The effects of participation in goal setting and methods selection

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THE EFFECTS OF PARTICIPATION IN
GOAL SETTING AND METHODS SELECTION

A Thesis
Presented to the
Department of Psychology
and the
Faculty of the Graduate College
University of Nebraska at Omaha

In Partial Fulfillment
of the Requirements for the Degree
Master of Arts

by
James G. Jones
August, 1973
Accepted for the faculty of The Graduate College of the University of Nebraska at Omaha, in partial fulfillment of the requirements for the degree Master of Arts.

Graduate Committee

Name Department

Chairman
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Abstract

Eighty undergraduate students who were enrolled in introductory psychology classes were used to determine the effects which participation in decision-making on a goal directed task has on performance and attitudes. The Ss were randomly assigned to one of four treatment groups, defined by type of participation in decision-making. The Ss were either permitted to select or were assigned performance goals and were either permitted to select or were assigned a sequence in which to perform an arithmetic task.

The results of the study suggest that type of participation in decision-making can under certain circumstances have significant effects on performance and attitudes in a goal directed activity.
THE EFFECTS OF PARTICIPATION IN
GOAL SETTING AND METHODS SELECTION

James G. Jones
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Since the publication of the Hawthorne studies (Roethlisberger & Dickson, 1939) a great deal of the literature of applied psychology has been devoted to a discussion of the motivational determinants of work performance. One result of this interchange of ideas has been the development of a number of theories to explain and predict work behaviors. Among the most well known of these theories are: incentive theory (Porter & Lawler, 1968), theory of cognitive dissonance (Festinger, 1957), achievement motivation (McClelland, Atkinson, Clark, & Lowell, 1953), job satisfaction-dissatisfaction (Herzberg, Mausner, & Snyderman, 1959), need hierarchy (Maslow, 1954), instrumentality theory (Vroom, 1964), and consistency theory (Korman, 1970). As a logical extension of the theoretical explanations of work behavior, a number of specific implementation systems for managerial application have also been proposed including: job enrichment (Herzberg, 1966), System 4 (Likert, 1967), Theory Y (McGregor, 1960), achievement training (McClelland, 1961), the managerial grid (Blake & Mouton, 1964), and management by objectives (Odiorne, 1965).

One point of commonality between most of these behavioral approaches to management has been a strong emphasis on em-
employee participation in decision-making. This position is particularly enunciated in much of the writing concerning management by objectives (MBO) where subordinate participation in decision-making is often mentioned as an important feature of the system.

Despite the general appeal for participative practices in MBO systems, the question of how much and in what form has been largely neglected. In response to the deficiency of research in this area, the present study has been designed to examine the attitudinal and performance effects of participation in decision-making on a goal directed activity.

Management By Objectives

MBO is the management of organizational performance by means of goal directed achievement. The philosophy of this approach is that performance can be maximized by: (a) analyzing the requirements of the job, (b) establishing specific performance objectives designed to fulfill those requirements, and (c) focusing productive efforts toward the achievement of those objectives. Individual contributions to organizational performance can then be assessed both in terms of the goals established and the degree to which those goals are achieved.

Historical development. As with many theories or concepts, the evolution of the MBO approach has been such that it is virtually impossible to assign it a specific beginning or founder. There are, however, three men who are frequently credited as having significantly contributed to the shaping of present MBO philosophies. Those men are Douglas McGregor,
Peter Drucker, and George Odiorne.

McGregor's efforts were largely an attempt on his part to develop an improved system of performance appraisal rather than to initiate the movement toward an entirely new managerial strategy, but it is his work that is often considered as providing the first real stimulus toward a MBO approach (Strauss, 1972). McGregor felt that the major reason why performance appraisals often failed to produce the desired results was because superiors disliked playing God and sitting in judgment over their subordinates' worth (McGregor, 1957). To alleviate this situation he recommended that each individual establish his own performance goals, that he should review them with his supervisor, and that these goals should then serve as a basis for an "appraisal" which would in reality serve as a counseling session. The net affect was anticipated to be a shift in the supervisor's role from that of a person to be feared to that of a person who would try to facilitate the subordinate in his development and in achieving his own goals.

