the part of the members, but may lead to better group performance than a high or low goal. These favorable results should follow from the fact that the medium difficulty goal would tend to be somewhat challenging to all members without being too high or too low.

GOAL SPECIFICITY

Another major property of goals that needs to be considered in examining aspects of the goal setting of individuals and groups is goal specificity. Goal specificity refers to the fact that the goal level is definitely stated (e.g., in numerical terms), rather than just being stated in a vague manner (i.e., "do your best"). In relation to individual goal setting, it has

been found that specific, challenging goals lead to better performance than vague goals or no goals at all (Locke, 1968; Locke et al., 1981). Since a great deal of emphasis in this society is placed upon quantity (e.g., the number and/or dollar amount of sales per month in determining bonuses or promotions), this result seems to be reasonable.

By specifically stating a number that should be reached (e.g., a number of parts to be produced) instead of merely saying, "do your best," the individual is provided with a concrete objective toward which to strive. Better performance should follow from a specific goal because there is a defined or particular number, a "target," to be reached. With "do your best" instructions, on the other hand, what is being referred to exactly? Probably the individual is not even sure. Performance here could be mediocre or even poor because the goal level isn't defined. The person might simply "take it easy" when "do best" goals are used. Also, is "your best" referring to quantity or quality with respect to the task? The phrase is quite ambiguous in this sense. A specific goal would presumably also lead to greater satisfaction and a feeling of accomplishment when that goal is reached or nearly reached than when one attempts to do one's best or has no goal at all. In addition, a definite goal should be helpful in setting future goals based on past performance. Depending upon whether a person reaches, surpasses, or fails to reach the specific goal, his/her future goal may be

suitably raised or lowered. Due to their tendency to channel behavior toward a particular end, then, specific, challenging goals lead to better performance than vague goals or no goals at all.

In groups, specific goals should also result in better performance for the same basic reasons as were found with individuals. A definite quantity to be attained gives the group members a particular number toward which to work. It also helps the group in the setting of future goals. Zander and Medow (1963) found that when a group score on one trial was better than the score on an immediately preceding one, the goal for the next trial was raised; when the performance was worse, the goal was lowered. They concluded, however, that future goals are raised more often when prior goals have been attained than they are lowered when these former goals aren't reached, since the attainment of more difficult goals is more attractive and satisfying to members. It also seems that the specificity of the goal itself is enhanced by the group through discussion. The group might come together with a nonspecific goal in mind (i.e., to raise money for a needy cause). In group discussion, each member's goal for the group is disclosed and a specific group goal established (Zander, Natsoulas, & Thomas, 1960; Zander, 1971). This defined group goal then gives group members a definite aim (i.e., amount of money to be raised for the needy cause) toward which to work.

In addition, the specific goal set by the group probably tends to influence individual group members to set specific goals for themselves (the member's goal for self; Zander, 1971). This specific personal goal should help to define the level of individual performance that is necessary in order for the member to do "his/her part" in the group's work toward the goal. Conversely, a "do best" goal would be hard to apply in a group setting because each individual member would more than likely perform at a different level, and could interpret this goal differently (i.e., doing "his/her" best at the task and/or concentrating on quantity as opposed to quality of output). Specific goals, then, act to direct performance toward a certain number to be reached which, in groups, signifies an agreement or consensus on the performance required. Thus, specific, challenging goals would tend to lead to better group performance.

KNOWLEDGE OF RESULTS

Another major aspect of goal setting which has been found to affect performance directed toward a goal is knowledge of results. In individual goal setting, knowledge of results, or feedback, combined with goals, has been found to improve task performance (see review by Locke et al., 1981). In an industrial setting, this feedback is typically given by a manager or supervisor. It might also be received from fellow workers or, indirectly, by an individual's comparison of his/her own work

with that of other workers.

Feedback plays an important part in the improvement of goal-directed behavior. It allows the individual to evaluate his/her task performance in relation to the goal toward which he/she was working. This evaluation, in turn, may induce the individual to set a higher goal, if he/she was successful at reaching the previous one. If unsuccessful at attaining the goal, the individual may increase the effort exerted in task performance in order to reach the goal in the future. Both of these actions, in most cases, lead to improved performance. Without feedback on performance, the individual might have a vague or general idea of how he/she performed on a task, but nothing definite enough to lead to greater effort or to result in the setting of higher goals.

With respect to individual goal setting, then, knowledge of results with reference to a goal is required for improved performance. As Kim and Hamner (1976) stated: "It is possible for goal setting alone to enhance performance without a formal feedback program, but when self-generated knowledge of results plus supervisory generated knowledge of results and praise are added to a formal goal setting program, performance was generally enhanced even more" (p. 56).

Likewise, in a group condition, knowledge of results should contribute to better performance. The feedback in this situation might arise from sources outside of the group (Zander, 1971), but

it would more frequently come from the other group members. Through group discussion, individual members more than likely receive feedback on their performance relative to their own goal, the group goal, and the other members' performance. Zander (1971) and Zajonc (1962) suggested that there is a greater improvement in both individual and group performance with this type of increased feedback. As a result of this feedback, the individual group member may adjust his/her goal to bring it more "into line" with the goals and performance level of the rest of the group, and, consequently, with the group goal. Also, group members' task ability and the group performance become known, and future group goals, based on this information, could be set accordingly. Besides, in the communication among members during the discussion, any strategies or ideas that one group member has discovered to accomplish the task more effectively and efficiently are probably revealed to all the members. Thus, performance in a group setting would more than likely improve due to the setting of "informed" group and personal goals and, possibly, to the distribution of successful strategies to perform the task.

GOAL SETTING PARTICIPATION AND GOAL ACCEPTANCE

Participation in goal setting and goal acceptance are two more attributes of goal setting which would seem to play a part in determining performance in both individual and group

situations. Due to the diversified results concerning these two factors, their effects upon performance in individual goal setting situations are not definite. Logically, goal acceptance would be expected to affect goal-directed behavior. If a goal is accepted by an individual, then that person would tend to exert effort to achieve that goal. On the other hand, if a goal is rejected, the individual would more than likely exert little effort in pursuit of that goal, or not work toward it at all (unless coerced).

A goal can be rejected because it is judged to be too easy or too hard by the person. Also, if the individual had no "input" in the decision required in setting the goal (goal participation), he/she would be less likely to accept it and work for its achievement. In the case of no participation in goal setting, acceptance of the assigned goal could be induced by the one assigning the goal. Various pressures could be applied (e.g., threats of dismissal), or rewards might be offered (e.g., a raise or some type of monetary remuneration). In the case of full participation in goal setting, where the individual establishes the goal for him-/herself, acceptance of the goal should be fairly high (Oldham, 1975). Following from these assumptions, participation in setting a goal would be expected to increase goal acceptance, and this increased goal acceptance would be expected to result in better performance. These types of results have been found in some of the studies of these two

aspects of goal setting; others have found no evidence of these types of relationships. As discussed earlier, these discrepancies may be due in part to the way in which goal acceptance was measured. Therefore, in individual goal setting, no conclusive statement can be made with respect to the influence of these factors on performance.

In regard to group goal-setting, participation in determining the goal and acceptance of it would seem to be even more closely related. Many group goals are set by member participation through group discussion. Thus, all group members have the opportunity to express their opinions concerning what the group goal should be (the member's goal for the group; Zander, 1971). This situation, combined with the fact that the goal is jointly decided upon by the group members, would result, in most cases, in high levels of acceptance of the goal. In reality, however, very often all of the group members don't participate in the discussion (with some perhaps contributing much more than others), so there may not be total group acceptance of the goal. When this happens, those members who don't work toward or accept the goal can be compelled to do so by the rest of the group in various overt and covert ways (Lindzey & Aronson, 1969). Therefore, it appears that, as logically seems to be the case with individual goal setting, participation in setting the goal would produce higher goal acceptance than non-participation. Consequently, this greater acceptance would lead

to higher group performance.

Clearly, therefore, a considerable amount of the research on goal setting appears to have concentrated on individual performance in response to an assigned or, in some cases, participatively-set goal. Some research has also been conducted on group goal setting, primarily focusing upon the group goal itself and the resulting aggregate performance. Also, group and individual goal setting and performance have been contrasted, to some extent. The study of the individual within the group context, however, has not actually received a great deal of attention. In addition to group goals, the types of personal goals established by the individual in a group setting and his/her task performance would seem to be quite important, especially in the work setting where individuals are working within a group context. Within this group context, exactly how the individual reacts, with respect to goal setting and task performance, is not definitely known.

PURPOSE OF THE STUDY

In the course of their work, therefore, most individuals are performing tasks and setting goals in relation to these tasks within a group situation. The individual may be a "formal" member of a group, such as a team of employees designated to work on a project. On the other hand, he/she may be a member of an "informal" group, as, for example, all the workers in an assembly

plant performing the same job (e.g., inspecting a particular part after it has been produced). Within these groups, there are both group and individual work goals which undoubtedly influence productivity. Since there are individual goals being set within this group situation, individual goal setting and performance should be examined in this environment. This study was designed to investigate some of the aspects of individual goal setting and task performance advanced by Locke (1968) and Locke et al. (1981) as they apply to and are affected by the group situation. Several predictions were made concerning the effects of goal difficulty, goal setting participation, the group context of goal setting, and interactions among these variables on performance, goals, and feelings about performance.

According to Locke (1968) and Locke et al. (1981), hard goals lead to better performance than do easy or medium goals. This relationship, "one of the most robust and replicable findings in the psychological literature" (Locke et al., 1981, p. 145), is also expected to occur in this study. Procedures similar to the ones used in several other goal-setting studies finding this effect, namely those of performance restriction and "hard" goals set at the average performance level, are employed in this study. It has been suggested that these techniques account for the "high" performance with "hard" goals (Downey et al., 1985). Therefore, it is expected that subjects having hard goals will have higher levels of performance than subjects with

easy goals.

Another variable which should affect goal setting and performance is the amount of participation in goal setting, that is, whether the goal is assigned or self-set. When the goal is assigned, it is expected that subjects will work to attain it, due to the demand characteristics of the experimental situation. Also, since they are told to stop when they reach the goal, performance is not anticipated to be very high. Thus, performance of subjects with an assigned goal should be fairly low. With the option to set their goals at any level they choose, it is predicted that subjects with self-set goals will establish higher goals overall, and, consequently, have higher performance.

In order to look at the effect that the group environment has upon individual goal setting, one of the major variables present in this study is that of the context within which the goal is set. This refers, more specifically, to whether a goal is set on an individual basis (that is, with no conferral among the individuals) or within a group setting (complete with group discussion of goals and performance).

The group context of goal setting, as opposed to the individual situation, is anticipated to exert a moderating influence on task performance, as well as on the difficulty of goals set for others. The group discussion is expected to contain feedback concerning the performance of all the individual

members, providing the group with an estimate of each member's task ability. The goal for others (the group goal) will be set by averaging the performance of all members, producing a medium difficulty goal. Since the feedback in the discussion will provide group members with knowledge of each other's performance level on the task, individual members will tend to adjust their performance levels in order to attain the group goal. In some cases, this will lead to suppression of performance and, hence, performing below the level of the personal goal.

In the situation in which goals are set on an individual basis, the principal feedback subjects will receive regarding task performance will be their own performance level. Therefore, the goals they set for others, as well as their personal goals, will be based on their personal performance level. Since these subjects will be working to attain their personal goals, their overall performance, and, consequently, their goals for others, will be higher than those of the subjects in the groups.

Due to the nature of the task, there is expected to be little or no difference between the individual and group goal setting situations in overall quality of performance (number of errors made), estimation of effort, or perceived difficulty of the task. A personal goal is presumably determined by a person's prior task performance, personal prediction of task performance, and/or estimated ability. With this in mind, it is predicted that there will be no difference in personal goals between the

individual and group situations.

Since the individual is setting goals and performing a task in a group context, this group factor should be considered in combination with the aspects of individual goal setting. In terms of overall performance, subjects in the groups will perform at a level which is slightly above medium with both hard and easy goals, due to the group influence. On the other hand, subjects setting goals in an individual situation are expected to have a high level of performance with a hard goal and a medium level with an easy goal, as would be predicted by goal setting theory.

In the individual goal setting situation, subjects with an assigned goal will perform at a medium level, while those with a self-set goal will exhibit a high performance level. Subjects in groups will also have a medium level of performance with an assigned goal, but will perform at a level that is somewhat higher than medium with a self-set goal. This moderation in performance in the groups will also be due to group influence.

Subjects in an individual goal setting situation who have hard goals will tend to set high goals for others; those with easy goals will set goals for others at a level slightly above medium. The goals for others set by subjects in groups, however, will be somewhat higher than medium when they have hard goals, and medium when their goals are easy.

With regard to attitudes about performance, "individuals" will be more satisfied when harder goals are reached than when

easy goals are attained. Those group subjects having hard goals are also expected to be very satisfied, but those with easy goals will be a little less so, possibly because the goals the members are working toward are too easy. In the case of assigned and non-assigned (participatively-set) goals, it is expected that "individuals" reaching assigned goals will express moderate overall satisfaction; when they reach non-assigned goals, however, their satisfaction will be somewhat higher. In the group goal setting situation, on the other hand, reaching assigned goals will lead to a fairly low level of satisfaction, while reaching non-assigned goals will definitely increase satisfaction. With assigned goals, the low level of satisfaction in the groups will probably arise as a result of the feedback in the discussion, leading to a low level of goal acceptance.

METHOD

Pretest

A pretest with 24 subjects was conducted prior to the principal experiment. The task and procedures administered to these general psychology students were the same as those in the main experiment. Their performance on the baseline (first) trial, $\bar{X}$=33.8 problems completed, was used to determine the different goal levels for the main study.

Subjects

The subjects for this experiment were 97 students (61 female, 36 male) enrolled in a general psychology course. They were participating in order to receive class credit.

Task

The subjects performed a simple addition task. In this task, they were required to determine the sum of three two-digit numbers and then choose their answer from four different alternatives. An example of this task is presented below:

62
76
23

( ) 181
( ) 161
( ) 167
( ) 281

Subjects were instructed to place a check mark inside the parentheses beside their answer. (Detailed instructions are shown in Appendix A, for the individual and group conditions.)

The answer options for each problem consisted of four three-digit numbers. One of these numbers was the correct answer; the other numbers were generated randomly with the stipulation that they have three digits. Also, these numbers were generated so that three (or in a few cases, two) of the four answer options had the same last digit. The reason for this last specification on the options was to prevent the discovery of a "quick and easy"

strategy for solving the problems. With at least two of the options having the same last digit, it was thought that subjects would not be able to determine the correct answer by simply adding the last column in each problem. This approach to generating these options was deemed necessary. If such a strategy was discovered in only a few of the groups, it might tend to greatly inflate some of the group scores by use of a variable not specifically being examined in this study.

Procedure

The subjects were randomly assigned to one of eight combinations of three independent factors. These three factors were: goal difficulty (easy and hard); amount of participation in goal setting (assigned and non-assigned); and social input in goal setting (individual and group).

In the assigned goal condition, the subjects were given a set goal and instructed to stop when they had reached this goal. The difficulty levels of the assigned goals were based upon the average performance of the pretest subjects on the baseline trial (34 problems). The easy goal was set at a level that was 15% lower than this mean performance (i.e., at 29 problems), while the hard goal was set at this baseline level (i.e., at 34 problems). In the non-assigned goal condition, subjects were instructed to set their own goals, as well as goals for other people in general. Their goal difficulty levels were differentiated, to some extent, by means of the instructions.

Non-assigned subjects in the easy goal condition were told to set realistic goals, keeping in mind that "things like fatigue or boredom can influence performance on the problems when people are required to work on them all the time." In the hard goal condition, subjects were told that they should set the goals with the understanding that maximum output was being required in each trial.

At the outset of the experiment, a "reference" goal was written on the board for all the groups. In the easy goal conditions, this number was the same as the assigned easy goal (29 problems). Likewise, the "reference" goal in the hard goal conditions was the number assigned to subjects in the hard goal treatment (34 problems). All subjects were informed that this number was the average number of problems completed in previous research. It was expected that use of this number as a reference would also help distinguish the goal difficulty levels in the non-assigned condition.

With respect to the third factor, social input in goal setting, the subjects in the group condition were asked to gather into a group in between trials and discuss the task and the goal(s) they were working to attain. They were allowed 3 minutes between trials to engage in group discussion. During this interim, those subjects in the individual condition were instructed to work on search-a-word puzzles. (See Appendix B for an example of these puzzles.)

There were five trials of five minutes each. The first trial constituted a baseline trial where subjects were told to "do their best" on the problems. This trial allowed subjects to become somewhat accustomed to the task; it also provided non-assigned subjects with more information to assist in their decision on goals for the first experimental trial.

After each trial and the subsequent interim involving group discussion or work on puzzles, subjects were asked to complete a questionnaire. (The forms of the questionnaires that were used are shown in Appendix C.) In these questionnaires, all subjects were asked to indicate their feelings concerning their task performance. Specifically, these questions determined: satisfaction with performance; judgment of task difficulty; and personal estimation of effort. Besides these general questions, specific queries were included on questionnaires for non-assigned and assigned subjects. Questions for non-assigned subjects measured satisfaction with their personal goal and with their goal for others, and their judgments regarding influence from others in setting these goals. These subjects were also required to write down their personal goal and their goal for others for the next trial. The questionnaire items for the assigned goal subjects asked if they worked for the set goal, stopped when they reached it, and found it to be satisfactory.

RESULTS

Analysis of the data was accomplished by using a repeated measures approach. Since there were unequal sample sizes involved in some of the conditions of the study, ANOVAs for unbalanced data, applying the method of least squares, were used where warranted.

