A quasi-experimental design \(N = 113\) was employed to investigate the effect of evaluative and nonevaluative feedback and goal setting on performance and satisfaction in a large telephone company. Three experimental groups received either extrinsic feedback, intrinsic feedback, or extrinsic and intrinsic feedback in addition to goal setting, while a fourth group received only goal-setting instructions. The results show that it is possible for goal setting alone to enhance performance without a formal-knowledge-of-results program, and thus yield external validity for Locke’s theory of goal setting. However, when evaluative and nonevaluative feedback was added to a goal-setting program, performance was generally enhanced beyond that found in the goal-setting-only group.

In recent years, a number of researchers have been interested in the motivational impact of goal-setting feedback (Latham & Kinne, 1974; Locke, 1968), knowledge of results (Brethower, 1973; Locke, Cartledge, & Knerr, 1970; Miller, Note 1), and/or praise (Deci, 1971, 1972; Skinner, 1969) on task performance and satisfaction. Each of these three task cues has been found to have positive effects on performance.

Support for the positive effect of goal setting on performance and satisfaction has been well documented in laboratory settings by Hamner and Harnett (1974), Ilgen and Hamstra (1972), Locke (1968), and Locke et al. (1970). Based on these and similar findings, Steers and Porter (1974) hypothesized that the use of goal-setting techniques in a natural work environment should have a significant impact on employee performance and satisfaction. Latham and Kinne (1974) found external validity for goal-setting theory when they reported that in a pulpwood-logging operation, goal setting led to an increase in production and a decrease in absenteeism.

The facilitative effect of knowledge of results upon performance is one of the best established findings in the research literature. Providing employees with feedback on performance can, according to Payne and Hauty (1955), serve the following two functions: (a) It can act as a directive to keep goal-directed behavior on course; and (b) it can act as an incentive to stimulate greater effort among workers. There are a number of studies that reported a positive effect of feedback on performance in a variety of situations (Braunstein, Klein, & Pachla, 1973; Harrison, 1970; Hundal, 1969; Smith & Knight, 1959; Weitz, Antoinetti, & Wallace, 1954; Miller, Note 1; Pryer & Bass, Note 2).

Praise is a specific type of feedback cue that is evaluative in nature, is generally external to the receiver, and is based on knowledge of results concerning the employee’s present performance as it relates to the goal set or the employee’s previous level of performance. For example, in a natural work setting, the superior can look at indicators of performance (e.g., sales records) and then praise the positive aspects of the employee’s performance (as determined by the job criterion and goals set). According to Skinner (1969), this extrinsic consequence should
strenthen the desired performance, whereas withholding praise for the performance that falls below the goal should give the employee incentive to improve that level of performance. In other words, negative feedback is self-induced based on the employee's exposure to the knowledge-of-results feedback, whereas positive feedback comes from both internal and external sources. Deci (1971, 1972) found that praise from a significant other enhanced effort.

Despite the great quantity of research that supports the motivational effects of goal setting, knowledge of results, and praise on task performance, there is one point of controversy, which needs to be examined. The controversy centers on whether or not knowledge of results and/or praise enhances performance beyond that caused by goal setting alone. For example, Cummings, Schwab, and Rosen (1971) found that maximal performance can only be achieved when employees are provided with accurate feedback on performance based on clear and published standards. However, Hackman and Lawler (1971) and Steers (1975) found no relationship between the amount of feedback and resulting performance. In 1968, Locke, Cartledge, and Koeppel published a complete review of the evidence bearing on the contention that feedback serves as an incentive, or motivator, for future behavior and found that the research evidence showed that feedback did not help unless it was given in such a form that it could be used to set goals or evaluate progress in relation to a goal.

A series of studies by Latham (e.g., see Latham & Baldes, 1975; Latham & Kinne, 1974; Ronan, Latham, & Kinne, 1973) have established the external and practical validity of goal setting with regard to its generality to industry. In general, these same studies have discounted the knowledge-of-results effect, since the same information was generally available to the employees prior to the goal-setting activities. While this interpretation by Latham is plausible, it is not conclusive since it cannot be determined from his last two studies (Latham & Baldes, 1975; Latham & Kinne, 1974) whether the effect of goal setting combined with feedback (an additive interaction effect) or goal setting alone caused the increase in productivity. In other words, since only goal setting was manipulated, Latham's interpretation needs to be examined further before the importance of feedback, when combined with goal setting, can be said to be ineffective, except in the case of future goal setting as specified by Locke. Latham himself qualifies his interpretation when he says, “Knowledge of results provides meaning to a task” (Latham & Kinne, 1974, p. 190), and “thus, it would appear that goal setting may have led to an increased awareness of KOR [knowledge of results]” (Latham & Baldes, 1975, p. 124).

