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Effects of Participation in Goal Setting When Task Ability and Goal Difficulty are Held Constant

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Effects of Participation in Goal Setting When Task Ability and Goal Difficulty are Held Constant

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THESIS ACCEPTANCE

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Abstract

Undergraduate psychology students (N = 60) were randomly assigned to do-your-best, assigned, or participative goal-setting conditions. The sample was split at the mean on the basis of scores received on a clerical test, resulting in low- and high-ability groups. Specific goals led to higher performance than did the do-your-best goals. With task ability and goal difficulty held constant, there was no significant difference between the assigned and participative conditions on goal attainment, goal acceptance, or performance.

When the groups were split on ability, only the low ability group performed significantly better than the do-your-best group. Two reasons are suggested to explain this difference. First, low-ability subjects may have recognized an opportunity to improve performance over trials, and set or were assigned higher goals relative to high-ability subjects. Second, low-ability subjects accepted their performance goals to a greater extent than did the subjects in the high ability group.

Effects of Participation in Goal Setting When Task Ability and Goal Difficulty are Held Constant

Locke's (1968) theory of goal setting deals with the relationship between goals or intentions and task performance. The basic theoretical foundation of his cognitive theory is that an individual's conscious goals (intentions) regulate his or her actions. A goal is simply what the person is consciously attempting to accomplish (Latham & Yukl, 1975). Historically, interest in the effects of goals and tasks on behavior arose from the work of the Wurzburg school around the turn of the century (Schultz, 1975). Locke (1968) notes their key concept of determining tendency or set and its relationship to motivation has been neglected by modern psychologists; however, a growing number of investigators have begun to study the effects of conscious goals and intentions on task performance.

In reviewing Locke's (1968) theory of goal setting, Steers and Porter (1974) and Latham and Yukl (1975) found that both laboratory and field research provided strong support for Locke's propositions that specific hard goals, if accepted, lead to higher performance than do easy goals or generalized goals such as "do your best". A more complete picture of the nature of goal setting may be obtained by studying the role played by the various components or attributes of the goal-setting process as they relate to performance. Research has been carried out on numerous, and often overlapping, attributes. Using factor-analytic techniques, Steers (1973) suggested the existence

of five relative autonomous attributes. In addition to (a) goal specificity and (b) goal difficulty mentioned above, he identified (c) participation in goal setting, (d) feedback on goal progress, and (e) peer competition for goal attainment. Although not derived from the factor-analytic study, Steers and Porter (1974) included "goal acceptance" as a sixth attribute, since recent research has pointed to its potential importance for employee performance under goal-setting conditions. They concluded that increases in goal specificity are consistently and positively related to performance across field and laboratory investigations. Acceptance of task goals was also strongly and positively related to performance; however, this conclusion rested on only a few empirical studies and final judgment must await further investigation.

Although the majority of findings concerning goal difficulty, participation, and feedback on goal effort indicate positive relationships with performance, a number of important exceptions existed. Goal difficulty studied in the laboratory consistently pointed to positive relationships, while the field studies generally indicated either more complex or null relationships. In their review, Steers and Porter (1974) found important intervening variables that influenced performance relationships. They proposed these variables to be: "The nature of task goals, additional situational-environmental factors, and individual differences" (p. 448). No consistent relationship was found between the degree of peer competition and performance, again suggesting the existence of

important intervening variables. Similarly, Latham and Yukl (1975) concluded that: "Specific goals increase performance and that difficult goals, if accepted, result in better performance than do easy goals" (p. 840). Field studies they reviewed did not provide consistent and positive relationships between performance and participation, monetary incentives, and performance feedback. Additionally, they stated that: "needs, attitudes, personality, and perhaps education and cultural background may determine whether an employee will respond favorably to goal setting, and such traits may also moderate the effects of goal difficulty and participation in goal setting" (p. 843).

Since these two very thorough reviews other investigators have suggested additional intervening variables that moderate between goal-setting processes and performance: Organizational climate factors of structure and commitment and involvement (Zultowski, Arvey, & Dewhirst, 1978), need achievement (Steers, 1975), satisfaction (Ivancevich, 1976), ability (Motowidlo, Loehr, & Dunnette, 1978), and supportive relationships (Latham & Saari, 1979b).

Goal and Task Difficulty

If goals regulate performance then hard goals should produce a higher level of performance than easy goals, other things (such as ability) being equal. Goal difficulty is usually operationalized as some increase in the production of a given task in a given time period. Regardless of whether an individual has a high goal or a low goal,

the task is the same; only the goal is different. The setting of difficult goals has sometimes been confounded with the difficulty of the task. This is especially true in field studies where the difficulty of goals and more complex tasks often co-vary.

Campbell and Ilgen (1976) conducted a laboratory study on goal setting using easy, moderate, or difficult chess problems. Task difficulty was operationalized as the number of moves to achieve checkmate. Subjects were assigned and accepted either easy, moderate, or difficult goals, i.e., solve 20%, 50%, or 80% of the problems. The study was designed to avoid confounding goal setting with task difficulty while varying both in the same setting, rather than holding task difficulty constant as has been done in most goal setting research. In the absence of any a priori reason to predict an interaction between goal setting and task difficulty, they predicted that their effects would be additive.

Their results suggested that task difficulty has a greater effect on task performance than goal setting, and the effect of task difficulty is due to increased task knowledge. Difficult tasks, whether or not performed correctly at first, seem to supply more information or more insight to the individual than easy tasks. While the authors contend their findings hold no theoretical implications for Locke's (1968) work, they do suggest that experience on prior tasks of varying difficulty should not represent a boundary condition for the goal-setting phenomenon. As Locke (1968) suggested, individuals working

under high goals have high levels of intended performance and put forth more effort to reach high performance levels. Task difficulty on the other hand, appears to increase performance by providing the individual with skills to deal with more complex situations. These increased skill levels also lead to increases in performance.

Motowidlo, Loehr, and Dunnette (1978), after assigning subjects to low, medium, and high ability groups based on arithmetic test scores, randomly assigned them to low, medium, and high probability of success subgroups. A subject's goal was thus the number of arithmetic problems that could be correctly completed by only 20%, 50%, or 75% of the subjects in each ability subgroup. In this way task difficulty was manipulated, and objective probability of success corresponded to the above percentages. Subjective probability of success was measured before, and at 5-minute intervals during the task by asking the subjects to estimate the likelihood of reaching their respective goals. The objective probability of task success measure was significantly related to task performance, with performance maximum at the intermediate (.50) level of objective probability. Subjective probability of success; however, was significantly and monotonically related to task performance, with performance maximum at high levels of subjective probability. Objective probability correlated only .30 with subjective probability at the beginning of the study, but increased to .60 by the end of the study.

The authors suggested that objective probabilities of task

success may have motivational implications somewhat different from those of subjective probabilities. Possibly, subjective probabilities of task success are dependent upon two underlying factors roughly similar to trait and state variables in other human attributes. Trait refers to a person's self-perceptions or belief about the likelihood of accomplishing a certain level of performance while state refers to specific aspects of the task situation that the individual sees as either adding to or detracting from his or her likelihood of being successful in that particular situation. Their relative contributions, though, vary from situation to situation. This idea is somewhat in line with the suggestion of Latham and Yukl (1975) that needs, attitudes, personality, and perhaps education determine whether an employee will respond favorably to goal setting. Such traits also may moderate the effects of goal difficulty and participation in goal setting. Future research is likely to result eventually in the formulation of a contingency model of goal-setting effectiveness.

Participation in Goal Setting

Latham, Mitchell, and Dossett, (1978) in a goal setting study involving performance appraisals of engineers and scientists concluded that participation is important insofar as it influences goal difficulty and, hence, performance. However, they concluded that goal specificity and goal acceptance can be attained as easily through assigned goals as through participatively set goals. Modern organizational theorists (i.e., Likert, 1967) believe that employee goal acceptance and commitment

are greater when the employee and the manager together determine the employee's goal; therefore, they favor participatively set goals. Latham and Saari (1979a) tested this idea with goal difficulty held constant, and concluded that performance (ideas generated), goal acceptance, and goal attainment were not significantly different for assigned or participatively set goals. Dossett, Latham, and Mitchell (1979) essentially replicated the above findings in a clerical test validation study. In the second part of their study concerning performance appraisals over an 8-month period, they concluded that when assigned goals are difficult, performance is likely to be equal if not superior than when goals are participatively set.

Why participation in goal setting is important remains elusive. Likert (in Latham & Saari, 1979a) has suggested that the key aspects of System 4 Management are supportive relationships, participative decision making, and goal setting, provided work facilitation and technical competence are not a problem. In reviewing the three participation in goal setting studies reported above, Likert noted that participation in itself may not be critical for high performance, but that it seems to be important because of the high goals that are set without them being perceived as difficult. Latham and Saari (1979b) tested the importance of Likert's (1967) principle of supportive relationships to goal setting with goal difficulty held constant. They found that a supportive management style led to higher goals being set than an arbitrary management style. Partici-

tively set goals led to better performance (ideas generated) than assigned goals. And, although a supportive management style led to higher performance, the difference was not significant. Inconsistencies found among participation studies are difficult to reconcile. One area suggested by the Latham and Saari (1979a) and (1979b) studies concerns the difficulty level of the goals set. In the first study (1979a) goal difficulty levels were significantly lower (ideas generated $\underline{M}$ = 55.00 versus $\underline{M}$ = 83.75) than in the second study (1979b). Taken together, the results suggest that when goal difficulty levels are high, participation increases understanding, and when goal difficulty levels are low, the importance of participation in achieving understanding may be diminished.