Drucker's contribution to the evolution of MBO was quite different in nature. His purpose was to promote a managerial philosophy which focused upon the achievement of specific performance results (Drucker, 1954). According to Drucker, the system should be developed and used to organize and explain the whole range of business phenomena, to test those statements, to predict behavior, to appraise the soundness of decisions, to enable practicing businessmen to analyze their
own experience and to improve performance. Thus Drucker did in fact deliberately seek to formulate a new dimension of management philosophy which focused squarely upon goal oriented achievement, and by doing so he provided a strong impetus in the movement toward MBO.

The last of the three pioneers of MBO, Odiorne, is known more for having popularized the concept than for having played a major role in the theoretical development of it. It was he who formally developed methods for the implementation of MBO as a complete management system (Odiorne, 1965). His analysis of the approach is still considered as the classical position, and it remains as the predominant position on the subject today (Levinson, 1972).

Almost since its inception the concept of goal directed management has been enthusiastically received, and adoption of variations of the basic model have been widespread throughout industry (NICB, 1964). Today, MBO in many organizations is accepted as an integral part of the managerial process (Levinson, 1972), and it seems a certainty that it will continue to exert a significant influence upon management styles for some time to come.

The MBO process. Although there is considerable disagreement as to how a MBO system should be implemented and utilized, the basic process as it is presently employed typically consists of five key elements (Levinson, 1970). First, there is joint discussion between the superior and the subordinate to identify and define the actual content
and responsibilities of the subordinate's position. Second, performance goals for the subordinate are developed via a procedure of joint inputs from both men. Third, periodic meetings are held to discuss the progress which is being made toward achievement of the performance objectives. Fourth, checkpoints are established for the purpose of evaluation. And fifth, performance results are measured against the original objectives.

In practice this process is frequently altered on an ad hoc basis to meet the needs of the organization or of specific individuals, but this basic outline remains a relatively standard model of the MBO approach.

**Evaluation of the MBO approach.** Assessments of MBO programs often proclaim a range of potential benefits for the approach including improved communication and understanding, improved planning, improved attitudes toward evaluation, more accurate performance appraisals, stabilization of profit attainment, improved management development, improved opportunities for innovation and utilization of resources and abilities, and greater achievement motivation (Mali, 1972; Meyer, Kay, & French, 1965; Raia, 1965). The results of MBO programs which have actually been attempted have not, however, enjoyed universal success (NICB, 1968; Strauss, 1972). Also, the results of several studies (Myers, 1966; Raia, 1966; Stedry & Kay, 1966; Tosi & Carroll, 1968) have indicated that the results of these implementation attempts have been highly dependent upon the manner in which the MBO
program is carried out.

Levinson (1970) is particularly critical of MBO as it is presently practiced. In his opinion the very purpose of MBO in the typical application is misdirected and misused. He accuses the process of not taking into account personal goals, the social environment in which the process takes place, or the relationship that exists between superiors and subordinates. He characterizes the typical program as one in which individuals attempt to identify goals which have the greatest probability of enhancing their performance rating rather than promoting the achievement of results which will provide maximum contribution to overall organizational objectives.

Although not nearly as critical as Levinson, Strauss (1972) also feels that MBO is not producing optimum results in many organizations because of the direction it has taken. He identifies three possible purposes for a MBO system: (a) a process for personnel appraisal, (b) a means of communicating management priorities, and/or (c) an approach to organizational decision-making and problem-solving. He states that present practice is largely centered on communication of management priorities with the result that it often becomes just another device to help authoritarian managers exercise control over their subordinates. He feels that fulfillment of the real promise of MBO will only come about when emphasis is focused on the use of the process as an agent for decision-making and problem-solving. It is only
in this context that many of the anticipated benefits listed previously become possible.

Despite the controversies associated with the purpose of MBO as presently practiced, the key point of interest concerning this subject is the goal setting process (Tosi & Carroll, 1970). It is the performance goals, how they are initiated and achieved, that chiefly dictate whether any MBO system will successfully achieve organizational results.

Participation

Participation in decision-making processes has been referred to as a basic source of satisfaction and motivation to achieve (Davis, 1962; Scott, 1962). Specifically, participation is believed to result in: (a) higher levels of performance, (b) higher quality performance, (c) fewer grievances and conflicts, (d) reduced turnover, absenteeism, and tardiness, and (e) increased income (Davis, 1962).

Field studies. There is a good deal of evidence from field studies to corroborate the contention that participation of some type will result in improved performance and increased satisfaction.