While in one study Latham (Latham & Kinne, 1974) combined goal setting with goal feedback to test the external validity of Locke's goal-setting theory, in a second study (Latham & Baldes, 1975), he combined goal setting with praise to test the external validity. No mention was made of the combined effect of goal setting and praise on performance. Therefore, while the external validity of goal setting was well established in the Latham studies, more work is needed to determine the external validity of feedback and praise in combination with goal setting. Interestingly, back in 1911, Taylor recognized the importance of tying positive outcomes (namely, money) to goals accomplished. Thus, it could be argued that goal setting when combined with a contingent external outcome (e.g., money or praise) would enhance performance beyond that for goal setting alone.

In the present study, all of the groups were given goals, and all received some feedback in relation to their goals. Therefore, the question examined in the present study was, Does goal setting with maximum feedback lead to better performance than goal setting with minimum feedback? In general, it was predicted that while goal setting alone would enhance performance (e.g., see Latham & Kinne, 1974; Locke, 1968), goal setting, when combined with feedback, would enhance performance even more than goal setting alone. This was expected to be true especially when the feedback was evaluative in nature (i.e., praise was given or withheld in combination with knowledge-of-results information).
Subjects and Design

The research was conducted in four separate plants where employees were performing service-type jobs in a large midwestern telephone company affiliated with the Bell system. There were approximately 220 workers employed in the four plants, approximately 60% of whom were blue-collar, unionized employees. The 113 blue-collar, unionized employees participated in this study. They held one of five job titles: building equipment mechanic, motor mechanic, building servicer, cleaner, or stocker. Approximately 60% of these employees were between 40 and 60 years of age and 40% were women. There were six work groups in three of the plants and seven work groups in the fourth. The work groups ranged from three to eight employees.

A nonequivalent group design (Campbell & Stanley, 1966) was employed in this study. This quasi-experimental design was chosen (Isaac, 1974) because random assignment of subjects to the experimental groups was not feasible at the research site. This lack of randomization of subjects, while necessary, tends to limit the generalization of the results of this study.

Procedures and Variables

Prior to the implementation of the experimental treatment, baseline performance levels (pretreatment measures) for the dependent variables, described later in this section, were established.

Three objective performance measures (cost performance, absenteeism, and safety) and one subjective performance measure (service) were used as the dependent measures of productivity. These four performance measures were the same ones used by the company for determining the relative efficiency of each plant on a monthly basis. Costs were computed based on the actual dollar expenditures per approved budget assigned to departments by the divisional manager. The actual performance cost for this study was obtained by computing the ratio of forecasted, over actual, cost. Absenteeism was defined as the number of scheduled 8-hour shifts a worker spent away from the job. The absenteeism objective was 4.7% or less. The measure of safety was obtained by subtracting the actual points for various job accidents, such as job disability and motor vehicle accidents, from a perfect score (100). The safety objective of this company was 87 out of a possible 100 points. The service measure was obtained by the foreman's subjective rating on the quality of service on motor vehicles, buildings, etc. For example, to get a service score for a building maintenance employee, a weighted average form consisting of four possible ratings (poor, fair, good, or excellent) and 10 items (e.g., floors, washrooms, and grounds) was obtained. An excellent score on floors was worth 20 points while an excellent score on windows was worth only 5 points. A perfect score of 100 was possible, and the service objective of 83 was established for all jobs, with each job classification having a unique rating form.

In addition to productivity measures, pre- and post-Job Description Inventory scales (Smith, Kendall, & Hulin, 1969) measuring satisfaction with promotion potential, present pay, work on the present job, people on present assignment, and supervision on present assignment were completed by the participants in this study. The internal reliabilities (Cronbach, 1970) for these scales ranged from .51 for supervision on present assignment to .83 for opportunity for promotion.

Based on the job analysis figures, initial goals were set by the management staff for each of the 25 work groups in the four plants. Weekly objectives were then established and given to the employees by their foremen. Therefore, in all four plants, a management-by-objectives-type system (without participation in goal setting) was established. However, each of the four plants varied on the degree of exposure they had to feedback in terms of knowledge of results and praise.