Two by two by two by four ANOVAs (goal difficulty by goal participation by social input by trials) were conducted on data from all subjects for the measures of performance and feelings about performance. These measures were: the number of problems solved; the number of errors; satisfaction with performance; perceived task difficulty; and personal estimation of effort. In regard to the last three variables, a MANOVA was first performed using these attitudes about performance as the dependent measures.

In addition, because the questionnaires contained items exclusively for subjects in each of the two goal participation conditions, two by two by four ANOVAs (goal difficulty by social input by trials) were performed on some of the questions. These measures consisted of the following: satisfaction with the assigned goal and personal acceptance of this goal, for the assigned subjects; and satisfaction with the personal goal and with the goal for others, for non-assigned subjects. Separate MANOVAs were initially performed with each of these pairs of attitudinal variables as the dependent measures. Also, ANOVAs

for non-assigned subjects were conducted on five trials for quantity of personal goal and of goal for others, following a multivariate analysis of variance with these two variables as dependent measures. An additional MANOVA was conducted on the dependent measures of judgments of influence in setting personal goals and in setting goals for others. Since non-assigned subjects set the goals starting with the first questionnaire, it was necessary to perform analyses on these self-set goals and on the measures of influence in goal setting for the five trials.

Descriptive statistics were determined for all of the variables, and estimations of magnitude of effect ($\hat{\omega}^2$) were calculated as well. Additionally, correlations between the variables were computed. The correlations were determined from the data on the four experimental trials, since most of the analyses were performed on these trials. These relationships can be found in Appendix D.

Performance Measures

With regard to some of the background factors, gender was not found to be significantly related to the performance measures (number of problems solved and number of errors), as seen in Appendix D (Table D1). Subjects' opinions concerning their math ability, where an answer of 1 suggested above average ability and 2 average or below average ability, were significantly related to both number of problems solved and number of errors, $r(388)=-.22$,

$p<.01$, and $r(388)=.13$, $p<.01$, respectively. Subjects who believed they were above average in math ability solved more problems and made fewer errors than those who thought their math ability was average or lower, although the size of the correlations was quite small.

Number of Problems Solved

An analysis of the number of problems solved on the baseline trial (the trial preceding all experimental manipulations) was first performed. This analysis was conducted in order to determine if there were initial differences among the subjects in math ability that were not controlled by random assignments. A significant effect of goal participation ($\omega^2=.03$) was found, $F(1,89)=4.22$, $p<.05$, as shown in Table 1. No other main effects or any interactions were detected. Prior to the administration of any experimental treatments, it was found that subjects in the assigned goal condition completed more problems in the allotted time than those subjects in the non-assigned goal condition, with means of 36.73 and 33.50, respectively. Since no differential instructions had occurred prior to trial one, it must be assumed that dissimilarities were due to initial performance differences.

To help control for this initial difference in mathematical problem-solving ability, an analysis of covariance was conducted (see Table 2). Number of problems solved on the baseline trial was used as the covariate in this analysis. (This analysis allowed the variance due to the covariate, an indication of math

Table 1

A - Analysis of Variance for Number of Problems Solved on Baseline Trial

Source	df	MS	F
Goal Difficulty (GD)	1	.01	---
Goal Participation (GP)	1	252.69	4.22 *
Social Input (SI)	1	19.46	.33
GD x GP	1	11.45	.19
GD x SI	1	36.63	.61
GP x SI	1	62.34	1.04
GD x GP x SI	1	12.88	.22
Error	89	59.82	

Note. Goal Difficulty, Goal Participation, and Social Input had 2 levels each.

* $p<.05$.

B - Means and Standard Deviations for Number of Problems Solved on Baseline Trial

	Goal Difficulty							
	Easy				Hard			
	Individual		Group		Individual		Group	
Goal Participation	$\bar{X}$	σ	$\bar{X}$	σ	$\bar{X}$	σ	$\bar{X}$	σ
Assigned	35.75	8.19	38.42	9.62	37.00	6.79	35.75	3.98
Non-Assigned	34.17	7.58	32.17	6.63	35.33	7.05	32.33	10.34

Note. Levels of Social Input=Individual, Group.

Note. All cells had N of 12, with exception of Hard-Assigned-Individual, which had N of 13.

Table 2

A - Analysis of Variance for Number of Problems Solved with Baseline Performance as a Covariate

Source	df	MS	F
Between Subjects			
Goal Difficulty (GD)	1	1288.51	17.38 **
Goal Participation (GP)	1	10822.31	145.94 **
Social Input (SI)	1	119.69	1.61
GD x GP	1	124.86	1.68
GD x SI	1	31.65	.43
GP x SI	1	95.72	1.29
GD x GP x SI	1	14.83	.20
Error	88	74.16	
Within Subjects			
Trials (T)	3	484.52	46.13 **
T x GD	3	1.48	.14
T x GP	3	137.69	13.11 **
T x SI	3	28.19	2.68 *
T x GD x GP	3	4.61	.44
T x GD x SI	3	26.53	2.53
T x GP x SI	3	14.24	1.36
T x GD x GP x SI	3	19.37	1.84
Error	267	10.50	

Note. Goal Difficulty, Goal Participation, and Social Input had 2 levels each; Trials had 4 levels.

* $p<.05$. ** $p<.01$.

Table 2 (continued)

B - Means for Number of Problems Solved with Baseline Performance as a Covariate

	Easy				Hard			
	Assigned		Non-Assigned		Assigned		Non-Assigned	
	Ind.	Grp.	Ind.	Grp.	Ind.	Grp.	Ind.	Grp.
2	28.17	27.93	37.68	36.66	33.01	33.01	38.73	39.32
3	28.67	28.43	39.35	40.99	33.47	33.26	41.98	43.48
4	28.67	29.09	40.26	44.82	33.93	33.51	43.64	45.82
5	28.76	33.18	42.35	46.32	36.86	34.09	46.06	49.48

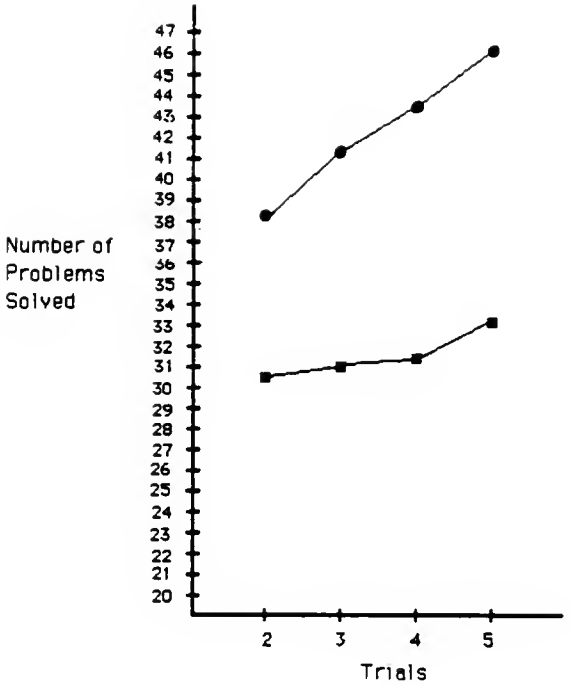
Note. Levels of Goal Difficulty=Easy, Hard; levels of Goal Participation=Assigned, Non-Assigned; levels of Social Input=Individual(Ind.), Group(Grp.); levels of Trials=2,3,4,5.

Note. All cells had N of 12, with exception of Hard-Assigned-Individual, which had N of 13.

ability, to be removed from the dependent measure.) Two significant main effects involving trials, $F(3,267)=46.13$, $p<.01$, and goal participation, $F(1,88)=145.94$, $p<.01$, were found. An effect of goal difficulty was also observed, $F(1,88)=17.38$, $p<.01$. Subjects in the hard goal condition finished more problems than those in the easy goal condition, shown by means of 38.64 and 35.08, respectively. In addition, a significant interaction of trials and goal participation, $F(3,267)=13.11$, $p<.01$, was found. Subjects in the non-assigned condition showed a greater increase from trial to trial in the number of problems finished than did those subjects in the assigned condition, as shown by the slopes of the lines for these conditions in Figure 1.

Furthermore, there was a significant trials by social input interaction, $F(3,267)=2.68$, $p<.05$, shown in Figure 2. Subjects in both the group and individual conditions initially completed approximately the same number of problems, displaying means of 34.23 and 34.37, respectively. Over the course of the following trials, subjects in the group situation finished a greater number of problems, on the average, than subjects in the individual condition, with this difference becoming more pronounced in the last two trials. On the last trial, "group" subjects completed an average of 40.77 problems compared with 38.47 problems finished by "individual" subjects.

Goal participation was estimated to account for 43% of the

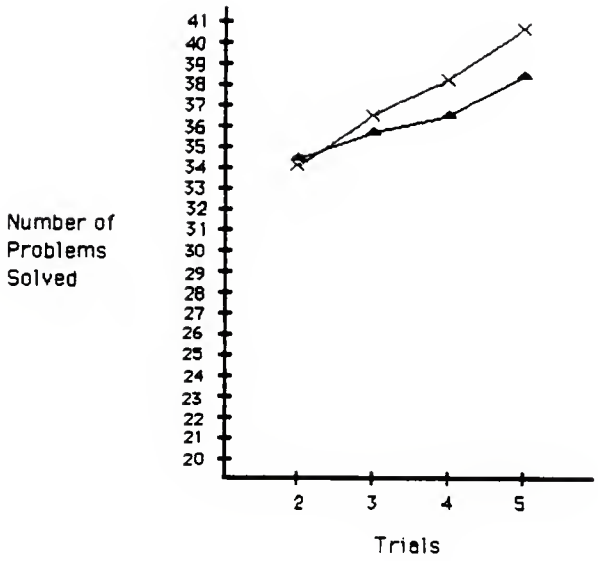


Goal Participation (Adjusted Means)

		Assigned (■)	Non-Assigned (●)
Trials	2	30.58	38.10
	3	31.01	41.45
	4	31.35	43.64
	5	33.30	46.05

Figure 1

Number of Problems Solved as a Function of Trials and Goal Participation



		Social Input (Adjusted Means)	
		Individual (▲)	Group (×)
Trials	2	34.37	34.23
	3	35.82	36.54
	4	36.57	38.31
	5	38.47	40.77

Figure 2

Number of Problems Solved as a Function of Trials and Social Input

variance in the four experimental trials, goal difficulty for 5%, trials for 6%, and the trials by goal participation interaction for 2%. No other significant interactions or main effects were discovered.

Number of Errors

Following the same procedures used for the number of problems solved, an analysis of errors on the baseline trial was conducted to test for prior group differences. No differences in number of errors made in solving the problems appeared, and, therefore, a straight ANOVA approach was used. The subsequent repeated measures analysis of this variable revealed a significant main effect of goal difficulty, $F(1,89)=4.98$, $p<.05$ (Table 3). Subjects in the hard goal condition, with a mean of 1.09, made a greater number of errors, on the average, compared to those subjects in the easy goal condition, with a mean of .54. The estimated magnitude of this effect was .02. No other main effects or any interactions were found.

Conceptual Measures

The conceptual measures, personal goals and goals for others, were obtained from items on the questionnaires given after every trial. These items required subjects to set these goals for the next trial, which, in the case of the 5th questionnaire, was a hypothetical extra trial. Therefore, the following analyses were conducted on data from all five

Table 3

A - Analysis of Variance for Number of Errors

Source	df	MS	F
Between Subjects			
Goal Difficulty (GD)	1	30.75	4.98 *
Goal Participation (GP)	1	7.07	1.15
Social Input (SI)	1	8.80	1.43
GD x GP	1	.09	.01
GD x SI	1	6.02	.98
GP x SI	1	2.72	.44
GD x GP x SI	1	.84	.14
Error	89	6.17	
Within Subjects			
Trials (T)	3	.56	.36
T x GD	3	.84	.54
T x GP	3	.23	.15
T x SI	3	1.67	1.09
T x GD x GP	3	.46	.30
T x GD x SI	3	.03	.02
T x GP x SI	3	1.35	.88
T x GD x GP x SI	3	.73	.47
Error	267	1.53	

Note. Goal Difficulty, Goal Participation, and Social Input had 2 levels each; Trials had 4 levels.

* $p<.05$.

B - Means and Standard Deviations for Number of Errors

	Goal Difficulty							
	Easy				Hard			
	Individual		Group		Individual		Group	
Goal Participation	$\bar{X}$	σ	$\bar{X}$	σ	$\bar{X}$	σ	$\bar{X}$	σ
Assigned	.52	.85	.31	.62	.71	1.04	1.19	3.27
Non-Assigned	.50	.68	.81	.94	.94	1.28	1.56	2.20

Note. Levels of Social Input=Individual, Group.

Note. All cells had N of 12, with exception of Hard-Assigned-Individual, which had N of 13.

questionnaires.

With respect to the background factors of gender and math skill, quantity of personal goals alone was significantly related to math skill, as shown in Appendix D (Table D2). Subjects considering themselves to be above average in math ability set higher goals for themselves than those who indicated their ability was average or below average. Gender was not significantly related to either conceptual measure.

A multivariate analysis performed on these two measures (Table 4) exhibited a significant interaction of trials and social input, $F(8,350)=3.96$, $p<.01$, as well as a main effect of trials, $F(8,350)=43.03$, $p<.01$. No other significant effects were found in the MANOVA.

Quantity of Personal Goal

In the analysis of personal goals, two significant results appeared (see Table 5). There was an interaction found between trials and social input, $F(4,176)=5.93$, $p<.01$. This interaction, supported by the MANOVA (Table 4), was estimated to account for 1% of the variance. Subjects in both the group and individual conditions initially set similar goals for themselves, with means of 36.54 and 37.42, respectively. Beginning on the questionnaire after the 3rd trial, however, "group" subjects set somewhat harder goals for themselves than did "individual" subjects, as depicted in Figure 3. In other words, the subjects in the group condition set higher goals for themselves over time (starting

Table 4

Multivariate Analysis of Quantity of Personal Goal and Quantity of Goal for Others

Source	df	Wilks Lambda	F
Between Subjects			
Goal Difficulty (GD)	2	.89	2.54
Social Input (SI)	2	.98	.37
GD x SI	2	.99	.30
Error	43		
Within Subjects			
Trials (T)	8	.25	43.03 **
T x GD	8	.98	.51
T x SI	8	.84	3.96 **
T x GD x SI	8	.94	1.30
Error	350		

Note. Goal Difficulty and Social Input had 2 levels each; Trials had 5 levels.

Note. The univariate analyses of these measures are shown in Tables 5 and 6.

** $p<.01$.

Table 5

A - Analysis of Variance for Quantity of Personal Goal

Source	df	MS	F
Between Subjects			
Goal Difficulty (GD)	1	770.42	2.42
Social Input (SI)	1	236.02	.74
GD x SI	1	.02	---
Error	44	318.46	
Within Subjects			
Trials (T)	4	933.75	127.86 **
T x GD	4	4.71	.64
T x SI	4	43.33	5.93 **
T x GD x SI	4	2.89	.40
Error	176	7.30	

Note. Goal Difficulty and Social Input had 2 levels each; Trials had 5 levels.

Note. Results of the multivariate analysis of this measure and the measure of quantity of the goal for others are shown in Table 4.

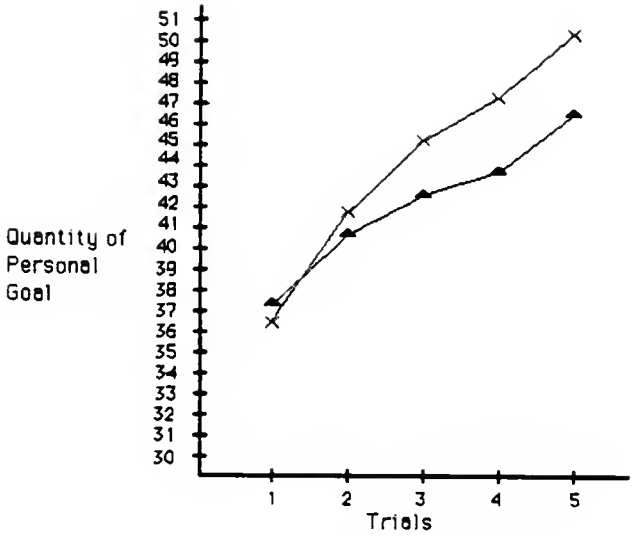
** $p<.01$.

B - Means and Standard Deviations for Quantity of Personal Goal

	Goal Difficulty							
	Easy				Hard			
	Individual		Group		Individual		Group	
Trials	$\bar{X}$	σ	$\bar{X}$	σ	$\bar{X}$	σ	$\bar{X}$	σ
1	36.25	7.74	34.92	7.10	38.58	6.57	38.17	9.62
2	38.92	7.75	40.33	7.32	42.75	6.70	43.50	10.38
3	40.92	7.04	43.92	7.34	44.58	6.08	46.67	10.82
4	41.67	7.98	45.33	7.61	46.17	5.54	49.42	11.02
5	45.00	9.58	48.08	8.38	48.50	5.89	52.83	12.28

Note. Levels of Social Input=Individual, Group.

Note. All cells had N of 12.



Social Input

Trials	Individual (▲) $\bar{X}$	Individual (▲) σ	Group (×) $\bar{X}$	Group (×) σ
1	37.42	7.12	36.54	8.43
2	40.83	7.35	41.92	8.93
3	42.75	6.70	45.29	9.15
4	43.92	7.10	47.38	9.49
5	46.75	7.98	50.46	10.56

Figure 3
Quantity of Personal Goal as a Function of Trials and Social Input

with the goals set prior to the fourth experimental trial) than did those in the individual condition, especially for the hypothetical extra trial. As might be expected from the results of this interaction, a trial main effect ($\hat{\omega}^2$ =.18) was also observed, $F(4,176)=127.86$, $p<.01$.