The purpose of the present study was to test experimentally the importance of participation in goal setting when goal difficulty levels are held constant and subjects are grouped according to ability levels. The experiment was conducted in a laboratory setting because of the difficulty and concern of manipulating the variables under study in the day-to-day activities of employees in an industrial setting, and because of the desirability of evaluating the following hypotheses under well controlled conditions: (a) setting a specific goal leads to better performance than adopting a general attitude of "doing one's best". This hypothesis is consistent with Locke's (1968) theory. (b) Allowing an individual to participate in goal setting leads to better performance, more frequent goal attainment, and greater goal

acceptance than assigning a goal. This hypothesis, although not supported by three of the four studies mentioned under participation, is consistent with classical and modern organizational theories. And, (c) the effects of setting a specific goal will be greater over trials for low-ability subjects than for high-ability subjects. This hypothesis was based on observations and personal experiences as training director of newly-formed combat aircrews at various United States Air Forces bases. By setting specific goals (standards of performance) and giving the newly-formed aircrews training to reach those goals, they were able to improve performance, as an increment of training sorties, relatively more than combat ready lead and select aircrews. The newly-formed aircrews were categorized low-ability while the lead and select were categorized high-ability aircrews. Thus, the purpose of hypothesis (c) was to test this idea of relative improvement as it relates to ability groups.

Method

Design and Procedures

Sixty undergraduate psychology student volunteers (19 males and 41 females) were recruited and awarded credit points toward their final psychology grade. A goal setting x ability x trials factorial design was employed. Subjects were randomly assigned to a do-your-best, assigned, or participative goal-setting condition. The sample was split at the mean on the basis of scores received on trial 1 of the clerical test (see experimental task and manipulations). The decision to use

the mean to determine ability groups was based on a pilot study ($\underline{M}$ = 62.69, $\underline{SD}$ = 12.30, $\underline{N}$ = 40, range 34 - 85) where none of the subjects completed the tests. Thus, subjects in this study receiving less than 62 were categorized as low ability and those receiving 62 or greater were categorized as high ability (Trial 1 $\underline{M}$ = 61.42, $\underline{SD}$ = 11.06). This resulted in 10 subjects in each cell except for the participative goal-setting condition where 9 low- and 11 high-ability subjects emerged. Three administrations of the tests were given to each subject as a means of ascertaining performance over trials.

Experimental task and manipulations. The experiment was advertised as a clerical test validation study. A clerical test was developed that consisted of name and number comparisons. In effect, it was a kind of work sample since clerical work so frequently involves checking the accuracy of one set of data against another. If the two numbers (or names) in the pair were identical, a check (√) was simply placed on the line between them. For example, the samples of names and numbers below are completed correctly:

West Coast World	_____	West Coats World
12345678	√	12345678
Republican Primary	√	Republican Primary
67812345	_____	67821345

There were 100 pairs of items on each of three forms of the test: half were names and half were numbers. Subjects placed a line under the last pair they examined when time was called, and the score received was the number right minus the number wrong. For example, if a subject

completed 75 items when time was called and had 4 mistakes, the score recorded was 71. Based on the pilot study, where none of the subjects completed the tests, a time of 240 seconds was established for taking each form of the clerical test. This time also allowed for improvements over trials due to goal setting.

To avoid practice effects over trials, three forms (Forms A, B, and C) of the test were developed and rotated across trials so that each form was presented on each trial an equal number of times (see Appendix I for copies of the tests).

The researcher greeted each subject in a friendly manner and explained the nature of the clerical tests, told the subjects it was a test of speed and accuracy, and established a generalized goal of "do-your-best" for trial 1. Erez (1977) concluded knowledge of results was a necessary condition for goals to affect performance, so subjects were told how well they did on trial 1 (do-your-best) to aid in establishing goals and aspirations for trial 2. The participative goal-setting subjects were treated first, and a supportive management style was employed to aid subjects in setting realistic but difficult goals (see supportiveness measure for description). Goals established by those subjects with high ability in the participative goal-setting condition were assigned to subjects in the high ability assigned goal-setting group who were instructed to "shoot for" the same goal - thus, goal difficulty and ability were held constant. In like manner, subjects with low ability were yoked. Subjects were then administered an alternate

form of the clerical test for trial 2. The general goal-group subjects were again instructed to "do-your-best".

After the trial 2 test was scored subjects were told how well they did to aid in establishing goals for trial 3. Goals established by the participative goal-setting groups were again assigned to the same yoked subject in the assigned groups. The control or do-your-best groups were employed to make comparisons about how specific goals affect performance differently from generalized goals and also as a means of ascertaining practice effects if any.

Dependent measures. Performance was measured as a percentage of pairs identified correctly, adjusted for mistakes. Goal attainment was scored one for yes and zero for no. For example, if trial 2 minus goal 2 was equal to or greater than zero, the goal was considered attained. In like manner trial 3 was compared with goal 3.

Perceptions were measured by 5-point Likert-type scales. The participation, goal acceptance, and goal difficulty measures were taken prior to trial 2 and trial 3 for the assigned and participative goal-setting conditions only. The supportiveness measures were taken after trial 3 for all subjects.

Participation was ascertained by questions about who had influenced the goal set (i.e., "Who had the most influence over the performance goal that was set?", and "Compared to the researcher how much influence did you have over the performance goal that was set?"). Goal acceptance was measured by the following questions: "How committed

are you to attaining the performance goal established?", "How important is attaining the specific score established as the goal to your feeling of achievement and accomplishment?", and"How much internal satisfaction would you expect to derive if you attain the percentage correct identified as your goal?". Also, goal acceptance defined in terms of the congruence between assigned task goals and personal aspiration levels (Steers & Porter, 1974) was measured as follows: "How many comparisons do you believe you can make and how many mistakes do you believe you will have?". Responses were to the goals established (i.e., if the question minus the goal established was greater than or equal to zero, the goal was considered accepted). Goal difficulty was measured by the following questions: "How difficult for you was the goal on the second test?", and "How difficult for you was the goal on the third test?".

The supportive management style was based on Likert's system 4 manager (e.g., showing confidence and trust in the subjects, setting goals participatively, or suggesting that assigned goals were attainable with effort, and indicating that subjects should feel free to talk to him). The experimenter followed a memorized script (see Appendix II) that emphasized (a) giving the subject a friendly welcome, (b) reassuring the subject that he or she would do well, (c) using words of encouragement and support (e.g., "Do you feel comfortable with that goal?", or "You did well on the test."), (d) encouraging the subject to ask questions, and (e) asking rather than telling the subject to do something. Supportiveness was measured by a series of questions which required all

the subjects to rate the researcher on the following bipolar adjectives: Supportive-hostile, friendly-unfriendly, considerate-inconsiderate, accepting-rejecting, nice-nasty, and kind-unkind. An additional supportiveness measure asked, "How comfortable were you in talking with the researcher?", with a rating scale of 5 (very comfortable) to 1 (very uncomfortable). In like manner, a similar question asked, "How much trust and confidence did the researcher show in your ability to do well on the tests?". This rating also ranged from 5 (very much trust and confidence) to 1 (very little trust and confidence). Copies of the questions are contained in the test booklet (see Appendix I).

Results

Manipulation Check

The goal-setting manipulation was effective. A 2 x 2 x 2 unweighted-means analysis of variance (omitting the do-your-best groups) on the sum of the two participation questions (test-retest reliability, Pearson's correlation = .95, $p < .01$) revealed a main effect for goal-setting only, $F(1,36) = 63.22$, $p < .01$. Subjects in the participative condition felt that they had more influence ($M = 4.06$, $SD = .53$) than those in the assigned condition ($M = 2.06$, $SD = .74$) in setting goals. No interaction effect was obtained. Also, as shown in Table I, there was a significant difference in perceived goal influence, $F(1,36) = 6.68$, $p < .05$ for trials. Subjects gave higher participation scores for trial 3 ($M = 3.23$, $SD = 1.07$) than they did for trial 2 ($M = 2.90$, $SD = 1.28$).

Insert Table I about here

Table I

Specific-goals Groups Analyses of Variance Ratios

Source	df	Participation	Goal Acceptance	Goal Attainment	Performance
Between Subjects	39				
Assigned vs Participative	1	63.219**	.074	.577	.079
Low vs High Ability	1	.227	6.857*	4.803*	31.026**
Goal conditions x Ability	1	.049	-.004	.259	.199
Within Subjects	40				
Trial 2 vs trial 3	1	6.684*	6.889*	4.733*	1.450
Ability x Trials	1	.302	.495	.724	1.849
Goal conditions x Trials	1	3.720	.060	1.832	1.006
Goal cond. x Ability x Trials	1	1.470	.515	.724	.022

* $p < .05$

** $p < .01$

Performance

Test reliability. The reliability for the three forms when they were employed in a nongoal-setting condition (i.e., the three trials in the do-your-best condition) was .97 (Cronbach's alpha). Means and standard deviations for Form A were, $\underline{M}$ = 62.50, $\underline{SD}$ = 12.52; Form B, $\underline{M}$ = 63.40, $\underline{SD}$ = 12.15; and Form C, $\underline{M}$ = 60.75, $\underline{SD}$ = 13.56. Cronbach's alpha for performance across the three trials was .93; thus, the tests were considered equivalent.