An early example of the research on participation is the series of investigations known as the "Hawthorne studies" cited earlier. Several of the experiments in this group were designed to measure the effects of increased participation in decision-making by production workers. The changed relationships between superiors and subordinates repeatedly resulted in both increased productivity and improved morale. Although
these results cannot be solely attributed to an increase in participation, it did appear to be a significant contributor toward the improvements (Roethlisberger & Dickson, 1939).

Coch and French (1948) conducted an investigation in which similarly constituted groups of production workers were allowed various types of participation in affecting a change in a job situation. The conditions established were: (a) no participation, in which the workers were simply notified of a change in work procedures; (b) representative participation, in which two worker representatives were allowed to aid management in initiating the changes; and (c) total participation, in which the entire work group was engaged in the change process. The results indicated not only improved performance with increased participation, but also higher morale.

Bavelas (1946) reported the results of another application of participation which resulted in significant increases in production performance. In this experiment a number of different treatments involving subordinate participation in decision-making were tested. It was, however, only in the experimental group which was allowed to jointly establish their own production goals that performance was significantly improved.

Lawrence and Smith (1955) conducted a study in which the effects of participation in goal setting were compared to the effects of general discussion sessions. Experimental groups were established under both conditions and comparisons
were made of pre- and post-treatment performance levels. The results demonstrated that increased performance was obtained under both conditions, but that the goal setting groups had significantly higher increases in production.

Strauss (1955) described an experiment in which production workers were given control over their work rate. This situation resulted in marked performance improvement, but also resulted in accompanying organizational problems which necessitated the retraction of the program. Following the retraction, production again dropped and turnover increased.

In a direct attempt to examine the relationship between participation and productivity, Katz and his associates (Katz, Maccoby, Gurin, and Floor, 1951; Katz, Maccoby, and Morse, 1950) correlated level of participation and productivity for various work groups in two different industries. Their results were mixed and the authors concluded that intervening situational variables within the particular industries were responsible for the discrepancy.

In his concluding remarks regarding a summary of the findings of much of the research on participation, Maier (1963) hypothesized that increased performance motivation is not the only possible result of increased participation. He suggested that increased participation may lead to better decisions and plans which could also result in improved performance. He considered these to be intervening factors which should be considered when analyzing the effects of participation.
Participation in MBO. Generally, it has been assumed that through participation in the goal setting processes of MBO individuals will be more committed toward their performance objectives, that they will work harder to achieve them, and that they will receive greater satisfaction from the achievement of the goals. Tosi and Carroll (1970) describe the effects of participation in goal setting as increased ego involvement, increased motivation, and increased planning behavior. Terry (1968) points out that participation can result in increased analysis of the job at hand, enhanced opportunity to capitalize upon experiences, and greater belief in one's objectives. Strauss and Sayles (1970) add that increased participation will result in perceptions of greater control over one's environment and less dependence upon one's superior.

Participation in the selection of appropriate means to achieve goals is another focal point of interest within MBO systems. Strauss and Sayles (1970) advocate the integration of participation into both goal setting and everyday activities of responsibility. By invoking participation throughout the system, MBO becomes a process of systematic involvement of subordinates in managerial decision-making (Sloan & Schrieber, 1970).

Lack of participation in MBO functions has been associated with program failure. Although a direct cause and effect relationship has not been established, managerial perceptions of inadequate participation have been correlated
with the deterioration of some MBO programs (Gill & Molander, 1970; Raia, 1966; Tosi & Carroll, 1968).

Recently, the role of participation in MBO has come under attack. This has not primarily been a conflict resulting from disagreement as to the conceptual role of participation, but rather the perceived affects of participation as it is presently embodied in most MBO programs.

Levinson (1970) suggests that participation has been more cosmetic than substantial. In his opinion subordinates have typically attempted to anticipate the desires of their superiors and establish these as their objectives. He feels that this has resulted in a subdued form of manipulation and control, and that consequently the potential benefits of subordinate participation in decision-making are seldom fully realized in a MBO setting.

Strauss (1972) specifically notes that the role of participation in MBO systems has changed dramatically from the original concepts of McGregor. Strauss states that subordinate participation in the formulation of performance objectives is often presumed to serve as a vehicle for the introduction of participative management techniques throughout the organization, but that in reality primary objectives are typically assigned rather than mutually developed. He comments that MBO has largely become a system in which there is individual freedom of choice regarding means to achieve goals, but not of the goals themselves.