Quantity of Goal for Others

As in the case of personal goals, the analysis of goals for others revealed a significant trial effect, $F(4,176)=48.37$, $p<.01$ (Table 6). These goals ranged from a mean of 33.83 on the first questionnaire to that of 42.94 on the fifth questionnaire. Besides continuing to set higher goals for themselves over time, subjects also tended to set higher goals for other people. Trials were estimated to account for 19% of the variance. A significant goal difficulty effect, $F(1,44)=5.09$, $p<.05$, was also discovered. Unlike the trial effect, however, the goal difficulty result was not supported in the multivariate analysis (Table 4). This suggests that an alpha error was made in the univariate analysis. There were no other significant results on this measure.

Affective Measures

The majority of these measures were analyzed for the 4 experimental trials, several appearing only on questionnaires 2-5. Of those included on the first questionnaire, it was decided that these answers were only in reference to baseline

Table 6

A - Analysis of Variance for Quantity of Goal for Others

Source	df	MS	F
Between Subjects			
Goal Difficulty (GD)	1	656.70	5.09 *
Social Input (SI)	1	18.70	.15
GD x SI	1	53.20	.41
Error	44	128.97	
Within Subjects			
Trials (T)	4	570.34	48.37 **
T x GD	4	4.01	.34
T x SI	4	3.53	.30
T x GD x SI	4	14.09	1.19
Error	176	11.79	

Note. Goal Difficulty and Social Input had 2 levels each; Trials had 5 levels.

Note. Results of the multivariate analysis of this measure and the measure of quantity of the personal goal are shown in Table 4.

* $p<.05$. ** $p<.01$.

B - Means and Standard Deviations for Quantity of Goal for Others

	Goal Difficulty			
	Easy		Hard	
Social Input	$\bar{X}$	σ	$\bar{X}$	σ
Individual	37.43	7.95	39.80	6.90
Group	37.05	5.34	41.30	5.66

Note. All cells had N of 12.

performance. Therefore, they were not included in the analysis. The MANOVA using the variables of judgment of influence in goal setting as dependent measures, however, was performed on 5 trials. Since goals were set five different times during the experiment, this analysis on measures dealing with goal setting was considered appropriate.

Math skill was significantly related to a number of these attitudinal measures, while gender displayed relationships with only a few, as seen in Appendix D (Tables D2 and D3). These variables were measured on reversed scales, where a low score indicated a strong positive feeling, and a high score, a strong negative feeling, regarding performance or the goal.

In addition, four different MANOVAs were performed. The first of these analyses was conducted using the measures dealing specifically with feelings about task performance (satisfaction with performance, perceived task difficulty, and personal estimation of effort) as the dependent measures. The second MANOVA examined the effects of the independent variables on feelings about self-set goals, namely, satisfaction with the personal goal and with the goal for others. The judgments of influence on the personal goal and on the goal for others were used as the dependent measures in the third MANOVA, since they attempted to measure attitudes about influences on goal setting. The last MANOVA was conducted on the dependent measures relating to feelings about the set goal (satisfaction with the assigned

goal and acceptance of that goal).

Affective - Performance-Related Items

A significant effect of goal participation, $F(3,87)=5.27$, $p<.01$, was found in the first multivariate analysis (Table 7). Additionally, main effects of social input, $F(3,87)=4.06$, $p<.01$, and of trials, $F(9,645)=2.84$, $p<.01$, were also found.

Satisfaction with performance. Upon analyzing satisfaction with performance (Table 8), a significant goal participation effect, $F(1,89)=4.40$, $p<.05$, was found, with the estimated magnitude of this effect equal to .02. Assigned goal subjects, with a mean of 1.95, felt less satisfied with performance than non-assigned goal subjects, with a mean of 1.71. A significant trial effect, $F(3,267)=5.43$, $p<.01$, was also detected. As might be expected, as they became more familiar and had more practice with the task, subjects' satisfaction with performance increased. Their satisfaction went from a mean of 1.93 on the second trial to that of 1.66 on the last trial (on a scale of 1 to 5, where 1 indicated a great deal of satisfaction and 5 indicated a great deal of dissatisfaction). Both of these univariate findings were supported by the MANOVA (Table 7). The interaction between trials and social input which appeared in the univariate analysis, $F(3,267)=3.49$, $p<.05$, was not supported in the multivariate analysis. No other significant results emerged for this measure.

Table 7

Multivariate Analysis of Satisfaction with Performance, Perceived Task Difficulty, and Personal Estimation of Effort

Source	df	Wilks Lambda	F
Between Subjects			
Goal Difficulty (GD)	3	.99	.23
Goal Participation (GP)	3	.85	5.27 **
Social Input (SI)	3	.88	4.06 **
GD x GP	3	.98	.73
GD x SI	3	.99	.24
GP x SI	3	.97	.90
GD x GP x SI	3	.97	.98
Error	87		
Within Subjects			
Trials (T)	9	.91	2.84 **
T x GD	9	.99	.29
T x GP	9	.95	1.60
T x SI	9	.95	1.60
T x GD x GP	9	.97	.90
T x GD x SI	9	.98	.73
T x GP x SI	9	.97	.95
T x GD x GP x SI	9	.96	1.12
Error	645		

Note. Goal Difficulty, Goal Participation, and Social Input had 2 levels each; Trials had 4 levels.

Note. The univariate analyses of these measures are shown in Tables 8, 9, and 10.

** $p<.01$.

Table 8

A - Analysis of Variance for Satisfaction with Performance

Source	df	MS	F
Between Subjects			
Goal Difficulty (GD)	1	.67	.48
Goal Participation (GP)	1	6.08	4.40 *
Social Input (SI)	1	2.05	1.48
GD x GP	1	1.50	1.09
GD x SI	1	.37	.27
GP x SI	1	2.68	1.94
GD x GP x SI	1	1.52	1.10
Error	89	1.38	
Within Subjects			
Trials (T)	3	1.41	5.43 **
T x GD	3	.14	.55
T x GP	3	.27	1.04
T x SI	3	.90	3.49 *
T x GD x GP	3	.18	.70
T x GD x SI	3	.08	.31
T x GP x SI	3	.43	1.67
T x GD x GP x SI	3	.31	1.21
Error	267	.26	

Note. Goal Difficulty, Goal Participation, and Social Input had 2 levels each; Trials had 4 levels.

Note. Results of the multivariate analysis of this measure, the measure of perceived task difficulty, and that of personal estimation of effort are shown in Table 7.

* $p<.05$. ** $p<.01$.

Table 8 (continued)

B - Means and Standard Deviations for Satisfaction with Performance

	Easy				Hard			
	Assigned		Non-Assigned		Assigned		Non-Assigned	
	Ind.	Grp.	Ind.	Grp.	Ind.	Grp.	Ind.	Grp.
2	1.92	2.75	1.83	1.58	1.69	2.17	1.67	1.83
	(.67)	(.97)	(.83)	(.51)	(.48)	(.83)	(.49)	(.94)
3	1.83	2.33	1.67	1.75	1.62	2.08	1.67	1.83
	(.58)	(.89)	(.89)	(.62)	(.51)	(.67)	(.49)	(1.11)
4	2.00	2.08	2.00	1.50	2.00	1.83	1.75	2.00
	(.60)	(.90)	(.74)	(.52)	(1.22)	(.72)	(.62)	(.85)
5	1.75	1.83	1.67	1.50	1.62	1.83	1.50	1.58
	(.75)	(.72)	(.49)	(.52)	(.65)	(.83)	(.52)	(.51)

Note. Levels of Goal Difficulty=Easy, Hard; levels of Goal Participation=Assigned, Non-Assigned; levels of Social Input=Individual(Ind.), Group(Grp.); levels of Trials=2,3,4,5.

Note. Standard deviations are shown in parentheses.

Note. All cells had N of 12, with exception of Hard-Assigned-Individual, which had N of 13.

Note. All answers were given on a reversed scale, with 1=very satisfied and 5=very dissatisfied.

Perceived task difficulty. Analysis of the perception of the difficulty of the task, given in Table 9, yielded an interaction of trials and goal participation, $F(3,267)=3.58$, $p<.01$. This result, however, was not supported by the multivariate analysis (Table 7), suggesting that it was due to alpha error. On the other hand, a significant main effect of social input, $F(1,89)=5.79$, $p<.05$, was upheld. Subjects in the group condition decided that the task was easy overall, $\bar{\bar{X}}=4.18$, while those in the individual condition felt it was slightly more difficult, $\bar{\bar{X}}=3.81$. The omega square for the variable of social input was .04. No other significant results were found.

Personal estimation of effort. The last of the affective measures relating specifically to task performance was determined from an average of answers to two items. These questions requested subjects to state whether they did their best on the task, and how hard they worked on it.

A main effect of goal participation, $F(1,89)=12.11$, $p<.01$, was the only significant result discovered (Table 10). While subjects in the assigned goal condition indicated that they exerted a medium degree of effort in completing the task ($\bar{\bar{X}}=2.51$), non-assigned subjects stated that they exercised more effort ($\bar{\bar{X}}=1.99$). As noted previously, these answers were given on a reversed scale, with 1, in this case, meaning a great deal of effort and 5, very little effort. As with the measure of satisfaction with performance, the multivariate analysis

Table 9

A - Analysis of Variance for Perceived Task Difficulty

Source	df	MS	F	
Between Subjects				
Goal Difficulty (GD)	1	1.14	.47	
Goal Participation (GP)	1	4.37	1.80	
Social Input (SI)	1	14.10	5.79	*
GD x GP	1	2.18	.89	
GD x SI	1	.07	.03	
GP x SI	1	.31	.13	
GD x GP x SI	1	.02	.01	
Error	89	2.44		
Within Subjects				
Trials (T)	3	.48	2.45	
T x GD	3	.02	.10	
T x GP	3	.70	3.58	**
T x SI	3	.33	1.68	
T x GD x GP	3	.24	1.24	
T x GD x SI	3	.19	.96	
T x GP x SI	3	.01	.07	
T x GD x GP x SI	3	.20	1.03	
Error	267	.19		

Note. Goal Difficulty, Goal Participation, and Social Input had 2 levels each; Trials had 4 levels.

Note. Results of the multivariate analysis of this measure, the measure of satisfaction with performance, and that of personal estimation of effort are shown in Table 7.

* $p<.05$. ** $p<.01$.

Table 9 (continued)

B - Means and Standard Deviations for Perceived Task Difficulty

	Easy				Hard			
	Assigned		Non-Assigned		Assigned		Non-Assigned	
	Ind.	Grp.	Ind.	Grp.	Ind.	Grp.	Ind.	Grp.
2	3.75	4.08	4.00	4.33	4.23	4.25	3.92	4.17
	(.87)	(.67)	(.85)	(.65)	(.73)	(.75)	(.90)	(.72)
3	3.92	4.08	3.67	4.00	3.92	4.42	3.67	4.08
	(.79)	(.79)	(.98)	(.74)	(1.12)	(.67)	(.89)	(.79)
4	3.83	4.08	3.50	4.00	3.92	4.42	3.58	4.08
	(1.03)	(.79)	(1.17)	(.95)	(1.12)	(.79)	(.90)	(.67)
5	3.75	4.25	3.67	4.08	4.15	4.50	3.33	4.08
	(.97)	(.75)	(1.07)	(1.00)	(.90)	(.67)	(.89)	(.79)

Note. Levels of Goal Difficulty=Easy, Hard; levels of Goal Participation=Assigned, Non-Assigned; levels of Social Input=Individual(Ind.), Group(Grp.); levels of Trials=2,3,4,5.

Note. Standard deviations are shown in parentheses.

Note. All cells had N of 12, with exception of Hard-Assigned-Individual, which had N of 13.

Note. All answers were given on a reversed scale, with 1=very difficult and 5=very easy.

Table 10

A - Analysis of Variance for Personal Estimation of Effort

Source	df	MS	F
Between Subjects			
Goal Difficulty (GD)	1	.12	.06
Goal Participation (GP)	1	26.91	12.11 **
Social Input (SI)	1	.06	.03
GD x GP	1	2.34	1.05
GD x SI	1	1.25	.56
GP x SI	1	3.76	1.69
GD x GP x SI	1	1.14	.51
Error	89	2.22	
Within Subjects			
Trials (T)	3	.05	.27
T x GD	3	.04	.19
T x GP	3	.10	.47
T x SI	3	.02	.10
T x GD x GP	3	.19	.94
T x GD x SI	3	.19	.93
T x GP x SI	3	.08	.39
T x GD x GP x SI	3	.30	1.48
Error	267	.20	

Note. Goal Difficulty, Goal Participation, and Social Input had 2 levels each; Trials had 4 levels.

Note. Results of the multivariate analysis of this measure, the measure of satisfaction with performance, and that of perceived task difficulty are shown in Table 7.

** $p < .01$.

Table 10 (continued)

B - Means and Standard Deviations for Personal Estimation of Effort

Goal Participation	Goal Difficulty: Easy, Individual $\bar{X}$	Easy, Individual σ	Easy, Group $\bar{X}$	Easy, Group σ	Hard, Individual $\bar{X}$	Hard, Individual σ	Hard, Group $\bar{X}$	Hard, Group σ
Assigned	2.61	.71	2.61	.81	2.20	.88	2.65	1.03
Non-Assigned	2.02	.68	1.84	.85	2.14	.71	1.97	.81

Note. Levels of Social Input=Individual, Group.

Note. All cells had N of 12, with exception of Hard-Assigned-Individual, which had N of 13.

Note. All answers were given on reversed scales, with 1 indicating a great deal of effort and 5 indicating very little effort.

supported this result. The estimate of the variance accounted for by goal participation was .08. No other significant results emerged for this measure.

Affective - Non-Assigned Goal Satisfaction Items

In the next multivariate analysis, two significant results emerged, and are shown in Table 11. A three-way interaction of trials, goal difficulty, and social input was found, $F(6,262)=3.73$, $p<.01$. Furthermore, a trial main effect, $F(6,262)=2.41$, $p<.05$, was also observed.

Satisfaction with personal goal. In the analysis of answers to the item measuring satisfaction with the personal goal, a three-way interaction and a main effect were the only significant results obtained (see Table 12). The interaction of trials, goal difficulty, and social input, $F(3,132)=5.86$, $p<.01$, was substantiated by the multivariate analysis in Table 11. This three-way interaction, with an omega square of .04, is represented in Figure 4. In the easy goal condition, the subjects in the groups became more satisfied with personal goals over the course of the trials, while those in the individual situation tended to grow a little less satisfied with their goals. In the hard goal condition, both "individual" and "group" subjects were fairly satisfied with self-set goals for the first two experimental trials, with the subjects in the individual situation becoming more satisfied during the last two trials. Also supported by the multivariate analysis was a trial main

Table 11

Multivariate Analysis of Satisfaction with Personal Goal and Satisfaction with Goal for Others

Source	df	Wilks Lambda	F
Between Subjects			
Goal Difficulty (GD)	2	.98	.34
Social Input (SI)	2	.97	.77
GD x SI	2	.99	.27
Error	43		
Within Subjects			
Trials (T)	6	.90	2.41 *
T x GD	6	.98	.53
T x SI	6	.96	.99
T x GD x SI	6	.85	3.73 **
Error	262		

Note. Goal Difficulty and Social Input had 2 levels each; Trials had 4 levels.

Note. The univariate analyses of these measures are shown in Tables 12 and 13.

* $p<.05$. ** $p<.01$.

Table 12

A - Analysis of Variance for Satisfaction with Personal Goal

Source	df	MS	F
Between Subjects			
Goal Difficulty (GD)	1	.02	.01
Social Input (SI)	1	3.00	1.52
GD x SI	1	---	---
Error	44	1.97	
Within Subjects			
Trials (T)	3	1.80	3.52 *
T x GD	3	.13	.26
T x SI	3	.56	1.09
T x GD x SI	3	3.00	5.86 **
Error	132	.51	

Note. Goal Difficulty and Social Input had 2 levels each; Trials had 4 levels.

Note. Results of the multivariate analysis of this measure and the measure of satisfaction with the goal for others are shown in Table 11.

* $p<.05$. ** $p<.01$.

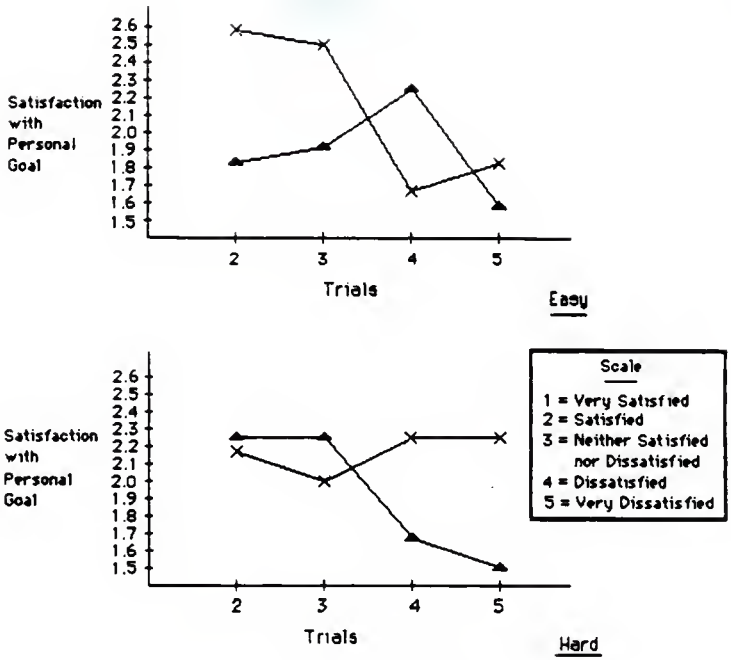
B - Means and Standard Deviations for Satisfaction with Personal Goal

	Goal Difficulty							
	Easy				Hard			
	Individual		Group		Individual		Group	
Trials	$\bar{X}$	σ	$\bar{X}$	σ	$\bar{X}$	σ	$\bar{X}$	σ
2	1.83	.94	2.58	1.16	2.25	.87	2.17	1.27
3	1.92	1.08	2.50	1.17	2.25	.97	2.00	.95
4	2.25	.87	1.67	.98	1.67	.65	2.25	.75
5	1.58	.51	1.83	.83	1.50	.52	2.25	1.06

Note. Levels of Social Input=Individual, Group.