Trends. Figure 1 depicts the performance mean ratings by groups over trials. As shown, the high-ability groups performed at approximately the same level except on trial 2 where the assigned and participative goal-setting groups scored somewhat higher than the do-your-best groups. In the low ability groups the assigned and participative goal-setting conditions resulted in better performance on trial 2 and trial 3 than the do-your-best condition.

Insert Figure 1 about here

Goal Setting. A 3 x 2 unweighted-means analysis of variance (goal setting x ability on trial 1) resulted in no significant differences in performance when goal setting was not employed. Thus, the groups were considered equivalent at the beginning of the study. The 3 x 2 analysis of variance was expanded to a 3 x 2 x 2 design (repeated measures for trial 2 and trial 3) to determine if setting specific goals

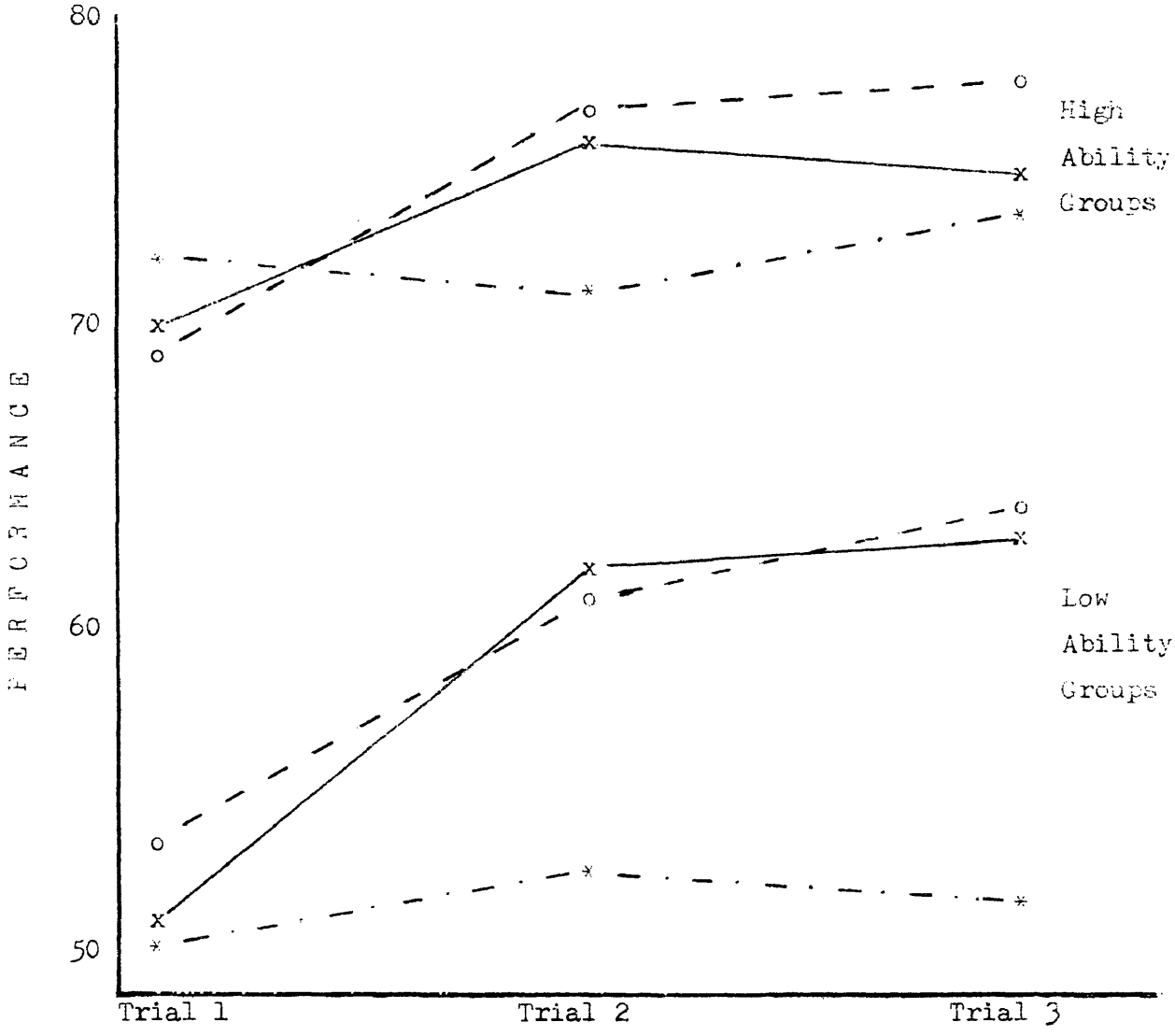

Figure 1. Performance Mean Improvement by Groups Over Trials

x_____x Participative Groups

o- - - - - o Assigned Groups

*- . - . - * Do-your-best Groups

(assigned or participative) resulted in better performance than a goal of do-your-best. A marginally significant result was obtained, $F(2,54) = 3.00$, $p = .056$. Subjects in the assigned group had the highest performance ($M = 70.03$, $SD = 10.52$). Participative subjects' performance ($M = 69.98$, $SD = 10.05$) was better than the do-your-best subjects' performance ($M = 62.73$, $SD = 12.29$). Table III (Appendix III) presents the means and standard deviations for performance across all conditions.

Goal specificity. A second level of analysis consisted of comparing the general-goal group (do-your-best) with the specific goal-setting group (assigned plus participative) x ability on the performance measure (trial 2 plus trial 3). The analysis of variance resulted in a significant difference for goal specificity, $F(1,56) = 12.07$, $p < .01$. Subjects in the specific-goals group performed better ($M = 70.00$, $SD = 10.15$) than those in the do-your-best group ($M = 62.73$, $SD = 12.29$). No interaction effects for ability were obtained. Thus, the hypothesis that setting a specific goal leads to better performance than urging people to do their best was supported.

Assigned versus participative goals. A 2 x 2 x 2 analysis of variance (omitting the do-your-best groups) revealed no significant differences or interactions between assigned and participative goal-setting groups on trial 2, trial 3, or performance across trials (see Table I). There were no significant differences between assigned and participative goal-setting groups on any goal-acceptance measure, and there were no significant differences between assigned and

participative goal-setting groups on goal attainment. However, as shown in Table I, there was a significant difference in goal attainment between trials, $F(1,36) = 4.73$, $p < .05$. More subjects attained their goals on trial 2 ($M = 50\%$, $SD = .50$) than on trial 3 ($M = 23\%$, $SD = .42$). Thus, the hypothesis that allowing an individual to participate in goal setting leads to better performance, more frequent goal attainment, and greater goal acceptance than assigning a goal was not supported.

Ability. As mentioned earlier, ability was manipulated and determined on the basis of scores received on trial 1. As anticipated, the goal setting x ability x trials analysis of variance revealed a significant difference for ability, $F(1,54) = 36.37$, $p < .01$. Subjects in the high-ability group performed better ($M = 75.45$, $SD = 7.98$) than those in the low-ability group ($M = 59.16$, $SD = 8.97$). Also, as shown in Table I, the specific-goals groups analysis (assigned versus participative) resulted in a significant difference for ability, $F(1,36) = 31.03$, $p < .01$. Subjects in the high-ability group performed better ($M = 76.95$, $SD = 5.90$) than those in the low-ability group ($M = 62.32$, $SD = 8.12$). Thus, as anticipated, when subjects were grouped according to ability, the high-ability subjects outperformed the low-ability subjects on the clerical task.

Significant differences in goal attainment were found between low- and high-ability specific-goals subjects, $F(1,36) = 4.80$, $p < .05$ (see Table I). More subjects in the high-ability group ($M = 48\%$, $SD = .50$) attained their goals than did those in the low-ability group ($M = 24\%$,

SD = .43). This suggests that relative to their ability, goals that were set (or assigned) by low-ability subjects were more difficult than goals for the high-ability subjects.

Although the goal conditions x ability interaction was not significant, an a priori hypothesis stated that the effects of seti a specific goal would be greater for low-ability subjects than for high-ability subjects. There was a significant difference between the low-ability do-your-best and specific-goals groups, $F(1,27) = 9.87$, $p < .01$. Subjects in the low-ability specific-goals group performed better ($M = 62.32$, $SD = 8.12$) than those in the low-ability do-your-best group ($M = 53.15$, $SD = 5.95$). There was no significant difference between general and specific goal conditions in the high-ability group (see Table III, Appendix III). Thus, the hypothesis that the effects of setting a specific goal will be greater over trials for low-ability subjects than for high-ability subjects was supported.