The conclusions of Levinson and Strauss point out two
fundamental questions which have been virtually ignored by MBO theorists and researchers. First, how much participation is necessary to significantly improve performance in a MBO system? And second, which improves performance more, participation in goal setting or participation in the selection of methods to achieve goals?

The Present Study

Purpose. The primary purpose of the present study was to investigate the effects of participation in decision-making at the two different stages in a goal directed activity, at the stage when goals are set and at the stage when selection of goal achievement methods is made. Specifically, the investigation explored the performance effects (both quantitative and qualitative) and estimated the attitudinal effects of participation in decision-making.

The present experiment was designed to approximate a MBO activity within a laboratory setting. The task was defined, goals were established, goal achievement methods were set up, and performance results were measured along the dimensions specified in the goals, however, there are several elements of MBO which were not included and consequently may limit the generalization of these results to actual work situations. First, performance goals were either set by the experimenter or by S, not jointly developed as proposed in MBO. Second, the nature of the arithmetic task (which was chosen primarily because of its
convenience and consistency) may be too artificial to accurately represent an on-the-job task. Third, the simple manipulation of choosing the order in which to solve the problems may be inadequate to reflect substantive freedom in selecting an appropriate method to achieve objectives. And fourth, the test situation was not designed to provide feedback or reinforcement, two important features of MBO. Despite these limitations, the present study should provide useful information regarding the effects of participation in decision-making on a goal directed task.

Hypotheses. The basic hypothesis tested in this study was that performance on and attitudes toward a goal directed task are related to the type of participation in decision-making. This major hypothesis was investigated by testing the following specific hypotheses.

Hypothesis I: There will be a significant difference in mean time required for test completion as a function of participation in goal setting.

Hypothesis II: There will be a significant difference in mean time required for test completion as a function of participation in methods selection.

Hypothesis III: There will be a significant difference in mean time required for test completion as a function of the interaction between participation in goal setting and methods selection.

Hypothesis IV: There will be a significant difference in mean number of problems correct as a function
of participation in goal setting.

Hypothesis V: There will be a significant difference in mean number of problems correct as a function of participation in methods selection.

Hypothesis VI: There will be a significant difference in mean number of problems correct as a function of the interaction between participation in goal setting and methods selection.

Hypothesis VII: There will be a significant difference in median level of satisfaction with the manner in which goals are established as a function of participation in goal setting.

Hypothesis VIII: There will be a significant difference in median level of satisfaction with the manner in which the task sequence is established as a function of participation in methods selection.

Method

Subjects. The sample used in this study consisted of 80 students enrolled in introductory psychology classes at the University of Nebraska at Omaha and Washburn University during the summer session. The Ss took part in the experiment as a class assignment.

The task. The task was a pencil and paper test composed of 40 arithmetic problems. The problems were constructed with whole numbers only and involved addition, division, multiplication, or subtraction (Appendices A, B, C, and D).

Performance measurements were made on both time to
completion and total number correct. A pilot study was conducted to estimate the reliability of these measures, and test-retest correlation coefficients of .89 (time) and .82 (number correct) were obtained. In addition there was a -.51 correlation between the two measures.

The covariate. The numerical subtest of the Wesman Personnel Classification Test (WPCT) was administered to estimate initial individual differences in arithmetic ability. This measure was then used as the covariate in the statistical analyses of the performance data.

Working time on the WPCT was restricted to five minutes due to limitations of the total testing time available. The pilot study revealed a test-retest correlation of .91 for this measurement under this restriction.

The attitude measure. Attitude scales (Appendix E) were used to estimate degree of satisfaction with the manner in which the performance goals were established and the manner in which the problem sequence was selected.

A split-half analysis of the internal consistency of those items regarding satisfaction with the goal setting process produced a reliability index of .74 when corrected by the Spearman-Brown Prophecy formula. The same process was used to measure the reliability of those items regarding satisfaction with the sequence selection process, and it produced an index of .68 for those items.

Procedure. Each S was randomly assigned to one of four experimental conditions. In condition one (C1) each S
established his own performance goals both in terms of time required for test completion and number of problems correct, and each S selected the sequence in which to work the problems. In condition two (C2) each S set his own performance goals, but the order in which he worked the problems was imposed (according to the order selected most frequently in C1). In condition three (C3) each S was assigned performance goals (according to the mean goal levels chosen under C1 to control for the possibility of effects due to different goal levels), but was allowed to select the order in which to work the problems. In condition four (C4) each S was assigned both performance goals (equal to the mean levels set under C1) and the sequence in which to work the problems (according to the order selected most frequently under C1).