Note. All cells had N of 12.

Note. All answers were given on a reversed scale, with 1=very satisfied and 5=very dissatisfied.



Goal Difficulty

	Easy				Hard			
	Individual (▲)		Group (×)		Individual (▲)		Group (×)	
	$\bar{X}$	σ	$\bar{X}$	σ	$\bar{X}$	σ	$\bar{X}$	σ
Trials 2	1.83	.94	2.58	1.16	2.25	.87	2.17	1.27
Trials 3	1.92	1.08	2.50	1.17	2.25	.97	2.00	.95
Trials 4	2.25	.87	1.67	.98	1.67	.65	2.25	75
Trials 5	1.58	.51	1.83	.83	1.50	.52	2.25	1.06

Figure 4
Satisfaction with Personal Goal as a Function of Trials, Goal Difficulty, and Social Input

effect, $F(3,132)=3.52$, $p<.05$. Trials were estimated to account for 2% of the variance in this measure.

Satisfaction with goal for others. A significant 3-way interaction of trials, social input, and goal difficulty, $F(3,132)=3.66$, $p<.01$, occurred with the satisfaction with the goal for others as well (see Table 13). A depiction of this interaction, having an omega square of .02, is contained in Figure 5. In the easy goal condition, subjects in the groups became more satisfied with the goals for others, while those in the individual situation maintained a similar level of satisfaction with these goals throughout the trials. In the hard goal condition, "group" subjects tended to express a little less satisfaction with goals for others over trials, while "individual" subjects grew more satisfied. As in the case of satisfaction with the personal goal, there also was a significant trial effect, $F(3,132)=2.91$, $p<.05$. The estimate of variance due to this effect was .02. No other significant results occurred in the analysis of this dependent variable.

Affective - Influence Items

The MANOVA performed on the judgments of influence in setting personal goals and in setting goals for others yielded no significant effects. The results of the MANOVA are shown in Table 14.

Judgment of influence in setting personal goal. No significant results were found for this measure, as indicated in

Table 13

A - Analysis of Variance for Satisfaction with Goal for Others

Source	df	MS	F
Between Subjects			
Goal Difficulty (GD)	1	.75	.56
Social Input (SI)	1	1.02	.76
GD x SI	1	.52	.39
Error	44	1.35	
Within Subjects			
Trials (T)	3	1.04	2.91 *
T x GD	3	.21	.58
T x SI	3	.17	.48
T x GD x SI	3	1.31	3.66 **
Error	132	.36	

Note. Goal Difficulty and Social Input had 2 levels each; Trials had 4 levels.

Note. Results of the multivariate analysis of this measure and the measure of satisfaction with the personal goal are shown in Table 11.

* $p<.05$. ** $p<.01$.

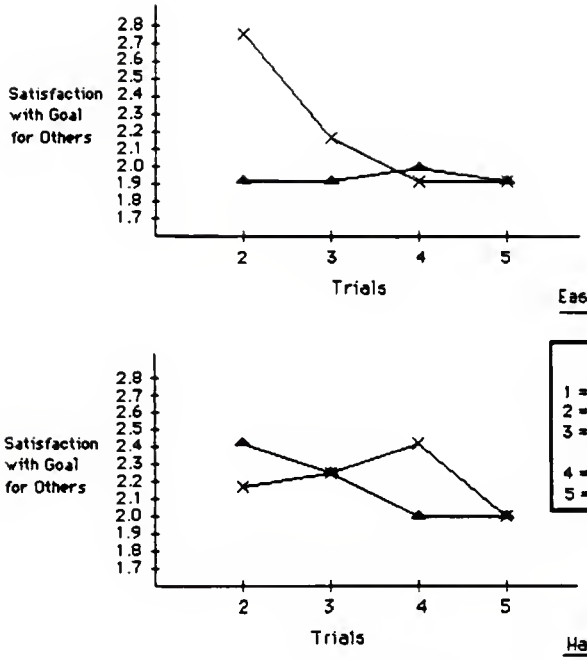
B - Means and Standard Deviations for Satisfaction with Goal for Others

	Goal Difficulty							
	Easy				Hard			
	Individual		Group		Individual		Group	
Trials	$\bar{X}$	σ	$\bar{X}$	σ	$\bar{X}$	σ	$\bar{X}$	σ
2	1.92	.67	2.75	1.29	2.42	.67	2.17	.83
3	1.92	.79	2.17	1.03	2.25	.62	2.25	.75
4	2.00	.60	1.92	.79	2.00	.60	2.42	.90
5	1.92	.51	1.92	.51	2.00	.60	2.00	.85

Note. Levels of Social Input=Individual, Group.

Note. All cells had N of 12.

Note. All answers were given on a reversed scale, with 1=very satisfied and 5=very dissatisfied.



Goal Difficulty

	Easy				Hard			
	Individual (▲)		Group (×)		Individual (▲)		Group (×)	
Trials	$\bar{X}$	σ	$\bar{X}$	σ	$\bar{X}$	σ	$\bar{X}$	σ
2	1.92	.67	2.75	1.29	2.42	.67	2.17	.83
3	1.92	.79	2.17	1.03	2.25	.62	2.25	75
4	2.00	.60	1.92	79	2.00	.60	2.42	.90
5	1.92	.51	1.92	.51	2.00	60	2.00	.85

Figure 5

Satisfaction with Goal for Others as a Function of Trials, Goal Difficulty, and Social Input

Table 14

Multivariate Analysis of Judgments of Influence in Setting Personal Goal and in Setting Goal for Others

Source	df	Wilks Lambda	F
Between Subjects			
Goal Difficulty (GD)	2	.98	.53
Social Input (SI)	2	.91	2.04
GD x SI	2	.91	2.09
Error	43		
Within Subjects			
Trials (T)	8	.97	.66
T x GD	8	.93	1.52
T x SI	8	.97	.58
T x GD x SI	8	.97	.75
Error	350		

Note. Goal Difficulty and Social Input had 2 levels each; Trials had 5 levels.

the MANOVA (Table 14). In general, the majority of subjects reported that they were moderately influenced in setting their personal goals.

Judgment of influence in setting goal for others. No significant main effects or interactions were found for this variable (see MANOVA, Table 14). The average answer to this item was 2.87, indicating that, as with personal goals, most subjects felt that they were moderately influenced by others in setting these goals.

Affective - Satisfaction/Acceptance of Goal Assignment Items

The last of the MANOVAs conducted on affective measures revealed three significant results (Table 15). These were: a three-way interaction of trials, goal difficulty, and social input, $F(6,268)=2.79$, $p<.01$; a main effect of goal difficulty, $F(2,44)=8.49$, $p<.01$; and a main effect for trials, $F(6,268)=3.87$, $p<.01$.

Satisfaction with assigned goal. The measure of satisfaction with the assigned goal, like the previous two variables concerned with satisfaction with goals, yielded a significant interaction of trials, goal difficulty, and social input, $F(3,135)=4.63$, $p<.01$ (Table 16). This interaction, pictured in Figure 6, was also substantiated in the multivariate analysis (Table 15). In the easy goal condition, subjects in the groups became increasingly less satisfied with the set goal as the trials progressed, whereas those in the individual condition felt, on

Table 15

Multivariate Analysis of Satisfaction with Assigned Goal and Acceptance of Assigned Goal

Source	df	Wilks Lambda	F
Between Subjects			
Goal Difficulty (GD)	2	.72	8.49 **
Social Input (SI)	2	.92	1.91
GD x SI	2	.89	2.79
Error	44		
Within Subjects			
Trials (T)	6	.85	3.87 **
T x GD	6	.95	1.08
T x SI	6	.95	1.05
T x GD x SI	6	.89	2.79 **
Error	268		

Note. Goal Difficulty and Social Input had 2 levels each; Trials had 4 levels.

Note. The univariate analysis of the measure of satisfaction with the assigned goal is shown in Table 16.

** $p<.01$.

Table 16

A - Analysis of Variance for Satisfaction with Assigned Goal

Source	df	MS	F
Between Subjects			
Goal Difficulty (GD)	1	6.51	13.17 **
Social Input (SI)	1	1.92	3.88
GD x SI	1	2.81	5.69 *
Error	44	.49	
Within Subjects			
Trials (T)	3	.61	7.80 **
T x GD	3	.07	.92
T x SI	3	.10	1.28
T x GD x SI	3	.36	4.63 **
Error	135	.08	

Note. Goal Difficulty and Social Input had 2 levels each; Trials had 4 levels.

Note. Results of the multivariate analysis of this measure and the measure of acceptance of the assigned goal are shown in Table 15.

* $p<.05$. ** $p<.01$.

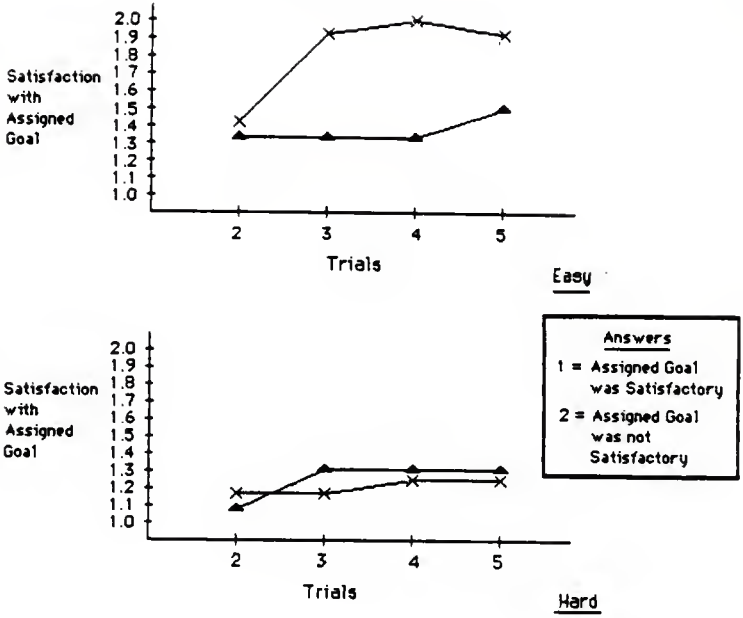
B - Means and Standard Deviations for Satisfaction with Assigned Goal

	Goal Difficulty							
	Easy				Hard			
	Individual		Group		Individual		Group	
Trials	$\bar{X}$	σ	$\bar{X}$	σ	$\bar{X}$	σ	$\bar{X}$	σ
2	1.33	.49	1.42	.51	1.08	.28	1.17	.39
3	1.33	.49	1.92	.29	1.31	.48	1.17	.39
4	1.33	.49	2.00	0	1.31	.48	1.25	.45
5	1.50	.52	1.92	.29	1.31	.48	1.25	.45

Note. Levels of Social Input=Individual, Group.

Note. All cells had N of 12, with exception of Hard-Individual, which had N of 13.

Note. Answer of 1 indicated set goal was satisfactory; answer of 2 indicated set goal was not satisfactory.



Goal Difficulty

	Easy				Hard			
	Individual (▲)		Group (×)		Individual (▲)		Group (×)	
	$\bar{X}$	σ	$\bar{X}$	σ	$\bar{X}$	σ	$\bar{X}$	σ
Trials 2	1.33	.49	1.42	.51	1.08	.28	1.17	.39
Trials 3	1.33	.49	1.92	.29	1.31	.48	1.17	.39
Trials 4	1.33	.49	2.00	0	1.31	.48	1.25	.45
Trials 5	1.50	.52	1.92	.29	1.31	.48	1.25	.45

Figure 6

Satisfaction with Assigned Goal as a Function of Trials, Goal Difficulty, and Social Input

the whole, that the set goal was satisfactory (with the exception of the last trial). Both "group" and "individual" subjects who were assigned a hard goal tended to feel that the goal was satisfactory throughout the trials. The omega square for this interaction was .02.

A significant interaction between goal difficulty and social input, $F(1,45)=5.69$, $p<.05$, and a main effect of trials, $F(3,135)=7.80$, $p<.01$, were found. In addition, there was an effect of goal difficulty, $F(1,45)=13.17$, $p<.01$. Of these last three results, only the goal difficulty by social input interaction was not supported in the multivariate analysis. With respect to the goal difficulty effect, those subjects in the easy goal condition were more dissatisfied with the goal ($\bar{\bar{X}}=1.59$) than those in the hard goal condition ($\bar{\bar{X}}=1.23$), with an answer of 1 meaning the goal was satisfactory and 2 meaning it was not satisfactory. The omega squares computed for trials and goal difficulty were .03 and .12, respectively. No other significant results were found.

Acceptance of assigned goal. This measure, determined from answers to questions concerning whether subjects worked towards the goal and stopped when they reached the goal, did not yield any significant results. Subjects tended to answer "yes," on the average, to both items.

Check for Strategy

In addition to acquisition of these performance, conceptual, and affective measures, subjects were asked, on the last questionnaire, whether they added all three numbers in each problem. Since the problems were generated to prevent the development of an obvious strategy (as explained in the method section), an ANOVA was conducted on this measure to determine if such a plan was conceived by some of the subjects. No differences were found among the subjects in their answers to this question. The majority of them indicated that they added all three numbers to answer the problems.

Summary of Analyses

The major variables introduced in this study, goal difficulty, goal setting participation, and social input in goal setting, exerted various effects upon performance, goal setting, and feelings concerning both of these factors. A summary of the significant results, in particular those which were supported by the multivariate analyses, is shown in Table 17.

The first of these variables, goal difficulty, affected both of the performance measures, number of problems solved and number of errors. It was found that subjects with hard goals completed more problems and also made a larger number of errors than did those with easy goals. In addition, goal difficulty exerted an influence upon the satisfaction felt with the assigned goal, with

Table 17

Summary of Analyses

	Goal Difficulty (GD)	Goal Participation (GP)	Social Input (SI)	GD x GP	GD x SI	GP x SI	GD x GP x SI	Trials (T)	T x GD	T x GP	T x SI	T x GD x GP	T x GD x SI	T x GP x SI	T x GD x GP x SI
Number of Problems Solved	**	**						**		**	*				
Number of Errors	*														
Quantity of Personal Goal								**			**				
Quantity of Goal for Others								**							
Satisfaction with Performance		*						**							
Perceived Task Difficulty			*												
Estimation of Effort		**													
Satisfaction with Personal Goal								*					**		
Satisfaction with Goal for Others								*					**		
Judgment/Influenced on Personal Goal															
Judgment/Influenced on Goal for Others															
Satisfaction with Set Goal	**							**					**		
Acceptance of Set Goal															

*p<.05. **p<.01

those subjects having the hard goal indicating that they were more satisfied with their goal than was the case with the easy goal subjects. (The interactions of goal difficulty, social input, and trials will be described under social input.)

The amount of participation in setting the goal (no participation at all or full participation) affected feelings of satisfaction with performance and of personal estimation of effort. Subjects in the non-assigned goal condition expressed more satisfaction with their performance and indicated that they utilized more effort on the task than did those subjects in the assigned goal condition. Additionally, a significant interaction of goal participation with trials was also noted for the number of problems solved. Subjects in the non-assigned goal condition completed an increasingly greater number of problems as the trials progressed than did subjects in the assigned goal condition, which contributed to the significant main effect found for number of problems solved.

The third independent variable of social input in goal setting was found to influence subjects' perceptions of the difficulty of the task. Subjects in the group condition felt, on the whole, that the task was easier than did those subjects in the individual condition. In addition to this effect, significant interactions of social input and trials were found for the number of problems solved and for the quantity of the goals that non-assigned subjects set for themselves. Over the

course of trials, subjects in the group condition finished more problems, on the average, than those in the individual condition, particularly in the last trial. In conjunction with this result, non-assigned goal subjects in the group condition set their personal goals higher than did the "individual" subjects over most of the trials, especially for the hypothetical future trial.

Three-way interactions occurred between goal difficulty, social input, and trials for the satisfaction with goals measures. In the easy goal condition, subjects in the individual situation appeared to become somewhat less satisfied with their personal goals over trials, while the subjects in the group condition grew more satisfied. On the other hand, both "individual" and "group" subjects with hard goals were fairly satisfied with self-set goals at first, but the "individuals" became increasingly more satisfied over trials. In the case of the measure of satisfaction with goals for others, "individual" subjects in the easy goal condition had similar means over trials, while group subjects grew more satisfied. In the hard condition, "individuals" became more satisfied with these goals, but group subjects tended to express a little more dissatisfaction. Conversely, with an assigned easy goal, group subjects became increasingly less satisfied with this goal as the trials progressed, while those in the individual condition felt that the goal was satisfactory. The somewhat lower score of these "individual" subjects in the last trial, however, seemed to

suggest that their satisfaction was also starting to decrease. Both group and individual subjects with a hard goal felt that the set goal was satisfactory over trials.

Although the majority of the measures were affected by the progression of trials, this was the only significant result found for quantity of goals for others. Subjects raised the quantity of these goals from trial to trial. No significant results were found for the following measures: judgment of influence in setting the personal goal; judgment of influence in setting the goal for others; and acceptance of the assigned goal.