Goal Acceptance

When the three goal-acceptance measure questions were combined across trials (test-retest reliability = .98, $p < .01$, Pearson's correlation) a significant difference was found between the low- and high-ability groups, $F(1,36) = 6.86$, $p < .05$. Subjects in the low-ability group gave higher goal acceptance scores ($M = 4.04$, $SD = .75$) than those in the high-ability group ($M = 3.42$, $SD = .58$). Also, as shown in Table I, there was a significant difference for trials, $F(1,36) = 6.89$, $p < .05$. Subjects rated goal acceptance higher on

trial 3 (M = 3.83, SD = .71) than they did on trial 2 (M = 3.61, SD = .74). As stated before, there were no significant differences between assigned and participative goal-setting conditions on these goal acceptance measures. When congruence between assigned task goals and personal aspiration levels (Steers & Porter, 1974) was the goal acceptance measure (test-retest reliability = .68, $p < .01$, Pearson's correlation), no significant differences were found between the assigned and participative goal-setting groups or the low- and high-ability groups.

Goal Difficulty

In the present study, since goal difficulty was held constant (goal 2 M = 70.15, SD = 9.08; goal 3 M = 73.40, SD = 11.07), participation could not affect objective goal difficulty. And, no significant differences were found between the assigned and participative goal-setting conditions or the low- and high-ability groups regarding the two questions concerning subjects' perception of goal difficulty (test-retest reliability = .32, $p < .05$, Pearson's correlation). The grand mean was 2.95 (SD = .55) on a 5-point scale.

Supportiveness

The six bipolar adjectives that rated the researcher on supportiveness were combined with the "comfortable" and "trust and confidence" questions (grand mean = 4.47, SD = .42 on a 5-point scale, Cronbach's alpha = .84). A 3 x 2 analysis of variance revealed no significant differences among the do-your-best, assigned, or participative goal-setting groups, or between the low- and high-ability groups. Also, no interaction effect was obtained.

Discussion

To the extent that performance is affected by motivational factors, the present study supports Locke's (1968) contention that the philosophy of doing one's best is not as productive as setting a specific goal. The underlying principle is that goals guide action (and thought) and serve to focus attention and effort in specific directions. Locke's (1968) suggestion that participatively set goals may result in greater goal acceptance than assigned goals was not supported. No significant differences were found between assigned and participatively set goals on the goal acceptance measures. These findings are consistent with those of Latham and Saari (1979a) and Dossett, et. al. (1979) where no significant differences were found on the acceptance measures.

The finding that the assigned and participative goal-setting groups perceived the goals as equally difficult suggests that ability on the task was held constant. Subjects in the participative group set goals that they thought would be difficult but attainable, and these goals were yoked to subjects of like ability in the assigned group.

This study, like the Latham and Saari (1979a) and the Dossett, et. al. (1979) study, also found that when goal difficulty (objective and subjective) is held constant, there is no significant difference in the performance of those with participatively set goals than those with assigned goals. Goal attainment, like the Latham and Saari (1979a) study was not significantly different for the two groups (40% versus 33% for the assigned and participative respectively). This is contrary

to the Dossett, et. al. (1979) study where only 10% of the individuals in the participative condition attained their goals as compared to 45% in the assigned condition, which suggested that assigned goals can be equally as effective, if not more effective, than participatively set goals, providing they are equally as difficult.

The problem of integrating these findings with the existing literature on participation remains. One explanation for finding no significant differences on the goal acceptance, goal attainment, or performance measures between the two goal-setting groups may lie in the way supportive management style was employed. This variable was not manipulated. The intention was to treat all groups equally. The combined supportive management-style perception measure was not significantly different for the three goal setting conditions (do-your-best, assigned, participative) or the low- and high-ability groups. Nor was the difference between the assigned and participative groups significant (see Table IV, Appendix III). In the Latham and Saari (1979b) study, supportive management style was manipulated. Although the results were not significant, subjects in the supportive condition performed better (ideas generated) than did those in the nonsupportive condition.

When goal difficulty is held constant between the goal-setting groups and subjects are also yoked for ability, participation in goal setting appears unimportant even though it may increase understanding (Latham & Saari, 1979b). Thus, the assumption by modern organizational theorists that allowing an individual to participate in goal setting

leads to greater goal acceptance, better performance, and more frequent goal attainment than assigning a goal to them was not supported.

The question of why the low-ability subjects in the specific-goals condition had significantly higher performance than the do-your-best group, while the high-ability subjects did not prompted an analysis of goal increases by trials. Recall that there were no significant differences in performance on trial 1. However, if the low-ability group set or had assigned higher goal increases (i.e., goal 2 minus trial 1 and goal 3 minus trial 2) than the high-ability group, then higher relative goals as well as their greater goal acceptance could contribute to their higher performance over the same ability do-your-best condition. Table II depicts the results of these analyses. There was a significant difference between the low- and high-ability groups for goal 2, $F(1,38) = 22.32$, $p < .01$. Subjects in the low-ability group increased goal 2 over trial 1 ($M = 11.68$, $SD = 5.04$) more than the high-ability group ($M = 5.86$, $SD = 2.43$). There was no significant difference for goal 3, but when the goal increases were combined (goal increase 2 plus goal increase 3) the results were significant, $F(1,38) = 12.17$, $p < .01$. Thus, low-ability subjects increased goals more over trials ($M = 8.74$, $SD = 4.81$) than the high-ability subjects ($M = 4.24$, $SD = 3.27$).

Insert Table II about here

The finding of a significant difference in goal increases between

Table II

Goal Increases Over Trials[a], Goal Means[b], Standard Deviations, and F-ratios

Measures	Low Ability (N = 19) Mean	SD	High Ability (N = 21) Mean	SD	F(1,38)
Goal 2	64.47	7.97	75.29	6.71	
Trial 1	52.79	4.83	69.43	6.26	
Goal 2 increase	11.68	5.04	5.86	2.43	22.32**
Goal 3	66.42	10.40	79.71	7.31	
Trial 2	60.63	8.56	77.10	6.06	
Goal 3 increase	5.79	7.58	2.62	6.17	2.12
Total goals increase	8.74	4.81	4.24	3.27	12.17**

a Goal minus performance

b Maximum goal = 100

** $p < .01$

the low- and high-ability groups is consistent with Locke's (1968) goal-setting theory; difficult goals (relative to ability in the present study) lead to high performance. To a certain extent these findings are consistent with those of Latham and Saari (1979a) and (1979b) concerning the difficulty level of goals set. In both studies, as stated by Latham and Saari (1979b), "Subject population, task setting, and procedure were the same" (p. 155). The only difference between their studies was the difficulty levels of the goals set. In the first study (1979a), ideas generated were significantly lower ($\underline{M}$ = 55.00 versus $\underline{M}$ = 83.75) than in the second study (1979b) where participatively-set goals were more effective than assigned goals. If it can be assumed the subjects in their two studies were of equivalent ability (generate ideas), then the goal increase from the first study (1979a) to the second study (1979b) may account for goal-setting effectiveness. In the present study, although there were no significant differences between low- and high-ability subjects' perception of goal difficulty, the direction was in favor of the low group ($\underline{M}$ = 3.03 versus $\underline{M}$ = 2.88 respectively).

One might argue that the high-ability groups' performance was restricted by a ceiling effect. None of the subjects completed any test, and the highest score received was 96 by a member of the do-your-best group on trial 3. The subjects were psychology undergraduate students, and ability was determined on the basis of a premeasure nearly identical to the performance measure. They were not told the mean

of the pilot study (62.69) or what score was expected; only to work for a specific goal or to "do-your-best". It could be that those receiving low scores on trial 1 recognized an opportunity to improve over trials and set or were assigned the more challenging goals.

To the extent that these findings generalize to an industrial setting they have implications for managers who are aware of the capability of their employees. The greatest potential area for increased production appears to be for a manager to invest his time with the lower-ability individuals. The idea is to participatively set or assign them difficult goals in a supportive manner without the goals being perceived as difficult or impossible. If employees see the goal as challenging, they will expend the effort, as suggested by the higher goal acceptance measures of low-ability subjects, to achieve those goals. The final decision rests with the managers. They can place individuals in difficult situations knowing some will succeed and thus benefit from increased motivation, while others fail, lowering their aspiration levels and leading to a greater tendency to fail in the future (Campbell & Ilgen, 1976). In order to avoid the latter outcome managers need to be aware of the capabilities of their employees.

Finally, a word of caution needs to be interjected. This was a laboratory study. The task was clerical in nature and of short duration, and the results may not generalize to other tasks or longer work periods. Moreover, the satisfaction of success and the threat of failure were minimal, and the thirty minutes allotted to each subject may not have

been sufficient for participation in goal setting to be effective.

In summary, the results of this study suggest that (a) when task ability and goal difficulty are held constant, there is no difference between assigning a goal or allowing an individual to participate in goal setting, (b) when individuals are presented with a difficult or challenging goal that is attainable and accepted, they perform better than when there is no goal or a generalized do-your-best goal, and (c) the effects of setting a specific goal are greater for low-ability subjects than for high-ability subjects. Two reasons are suggested to explain the difference. First, low-ability subjects recognized an opportunity to improve performance over trials and set or were assigned higher goal increases relative to high-ability subjects. Second, low-ability subjects accepted their performance goals to a greater extent than did the subjects in the high-ability group.