The Ss under C1 were randomly selected from among the Washburn students and were tested prior to running the Ss under C2, C3, and C4 to establish the desired goal levels and problem sequence for assignment. The Ss for the final three conditions were randomly assigned from the remaining subject pool and were tested in a single group at the school where they were enrolled.

Testing was conducted during regular class periods, and prior to test introduction the following instructions were read.

Today you will be taking two tests of arithmetic ability. As you receive your tests we ask that you read the instructions accompanying that test, and after everyone has completed the instructions you will be given the signal to begin the test.

All Ss were first given the WPCT and allowed five minutes of working time. At the end of this period the tests were
collected and scores recorded.

Following the administration of the WPCT, the task test was presented. The instructions accompanying the task examinations either designated performance goals or required that the S specify performance goals both in terms of time required for test completion and number correct. The instructions also either designated an order in which to solve the problems or required S to specify a sequence. Copies of the instructions for each of the experimental conditions are provided in Appendices F, G, H, and I. After all Ss had completed the instructions the test was administered and appropriate performance data was recorded. Time to completion was rounded off to the nearest minute.

Following completion of the arithmetic tasks, each S was asked to indicate on the attitude scales their degree of satisfaction with the manner in which the performance goals were established and the manner in which the problem sequence was selected. The scales were collected upon completion, and the Ss were excused from the room until everyone had completed the testing.

After the conclusion of the experiment there was a general discussion of the experiment with each class as a group. This discussion period included a brief explanation of the nature of the study and served as a debriefing session during which the reactions of the Ss to the experiment were actively solicited.

Statistical analyses. Hypotheses I, II, III, IV, V, and VI were tested by means of analysis of covariance with time
to completion and number correct serving as the criterion measures and performance on the WFCT serving as the covariate. Hypotheses VII and VIII were tested by means of $\chi^2$.

The .05 level of confidence was accepted as the basis for rejecting the null hypothesis.

Results

The results of the statistical analysis for Hypotheses I, II, and III are summarized in Table 1, and the values of the adjusted mean levels of time to completion for each treatment are listed in Table 2.

**TABLE 1**

Analysis of Covariance for Time to Completion

<table>
<thead>
<tr>
<th>Source</th>
<th>df</th>
<th>SS</th>
<th>MS</th>
<th>F</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total</td>
<td>78</td>
<td>1066.098</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Goal Setting</td>
<td>1</td>
<td>2.146</td>
<td>2.146</td>
<td>0.154</td>
</tr>
<tr>
<td>Methods Selection</td>
<td>1</td>
<td>17.112</td>
<td>17.112</td>
<td>1.226</td>
</tr>
<tr>
<td>Interaction</td>
<td>1</td>
<td>0.146</td>
<td>0.146</td>
<td>0.010</td>
</tr>
<tr>
<td>Error</td>
<td>75</td>
<td>1046.694</td>
<td>13.956</td>
<td></td>
</tr>
</tbody>
</table>

$F_{.95}(1,75) = 3.98$

**TABLE 2**

Adjusted Treatment Means for Time to Completion

<table>
<thead>
<tr>
<th>Condition</th>
<th>Adjusted Mean</th>
<th>Unadjusted Mean</th>
</tr>
</thead>
<tbody>
<tr>
<td>Condition One</td>
<td>15.946</td>
<td>(15.800)</td>
</tr>
<tr>
<td>Condition Two</td>
<td>16.007</td>
<td>(16.250)</td>
</tr>
<tr>
<td>Condition Three</td>
<td>15.604</td>
<td>(15.750)</td>
</tr>
<tr>
<td>Condition Four</td>
<td>17.393</td>
<td>(17.150)</td>
</tr>
</tbody>
</table>
**Hypothesis I.**

There will be a significant difference in mean time required for test completion as a function of participation in goal setting.

The analysis of the data did not support the relationship proposed in Hypothesis I. There was not a statistically significant difference in mean time required for test completion as a function of participation in goal setting.

**Hypothesis II.**

There will be a significant difference in mean time required for test completion as a function of participation in methods selection.

The evidence did not confirm the proposition set forth in Hypothesis II. There was not a statistically significant difference in mean time required for test completion as a function of participation in methods selection.

**Hypothesis III.**

There will be a significant difference in mean time required for test completion as a function of the interaction between participation in goal setting and methods selection.