DISCUSSION

The goal setting theory of motivation is based on the premise that an individual has conscious intentions (goals) that direct and influence behavior. More specifically, goals affect performance on a task • by "directing attention and action, mobilizing energy expenditure or effort, prolonging effort over time (persistence), and motivating the individual to develop relevant strategies for goal attainment" (Locke et al., 1981, p. 145). The difficulty of the goal, its specificity, feedback regarding performance in relation to the goal, participation in setting the goal, and goal acceptance have all been found, to some extent, to influence goal-directed performance. Some of these factors were examined in this study, together with an element that has not been widely studied, individual goal setting

within a group context. This social context of goal setting, as well as goal difficulty, amount of participation in goal setting, and their interactions, produced various effects on the following variables: the quantity and quality of performance; the quantity of self-set goals; and feelings about performance on the task and about the goals themselves.

In this study, an effect of trials was found for both performance- and goal- related variables. Since they were often reflective of learning or practice on the task, little mention of the trial main effects will be made.

Goal Difficulty

The positive relationship found in this study between the difficulty of the goal and the level of performance (in terms of quantity) has been substantiated by the results of studies reviewed by Locke et al. (1981). A number of other studies conducted since this review (e.g., Garland, 1982 & 1983; Matsui, Okada, & Mizuguchi, 1981) have also shown this relationship. In addition to supporting the hypothesis of this study concerning the effect of goal difficulty on performance, these results also tend to strengthen the conclusion reached by Downey et al. (1985) with respect to the conditions necessary for this positive relationship to occur.

As was noted by Downey et al. (1985), a great number of the experimental studies where hard goals resulted in increased

performance levels incorporated two features in the goal setting-performance paradigm. These features consisted of restriction of performance and easy goals which were set below the level of performance exhibited under a no goal condition, with "hard" goals being at or slightly above this baseline quantity. Both of these procedures were employed in this study. Restriction of performance was accomplished, in essence, by instructing all subjects to stop when they had reached their goal. The "hard" goal assigned to some of the subjects consisted of the average number of problems completed by a similar group of subjects under "do your best" instructions. Non-assigned goal subjects in the "hard" goal condition were told, as were the assigned subjects, that this number was the average finished in previous studies. It was assumed that these non-assigned subjects might use that number as a reference goal in setting goals for themselves. As in many of the studies cited by Downey et al. (1985), as well as in that study itself, "hard" goals were found to lead to higher quantity performance than easy goals when performance restriction and these "hard" goals (typical average performance) were employed in the experiment.

The other performance measure, number of errors (quality of performance), also displayed a positive relationship with goal difficulty. It would, in many cases, be expected that individuals working to attain harder goals may be more prone to errors than those working for easier goals. This would be true

when there is a deadline or time limit within which the goal must be attained, as there was in the present study. As revealed by the answers to the questionnaires, many of the subjects with easy goals finished well within the amount of time allowed for the task. Several subjects indicated, by their written and/or spoken comments, that they used that "extra" time to check on the accuracy of their answers. Also, the easy goal may have induced some of the individuals working towards it to "take their time," to work slower, checking their answers as they progressed through the problems. This idea seems reasonable, since subjects obtained experience with the problems in relation to the goal on the earliest trials, and thus had some notion about the difficulty of the task.

Another possible and, perhaps, more likely explanation of the goal difficulty effect for number of errors is apparent in the fact that a quantity goal was stressed in this study. Many individuals more than likely paid more attention to the number of problems they completed, since a certain number constituted their goal, than to the number that were finished correctly. Since subjects with hard goals completed a greater number of problems, on the average, it follows that they would also have a greater number of errors. Along these lines, in a work setting, a production goal of 1,000 widgets might be emphasized and met, but the shape or cut of all of these widgets might not be exactly right or acceptable. This type of "trade-off" of quality for

quantity has also been found in studies by Garland (1982), Bavelas and Lee (1978), Matsui, Okada, and Mizuguchi (1981), Sales (1970), and Erez and Zidon (1984). In all of these experiments, harder goals led to a higher number of errors or poorer quality answers than did easy goals.

Goal Participation

The way in which the goal was set, whether it was assigned or self-set, appeared to exert a very strong influence on the number of problems completed. As predicted, goal setting participation resulted in a higher performance level (in quantity) than did non-participation.

A great number of studies of participation in goal setting have concluded that there is an indirect relationship between this factor and task performance. The results of these studies have implied that goal setting participation improves performance by leading to the setting of a higher goal or to greater goal acceptance than when a goal is assigned. In addition to the present experiment, only one study (Latham & Yukl, 1975) found a main effect of participation in goal setting in terms of increased performance.

In the current study, a probable reason for a great part of the relationship found between goal setting participation and performance is the existence of a confound between participation in setting the goal and goal difficulty. Assigned goals were set

at low performance levels in order to insure a goal difficulty effect for performance (Downey et al., 1985). In the non-assigned conditions, however, subjects were allowed to set their own goals, after being told to set reasonable goals or maximum performance goals. They tended to set much higher goals, on the average, than the set goals which subjects in the assigned conditions were told to attain. Since higher goals have been found to lead to higher performance levels, non-assigned subjects, under these types of conditions, would be expected to complete more problems than the assigned subjects.

This type of problem was alluded to by Latham et al. (1982) and by Latham and Steele (1983). The positive results that were found for goal participation and performance in the study of woods workers by Latham and Yukl (1975) were later attributed in part to a goal difficulty-participation confound. In participative goal setting studies where goal difficulty was held constant (such as, Latham & Steele, 1983; Latham & Marshall, 1982; and Latham et al., 1982), no difference in performance was found between participative and assigned goal conditions. The findings of Downey et al. (1985) would, however, argue against this explanation, since they observed that studies which set difficult goals above baseline performance did not tend to find a goal difficulty effect.

Another factor that might explain the discrepancy between the results of the current study and some of the others in the

literature is the type of task that was used. Various tasks were employed in past studies, some of which include: brainstorming (Latham & Saari, 1979 a & b; Latham & Marshall, 1982); assembling a toy (Latham & Steele, 1983); answering items on a personnel selection test (Dossett et al., 1979); and obtaining averages of performance ratings (Latham et al., 1982). In most of these studies, goal difficulty was held constant between the conditions of goal setting participation by assigning the goal(s) that had been decided upon in the participative group to those in the assigned group. Considering the nature of some of these tasks, it might have been very difficult for participative goal subjects to outperform the assigned goal subjects. This difficulty may partially explain why no differences in performance were found between these two goal conditions in some of the studies.

In addition, in the majority of the past studies on goal setting participation, the participative conditions were somewhat different from the one that was employed in the current study. In a great many of these studies, goal participation involved some sort of collaboration or discussion of what the goal should be between the experimenter or a supervisor and the subject(s). There have also been a few studies, however, in which subjects were allowed to set their own goals. In these studies, where, in some cases, there was quite a bit of influence from the experimenter, as in Latham and Marshall (1982), usually only one or perhaps two experimental trials were used.

In the current study, on the other hand, the non-assigned subjects were asked to set their own goals prior to each of four experimental trials. Also, they were told after every trial to remember how many problems they had finished. As they continued to work on the task, gaining experience on it and receiving feedback on their quantitative performance from trial to trial, they raised their goals (shown by a trial effect), and, hence, their subsequent performance. The assigned subjects were also receiving this feedback and experience on the problems from trial to trial. In their case, however, they were instructed to work for the same set goal on every trial. They did not have the same control, as the non-assigned subjects did, in the form of self-set goals. This type of performance-information (feedback)-control (self-set goals) cycle might help to explain the interaction of goal participation and trials for number of problems completed.

Erez and Kanfer (1983) addressed this issue of control in goal setting with respect to goal acceptance. They suggested a model of the goal setting-performance process that helps to determine goal acceptance. The different stages are: "1.) goal setting; 2.) feedback, the result of monitoring performance progress; 3.) performance evaluation; and 4.) criteria for goal attainment and its consequences" (p. 456). These types of conditions, under the control of the non-assigned goal subjects, raised their goal acceptance (satisfaction with the goal) and

helped to increase their performance.

In the current study, the goal acceptance (measured in terms of feelings of goal satisfaction) of the non-assigned subjects was found to increase over trials, while that of the assigned subjects decreased. Since this satisfaction was measured with a 5-point scale in one condition and a simple answer of "yes" or "no" in the other condition, a direct comparison of these two groups is rather difficult. Also, two other measures of goal acceptance for the assigned subjects, asking whether they worked for the set goal and if they stopped when they reached the goal, didn't appear to be very good questions. Some of the comments written in answer to these questions indicate that subjects apparently misinterpreted these measures (e.g., they didn't work for the set goal because they didn't reach it). Furthermore, the correlations between these two measures and the measure of satisfaction with the set goal weren't significant (see Appendix D, Table D3), tending to support the conclusion that these two items weren't measuring goal acceptance. Still, from comments that were written in answer to the satisfaction with the goal measure, as well as oral comments, it appeared that assigned subjects were, on the whole, dissatisfied with the set goal, indicating low goal acceptance.

As Erez and Kanfer (1983) stated: "Goal acceptance involves a choice based on the evaluation of the relationship between (a) effort and goal behavior, and (b) goal behavior and outcomes and

the extent of control a person has over the two contingencies" (p. 456). Obviously, since most of the assigned goal subjects felt they had no control over the circumstances (unless they resisted the demand characteristics of the situation), they had low goal acceptance. Low goal acceptance has been shown to result in lower performance in some studies (e.g., Erez & Zidon, 1984; Erez, Earley, & Hulin, 1985).

Since goal participation was found to affect performance so strongly, it is not surprising that it would also affect feelings about that performance. Non-assigned subjects were more satisfied with their performance overall and indicated that they exerted more effort in performing the task than assigned subjects. The greater satisfaction with performance of the non-assigned subjects is explained by the fact that they were working for their own goals and attaining or surpassing them most of the time. According to Locke (1970) and Locke, Cartledge, and Knerr (1970), satisfaction with performance results when one perceives that his/her performance fulfills or helps to fulfill one's goals. In other words, satisfaction with performance is a function of the degree to which one's performance achieves one's desired goal or is discrepant from this goal. Reaching goals provides the individual with pleasure and not reaching them is aversive or unpleasant (Blalock & Wilken, 1979).

Although assigned goal subjects were attaining the set goal, they did not find this performance satisfying because they did

not accept this goal. Their low goal acceptance was shown by their growing dissatisfaction with it over trials, especially in the easy condition. In addition, since the level of the goals, as well as their degree of acceptance, were higher in the non-assigned goal condition than in the assigned, it seems reasonable that the non-assigned subjects reported that they exerted more effort on the task. This greater degree of effort more than likely contributed to their higher performance level (Locke, 1968; Terborg & Miller, 1978).

Social Input

Besides the effects of goal difficulty and goal setting participation, social input in goal setting appeared to exert an influence over time on the number of problems solved. This effect, however, was found to be basically the opposite of the outcome that was hypothesized. Over the course of the trials, subjects in the group situation completed more problems than those in the individual condition. Since the level of performance is often determined to some extent by the goals one is working toward, examination of the goals present in this study should be helpful in explaining this performance difference. More specifically, in view of the higher performance of the non-assigned subjects, the goals which they set should be examined.

Of the two types of goals set by non-assigned subjects, the ones which seem to be the most directly responsible for the

difference in performance between "individuals" and "groups" are the personal goals. Judging from the very high relationship between personal goals and performance levels, $r(192)=.95$, $p<.01$, the majority of non-assigned subjects were working to achieve their goals. Their satisfaction with performance, together with their increasing satisfaction with their goals, are indicative of their successful goal attainment. Since, a great deal of the time, the majority of these subjects reached their goals on a trial, they tended to raise these goals for a successive trial, an occurrence implied by Blalock and Wilken (1979) and Shaw (1981).

In addition to this general finding concerning personal goals, it was also discovered that subjects in the group condition established higher goals for themselves over the course of the trials than did those in the individual condition. Both the "individual" and "group" subjects also indicated increasing satisfaction with their personal goals over trials, which implies that their goal acceptance was growing over time. These two factors, greater goal levels and increasing acceptance of personal goals, seem to account for the higher average performance of "groups" as compared to "individuals" over trials. Similar types of results concerning goal acceptance and difficult goals have been found by Erez and Zidon (1984).

An investigation of why "group" subjects set high personal goals over time is important. Since the main element

distinguishing group from individual treatment was the group discussion, there was, in all probability, some type of process operating during this discussion that influenced "group" subjects to set higher personal goals. A closer examination of the contents of the group discussion is necessary in order to discover the nature of this process. (These contents are available for such an examination because the experimenter kept notes concerning the elements of the group discussions.)

According to Stasser, Kerr, and Davis (1980), there are two types of social influences operating within a group discussion. The first of these, informational influence, refers to information about facts, logical arguments, and personal experience relevant to the decision required. The second type of social influence, normative, refers to group forces to conform to the positive expectations of others. This is expressed as others' feelings about what one ought to believe or do. Any communication during a group discussion can convey information pertaining to personal decisions and/or express expectations about what others should do.

Upon examination of the contents of the group discourse, the presence of both types of these social influences was detected. The informational elements consisted of the following: clarification of the instructions, task, and the possible purpose of the experiment; general information about all of the members; comparisons of each member's performance in terms of the number

of problems solved on every trial; comparisons, after each trial, between each member's personal goal for that trial and his/her performance; and the quantity being considered by each member as his/her personal goal for the next trial. Normative influences included some encouragement to a few of the members to attempt a harder goal on the next trial, and, frequently, help from the other group members in setting personal goals. Often, a joint decision regarding the quantity of the goal for others was also reached within the groups.

Obviously, then, the subjects in the group condition received a much greater amount and variety of feedback on the task than did those in the individual condition. "Individual" subjects could acquire explicit and precise feedback on their own performance by recalling the number of problems they had finished. As indicated in many of the questionnaires, some knowledge concerning others' performance was also gained by these "individuals" through observation of the other subjects. On the other hand, through discussion, "group" subjects possessed fairly accurate information about the other members' performance in addition to that on their own performance. This type of multiple feedback on both group and individual member performance has been recognized as being very beneficial in group situations to improvements in the performance of members and, hence, groups (Zajonc, 1962; Zander, 1971 & 1977).

This difference in feedback between the group and individual

conditions appears to be the basis for the disparity in the personal goals and, hence, the performance of the subjects in these situations. Considering the nature of the feedback furnished in the discussions, it is highly likely that some type of social comparison process was occurring which instigated the setting of high goals and the resulting high performance.

One possible way in which these social comparisons may have acted to increase group performance and goals is through social facilitation. Social facilitation refers to the effect that the mere presence of others has upon the behavior of individuals (Shaw, 1981). A social facilitative effect on goals has been suggested by Blalock and Wilken (1979). They stated that an individual's goal level may change as a result of observations of others in his/her reference group, namely, changes in their goals or in their performance. This would constitute a type of social influence where individuals in the group inferred the feeling of the other members with regard to the task.

In the current study, subjects performed the task in the presence of others, so social facilitation could have been active in both group and individual conditions. Results from several studies have suggested that the presence of an expectation that one will be evaluated by others who are present is necessary for the occurrence of social facilitation (Hency & Glass, 1968; Good, 1973; Martens & Landers, 1972). This expectation was present on the part of both "individual" and "group" subjects, but was more

explicit for those in the group condition. Since the discussion centered around personal goals and achievement of these goals, the potential for evaluation by others in the group condition was higher than in the individual condition. It is reasonable to expect that "group" subjects set higher goals for themselves over trials and, consequently, achieved these goals, in order to obtain favorable evaluations from others (social approval).

Along similar lines, it is possible that individual competition induced the setting of high goals and the resulting high performance in the groups. According to Johnson et al. (1981), when a person has feedback on his/her own output as well as that of the rest of the group, that person is more concerned with his/her competitive position in relation to the others and is primarily interested in achievement of individual excellence.

A competitive social situation is one in which "the goal regions of each group member are such that if the goal region is entered by any individual group member, other group members will, to some degree, be unable to reach their respective goal regions" (Shaw, 1981, p. 378). In other words, in a competitive situation, goal attainment by one group member to some extent hinders the goal achievement of the other members. In this study, each subject in the groups could have been striving to complete the most problems or to show the greatest improvement from the preceding trial. This sense of competition could have motivated "group" members to set higher goals and perform at a

higher level over the course of the trials than did the "individual" subjects. If this was the case, however, then the encouragement and help shown by other members in a number of the groups were not appropriate behaviors. These actions are usually shown in a cooperative goal structure situation where group goals are homogenous (i.e., members hold the same goal for the group) (Shaw, 1981).

Yet another way in which the social comparisons of goals and performance might have affected the quantities of these two factors is by leading to the formation of an informal group standard of behavior. Considering the encouraging and helpful comments between members in several of the groups, as well as the rest of the contents of the discussion, a group atmosphere was developing over the trials. After a few trials, suggestions were even made in a few of the groups that all of the members raise their personal goals for the next trial by the same amount. With this type of atmosphere and a great number of the members beginning to attain their goals on early trials, a group standard of behavior encouraging high productivity developed. This standard, in turn, led to high average personal goals and high performance. The tendency of the group in this instance to favor high productivity may partially be explained by the general feeling, on the part of the members, that the task was easy. Another explanation for this high productivity standard might be that members felt completion of as many problems as possible was

expected of them in the experimental situation. Also, the large number of problems presented to them on each trial probably fostered this notion.

Overall, social processes appear to have created a climate for higher performance in the group condition. Both informational and normative social influences (Stasser, Kerr, & Davis, 1980) appear to have contributed to this performance level. The most likely social influences operating within the groups in this study were the comparisons among members of personal goals and performance, encouragement to members to attempt higher goals, and the suggestions concerning the levels at which others in the group should set their personal goals. Apparently, this combination of information regarding how the other members were doing on the task and of the performance expectations of others in the group affected the task performance of the group members.