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Appendix I

Clerical Test Forms and Perception Measures

Human Subject Consent Form

Subject No._____

CLERICAL TEST VALIDATION

The Psychology Department, University of Nebraska, Omaha is interested in how well clerical tests discriminate among individuals. A clerical test has been developed that consists of name and number comparisons. In effect, it is a kind of work sample since clerical work so frequently involves checking the accuracy of one set of data against another. If the two numbers (or names) in the pair are identical, a check (/) is simply placed on the line between them. For example, the samples of numbers and names below are done correctly, and are similar to those you will find on the tests.

West Coast World	_____	West Coats World
12345678	✓	12345678
Republican Primary	✓	Republican Primary
67812345	_____	67821345

There are 100 pairs of items on each form of the test; half are names and half are numbers. The researcher will tell you when to start and when to stop. When time to stop is called, place a line under the last name or number you have examined. Since this is a test of speed and accuracy, you will be penalized for mistakes. For example, if you mark under line 75 when time is called, and you have 4 mistakes, the score you receive will be 71.

There are three forms of the test in the validation study. Form A, which you are about to begin now, then alternate Form B and Form C. When time is called, the researcher will collect and score the forms. Also, there are some questions pertaining to the study that require your rating or the insertion of a specific figure. These items are attached to the tests. Just circle the answer that best applies.

To aid in comparing your scores to a norm class, please complete the following biographical data. Your response is optional and circle the item below that best applies.

Sex: Male Female

Race: Caucasian Other

Educational Level: Freshman Sophmore Junior Senior

Remember, this is a test of speed and accuracy; do your best to work as fast as you can without making mistakes. If you have any questions, ask them now or wait until you have completed the clerical test form.

DO NOT TURN THIS PAGE UNTIL INSTRUCTED TO DO SO

Place a check (/) mark on the line between the following names or numbers which are exactly the same. Leave the space blank if there is any difference.

49372014	____	49372014
John C. Linder	____	John C. Lender
214493219	____	214493229
New York World	____	New York World
12345678	____	12345668
Cargill Grain Co.	____	Cargil Grain Co.
66554433	____	66554343
Psychological Corporation	____	Physiological Corporation
76346464	____	76346464
Anderson, K. G.	____	Andersen, K. C.
90444332	____	9044332
77654377	____	77654377
Accessory Information	____	Accessory Information
Average Balance	____	Average Balance
51515111	____	51515511
Investors Syndicate	____	Investors Syndicate
43252728	____	43257728
45776687	____	45776687
horses for sale	____	houses for sale
12576832	____	12576632
perceptual abilities	____	perceptual abilities
47437344	____	47437344
clerical aptitude	____	clerical aptitude
872014382	____	872013482
Latter Day Saint	____	Later Day Saint
84842013421	____	848420l3421
Permanent Press, Inc.	____	Pernament Press, Inc.
910432401	____	910432401
Clean Clear Co.	____	Clean Clear Co.
Experimental Methods, Inc.	____	Experiential Metnods, Inc.
873239432	____	873329432
Hampton Bicycles	____	Hempton Bicycles
Houston Texas	____	Houston, Taxes
43217766	____	43217766
B. L. Cooper	____	B. L. Copper
87834141	____	87834141
86858483	____	86856483
West Coast Casion	____	West Coast Casino
12745757	____	12345757
Omaha Horses Transit	____	Omaha Houses Transit
49857230	____	49857032
Time, Life, Fortune	____	Time, Life, Fortune
57939282	____	57399222
Publications Limited	____	Publications Limited
die markers	____	die makers
93872641	____	93882146
Burlington Northern	____	Burlington Northern
4683246821	____	4682346821
Madison Phone Sales	____	Mardson Phone Sales
83342105	____	83341205

Field & Stream Magazines	____ Field & Steam Magazines
3214863214	____ 3214863214
Bumstead & Borg	____ Bumstead & Borg
1989984321	____ 1989894321
Stanfield Iron Works	____ Stamfield Iron Works
82216653	____ 82226653
Long Cray Lines	____ Long Grey Lines
Little Theater League	____ Little Theatre League
4432218476	____ 4432218476
2930418629	____ 2930418629
Armed Forces Association	____ Armed Forces Association
3127723427	____ 3127273427
Omaha Public Power District	____ Omaha Public Power Distrit
894321487	____ 894321487
Roaring Gap Golf Club	____ Roaring Gap Colf Club
8894874328	____ 8894874328
Robert Allen Company	____ Robert Allan Company
8732463895	____ 8732463895
Peabody & Poore, Inc.	____ Peabody & Poore, Inc.
13427997	____ 13427997
Practise makes perfect	____ Practice makes perfect
87999989	____ 87999989
Species specific	____ Spices specific
18434241	____ 18434241
Carl Sandburg	____ Carl Sandberg
224322104	____ 224322104
Earl's Radiators	____ Earls' Radiators
873427321	____ 873427322
Bernardin & Sons, Inc.	____ Barnardin & Sons, Inc.
824168924	____ 824168914
Kansas City Chiefs	____ Kansass City Chiefs
8473210	____ 8473210
Workmen's Compensation	____ Workmen's Compensation
372420132	____ 372403132
Grattan Graphics	____ Grattan Graphics
57531186	____ 57531186
Autohaus, Inc.	____ Autohaus, Inc.
Henning Haberdashers	____ Henning Haberdashers
18263448	____ 18263448
Insurance Inspection Audits	____ Insurance Inspection Audios
43218689	____ 43218689
53559559	____ 53559539
Texas Christian University	____ Texas Christain University
91135462	____ 91135422
3216 Alma Ave.	____ 3216 Alma Ave.
82317642	____ 82317642
Los Angeles Lakers	____ Los Angeles Lakors
722427382	____ 722427382
Scranton Scrap Metal	____ Scranton Scrap Metal
4732483842	____ 4732843842

1. How important is attaining the specific score established as the goal to your feeling of achievement and accomplishment?

   a. Of little importance
   b. Of slight importance
   c. Of some importance
   d. Very important
   e. Absolutely necessary

2. Internal satisfaction means pleasure from successfully accomplishing a task or achieving a challenging goal. How much internal satisfaction would you expect to derive if you attain the percentage correct identified as your goal?

   a. None
   b. A little internal satisfaction
   c. A moderate amount of internal satisfaction
   d. A substantial amount of internal satisfaction
   e. A very large amount of internal satisfaction

3. Who had the most influence over the performance goal that was set?

1	2	3	4	5
The researcher set the goal for me.				I set the goal myself

4. Compared to the researcher how much influence did you have over the performance goal that was set?

1	2	3	4	5
The researcher had complete influence				I had complete influence

5. Commitment to a goal means acceptance of it as your own personal goal and determination to attain it. How committed are you to attaining the performance goal established?

   a. Not at all committed
   b. Slightly committed
   c. Moderately committed
   d. Very committed
   e. Totally committed

6. Knowing your results from Form A, how many comparisons do you believe you can make in four minutes, and how many mistakes do you believe you will have on Form B?

   a. I believe I can make____comparisons
   b. I believe I will have___mistakes

DO NOT TURN THIS PAGE UNTIL INSTRUCTED TO DO SO

Place a check (/) mark on the line between the following names or numbers which are exactly the same. Leave the space blank if there is any difference.

Presidential prophecy	____ Presidential prophesy
49372014	____ 49322014
Fort Knox Gold	____ Fort Knox Gold
83342105	____ 83341005
High school principal	____ High school principle
486324681	____ 486324681
Sutherland Shrimp Sales	____ Sutherland Shrimp Sales
Environmental Protection	____ Envirenmental Protection
93872641	____ 93872146
Oak Park Motel Restaurant	____ Oak Park Motel Restaurant
57939282	____ 57939282
capital offense	____ capital offence
87834141	____ 87834141
Morrison Milling Co.	____ Morrison Milling Co.
12745757	____ 12445757
dissident movement	____ dissident movement
86858483	____ 86856483
Lincoln & Hastings R.R.	____ Lincoln & Hastings R.R.
43217766	____ 43217766
Stationary counter	____ Stationery counter
873239432	____ 873329432
910432401	____ 910432401
West Winston Drive	____ West Winston Drive
Knights of Columbus	____ Knights of Columbus
8484201342	____ 8484201342
monetary conference	____ monetary conference
872014322	____ 872014322
North Weather Station	____ North Whether Station
47434734	____ 47344734
Satellite Calendar Co.	____ Satellite Calander Co.
12576832	____ 12576632
Sustaining Membership	____ Sustaining Membership
47556687	____ 47556687
Ocean View Road	____ Ocean View Road
43252728	____ 43257728
bureaucracy overload	____ bureaucarcy overload
51515111	____ 51515511
Kings Mountain Highway	____ Kings Mountain Highway
77654377	____ 77654377
9044332	____ 9044432
Vietnam Souvenir Company	____ Vietnam Souviner Company
76346565	____ 67346565
A. B. Perishing Co.	____ A. B. Perishing Co.
66554433	____ 66554343
Pend Oreille Lake	____ Pend Oreille Lake
12345678	____ 12345668
Suberban Sandwich Shop	____ Suburban Sandwich Shop
214493219	____ 214493229
Inland Empire, Inc.	____ Inland Empire, Inc.
49372014	____ 49372014