The experimental results refuted the prediction made in Hypothesis III, as there was not a statistically significant interaction between participation in goal setting and participation in methods selection for time to test completion.

The results of the statistical analysis for Hypotheses IV, V, and VI are summarized in Table 3, and the values of the adjusted mean levels of number correct for each treatment are listed in Table 4.
TABLE 3

Analysis of Covariance for Number of Problems Correct

<table>
<thead>
<tr>
<th>Source</th>
<th>df</th>
<th>SS</th>
<th>MS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total</td>
<td>78</td>
<td>952.264</td>
<td></td>
</tr>
<tr>
<td>Goal Setting</td>
<td>1</td>
<td>47.149</td>
<td>47.149</td>
</tr>
<tr>
<td>Methods Selection</td>
<td>1</td>
<td>46.512</td>
<td>46.512</td>
</tr>
<tr>
<td>Interaction</td>
<td>1</td>
<td>3.471</td>
<td>3.471</td>
</tr>
<tr>
<td>Error</td>
<td>75</td>
<td>855.132</td>
<td>11.402</td>
</tr>
</tbody>
</table>

$F_{.95}(1, 75) = 3.98$

TABLE 4

Adjusted Treatment Means for Number of Problems Correct

<table>
<thead>
<tr>
<th>Condition</th>
<th>Mean</th>
<th>(unadjusted mean)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Condition One</td>
<td>35.734</td>
<td>35.600</td>
</tr>
<tr>
<td>Condition Two</td>
<td>34.627</td>
<td>34.850</td>
</tr>
<tr>
<td>Condition Three</td>
<td>34.616</td>
<td>34.750</td>
</tr>
<tr>
<td>Condition Four</td>
<td>32.673</td>
<td>32.450</td>
</tr>
</tbody>
</table>

Hypothesis IV.

There will be a significant difference in mean number of problems correct as a function of participation in goal setting.

The analysis of the data confirmed the prediction that there was a significant difference ($p < .05$) in the number of problems correctly solved between those subjects who had chosen their performance goals and those who had goals assigned. Those groups with freedom to choose their goals performed significantly more accurately than did their counterparts who had
goals assigned.

**Hypothesis V.**

There will be a significant difference in mean number of problems correct as a function of participation in methods selection.

There was a significant difference \((p<.05)\) in the mean number of problems correct as a function of participation in methods selection. Those groups having freedom to choose the sequence in which to work the problems performed significantly higher than did those groups which had the sequence imposed.

**Hypothesis VI.**

There will be a significant difference in mean number of problems correct as a function of the interaction between participation in goal setting and methods selection.

There was not a statistically significant interaction between participation in goal setting and participation in methods selection for number of problems correctly solved. The evidence failed to support the contention stated in Hypothesis VI.

**Hypothesis VII.**

There will be a significant difference in median level of satisfaction with the manner in which goals are established as a function of participation in goal setting.

The \(\chi^2\) analysis revealed a highly significant difference \((p<.001)\) in satisfaction with the manner in which goals were established as a function of participation in goal setting. The Ss in those groups who chose their goals were decidedly more satisfied with the goal setting process than were the Ss in those groups where goals were predetermined.
Hypothesis VIII.

There will be a significant difference in median level of satisfaction with the manner in which the task sequence is established as a function of participation in methods selection.

The $\chi^2$ analysis indicated that there was a highly significant difference ($p<.001$) in satisfaction with the manner in which the task sequence was established as a function of participation in methods selection. Those groups who were allowed to select the sequence in which to work the problems were far more satisfied with the sequence selection process than were those groups where the sequence was assigned.

Correlational analysis. To examine the relationship between the two performance variables more thoroughly, the correlation between time to completion and number correct was calculated. The $.42$ correlation coefficient implies that these are two highly related measures of performance ($p<.01$).

Discussion

The results of the present experiment indicated inconsistent performance effects attributable to type of participation in decision-making on a goal directed task. The quantitative measure of performance, time to task completion, was not significantly affected by participation at either the goal setting or methods selection stages, but the qualitative measure of performance, total number correct, was significantly affected by manipulation of participation at both stages. While these results suggest an interesting dichotomy of effects for participation, several extraneous factors may
have entered the experimental situation and created the resulting discrepancy.