Another potential factor influencing performance to some extent was fatigue. While group discussion took place, "individual" subjects were required to work on word puzzles. This activity might have led to decreased performance on the problems over trials due to a higher degree of fatigue than that experienced by "group" subjects. This situation could be the case, especially since performance differences between the group and individual conditions was much greater in the last experimental trial.

In addition, subjects in the individual conditions perceived that the task was somewhat harder overall than did the subjects in the groups. This difference in perceptions of task difficulty could have been due to the greater fatigue of the "individual" subjects. If fatigue was a factor here, however, it seems that there should have been an interaction of trials and perceived task difficulty. As the "individual" subjects progressed through the trials and became more fatigued, their perception of the difficulty of the task should have also consistently increased over the trials. This situation didn't occur in this study. Besides, this difference in perceived task difficulty could have been due to the fact that the "individuals" weren't receiving definite feedback on others' performance. Therefore, they had only their own performance and estimates of that of others by which to judge the task difficulty. In addition, "group" subjects were receiving encouragement from others in the discussion, which might have affected their perceptions of the difficulty of the task.

Nevertheless, the factor of fatigue should be taken into consideration as a possible explanation of the performance difference between individual and group conditions. To help determine if fatigue was largely responsible for the performance difference found between individuals in groups and individuals alone, it would be advisable in the future to devise an activity for "individual" subjects between trials that would be less

likely to cause fatigue. In addition, this task would need to be one which would not promote a group atmosphere among these subjects. Perhaps viewing a tape of individuals discussing some current world problem or a similar topic would be a suitable activity for these subjects.

Contrary to expectations, no difference was noted between the individual and group conditions in the quantity of the goals that were set for others. Although subjects in both of these conditions constantly raised the goals for others from trial to trial, they tended, on the average, to set them at a lower level than the personal goals. A closer inspection of the quantities of the personal goals and goals for others suggested a nonlinear relationship. A scatter diagram (Appendix E, Figure E1) of these data suggested a curvilinear relationship between these two types of goals. If a line were drawn through the points in the diagram, it would tend to become horizontal at the higher quantities of goals for others. This implies that there was a ceiling effect for these goals.

Since the quantity of personal goals and of goals for others were both related to the quantity of performance, number of problems solved, (see Appendix D, Table D2), it was thought that the relationship between personal goals and goals for others might depend upon performance. In goal setting, prior performance on the same or a similar task contributes, to some extent, to the decision reached concerning the goal level.

Therefore, it was conjectured that the quantity of the personal goals and of the goals for others reported by subjects in the current study may have been determined by their performance level.

The curve suggested by the scatter diagram appeared to begin slightly above the quantity of the personal goal corresponding to the average performance level. Means for the personal goals and goals for others of subjects who performed at a level below the average suggested that these subjects were inclined to set goals for others at approximately their own performance level, or, at least, quite close to that level. These people might have assumed that their own performance level was roughly the same as that which others should be able to attain under similar conditions. Means of both of these goals for those who performed at a level above average suggested that they tended to set the goals for others below their own performance level. This seemed to suggest that these people may have believed that they were performing at their best, which was, in their estimation, above average, and didn't expect others to perform at that level.

Both the Pearson correlation coefficient and the eta coefficient were computed for these data. A test comparing these two coefficients indicated that there was a significant linear, not a curvilinear, relationship between personal goals and goals for others. Therefore, it was concluded that subjects were basing the goals for others upon their own personal goals; the

higher they set their own goals, the higher they set the goals for others, as shown by the trial effects for both of these measures. The goals for others, however, had a much lower range than the personal goals, showing that subjects tended to set goals for others lower than their personal goals. Still, as discussed earlier, the scatter diagram and the means suggest that a non-linear relationship exists between these two types of goals. A non-linear relationship was not found, but this may be due to the small sample size at any one level of the personal goals, resulting in less power. Attempts should be made in the future to determine if this non-linear relationship actually exists.

The results of this study indicate that a group context does affect individual goal setting and performance. Involvement in a group situation induced individuals to set high personal goals and, consequently, to exhibit high levels of task performance. As members of a group, individuals were exposed to information and influences present in the group discussion. Members acquired knowledge concerning each other's goals and task performance. They were also able to compare their own goals and performance with those of similar others (i.e., the other members) who were working on the same task. In essence, this information provided a reference source on the task for the group.

In addition to this information, the group discussion also afforded the opportunity for evaluation by others and for the

expression, albeit indirectly in most cases, of others' expectations concerning individual member performance on the task. In the group discussion, an evaluation, however informal, of each member's goals and performance in terms of that which was expected of him/her by the rest of the group occurred. These informational and normative influences, constituting the feedback provided in the group discussion, led to the setting of higher personal goals over trials, while, perhaps, the normative factors were more influential in contributing to the high performance in pursuit of these goals.

Although these results were obtained with group members performing an independent task, it seems that these same influences would also affect individual performance and goals on an interdependent task, where integrated action of members is required. With this type of group task, the normative social influences present in a group situation would be even stronger and more apparent. To a greater extent, the other members would be depending on each individual to uphold his/her part of the task in order to reach the group goal. Individual failure to "live up to" others' expectations in terms of performance would also be more readily apparent, and pressures to comply to these expectations (the group's goal for the member) would be much greater.

Judging from the comments on the questionnaires in the present study, subjects were aware, to some extent, of the

presence of the social influences in the discussion. They often stated that all the talk about doing more prompted them to set higher goals from trial to trial. Over time (trials), these forces present in the group situation may have resulted in the development of an informal group standard to raise productivity. Zander (1971) alluded to this type of longitudinal development of a group standard when he stated that feedback on past scores of a group's performance provides a potential basis for a standard of excellence against which the group can compete in the future.

The group atmosphere also affected subjects' feelings about their personal goals and the goals for others, as well as their perceptions of task difficulty. Members' satisfaction with their personal goals, as might be expected, increased over trials, especially in the easy goal groups. Subjects in easy goal groups became more satisfied with their own particular goals than did the easy goal "individuals." The feedback in the group apparently helped them to set reasonable goals for themselves, particularly after a few trials in which members acquired experience on the task. Subjects in groups with easy goals also became more satisfied with the goals for others over trials. They tended to set these goals at easy levels, lower than their personal goals. Their satisfaction with these goals for others might have stemmed from expressions of fatigue or boredom in the discussion and acknowledgment of the possible occurrence of these feelings in the instructions given by the experimenter.

Therefore, following from their own performance and the repetitiveness of the task, the goal for others was seen as more satisfactory over trials.

Dissatisfaction in the group with hard goals arose from knowledge that the task was easy. The goal for others was considered to be too easy when compared to their personal goals, their knowledge of their own task ability, and the instructions to set maximum performance goals. To some extent, it appears that the feedback in the group also influenced those subjects in the assigned goal groups, causing them to become increasingly dissatisfied with the set goal. This growing dissatisfaction with the assigned goal over trials, as well as the higher average performance in the last trial, would seem to suggest that the members of the easy goal group were beginning to reject the set goal and work for their personal goals.

Support for Hypotheses

At the beginning of this study, several hypotheses concerning main effects and interactions were advanced. The hypotheses about the main effects of goal difficulty and goal participation were upheld, although the possible confound between these two factors might have contributed to the goal setting participation effect. Also, as hypothesized, no differences were found between individual and group conditions in the number of errors made or estimation of effort.

The remaining hypotheses on main effects and interactions, however, were not supported, and, often, the effects were in the opposite direction of that which was proposed. The factor which appears to be responsible for the disconfirmation of these hypotheses is that the group goals (goals for others) were set at a low level. In other words, they were often too easy. Instead of setting them at a medium difficulty level (average group performance or slightly above this average), members tended to set these goals at a lower level. The reason for this action is not clear because most of the groups discussed these goals and obtained objectives that they thought would be appropriate, usually based on their average performance from the preceding trial. Perhaps the reference goals influenced some of the high-performing group members to put down a lower number than that decided on in group discussion. They might have placed more confidence in what had been found in past research than in the suggestions of people they had met for the first time. Therefore, since this goal for others was too easy for them, they tended to work for their personal goals, the opposite of what was expected, which resulted in higher performance.

Another factor which could account for the disconfirmation of several of the hypotheses concerning group performance, goals, and members' feelings about both of these, is the nature of the group interaction itself. As Zander (1971) stated, several goals are present in a group situation. Usually, there are pressures

exerted by the group on its members to conform to certain of these goals, namely, the group goal and the group goal for the member. Deviance from group norms is often dealt with in overt, but sometimes subtle, ways.

This situation has been noted in industrial organizations among members of male work groups (e.g., by Homans, 1950; and Roethlisberger & Dickson, 1939). These work groups usually established their own production standards (norms) which were adhered to by most group members. When a worker deviated too much from the standard, he was subjected to ridicule and various other forms of sanctions, both verbal and physical (i.e., "binging," which was a practice of hitting another on the arm). If the worker produced too much, he was referred to as a "speed king" or "rate buster;" if he produced too little, he was called a "chisler."

In the present study, however, the pressures to conform to the goal for others and penalties exacted if this conformity was not displayed were apparently not present. Subjects tended to work toward their personal goals, not the medium difficulty goal decided upon in the group discussion. Since the group interaction was rather diffuse and fairly short, as well as being rather superficial, the usual group pressures to exact conformity to a goal level established by the group were not present. Also, due to the short time allowed for the group to develop and the artificiality of the experimental situation, the cohesiveness of

the group was probably not very high, which also explains the absence of these pressures to conform. Perhaps, if group discussions and performing on the task had been conducted over a longer period of time, producing greater fatigue among the members and creating a greater group feeling, these conformity pressures and penalties (probably verbal) would have developed, leading to lower performance.

Summary

Social input in the goal setting process did influence individual decisions made on goals. The presence of the opinions and expectations of others who are working on the same task, together with information on the task performance of these other group members, intervened in the individual's decision concerning the level of the goals to attempt to attain. Performance was also affected. Individuals endeavored to perform at the level of the goal they were working towards because they perceived that failure to reach it might elicit social condemnation and social disapproval from the other group members in the discussion. Therefore, since a person does not tend to set work goals in isolation (without the presence of influences from others), the study of individual goal setting and performance should be conducted in social situations.

So, in essence, the assumption that the group context would influence individual goal setting and performance was proven

correct; however, this influence did not affect these factors in the direction proposed. In this study, subjects were not required to confront differences between their own performance levels and a group norm of performance which was established at a lower level than the actual group performance. Specifically, the average goal for others was lower than the average personal goal, which was significantly related to performance. While the group context operated to improve performance through both informational and normative social influences (Stasser, Kerr, & Davis, 1980), it is not difficult to conceive of situations/conditions that would potentially produce opposite effects. A performance situation that requires continuous and sustained performance with resulting fatigue and/or boredom could produce the ideal conditions for group pressure to lower the rate of performance to help offset these effects. Also, complex performance situations with competing goal expectations (e.g., production of high levels of two different products) would again appear to set the stage for the group to impose standards which reduce the conflict.

In this study, subjects were faced with two potentially conflicting norms, the experimenter's and the group's. It appears that the demands of the experimenter (i.e., "work for your goal") were sufficient to overcome the rather mild expectations of the embryonic group. The findings in real work situations (e.g., Latham & Baldes, 1975; Latham & Yukl, 1976;

Latham & Locke, 1975; Ronan, Latham, & Kinne, 1973) suggest that a powerful other (the supervisor) can influence the performance of individuals in well-established groups with existing group norms. The ability of these powerful others to sustain high levels of performance over long periods of time or in the face of strong and insistent group norms is an empirical question.

The major problem in this study was its apparent inability to invest the group with sufficient time, conditions, and/or sanctions to impose the lower group norm. Future studies need to create conditions which will attempt to rectify this situation.

Several technical problems occurred in this study, principally with the wording of some of the following questions. First, the questions on satisfaction and acceptance of the assigned goal would have been better if the answer choices had been presented on a 5-point scale, in order to make them more comparable with the goal acceptance items used in the non-assigned groups. Also, as mentioned earlier, the two measures that asked whether assigned subjects accepted the set goal and worked towards it were misinterpreted by many of the participants. In addition, the questions concerning influence in setting the goals did not distinguish between "groups" and "individuals" in terms of the sources of influence, as anticipated when formulating the items. As discussed previously, a task for the "individual" subjects which might have been less fatiguing and more comparable to the group discussion without

engendering a group atmosphere would have been preferable to the one that was used. Also, the instructions to set goals for others might have been too vague in wording, making it difficult for subjects to set these goals at first.

In future research, it would be interesting to include conditions where goals are set participatively with an experimenter, thereby investigating all three degrees of goal setting participation. These include: no participation at all (an assigned goal); partial participation through discussion with the experimenter (a subordinate-supervisor set goal); and full participation (a self-set goal). Also, a "longer" study is necessary in order to allow greater development of the group and its standard of performance. This standard would be expected to change with a larger number of trials, due possibly to a greater degree of fatigue. The effect of the attitude of an authority figure (i.e., whether the experimenter/supervisor is supportive or non-supportive of the subjects/workers) on the group productivity level would also constitute a topic for future research. The effects of different tasks, those which can be performed individually versus those which have to be performed jointly, would also be interesting to examine. Personal characteristics of group members and how these influence their discussion and decisions on the goals and the performance would likewise be a topic for future research.

Implications

In an organization, employees are working within a group context of some sort, either formal, informal, or both. Within work groups, there are several standards which can be identified, namely, the individual's personal work goal, the assigned management goal, and a group goal. As demonstrated in this study, these standards (goals) can and did differ. Individuals are then faced with selecting one (or some combination) of these goals toward which they will work. A pertinent question, in terms of the level of production which will be attained, is "What determines this selection?"

In any job, there are influences which tend to enter into the individual's decision concerning the goal to strive to attain. These various influences act upon the worker to attempt to sway his/her decision in this matter. Three major types of influences in any work environment are: individual, supervisory, and group.

Individual influence upon goal choices consists of the employee's own interests, needs, and attitudes. The individual may be primarily interested in the economic rewards associated with performance of the job. This may lead him/her to set a high personal work goal that is similar to the one desired by the company, or to accept the assigned management goal itself. On the other hand, the person may consider the development of personal relationships with fellow workers, along with the concomitant support of these similar others, quite important.

This feeling could lead him/her to select a work goal more in line with that of the other workers, the group goal. Individual influence, therefore, appears, in most cases, to primarily direct the individual's choice towards the management or group goal.

Yet another influence acting upon the individual's goal decision is that of the supervisor. The supervisor is in a position of power with respect to his/her subordinates. He/She is the company's representative on the shop floor or in the office. As such, the supervisor is interested in maximizing profits, which, naturally, means that high productivity will be stressed as the goal. With this in mind, the supervisor uses his/her position of power to influence the worker to attain the productivity goal desired by the company. In order to accomplish this, he/she may use different means of attempting to persuade workers to conform to the company goal. To some extent, the supervisor holds both rewards (bonuses, awards, praise, etc.) and punishments (reprimands, demotions, dismissals, etc.) in his/her hands. Through these rewards, punishments, or promises of one or the other, he/she attempts to influence the individual worker to select the assigned management goal.

The third major influence on selection of a work goal comes from the group, which tries to convince the worker to conform to a group goal. If the supervisory work goal is very easy or hard, when compared to the ability of most of the people performing the assigned task, the goal may be rejected by the employees. When

discussing their work and the assigned goal, the employees, as a group, would be expected to express their dissatisfaction with the goal level. Based on their knowledge of individual abilities, they would informally reach a consensus that a work goal that is higher/lower than this assigned goal is appropriate. It is expected that the group would refrain from setting this goal at too high or low a level, because it might , in the long run, lead to great fatigue/boredom on the part of the workers. This higher/lower goal would, however, allow the group members to perform at a level which is closer to their actual performance level than that of the one assigned by management.

So, in this case, the group would act to influence its members to increase/decrease production from the level demanded by management by means of pressures to conform to this goal. As mentioned earlier, these pressures may consist of verbal influences (e.g., "this is the way things are done around here") or, if these aren't successful, physical influences (e.g., "binging"). By selecting a moderate level of performance, group norms maximize the satisfaction by minimizing, on the average, the differences between the individual's ability and performance. This type of situation has been found to occur in factories where groups tended to restrict their work performance (Homans, 1950; Roethlisberger & Dickson, 1939; Whyte et al,. 1955; Zaleznik, Christensen, & Roethlisberger, 1958; Trist & Bamforth, 1951; Lupton, 1963).

Studies examining work restriction by employee groups were conducted in past years (predominantly in the 1930s and 1950s). No further studies of this practice have been performed in more recent years, with little mention found in most of the literature of restriction of output by groups since those earlier investigations. One possible reason for the lack of more recent studies in this area is that management, in the past, set harder work goals for employees in terms of the performance levels they could reasonably attain. To counter these difficult goals, work groups tended to restrict their performance to lower levels that were more evenly matched with their task abilities. On the other hand, goals set by management in recent times may be somewhat easier, that is, closer to the production level the workers can attain without becoming too fatigued. Therefore, work restriction by groups is not as noticeable today as it was in the past.

Recognizing the influence of the group upon productivity, management in some companies has tended to encourage the formation of quality circles, employee groups which decide upon work-related matters and then report to management. A quality circle is a small group of employees in a particular work section of the company who have voluntarily formed the circle. The group meets regularly to identify, analyze, and solve a company's problems in areas such as quality, productivity, cost, safety, morale, and environment. It studies quality control and

productivity improvement methods, applies these techniques to identify and solve work-related problems, presents its solutions to management for approval, and monitors the implementation of these solutions to ensure that they work (Thompson, 1982). They tend to share with management the responsibility for locating and solving problems of coordination and activity, as well as increasing communication between employees and management with respect to work expectations.