hospital admision	____ hospital admission
1989984321	____ 1989894321
assisination attempt	____ assissination attempt
3214863214	____ 3214863214
Scranton Scrap Metal	____ Scranton Scrap Metal
82216653	____ 82226653
Pacific Western, Inc.	____ Pacific Western, Inc.
4432218476	____ 4432218476
confidential secretary	____ confidential secretary
2930418629	____ 2930418629
Gavins Point Dam	____ Gavins Point Dam
312772342	____ 312727342
independant politician	____ independent politician
894221487	____ 894331487
Four Forest Cantons	____ Four Forest Cantons
889487432	____ 889487432
Beneficial Finance Co.	____ Benififial Finance Co.
873246389	____ 873246389
Surelocked Homes, Inc.	____ Surelocked Holmes, Inc.
13427997	____ 13427997
Gulf of Mexico	____ Gulf of Mexico
87999989	____ 87999989
opportunities unlimited	____ opportunities unlimited
18434342	____ 18434342
Occasional Furniture Co.	____ Occassional Furniture Co.
224322104	____ 224322104
Hollywood Holding Co.	____ Hollywood Holding Co.
873427321	____ 873427322
complementary tickets	____ complimentary tickets
824168924	____ 824168914
Oak Lawn Association	____ Oak Lawn Association
8473210	____ 8473210
Wichita Falls, Texas	____ Whicita Falls, Texas
372420132	____ 372402132
Bavarian Motor Works	____ Bavarian Motor Works
57531186	____ 57531186
University Golf Club	____ University Gulf Club
18263448	____ 18263448
standard of living	____ standard of living
43218689	____ 43218689
Buenos Aires, Argentina	____ Buenos Aries, Argentina
53995559	____ 53999559
Tenpenny Trust Co.	____ Tenpenny Trust Co.
91135462	____ 91135422
Sacramento Register	____ Sacremento Register
722427382	____ 722427382
Frederick Firestone Co.	____ Fredrick Firestone Co.
4732483842	____ 4732843842
Gordon Gourmet	____ Gordon Gourmet
87654321	____ 87654321

7. How important is attaining the specific score to your feeling of achievement and accomplishment this time?

   a. Of little importance
   b. Of slight importance
   c. Of some importance
   d. Very important
   e. Absolutely necessary

8. How much internal satisfaction would you expect to derive if you attain the percentage correct established as your goal this time?

   a. None
   b. A little internal satisfaction
   c. A moderate amount of internal satisfaction
   d. A substantial amount of internal satisfaction
   e. A very large amount of internal satisfaction

9. Who had the most influence over the performance goal set this time?

1	2	3	4	5
The researcher set the goal for me				I set the goal myself

10. Compared to the researcher how much influence did you have over the performance goal that was set this time?

1	2	3	4	5
The researcher had complete influence				I had complete influence

11. How committed are you to attaining the performance goal established this time?

   a. Not at all committed
   b. Slightly committed
   c. Moderately committed
   d. Very committed
   e. Totally committed

12. Now that you know your results on Form A and Form B, how many comparisons do you believe you can make this time, and how many mistakes do you believe you will have?

   a. I believe I can make____comparisons
   b. I believe I will have___mistakes

DO NOT TURN THIS PAGE UNTIL INSTRUCTED TO DO SO

Place a check (/) mark on the line between the following names or numbers which are exactly the same. Leave the space blank if there is any difference.

49372014	____ 49372014
Madison Square Garden	____ Madison Square Garden
214493219	____ 214493229
East Stage Lines	____ East Staggc Lines
12345678	____ 12345668
Chicago Transit	____ Chicago Trainset
66554433	____ 66554343
Clear Clean Co.	____ Clear Clean Co.
76346464	____ 76346464
Hampton Beach Casino	____ Hampten Beach Casino
9044332	____ 9044332
77654377	____ 77654377
Information Accessory	____ Informative Accessory
evil evidence	____ evil evedence
51515111	____ 51515511
Fillmor e East	____ Fillmore Eats
43252728	____ 43257728
45776687	____ 45776687
horses for sale	____ houses for sale
12576832	____ 12576632
rattlesnakes	____ rattlesnakes
47434734	____ 47344734
Permanent Process	____ Permanent Process
872014382	____ 872013482
Latter Day Chapel	____ Later Day Chapel
848420l3421	____ 848420l3421
Bertrand Canning Co.	____ Bertrand Caning Co.
910432401	____ 910432401
Halifax Meat Cutters	____ Halifax Meat Cutters
Camp David, Md.	____ Camp David, Md.
873239432	____ 873329432
Mossberg Bicycles	____ Mossburg Bicycles
Houston, Texas	____ Houston, Texas
43217766	____ 43217766
Jon J. Josephs	____ Jon J. Josephs
87834141	____ 87834141
86858483	____ 86856483
West Coast World	____ West Coast World
12745757	____ 12345757
Annapolis Aria Transit	____ Annapolis Area Transit
49857230	____ 49857032
newspaper	____ newspaper
57939282	____ 57399222
Stars Publications	____ Stars Publications
Wilbur's Welcome Wagon	____ Wilbur's Welcome Wages
93872641	____ 93882146
Boston & Maine R.R.	____ Boston & Maine R.R.
4683246821	____ 4682346821
Calstead Phone Sales	____ Calstead Phone Sales
84342105	____ 84341205

Carlson Grain & Feed	____ Calson Grain & Feed
3214863214	____ 3214863214
Beatrice & Borg	____ Beatrice & Borg
1989984321	____ 1989894321
Stanford Iron Works	____ Stamford Iron Works
Grey's Gravel Co.	____ Gray's Gravel Co.
82216653	____ 82226653
Creighton University Alumni	____ Creighton University Allumni
4432218476	____ 4432218476
2930418629	____ 2930418629
U. S. Armed Forces	____ U. S. Armed Forces
3129923427	____ 3127273427
Lewiston Public Power Distrit	____ Lewiston Public Power District
8694321487	____ 8694321487
R. Pond Swim Club	____ R. Pond Swim Club
8894874328	____ 8894774328
Edgar Allen Poe	____ Edgar Allan Poe
8732463895	____ 8732463895
Preston Precious Metals	____ Preston Precious Metals
13427997	____ 13427997
looking for trouble	____ looking for treble
87999989	____ 87999989
Origin of Species	____ Origin of Spices
18434241	____ 18434241
Edgar Allen Poe	____ Edgar Allen Poet
224322104	____ 224322104
Earl's Rubbish	____ Earl's Rubbish
873427321	____ 873427322
Bremerton & Sons	____ Bremerton & Sons
824168924	____ 824168914
Los Angeles Times	____ Los Angeles Tones
8473210	____ 8473210
Worker's Party	____ Worker's Party
372420132	____ 372402132
Goodes Grapes	____ Goodes Grapes
57531186	____ 57531186
Autobahn Inc.	____ Autobahn Inc.
Henning Grain Co.	____ Henning Grain Co.
18263448	____ 18263448
Certified Life Underwriter	____ Certified Life Underriter
43218689	____ 43218689
53559559	____ 53559539
University of Pokeepsie	____ University of Pookeepsie
91135462	____ 91135422
4271 Alva Ave.	____ 4271 Alva Ave.
82317642	____ 82317642
Pittsburgh Steelers	____ Pittsburgh Stealers
722427382	____ 722427382
Lymen Scrap Metal	____ Lymen Scrap Metal
4732483842	____ 4732843842

13. How difficult for you was the goal on the second test?

1	2	3	4	5
Very easy	easy	moderately difficult	very difficult	nearly impossible

14. Rate the researcher on each of the following bipolar adjectives by circling a number.

a. Supportive 5 4 3 2 1 hostile

b. Friendly 5 4 3 2 1 unfriendly

c. Considerate 5 4 3 2 1 inconsiderate

d. Accepting 5 4 3 2 1 rejecting

e Nice 5 4 3 2 1 nasty

f. Kind 5 4 3 2 1 unkind

15. How comfortable were you in talking with the researcher?

Very comfortable 5 4 3 2 1 very uncomfortable

16. How much trust and confidence did the researcher show in your ability to do well on the tests?

Very much trust and confidence 5 4 3 2 1 very little trust and confidence

17. How difficult for you was the goal on the third test?

1	2	3	4	5
Very easy	easy	moderately difficult	very difficult	nearly impossible

THIS IS THE END OF THE CLERICAL TEST VALIDATION STUDY. TURN THE FORM IN TO THE RESEARCHER FOR SCORING AND DEBRIEFING.

UNIVERSITY OF NEBRASKA, OMAHA

You are invited to participate in a clerical test validation study. We hope to learn how performance changes over trials. You were selected as a possible participant because you submitted your name to the UNO Psychology Department as a volunteer.

You will be asked to participate in one 30-minute session. The task involves name and number comparisons. There are 100 pairs of items on each form of the test, half are numbers and half are names. There are three forms of the test in the study. They are all equivalent. This is a test of speed and accuracy.