During the post-experimental discussion sessions with the Ss, they pointed out that there was considerable knowledge of results and reinforcement available with regard to speed of task completion which was not available with regard to the accuracy of performance. First, many of the Ss had access to time pieces which allowed them to keep an accurate account of their speed and its relation to their time objective. Second, as each S concluded the test he was excused from the classroom until all Ss were finished, thereby providing the Ss with a measure of their individual performance relative to the performance of the other members of the class. Third, many Ss perceived task completion as rewarding because it terminated their involvement in the test activity. The combination of these uncontrolled factors may have masked or suppressed the effects of participation under the present circumstances and caused the highly similar results of time to completion observed under all four treatment conditions.

With regard to the accuracy of task performance, knowledge of results and reinforcement were far more limited. Under these circumstances participation in decision-making did result in significant differences in mean number correct among the experimental groups. It was found that permitting participation at either the goal setting or methods selection stages of the task activity resulted in significant perform-
ance improvement, and that these effects were additive rather than interacting when both were present. Considering the nature of these manipulations of participation, it appears that even small amounts of participation in decision-making can produce significant effects.

The results of the attitude measurements confirmed the general notion that participation in goal setting and methods selection is strongly desired by those individuals performing the tasks. Although the reliability of the measurements was only marginal, the treatment differences were extremely large (p<.001) and considered to definitely be real. Those groups having freedom to choose their own goals were significantly more satisfied with the goal setting process than were those groups who did not have freedom of goal choice. Likewise, those groups having the opportunity to select the sequence in which to work the task problems were significantly more satisfied with the manner in which the task order was specified than were those groups which had the sequence assigned.

Applied implications. The results of this study suggest some potentially important implications for applied situations. The first point is that the performance effects of participation in the decision-making processes on a goal directed task may be strongly related to the knowledge of results and/or the reinforcement available. The evidence implies that under circumstances where knowledge of results and reinforcement are apparent, participation in decision-making may not
produce significant performance effects. Conversely, under circumstances where knowledge of results and reinforcement are not readily apparent, participation in decision-making may lead to significant performance improvements. Although this relationship is highly speculative at this point, the deduction that personal involvement and commitment will become increasingly more important as situational factors such as knowledge of results and reinforcement are reduced does seem reasonable. Assuming the validity of this relationship, managers could greatly profit by maximizing subordinate participation on tasks where knowledge of results and/or reinforcement are not readily available.

Another point to consider stems from the finding that participation at the goal setting or methods selection stages could produce significant performance improvements and that their effects were additive. These facts suggest that an optimum strategy would be to maximize participation at both stages, but that if other factors require participation be limited, significant improvements can be obtained by fostering participation in either mode. Thus managers constrained by factors such as time may maintain considerable flexibility by introducing participation at those points where the situation allows and still profit from significant performance improvements.

A final point is that participation leads to increased satisfaction with the goal setting and methods selection processes. Assuming that increased task satisfaction is a
desirable outcome, and noting that under none of the experimental conditions did increased participation lead to a performance decrement, then one must conclude that participation in decision-making should be encouraged whenever possible.

**Implications for future research.** An important implication for future research would be to more systematically examine the hypothesized relationship between participation, knowledge of results, and reinforcement. If such a relationship does exist, it would have important implications as to how managerial strategies such as MBO could best be implemented and utilized.

Other obvious extensions of this research would be to vary the nature of the task, the subject population, the nature of the participation manipulations, and/or to conduct the study under a repeated measures design. Additional investigations of this type could contribute a great deal toward an improved understanding of the effects of participation in decision-making on goal directed tasks.

**Conclusion**

The results of this study suggest that type of participation in decision-making can under certain circumstances have significant effects on performance and attitudes in a goal directed activity.

Under conditions in which knowledge of results and reinforcement are at low levels, participation becomes a significant determinant of task performance. If, however,
knowledge of results and reinforcement are apparent, then participation in decision-making ceases to significantly effect performance.

Additionally, there appears to be a strong tendency for people to desire participation in decision-making. Satisfaction with task decision-making processes is significantly higher among those persons participating in the decision-making processes than among those who do not.
References


Myers, M. S. Conditions for manager motivation. *Harvard


Strauss, G. Group dynamics and intergroup relations. In


Appendices
# Appendix A

## Addition

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Appendix B
Division

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- |---
---|---
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- |---
---|---
1 | 72
- |---
---|---
4 | 257
- |---
---|---
1 | 357
- |---
---|---
4 | 2546
- |---
---|---
3 | 0652
- |---
---|---
1 | 7850
- |---
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2 | 5475
- |---
---|---
1 | 1363
- |---
---|---
4 | 7112
### Appendix C

**Multiplication**

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# Appendix D

## Subtraction

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Appendix E
Attitude Scales

Please place a checkmark (✓) in that blank which most closely describes your feelings.