Group influence processes can, therefore, affect the level of productivity. In many cases, this leads to a restricted rate of production due to a group norm which is lower than the level which could be achieved by the workers.

Past efforts to study goal setting have focused upon either the individual and his/her internal processes (e.g., participation, satisfaction, etc.) or externally-imposed influences (e.g., those originating from the experimenter or supervisor). More effort needs to be directed at understanding how the social context in which most of us work influences our performance.

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APPENDICES

APPENDIX A

Instructions to Subjects

Instructions to Subjects in Individual Conditions

(After briefly describing the experiment, distribute and then collect informed consent forms.)

In this experiment, your task is to solve a series of addition problems. An example of one of these problems is shown on the board. (Point out the problem on the board.)

62
76
<u>23</u>

( ) 181
( ) 161
( ) 167
( ) 281

When you have decided upon the answer, make a check mark inside the parentheses beside it, like this. (Indicate the correct answer on the board with a check mark.)

There will be five answer periods of five minutes each. You will have 5 minutes between each answer period, specifically, 3 minutes to work on a search-a-word puzzle, an example of which is on the board. (Do the puzzle on the blackboard.) Then, you will have 2 minutes to fill out a short questionnaire and to rest.

Are there any questions? (Answer questions.) If you have a question at any time during the experiment, raise your hand, and I will come to your desk.

(Pass out answer form #1, face down.)

When I tell you to begin, turn your paper over, and begin answering the problems. Do the problems in order, and don't skip any. Do your best in answering the problems.

Start.....(5 minutes).Stop.

Remember the number of problems you have completed. Turn your paper over.

Based on previous research, this number of problems (easy goal, 29; hard goal, 34) (write the number on the board) is the average number of problems that has been done in 5 minutes.

Assigned condition: During the next four answer periods, I would like you to complete 29 (easy goal condition)/34 (hard goal condition) problems. Stop when you have reached this goal.

Non-Assigned condition: During the next four periods, I would like you to set a goal (the number of problems to be done in 5 minutes) for yourself.

> Easy goal condition: I would also like for you to set a goal for other people in general during the periods. Take into consideration that other things like fatigue or boredom can influence performance on the problems when people have to work on them all the time. Try to set reasonable goals.
>
> Hard goal condition: I would also like for you to set a goal for other people in general during the periods. Assume that you are requiring the greatest output of problems in each time period.

(Collect answer form #1, and pass out puzzle #1.)

Now, I would like you to work on this puzzle until I tell you to stop.

Start.....(3 minutes).Stop.

(Collect puzzle #1, and pass out questionnaire #1.)

Answer the questions on the first questionnaire. (2 minutes)

(Collect questionnaire #1, and pass out answer form #2, face down.)

Assigned condition: Remember to do the problems in order, don't skip any, work for the set goal, and stop when you have reached it.

Non-Assigned condition: Remember to do the problems in order, don't skip any, and work for your goal for this trial. Please do not exceed your goal.

Start.....(5 minutes).Stop.

Assigned condition: Remember the number of problems you have completed.

Non-Assigned condition: Remember the number of problems you have completed. Think of your previous goals for yourself and for others, and decide whether they are still reasonable or not. Change them if you think it's necessary.

(Pick up answer form #2, and pass out puzzle #2.)

Once again, please work on this puzzle.

Start.....(3 minutes).Stop.

(Pick up puzzle #2, and pass out questionnaire #2.)

Please answer the second questionnaire. (2 minutes)

(Pick up questionnaire #2, and pass out answer form #3, face down.)

Assigned condition: During the next answer period, do the problems in order, don't skip any, and work for the set goal. Stop when you have reached this goal.

Non-Assigned condition: During the next answer period, do the problems in order, don't skip any, work for your goal, and do not exceed it.

Start.....(5 minutes).Stop.

Assigned condition: Remember the number of problems you finished.

Non-Assigned condition: Remember the number of problems you finished. Think of your previous goals that you set for yourself and others.

Easy goal condition: Remember that people may be fatigued or bored when they have to work on these kinds of problems all the time.

Hard goal condition: Remember that you are wanting maximum output of problems in the time period allowed.

Decide whether the goals are still reasonable or not. Change them if you think it's necessary.

(Pick up answer form #3, and pass out puzzle #3.)

Please work on this puzzle until I say "Stop."

Start.....(3 minutes).Stop.

(Pick up puzzle #3, and pass out questionnaire #3.)

Answer the third questionnaire. (2 minutes)

(Pick up questionnaire #3, and pass out answer form #4, face down.)

Assigned condition: During the next answer period, don't skip any of the problems, and do them in order. Work for the set goal, and stop when you have reached it.

Non-Assigned condition: During the next answer period, don't skip any of the problems, and do them in order. Work for your goal for this trial, and please do not exceed your goal.

Start.....(5 minutes).Stop.

Assigned condition: Remember the number of problems you have done.

Non-Assigned condition: Remember the number of problems you have done. Think of your former goals for yourself and for others, and decide whether they are still reasonable or not. Change them if you think it's necessary.

(Pick up answer form #4, and pass out puzzle #4.)

Again, please work on this puzzle.

Start.....(3 minutes).Stop.

(Pick up puzzle #4, and pass out questionnaire #4.)

Please answer the fourth questionnaire. (2 minutes)

(Pick up questionnaire #4, and pass out answer form #5, face down.)

Assigned condition: During the next answer period, once more remember to do the problems in order, and don't skip any. Also, work for the set goal, and stop when you reach it.

Non-Assigned condition: During the next answer period, once more remember to do the problems in order, and don't skip any. Also, work for your goal for this trial, and please don't go beyond it.

Start.....(5 minutes).Stop.

Assigned condition: Remember the number of problems that you finished.

Non-Assigned condition: Remember the number of problems that you finished. Think about the goals that you set for yourself and others and if they are still reasonable.

(Pick up answer form #5, and pass out puzzle #5.)

I would like for you to work on this puzzle now.

Start.....(3 minutes).Stop.

(Pick up puzzle #5, and hand out questionnaire #5.)

Please answer the fifth questionnaire. (2 minutes)

(Collect the questionnaires.)

(Read the debriefing statement.)

Instructions to Subjects in Group Conditions

(After briefly describing the experiment, distribute and then collect informed consent forms.)

In this experiment, your task is to solve a series of addition problems. An example of one of these problems is shown on the board. (Point out the problem on the board.)

62
76
<u>23</u>

( ) 181
( ) 161
( ) 167
( ) 281

When you have decided upon the answer, make a check mark inside the parentheses beside it, like this. (Indicate the correct answer on the board with a check mark.)

There will be five answer periods of five minutes each. You will have 5 minutes between each answer period, specifically, 3 minutes to get together as a group to discuss the problems, and then 2 minutes to fill out a short questionnaire and to rest.

Are there any questions? (Answer questions.) If you have a question at any time during the experiment, raise your hand, and I will come to your desk.

(Pass out answer form #1, face down.)

When I tell you to begin, turn your paper over, and begin answering the problems. Do the problems in order, and don't skip any. Do your best in answering the problems.

Start.....(5 minutes).Stop.

Remember the number of problems you have completed. Turn your paper over.

Based on previous research, this number of problems (easy goal, 29; hard goal, 34) (write the number on the board) is the average number of problems that has been done in 5 minutes.

Assigned condition: During the next four answer periods, I would like you to complete 29 (easy goal condition)/34 (hard goal condition) problems. Stop when you have reached this goal.

Non-Assigned condition: During the next four periods, I would like you to set a goal (the number of problems to be done in 5 minutes) for yourself.

Easy goal condition: I would also like for you to set a goal for other people in general during the periods. Take into consideration that other things like fatigue or boredom can influence performance on the problems when people have to work on them all the time. Try to set reasonable goals.

Hard goal condition: I would also like for you to set a goal for other people in general during the periods. Assume that you are requiring the greatest output of problems in each time period.

(Collect answer form #1.)

Assigned condition: You should now get together as a group, and discuss the problems and the goal. I will tell you when the time is up. (3 minutes)

Non-Assigned condition: You should now get together as a group, and discuss the problems and the goals that I have asked you to set. I will tell you when the time is up. (3 minutes)

(Pass out questionnaire #1.)

Answer the questions on the first questionnaire. (2 minutes)

(Collect questionnaire #1, and pass out answer form #2, face down.)

Assigned condition: Remember to do the problems in order, don't skip any, work for the set goal, and stop when you have reached it.

Non-Assigned condition: Remember to do the problems in order, don't skip any, and work for your goal for this trial. Please do not exceed your goal.

Start.....(5 minutes).Stop.

Assigned condition: Remember the number of problems you have completed.

Non-Assigned condition: Remember the number of problems you have completed. Think of your previous goals for yourself and for others, and decide whether they are still reasonable or not. Change them if you think it's necessary.

(Pick up answer form #2.)

Assigned condition: Once again, you should get together as a group, and talk about the problems and the goal that I asked you to reach. (3 minutes)

Non-Assigned condition: Once again, you should get together as a group, and talk about the problems and the goals that I asked you to set. (3 minutes)

(Pass out questionnaire #2.)

Please answer the second questionnaire. (2 minutes)

(Pick up questionnaire #2, and pass out answer form #3, face down.)

Assigned condition: During the next answer period, do the problems in order, don't skip any, and work for the set goal. Stop when you have reached this goal.

Non-Assigned condition: During the next answer period, do the problems in order, don't skip any, work for your goal, and do not exceed it.

Start.....(5 minutes).Stop.

Assigned condition: Remember the number of problems you finished.

Non-Assigned condition: Remember the number of problems you finished. Think of your previous goals that you set for yourself and others.

Easy goal condition: Remember that people may be fatigued or bored when they have to work on these kinds of problems all the time.

Hard goal condition: Remember that you are wanting maximum output of problems in the time period allowed.

Decide whether the goals are still reasonable or not. Change them if you think it's necessary.

(Pick up answer form #3.)

Assigned condition: You should now get together as a group, and discuss the problems and the set goal. (3 minutes)

Non-Assigned condition: You should now get together as a group, and discuss the problems and the goals that I have asked you to set. (3 minutes)

(Pass out questionnaire #3.)

Answer the third questionnaire. (2 minutes)

(Pick up questionnaire #3, and pass out answer form #4, face down.)

Assigned condition: During the next answer period, don't skip any of the problems, and do them in order. Work for the set goal, and stop when you have reached it.

Non-Assigned condition: During the next answer period, don't skip any of the problems, and do them in order. Work for your goal for this trial, and please do not exceed your goal.

Start.....(5 minutes).Stop.

Assigned condition: Remember the number of problems you have done.

Non-Assigned condition: Remember the number of problems you have done. Think of your former goals for yourself and for others, and decide whether they are still reasonable or not. Change them if you think it's necessary.

(Pick up answer form #4.)

Assigned condition: Now, once again, get together as a group in talking about the problems and the set goal. (3 minutes)

Non-Assigned condition: Now, once again, get together as a group in talking about the problems and the goals that I asked you to set. (3 minutes)

(Pass out questionnaire #4.)

Please answer the fourth questionnaire. (2 minutes)

(Pick up questionnaire #4, and pass out answer form #5, face down.)

Assigned condition: During the next answer period, once more remember to do the problems in order, and don't skip any. Also, work for the set goal, and stop when you reach it.

Non-Assigned condition: During the next answer period, once more remember to do the problems in order, and don't skip any. Also, work for your goal for this trial, and please don't go beyond it.

Start.....(5 minutes).Stop.

Assigned condition: Remember the number of problems that you finished.

Non-Assigned condition: Remember the number of problems that you finished. Think about the goals that you set for yourself and others and if they are still reasonable.

(Pick up answer form #5.)

Assigned condition: Again, you should discuss, as a group, the problems and the set goal. (3 minutes)

Non-Assigned condition: Again, you should discuss, as a group, the problems and the goals. (3 minutes)

(Hand out questionnaire #5.)

Please answer the fifth questionnaire. (2 minutes)

(Collect the questionnaires.)

(Read the debriefing statement.)

APPENDIX B

Word Puzzle

C H E

C C R E E H C H E E R E E H C
E C H E E R R C H E E R R H H
R C H E R E H C C H E E E R E
E E C E E E H H H R C E E R E
E C E H E R C E E H R H H E R
H H C R E R R E E H C C C E E
C H E E R R H R R C H R C H E
H H H C E C H E E R E R C C H
E C E E C H E E R E E H C H C
E C H E E R C C H E E R C E H
R C H E R H C C H H R C H E R
C C H E E R H C C C H E E R E
E C H E E R E E H C H E E C E
C H R C H E E R C H E E R H H
C H E E R C R C H E R E E H C

E

R

APPENDIX C

Questionnaires

Trial 1 Questionnaire

Place a check (✓) next to the appropriate response.

1. Gender?
   _____Male
   _____Female

2. Do you consider yourself to be above average in math skills?
   _____Yes
   _____No

3. How satisfied are you with your performance on the problems?
   _____(1) Very satisfied
   _____(2) Satisfied
   _____(3) Neither satisfied nor dissatisfied
   _____(4) Dissatisfied
   _____(5) Very dissatisfied

4. How difficult do you think it is to perform this addition task?
   _____(1) Very difficult
   _____(2) Difficult
   _____(3) Moderate
   _____(4) Easy
   _____(5) Very easy

5. How many semesters have you been a student at K.S.U.? (enter a number) _____

6. Did you do your best in the addition task?
   _____(1) Very much so
   _____(2) Much so
   _____(3) Moderately
   _____(4) Little
   _____(5) Not at all

7. How hard did you work on this addition task?
   _____(1) Very hard
   _____(2) Hard
   _____(3) Moderately
   _____(4) Not hard
   _____(5) Not hard at all

Assigned Subjects (Individual condition):

8. After working on the problems, do you think the set goal is satisfactory for the conditions described?
   _____Yes
   _____No
   (If not, why not?)

Assigned Subjects (Group condition):

8. After discussing the problems in the group, do you think the set goal is satisfactory for the conditions described?
   _____Yes
   _____No
   (If not, why not?)

All Non-Assigned Subjects:

8. What is your personal goal (how many problems do you hope to finish) in the next trial? (enter a number) _____

9. What is the goal (number of problems to be done) that you would set for other people in the circumstances described? (enter a number) _____

Non-Assigned Subjects (Individual condition):

10. To what degree do you think the others around you influenced you in setting your personal goal?
    _____(1) Very much so
    _____(2) Much so
    _____(3) Moderately
    _____(4) Little
    _____(5) Not at all

11. To what degree do you think the others around you influenced you in setting the goal for other people?
    _____(1) Very much so
    _____(2) Much so
    _____(3) Moderately
    _____(4) Little
    _____(5) Not at all

Non-Assigned Subjects (Group condition):

10. To what degree do you think the group discussion of the problems influenced you in setting your personal goal?
    _____(1) Very much so
    _____(2) Much so
    _____(3) Moderately
    _____(4) Little
    _____(5) Not at all

11. To what degree do you think the group discussion of the problems influenced you in setting the goal for other people?
    _____(1) Very much so
    _____(2) Much so
    _____(3) Moderately
    _____(4) Little
    _____(5) Not at all

Trial 2 Questionnaire

Place a check (✓) next to the appropriate response.

1. How satisfied are you with your performance on the problems?
   _____(1) Very satisfied
   _____(2) Satisfied
   _____(3) Neither satisfied nor dissatisfied
   _____(4) Dissatisfied
   _____(5) Very dissatisfied

2. How difficult do you think it is to perform this addition task?
   _____(1) Very difficult
   _____(2) Difficult
   _____(3) Moderate
   _____(4) Easy
   _____(5) Very easy

3. Did you do your best in the addition task?
   _____(1) Very much so
   _____(2) Much so
   _____(3) Moderately
   _____(4) Little
   _____(5) Not at all

4. How hard did you work on this addition task?
   _____(1) Very hard
   _____(2) Hard
   _____(3) Moderately
   _____(4) Not hard
   _____(5) Not hard at all

All Assigned Subjects:

5. Did you work towards the set goal?
   _____Yes
   _____No
   (If not, why not?)

6. Did you stop when you reached the set goal?
   _____Yes
   _____No
   (If not, why not?)

Assigned Subjects (Individual condition):

7. After working on the problems, do you think the set goal is satisfactory for the conditions described?
   _____Yes
   _____No
   (If not, why not?)

Assigned Subjects (Group condition):

7. After discussing the problems in the group, do you think the set goal is satisfactory for the conditions described?
   _____Yes
   _____No
   (If not, why not?)

All Non-Assigned Subjects:

5. How satisfied are you with your personal goal for the last trial?
   _____(1) Very satisfied
   _____(2) Satisfied
   _____(3) Neither satisfied nor dissatisfied
   _____(4) Dissatisfied
   _____(5) Very dissatisfied

6. How satisfied are you with the goal you set for other people for the last trial?
   _____(1) Very satisfied
   _____(2) Satisfied
   _____(3) Neither satisfied nor dissatisfied
   _____(4) Dissatisfied
   _____(5) Very dissatisfied

7. What is your personal goal for the next trial? (enter the number of problems you hope to solve) _____

8. What is the goal that you would set for others in the circumstances described? (enter the number of problems they should solve) _____

Non-Assigned Subjects (Individual condition):

9. To what degree do you think the others around you influenced you in setting your personal goal?
   _____(1) Very much so
   _____(2) Much so
   _____(3) Moderately
   _____(4) Little
   _____(5) Not at all

10. To what degree do you think the others around you influenced you in setting the goal for other people?
    _____(1) Very much so
    _____(2) Much so
    _____(3) Moderately
    _____(4) Little
    _____(5) Not at all

Non-Assigned Subjects (Group condition):

9. To what degree do you think the group discussion of the problems influenced you in setting your personal goal?
   _____(1) Very much so
   _____(2) Much so
   _____(3) Moderately
   _____(4) Little
   _____(5) Not at all

10. To what degree do you think the group discussion of the problems influenced you in setting the goal for other people?
   _____(1) Very much so
   _____(2) Much so
   _____(3) Moderately
   _____(4) Little
   _____(5) Not at all

Trial 3 Questionnaire

Place a check (✓) next to the appropriate response.