There are no discomforts or dangers in this research. Also, Please be assured that your name will not be involved in anyway with the research findings. Please don't hesitate to ask any questions about the study, and remember that even if you initially agree to participate, you are free to withdraw your consent and discontinue participation without prejudice at any time you wish.

If at any future time you have any questions about the study, please feel free to call Melvin G. Cash at 292-4476.
You will be given a copy of this form to keep.

YOU ARE MAKING A DECISION WHETHER OR NOT TO PARTICIPATE. YOUR SIGNATURE INDICATES THAT YOU HAVE DECIDED TO PARTICIPATE HAVING READ THE ABOVE INFORMATION.

Thank you very much.

_____ _____

Date Signature of Participant

_____

Signature of Researcher

Appendix II

Supportiveness Management-style Script

Supportiveness Management-style Script

Greeting to all Subjects

GOOD MORNING (afternoon, subjects first name) I AM MEL CASH, A GRADUATE STUDENT HERE AT UNO, DOING RESEARCH ON THE VALIDITY OF CLERICAL TESTS. THANKS FOR AGREEING TO HELP ME WITH THE STUDY. PLEASE READ THE INSTRUCTIONS ON THE FRONT PAGE OF THE TEST BOOKLET, AND WHEN YOU ARE THROUGH, WE WILL GO OVER THE PROCEDURES. MAKE YOURSELF COMFORTABLE (researcher suggests subject remove coats, jackets, and offers to hang them up, and suggests chair be adjusted to receive the best possible light). OH, THE BIOGRAPHICAL DATA IS OPTIONAL. (while subject reads instructions, researcher fills out participation card and dates Human Subject Consent Form).

(When subject finished reading the clerical test instructions, researcher asked) HAVE YOU PARTICIPATED IN EXPERIMENTS BEFORE? THERE ARE NO DISCOMFORTS OR DANGERS IN THIS RESEARCH. YOUR NAME WILL IN NO WAY BE INVOLVED WITH THE RESEARCH FINDINGS, YOUR SCORE WILL IN NO WAY AFFECT YOUR PSYCHOLOGY GRADE. IN FACT, AFTER YOU LEAVE THE ROOM, I CAN'T TIE YOUR SCORE TO YOUR NAME. ALSO, YOU ARE FREE TO WITHDRAW AT ANY TIME WITHOUT PREJUDICE. IF YOU HAVE ANY QUESTIONS ABOUT THE STUDY IN THE FUTURE, MY NAME AND TELEPHONE NUMBER IS ON THE CONSENT FORM. I'LL GIVE YOU A COPY OF THE FORM TO KEEP. DO YOU HAVE ANY QUESTIONS ABOUT THE CONSENT FORM? PLEASE SIGN THEN.

Trial 1 Procedures - the same for all subjects

DO YOU HAVE ANY QUESTIONS ABOUT THE CLERICAL TESTS? (Researcher then shows subject what the first and second page of Form A looks like) THERE ARE 100 COMPARISONS ON EACH FORM, 50 ON EACH PAGE. HALF ARE NAMES,

HALF ARE NUMBERS. IF THE PAIR ARE EXACTLY THE SAME, MAKE A CHECK MARK ON THE LINE BETWEEN. IF THEY ARE NOT THE SAME, LEAVE IT BLANK. OH, IF YOU MAKE A CHECK MARK AND DECIDE TO CHANGE YOUR MIND, DON'T BOTHER TO ERASE - - JUST SCRATCH THROUGH. THIS IS A TEST OF SPEED AND ACCURACY - - NOT HOW FAST YOU CAN REVERSE A PENCIL. I'LL RUN THE STOP WATCH FOR FOUR MINUTES, AND DON'T LET THE TIME RUNNING CONCERN YOU. JUST WORK AS FAST AS YOU CAN WITHOUT MAKING MISTAKES. WHEN TIME IS CALLED, PLACE A LINE UNDER THE LAST PAIR EXAMINED, THEN GIVE ME THE FORM FOR SCORING. DO YOU HAVE ANY QUESTIONS? REMEMBER, THIS IS A TEST OF SPEED AND ACCURACY. DO YOUR BEST TO WORK AS FAST AS YOU CAN WITHOUT MAKING MISTAKES. OK, IF YOU ARE READY, TURN THE PAGE AND BEGIN, AND I'LL START THE TIME. (When time was called, the researcher told the subjects) RELAX WHILE I SCORE THE TEST. (the script for Trial 2 and Trial 3 varied depending on the group of the subject).

Trial 2

Participative group. OK(subjects first name) YOUR SCORE ON FORM A WAS____PERCENT. MAYBE IT WOULD HELP YOUR SCORE ON FORM B IF YOU SET A SPECIFIC GOAL. REMEMBER FORM B IS EQUIVALENT TO FORM A. IT LOOKS EXACTLY THE SAME, BUT THE NAMES AND NUMBERS ARE DIFFERENT. WHAT DO YOU THINK IS A REASONABLE GOAL TO "SHOOT FOR" ON FORM B? (After the subject made the first offer, and depending on the goal, the researcher commented) THAT SEEMS REASONABLE or WOULD YOU FEEL COMFORTABLE WITH A HIGHER GOAL, SAY_____PERCENT? (When the subject agreed on his or her goal, the researcher handed the booklet back and commented) HERE ARE SOME QUESTIONS THAT PERTAIN TO YOUR GOAL. JUST CIRCLE YOUR CHOICE,

OR FILL IN THE INFORMATION, AND LET ME KNOW WHEN YOU ARE READY, AND I'LL START THE TIME FOR FORM B - - SAME TIME AND PROCEDURES AS BEFORE. (When time was called on Form B, the researcher commented) RELAX WHILE I SCORE FORM B.

Assigned group. OK (subjects first name) YOUR SCORE ON FORM A WAS___PERCENT. MAYBE IT WOULD HELP YOUR SCORE ON FORM B IF WE SET A GOAL, SAY___PERCENT. REMEMBER FORM B IS EQUIVALENT TO FORM A. IT LOOKS EXACTLY THE SAME, BUT THE NAMES AND NUMBERS ARE DIFFERENT. DO YOU FEEL COMFORTABLE WITH THAT GOAL? (The researcher handed the booklet back and commented) HERE ARE SOME QUESTIONS THAT PERTAIN TO YOUR GOAL. JUST CIRCLE YOUR CHOICE OR FILL IN THE INFORMATION, AND LET ME KNOW WHEN YOU ARE READY AND I'LL START THE TIME FOR FORM B- - SAME TIME AND PROCEDURES AS BEFORE. (When time was called on Form B, researcher commented) RELAX WHILE I SCORE THE TEST.

Do-your-best group. OK (subjects first name) YOUR SCORE ON FORM A WAS___PERCENT. REMEMBER FORM B IS EQUIVALENT TO FORM A, IT LOOKS EXACTLY THE SAME, BUT THE NAMES AND NUMBERS ARE DIFFERENT. AGAIN, ON FORM B, DO YOUR BEST. LET ME KNOW WHEN YOU ARE READY AND I'LL START THE TIME FOR FORM B - - SAME TIME AND PROCEDURES AS BEFORE. (When time was called on Form B, researcher commented) RELAX WHILE I SCORE THE TEST.

Trial 3

Participative group. OK (subjects first name) YOUR SCORE ON FORM B WAS_____PERCENT. (The researcher made a comment about reaching or not reaching the goal) THE FINAL FORM IS EQUIVALENT TO FORMS A AND B. WHAT GOAL WOULD YOU LIKE TO TRY FOR THIS TIME? (After the subject

made an offer, and depending on the goal, the researcher commented) THAT GOAL SEEMS REASONABLE or WOULD YOU BE COMFORTABLE WITH A GOAL OF SAY____PERCENT? (When the subject agreed on his or her goal, the researcher again handed the booklet back and commented) ANSWER THESE QUESTIONS THAT PERTAIN TO YOUR GOAL ON FORM C. LET ME KNOW WHEN YOU ARE READY AND I'LL START THE TIME FOR THE FINAL FORM - - SAME TIME AND PROCEDURES AS BEFORE

Assigned group. OK (subjects first name) YOUR SCORE ON FORM B WAS____PERCENT. (The researcher made a comment about reaching or not reaching the goal) THE FINAL FORM IS EQUIVALENT TO FORMS A AND B, AND YOUR GOAL FOR THE FINAL FORM IS_____PERCENT. DO YOU FEEL COMFORTABLE WITH THAT GOAL? (Again the researcher handed the booklet back and commented) ANSWER THESE QUESTIONS THAT PERTAIN TO YOUR GOAL ON FORM C. LET ME KNOW WHEN YOU ARE READY, AND I'LL START THE TIME FOR THE FINAL FORM- - SAME TIME AND PROCEDURES AS BEFORE.

Do-your-best group. OK (subjects first name) YOUR SCORE ON FORM B WAS____PERCENT. THE FINAL FORM IS EQUIVALENT TO FORMS A AND B, AND AGAIN ON THE FINAL FORM DO YOUR BEST, AND LET ME KNOW WHEN YOU ARE READY AND I'LL START THE TIME. SAME TIME AND PROCEDURES AS BEFORE.