1. How satisfied were you with the amount of freedom you had in setting performance goals on the second test?
   
   dissatisfied:____:____:____:____:____: satisfied

2. How satisfied were you with the amount of freedom you had in determining the sequence in which to work the problems on the second test?

   satisfied:____:____:____:____:____: dissatisfied

3. On tests like the second test you just took, would you prefer to choose your own performance goals or have them specified in advance?

   choose my:____:____:____:____:____: specified in own advance

4. On tests like the second test you just took, would you prefer to choose the order in which to work the problems or have it specified in advance?

   specified in:____:____:____:____:____: choose my own advance
Appendix F

Condition One

This is a test of arithmetic ability. The test contains 40 problems (10 addition, 10 division, 10 multiplication, and 10 subtraction), and you will be allowed as much time as you need to complete it. You are to write your answers in the box directly below each problem, and do any scratch work directly on the test. Please work as quickly and as accurately as you possibly can.

For this test we ask that you estimate in advance the amount of time it will take you to complete the entire test and the number of problems which you feel you will be able to solve correctly. Please indicate on the line below what your goals are.

I will try to complete the test in ____ minutes or less and to solve at least ____ out of 40 correctly.

We would also like for you to indicate the order in which you want to work the problems. Please indicate with a number (1, 2, 3, 4) the order in which you will work the following categories of problems.

____addition               ____multiplication
____division               ____subtraction

When working on the test we ask that you complete the test in the order you have described and that you complete all items within one category before proceeding to the next category.

STOP! DO NOT PROCEED UNTIL YOU ARE TOLD TO START.
Appendix G
Condition Two

This is a test of arithmetic ability. The test contains 40 problems (10 addition, 10 division, 10 multiplication, and 10 subtraction), and you will be allowed as much time as you need to complete it. You are to write your answers in the box directly below each problem, and do any scratch work directly on the test. Please work as quickly and as accurately as you possibly can.

For this test we ask that you estimate in advance the amount of time it will take you to complete the entire test and the number of problems which you feel you will be able to solve correctly. Please indicate on the line below what your goals are.

I will try to complete the test in ___ minutes or less and to solve at least ___ out of 40 correctly.

We would also like for you to work the problems in the following order.

1. addition
2. subtraction
3. multiplication
4. division

When working on the test we ask that you complete the test in the order we have described and that you complete all items within one category before proceeding to the next category.

STOP! DO NOT PROCEED UNTIL YOU ARE TOLD TO START.
Appendix H
Condition Three

This is a test of arithmetic ability. The test contains 40 problems (10 addition, 10 division, 10 multiplication, and 10 subtraction), and you will be allowed as much time as you need to complete it. You are to write your answers in the box directly below each problem, and do any scratch work directly on the test. Please work as quickly and as accurately as you possibly can.

For this test we ask that you try to achieve the following performance goals.

Try to complete the test in 23 minutes or less and to solve at least 33 out of 40 correctly.

We would also like for you to indicate the order in which you want to work the problems. Please indicate with a number (1, 2, 3, 4) the order in which you will work the following categories of problems.

___addition  ___multiplication
___division   ___subtraction

When working on the test we ask that you complete the test in the order you have described and that you complete all items within one category before proceeding to the next category.

STOP! DO NOT PROCEED UNTIL YOU ARE TOLD TO START.
Appendix I
Condition Four

This is a test of arithmetic ability. The test contains 40 problems (10 addition, 10 division, 10 multiplication, and 10 subtraction), and you will be allowed as much time as you need to complete it. You are to write your answers in the box directly below each problem, and do any scratch work directly on the test. Please work as quickly and as accurately as you possibly can.

For this test we ask that you try to achieve the following performance goals.

Try to complete the test in 25 minutes or less and to solve at least 33 out of 40 correctly.

We would also like for you to work the problems in the following order.

1. addition 3. multiplication
2. subtraction 4. division

When working on the test we ask that you complete the test in the order we have described and that you complete all items within one category before proceeding to the next category.

STOP! DO NOT PROCEED UNTIL YOU ARE TOLD TO START.