1. How satisfied are you with your performance on the problems?
   _____(1) Very satisfied
   _____(2) Satisfied
   _____(3) Neither satisfied nor dissatisfied
   _____(4) Dissatisfied
   _____(5) Very dissatisfied

2. How difficult do you think it is to perform this addition task?
   _____(1) Very difficult
   _____(2) Difficult
   _____(3) Moderate
   _____(4) Easy
   _____(5) Very easy

3. Did you do your best in the addition task?
   _____(1) Very much so
   _____(2) Much so
   _____(3) Moderately
   _____(4) Little
   _____(5) Not at all

4. How hard did you work on this addition task?
   _____(1) Very hard
   _____(2) Hard
   _____(3) Moderately
   _____(4) Not hard
   _____(5) Not hard at all

All Assigned Subjects:

5. Did you work towards the set goal?
   _____Yes
   _____No
   (If not, why not?)

6. Did you stop when you reached the set goal?
   _____Yes
   _____No
   (If not, why not?)

Assigned Subjects (Individual condition):

7. After working on the problems, do you think the set goal is satisfactory for the conditions described?
   _____Yes
   _____No
   (If not, why not?)

Assigned Subjects (Group condition):

7. After discussing the problems in the group, do you think the set goal is satisfactory for the conditions described?
   _____Yes
   _____No
   (If not, why not?)

All Non-Assigned Subjects:

5. How satisfied are you with your personal goal for the last trial?
   _____(1) Very satisfied
   _____(2) Satisfied
   _____(3) Neither satisfied nor dissatisfied
   _____(4) Dissatisfied
   _____(5) Very dissatisfied

6. How satisfied are you with the goal you set for other people for the last trial?
   _____(1) Very satisfied
   _____(2) Satisfied
   _____(3) Neither satisfied nor dissatisfied
   _____(4) Dissatisfied
   _____(5) Very dissatisfied

7. What is your personal goal for the next trial? (enter the number of problems you hope to solve) _____

8. What is the goal that you would set for others in the circumstances described? (enter the number of problems they should solve) _____

Non-Assigned Subjects (Individual condition):

9. To what degree do you think the others around you influenced you in setting your personal goal?
   _____(1) Very much so
   _____(2) Much so
   _____(3) Moderately
   _____(4) Little
   _____(5) Not at all

10. To what degree do you think the others around you influenced you in setting the goal for other people?
    _____(1) Very much so
    _____(2) Much so
    _____(3) Moderately
    _____(4) Little
    _____(5) Not at all

Non-Assigned Subjects (Group condition):

9. To what degree do you think the group discussion of the problems influenced you in setting your personal goal?
   _____(1) Very much so
   _____(2) Much so
   _____(3) Moderately
   _____(4) Little
   _____(5) Not at all

10. To what degree do you think the group discussion of the problems influenced you in setting the goal for other people?
   _____(1) Very much so
   _____(2) Much so
   _____(3) Moderately
   _____(4) Little
   _____(5) Not at all

Trial 4 Questionnaire

Place a check (✓) next to the appropriate response.

1. How satisfied are you with your performance on the problems?
   _____(1) Very satisfied
   _____(2) Satisfied
   _____(3) Neither satisfied nor dissatisfied
   _____(4) Dissatisfied
   _____(5) Very dissatisfied

2. How difficult do you think it is to perform this addition task?
   _____(1) Very difficult
   _____(2) Difficult
   _____(3) Moderate
   _____(4) Easy
   _____(5) Very easy

3. Did you do your best in the addition task?
   _____(1) Very much so
   _____(2) Much so
   _____(3) Moderately
   _____(4) Little
   _____(5) Not at all

4. How hard did you work on this addition task?
   _____(1) Very hard
   _____(2) Hard
   _____(3) Moderately
   _____(4) Not hard
   _____(5) Not hard at all

All Assigned Subjects:

5. Did you work towards the set goal?
   _____Yes
   _____No
   (If not, why not?)

6. Did you stop when you reached the set goal?
   _____Yes
   _____No
   (If not, why not?)

Assigned Subjects (Individual condition):

7. After working on the problems, do you think the set goal is satisfactory for the conditions described?
   _____Yes
   _____No
   (If not, why not?)

Assigned Subjects (Group condition):

7. After discussing the problems in the group, do you think the set goal is satisfactory for the conditions described?
_____Yes
_____No
(If not, why not?)

All Non-Assigned Subjects:

5. How satisfied are you with your personal goal for the last trial?
_____(1) Very satisfied
_____(2) Satisfied
_____(3) Neither satisfied nor dissatisfied
_____(4) Dissatisfied
_____(5) Very dissatisfied

6. How satisfied are you with the goal you set for other people for the last trial?
_____(1) Very satisfied
_____(2) Satisfied
_____(3) Neither satisfied nor dissatisfied
_____(4) Dissatisfied
_____(5) Very dissatisfied

7. What is your personal goal for the next trial? (enter the number of problems you hope to solve) _____

8. What is the goal that you would set for others in the circumstances described? (enter the number of problems they should solve) _____

Non-Assigned Subjects (Individual condition):

9. To what degree do you think the others around you influenced you in setting your personal goal?
_____(1) Very much so
_____(2) Much so
_____(3) Moderately
_____(4) Little
_____(5) Not at all

10. To what degree do you think the others around you influenced you in setting the goal for other people?
_____(1) Very much so
_____(2) Much so
_____(3) Moderately
_____(4) Little
_____(5) Not at all

Non-Assigned Subjects (Group condition):

9. To what degree do you think the group discussion of the problems influenced you in setting your personal goal?
   _____(1) Very much so
   _____(2) Much so
   _____(3) Moderately
   _____(4) Little
   _____(5) Not at all

10. To what degree do you think the group discussion of the problems influenced you in setting the goal for other people?
   _____(1) Very much so
   _____(2) Much so
   _____(3) Moderately
   _____(4) Little
   _____(5) Not at all

Trial 5 Questionnaire

Place a check (✓) next to the appropriate response.

1. How satisfied are you with your performance on the problems?
   _____(1) Very satisfied
   _____(2) Satisfied
   _____(3) Neither satisfied nor dissatisfied
   _____(4) Dissatisfied
   _____(5) Very dissatisfied

2. How difficult do you think it is to perform this addition task?
   _____(1) Very difficult
   _____(2) Difficult
   _____(3) Moderate
   _____(4) Easy
   _____(5) Very easy

3. Did you do your best in the addition task?
   _____(1) Very much so
   _____(2) Much so
   _____(3) Moderately
   _____(4) Little
   _____(5) Not at all

4. How hard did you work on this addition task?
   _____(1) Very hard
   _____(2) Hard
   _____(3) Moderately
   _____(4) Not hard
   _____(5) Not hard at all

All Assigned Subjects:

5. Did you work towards the set goal?
   _____Yes
   _____No
   (If not, why not?)

6. Did you stop when you reached the set goal?
   _____Yes
   _____No
   (If not, why not?)

Assigned Subjects (Individual condition):

7. After working on the problems, do you think the set goal is satisfactory for the conditions described?
   _____Yes
   _____No
   (If not, why not?)

Assigned Subjects (Group condition):

7. After discussing the problems in the group, do you think the set goal is satisfactory for the conditions described?
   _____Yes
   _____No
   (If not, why not?)

All Assigned Subjects:

8. Did you add all three numbers each time?
   _____Yes
   _____No
   If not, how did you answer the problems on which you didn't add the three numbers?

9. What do you think the purpose of this experiment is?

All Non-Assigned Subjects:

5. How satisfied are you with your personal goal for the last trial?
   _____(1) Very satisfied
   _____(2) Satisfied
   _____(3) Neither satisfied nor dissatisfied
   _____(4) Dissatisfied
   _____(5) Very dissatisfied

6. How satisfied are you with the goal you set for other people for the last trial?
   _____(1) Very satisfied
   _____(2) Satisfied
   _____(3) Neither satisfied nor dissatisfied
   _____(4) Dissatisfied
   _____(5) Very dissatisfied

7. If there were another trial, what would your personal goal be for that trial? (enter the number of problems you would hope to solve) _____

8. If there were another trial, what would the goal that you would set for others be for that trial? (enter the number of problems they would have to solve) _____

Non-Assigned Subjects (Individual condition):

9. To what degree do you think the others around you influenced you in setting your personal goal?
   _____(1) Very much so
   _____(2) Much so
   _____(3) Moderately
   _____(4) Little
   _____(5) Not at all

10. To what degree do you think the others around you influenced you in setting the goal for other people?
   _____(1) Very much so
   _____(2) Much so
   _____(3) Moderately
   _____(4) Little
   _____(5) Not at all

11. If you think the others around you influenced you in setting goals for some of the trials, in what way(s) would you say that they influenced you?

Non-Assigned Subjects (Group condition):

9. To what degree do you think the group discussion of the problems influenced you in setting your personal goal?
   _____(1) Very much so
   _____(2) Much so
   _____(3) Moderately
   _____(4) Little
   _____(5) Not at all

10. To what degree do you think the group discussion of the problems influenced you in setting the goal for other people?
   _____(1) Very much so
   _____(2) Much so
   _____(3) Moderately
   _____(4) Little
   _____(5) Not at all

11. If you think the group discussion influenced you in setting goals for some of the trials, in what way(s) would you say that it influenced you?

All Non-Assigned Subjects:

12. Were you satisfied with the goals that you set for yourself? (explain why or why not)

13. Were you satisfied with the goals that you set for other people? (why or why not)

14. Did you add all three numbers each time?
_____Yes
_____No
If not, how did you answer the problems on which you didn't add the three numbers?

15. What do you think the purpose of this experiment is?

APPENDIX D

Table D1
CORRELATIONS BETWEEN VARIABLES
(N=388)

	1	2	3	4	5	6	7	8	9	10	11	12	13
DEPENDENT VARIABLES													
1 Number of Problems Solved	1.00**												
2 Number of Errors	.08	1.00**											
3 Satisfaction with Performance[a]	-.33**	-.02	1.00**										
4 Perceived Task Difficulty[a]	.06	.04	-.27**	1.00**									
5 Did Best on Task[a]	-.27**	-.09	.51**	-.18**	1.00**								
6 Worked Hard on Task[a]	-.27**	-.06	.09	.27**	.26**	1.00**							
INDEPENDENT VARIABLES													
7 Goal Difficulty	.21**	.17**	-.06	.06	-.06	.01	1.00**						
8 Goal Participation	.54**	.08	-.16**	-.12*	-.13**	-.32**	-.01	1.00**					
9 Social Input	.04	.09	.10	.21**	.12*	-.07	-.01	.01	1.00**				
10 Trials	.23**	.03	-.11*	-.05	-.04	.01	.00	.00	.00	1.00**			
BACKGROUND FACTORS													
11 Gender	.01	-.01	-.04	.04	-.04	.09	-.08	.12*	.08	.00	1.00**		
12 Skilled at Math[b]	-.22**	.13**	.13**	-.22**	.06	-.09	-.13**	.09	-.07	.00	.19**	1.00**	
13 Semesters in School	-.08	-.02	.01	.11*	.02	.08	.14**	-.03	-.06	.00	-.15**	-.12*	1.00**

[a] Reversed scaling was used for these measures.

[b] 1=Yes; 2=No.

* p<.05. ** p<.01.

Table D2
CORRELATIONS BETWEEN VARIABLES
(N=192)

DEPENDENT VARIABLES	17	18	19	20	21	22
17 Quantity of Personal Goal	1.00**					
18 Quantity of Goal for Others	.59**	1.00**				
19 Satisfaction with Personal Goal[a]	-.29**	-.26**	1.00**			
20 Satisfaction with Goal for Others[a]	-.14*	-.07	.49**	1.00**		
21 Influenced on Personal Goal[a]	.03	-.06	.08	.10	1.00**	
22 Influenced on Goal for Others[a]	-.18**	-.15*	.06	.08	.56**	1.00**
1 Number of Problems Solved	.95**	.54**	-.34**	-.21**	.01	-.21**
2 Number of Errors	.11	.12	-.09	-.06	-.08	.01
3 Satisfaction with Performance[a]	-.32**	-.19**	.46**	.27**	-.03	.13
4 Perceived Task Difficulty[a]	.19**	.06	-.18**	-.03	.27**	.00
5 Did Best on Task[a]	-.28**	-.17*	.39**	.32**	-.12	.13
6 Worked Hard on Task[a]	-.07	-.02	.15*	.11	-.01	.12
INDEPENDENT VARIABLES						
7 Goal Difficulty	.21**	.27**	.01	.08	.09	.15*
8 Goal Participation	.00	.00	.00	.00	.00	.00
9 Social Input	.15*	.06	.13	.09	.01	-.21**
10 Trials	.29**	.30**	-.17*	-.16*	.00	-.05
BACKGROUND FACTORS						
11 Gender	-.10	-.12	.03	-.09	-.18**	.02
12 Skilled at Math[b]	-.36**	-.09	.21**	-.12	-.01	.12
13 Semesters in School	-.12	-.09	.04	-.09	.02	-.11

Note. These items were used for non-assigned goal subjects only.

[a] Reversed scaling was used for these measures.

[b] 1=Yes; 2=No.

* p<.05. ** p<.01.

Table D3
CORRELATIONS BETWEEN VARIABLES
(N=196)

	DEPENDENT VARIABLES	14 Satisfaction with Set Goal	15 Worked Toward Set Goal	16 Stopped at Set Goal
14	Satisfaction with Set Goal [b]	1.00**		
15	Worked Toward Set Goal [b]	.09	1.00**	
16	Stopped at Set Goal [b]	.10	.38**	1.00**
1	Number of Problems Solved	.03	.39**	.41**
2	Number of Errors	-.10	-.04	.02
3	Satisfaction with Performance [a]	-.03	-.02	.00
4	Perceived Task Difficulty [a]	.17*	.16*	-.02
5	Did Best on Task [a]	.07	.05	.03
6	Worked Hard on Task [a]	.17*	.06	-.21**
	INDEPENDENT VARIABLES			
7	Goal Difficulty	-.37**	.18**	.06
8	Goal Participation	.00	.00	.00
9	Social Input	.20**	.00	.07
10	Trials	.18**	.06	.06
	BACKGROUND FACTORS			
11	Gender	-.08	-.17*	-.10**
12	Skilled at Math [b]	-.12	-.19**	-.04
13	Semesters in School	-.05	.24**	.02

Note. These items were used for assigned goal subjects only.

[a] Reversed scaling was used for these measures.

[b] 1=Yes; 2=No.

* $p<.05$. ** $p<.01$.

APPENDIX E

Figure E1: Scatter Diagram of Quantities of Personal Goal and of Goal for Others

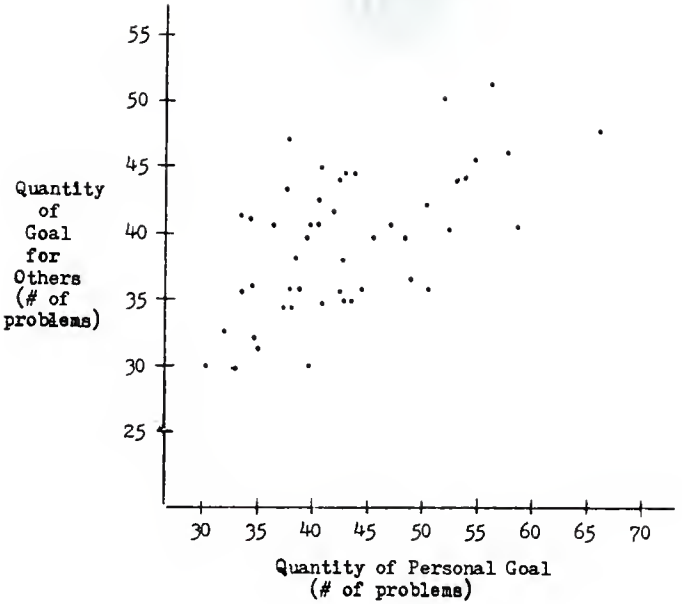

Figure E1
Scatter Diagram of Average Quantities
of Personal Goals and of Goals for Others
for Non-Assigned Subjects

INDIVIDUAL GOAL SETTING AND PERFORMANCE IN A GROUP CONTEXT

by

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Abstract

Although numerous studies have been conducted on individual goal setting, practically none have concentrated upon this process as it actually occurs in a work setting, namely, within a group situation. The purpose of this study was to investigate various aspects of individual goal setting and performance as they occur within a group environment. Ninety-seven undergraduates served as subjects in the study. In each of five trials, they were required to solve a series of simple addition problems. On each trial, some of the subjects were assigned a goal to attain, while others were instructed to set their own goals. Between these trials, approximately half of the subjects gathered into groups and discussed the task and their goals. The other half of the subjects worked on word puzzles during this time. The principal results were as follows: hard goals led to higher levels of performance and a greater number of errors than did easy goals; participation in setting the goal resulted in more satisfaction with performance and greater exertion of effort as well as a greater number of problems solved over time than did no participation; and the group context for goal setting led to higher performance over time in addition to higher levels of personal goals than when goals were set with no group discussion. Also, when goals were easy, the group condition led to greater satisfaction with both personal and group goals (self-set goals) over the course of the trials, but to greater dissatisfaction

with the assigned goal. These results suggest that the group does influence the individual's goals and attitudes about those goals, as well as his/her performance. This group influence, arising from the feedback in group discussion, was suggested as the basis for the setting of low productivity goals leading to restriction of performance in work settings.