Debriefing - the same for all subjects

(When time was called on the final form, the researcher commented) RELAX WHILE I SCORE THE FINAL FORM. OK (subjects first name) YOUR SCORE ON THE FINAL FORM WAS____PERCENT, AND (comment about reaching or not reaching the goal if assigned or participative subject or performance across trials if do-your-best subject. Researcher then handed the

booklet back and commented) PLEASE RATE YOUR IMPRESSIONS ON MY SUPPORTIVENESS AND THEN I WILL DEBRIEF YOU.

ACTUALLY, THIS STUDY WAS RESEARCH ON HOW THE SETTING OF SPECIFIC GOALS, ASSIGNED OR PARTICIPATIVE, AFFECT PERFORMANCE. IT IS BASED ON LOCKE'S THEORY THAT SPECIFIC HARD GOALS, IF ACCEPTED, LEAD TO BETTER PERFORMANCE THAN GENERALIZED DO-YOUR-BEST GOALS. YOU WERE A MEMBER OF THE_____GROUP. THE PARTICIPATIVE GROUP SET A GOAL, AND THIS SAME GOAL WAS ASSIGNED TO A MEMBER OF THE ASSIGNED GROUP. THE DO-YOUR-BEST GROUP ACTED AS THE CONTROL. I WON'T KNOW THE RESULTS UNTIL MEASURES AND SCORES ARE ANALYZED. HERE IS YOUR PARTICIPATION CARD AND CONSENT FORM. PLEASE FILL IN YOUR NAME ON THE PARTICIPATION CARD AND RETURN TO YOUR INSTRUCTOR. THANKS AGAIN FOR YOUR PARTICIPATION IN THE STUDY AND HAVE A NICE DAY.

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Table III

Performance Means[a] and Standard Deviations

Condition		Do best	Assigned	Participate	Specific Goals	Groups	Total
Trial 1	M	50.30	53.30	52.22	52.79		51.93
Low	SD	6.02	4.60	5.29	4.83		5.30
Ability	N	10	10	9	19		29
High	M	72.10	69.10	69.73	69.43		70.29
Ability	SD	7.84	5.78	6.93	6.26		6.79
	N	10	10	11	21		31
	M	61.20	61.20	61.85	61.53		61.42
Total	SD	13.09	9.57	10.81	10.08		11.06
	N	20	20	20	40		60
Trial 2	M	53.90	59.90	61.44	60.63		58.31
Low	SD	5.11	8.69	8.86	8.56		8.13
Ability	N	10	10	9	19		29
High	M	71.60	77.30	76.91	77.10		75.32
Ability	SD	9.23	6.86	5.56	6.06		7.54
	N	10	10	11	21		31
	M	62.75	68.60	69.95	69.28		67.10
Total	SD	11.63	11.74	10.57	11.04		11.57
	N	20	20	20	40		60
Trial 3	M	52.40	64.30	63.67	64.00		60.00
Low	SD	7.03	8.41	10.04	8.96		9.95
Ability	N	10	10	9	19		29
High	M	73.00	78.60	75.18	76.81		75.58
Ability	SD	10.20	8.25	7.29	7.76		8.64
	N	10	10	11	21		31
	M	62.70	71.45	70.00	70.73		68.05
Total	SD	13.58	10.93	10.24	10.48		12.11
	N	20	20	20	40		60
Performance	M	53.15	62.10	62.56	62.32		59.16
Low	SD	5.95	7.61	9.12	8.12		8.97
Ability	N	10	10	9	19		29
High	M	72.30	77.95	76.05	76.95		75.45
Ability	SD	8.93	6.02	5.92	5.90		7.98
	N	10	10	11	21		31
	M	62.73	70.03	69.98	70.00		67.58
Total	SD	12.29	10.52	10.05	10.15		11.35
	N	20	20	20	40		60

a Maximum score = 100, performance = trial 2 plus trial 3

Table IV

Perception, Goal Attainment, and Goal Congruence Means[a] and Standard Deviations

Measure	Trial	Assigned (N = 20) Mean	SD	Participative (N = 20) Mean	SD	Low Ability (N = 19) Mean	SD	High Ability (N = 21) Mean	SD	Total (N = 40) Mean	SD
Participation	2	1.78	.70	4.03	.53	2.82	1.30	2.98	1.31	2.90	1.28
	3	2.35	.69	4.10	.55	3.08	1.21	3.36	.96	3.23	1.07
	Total	2.06	.74	4.06	.53	2.95	1.23	3.17	1.14	3.06	1.19
Goal Acceptance	2	3.58	.88	3.63	.62	3.97	.81	3.29	.53	3.61	.74
	3	3.82	.78	3.83	.67	4.12	.72	3.56	.62	3.83	.71
	Total	3.70	.82	3.73	.63	4.04	.75	3.42	.58	3.72	.73
Goal Difficulty	2	2.90	.55	2.95	.83	3.05	.71	2.81	.68	2.93	.69
	3	2.95	.69	3.00	.65	3.00	.67	2.95	.67	2.98	.66
	Total	2.93	.47	2.98	.64	3.03	.61	2.88	.50	2.95	.55
Supportiveness	3	4.37	.53	4.42	.33	4.38	.40	4.40	.47	4.47	.42
Goal Attainment[b]	2	.45	.51	.55	.51	.37	.50	.71	.46	.50	.50
	3	.35	.49	.10	.31	.32	.48	.33	.48	.23	.42
	Total	.40	.49	.33	.47	.24	.43	.48	.50	.36	.48
Goal Congruence[b]	2	.35	.49	.30	.47	.26	.45	.38	.50	.33	.47
	3	.40	.50	.50	.52	.53	.51	.38	.50	.45	.50
	Total	.38	.39	.40	.42	.40	.43	.38	.38	.39	.40

a Maximum score = 5 on perception measures

b With dichotomous scoring (0 - 1), these means are equivalent to the percentages reported in the text

Table V

Aspirations, Goals, and Goal Increases Over Trials Means[a] and Standard Deviations

		Assigned (N = 20)		Participative (N = 20)		Low Ability (N = 19)		High Ability (N = 21)		Total (N = 40)	
Measure	Trial	Mean	SD	Mean	SD	Mean	SD	Mean	SD	Mean	SD
Aspiration	2	66.10	10.67	68.00	9.15	59.84	8.40	73.57	5.65	67.05	9.86
	3	70.20	11.49	71.90	10.29	63.63	10.61	77.76	5.15	71.05	10.80
	Total	68.15	10.83	69.95	9.24	61.74	9.06	75.67	4.86	69.05	9.98
Goals	2	70.15	9.20	70.15	9.20	64.47	7.97	75.29	6.71	70.15	9.08
	3	73.40	11.21	73.40	11.21	66.42	10.40	79.71	7.31	73.40	11.07
	Total	71.78	9.85	71.75	9.85	65.45	8.76	77.50	6.54	71.78	9.73
Goal Increases	2	8.95	4.57	8.30	5.20	11.68	5.04	5.86	2.43	8.63	4.85
	3	4.80	8.97	3.45	4.29	5.79	7.58	2.62	6.17	4.13	6.97
	Total	6.88	5.40	5.88	3.76	8.74	4.81	4.24	3.27	6.38	4.62

a Maximum score = 100

Table VI

Analyses of Variance on Trial 1 Performance and Supportiveness for Goal x Ability Conditions

Source	df	Trial 1 Performance[a] F	Supportiveness[b] F
Main Effects	3	43.839**	1.594
Do best vs Assigned vs Participative	2	.009	2.336
Low vs High Ability	1	131.349**	.136
Two-way Interactions			
Goal conditions X Ability	2	1.244	.738
Residual	54		

[a] Trial 1 performance, maximum score = 100

[b] Combined supportiveness measures, maximum score = 5

** $p < .01$

Table VII

Analysis of Variance on Performance[a] for Goal Conditions x Ability x Trials

Source	df	F
Between Subjects	59	
Do best vs Assigned vs Participative	2	3.004*
Low vs High Ability	1	36.367**
Goal conditions x Ability	2	.375
Within Subjects	60	
Trial 2 vs Trial 3	1	.701
Ability x Trials	1	.325
Goal Conditions x rials	2	.564
Goal cond. x Ability x Trials	2	.769

[a] Performance maximum score = 100

* $p < .05$

** $p < .01$

Table VIII

Analysis of Variance on Total Performance[a] for Goal Specificity x Ability Conditions

Source	df	F
Main Effects	2	44.195**
Do best vs Specific	1	12.068**
Low vs High Ability	1	74.856**
Two-way Interactions		
Goal Conditions x Ability	1	1.301
Residual	56	

[a] Performance measure = trial 2 plus trial 3, maximum score = 100

** $p < .01$

Table IX

Performance Means[a] and One-way Analyses of Variance for Low and High Ability Conditions

Groups	Do-your-best N	Mean	SD	Specific-goals group N	Mean	SD	df	F
Low Ability	10	53.15	5.95	19	62.32	8.12	1,27	9.867**
High Ability	10	72.30	8.93	21	76.95	5.90	1,29	3.008

[a] Maximum score = 100

** $p < .01$