Experimental Group 1 consisted of the six work groups (37 employees) in Plant 1 who received extrinsic (supervisory) feedback only. In this study, extrinsic feedback was operationally defined as having work groups receive information from their foremen each Monday as to how many workers in the work groups had met the previously determined weekly goals. The goals for the current week were set or reemphasized at this meeting. Further, some time during each week, the foreman would visit each employee and praise him on the performance categories on which he had exceeded his past week's performance and/or exceeded the company's performance goals. These sessions were informal (at the job site) and of short duration. The foremen were not allowed to give negative feedback during this session with the employee.

Experimental Group 2 consisted of the six work groups in Plant 2 (26 employees) who received intrinsic (self-generated) feedback only. Each Monday morning, the foreman of each of these six groups would meet with his employees to set goals or reemphasize goals for the current work week. On Friday of each week, the workers would rate themselves on a set of forms provided (i.e., the same forms normally filled in by the foreman), in terms of the number of days absent, safety score, the amount of money spent compared to the amount budgeted, and their subjective evaluation of their service quality. Each of the workers was trained by the supervisor on how to use the forms and how to compute his score. In addition, a set of instructions with examples was provided for their reference. Employees were encouraged to consult their supervisor if they had any questions on how to complete the forms or on how to compare their performance levels to the objectives set. The employees were told to keep their forms for their own records. At the end of the two-week period, each employee turned in an anonymous, but coded, summary form to the experimenter. Postexperimental interviews with these
employees, plus a comparison with plant averages, indicated that these employees accurately reported their performance on these dimensions.

Experimental Group 3 consisted of the six work groups (26 employees) in Plant 3 who received both extrinsic and intrinsic feedback. As with the other groups, each Monday, each foreman would meet with the people he supervised and establish goals. Each Friday, the employees would turn in their filled-out rating forms, and the foremen would use this form for the group's feedback and goal-setting session on the following Monday. Also, during the week he would praise each worker individually on those areas of performance where success (performance improved and/or exceeded the goal set) had been obtained. Again, this procedure was repeated on a weekly basis.

Experimental Group 4 consisted of the seven work teams (24 employees) in Plant 4 who received goal-setting instructions only. Each Monday morning, each foreman would meet with his work group and reemphasize goals that had not changed and explain new goals. No specific formal feedback program was introduced. However, informal feedback may have been provided to workers through regular supervisory practices in which frequency of subjective ratings by each foreman varied by individual workers depending on their performance level.

RESULTS

Table 1 presents the means and standard deviations of cost performance of each group for the four different periods and the adjusted means for the combined posttreatments. Following the covariance analysis procedure, the adjusted means were obtained by using the pretreatment difference and the overall regression coefficient between the measures of the pretreatment and posttreatment. During the pretreatment period, there was a statistically significant difference in cost performance among the four groups ($F = 10.62$, $p < .001$), showing a lower performance in cost for the goal-setting plus extrinsic- and intrinsic-feedback and praise group as compared with the other groups. At the end of the experimental period, the goal-setting plus informal-feedback group, with a mean ratio of .98, was the only group which failed to meet the cost objective.

Both a significant main effect of period ($F = 5.29$, $p < .01$) and an interaction effect of mode of feedback by time period ($F = 6.47$, $p < .01$) on cost performance were observed. It revealed that the effectiveness of the three experimental groups that received formal feedback had increased during the experimental period, while the informal-feedback group became less effective as measured by cost performance. Further, the difference between the cost performance for all four groups during the pretreatment period ($M = 1.02$) and the mean cost performance of the

### Table 1

**Actual Means, Standard Deviations, and Adjusted Means of Cost Performance**

<table>
<thead>
<tr>
<th>Mode of feedback</th>
<th>Pretreatment</th>
<th>30 day</th>
<th>60 day</th>
<th>90 day</th>
<th>Adjusted means*</th>
</tr>
</thead>
<tbody>
<tr>
<td>Goals + extrinsic feedback + praise</td>
<td>$M$</td>
<td>1.12</td>
<td>1.15</td>
<td>1.19</td>
<td>1.13</td>
</tr>
<tr>
<td></td>
<td>$SD$</td>
<td>.17</td>
<td>.10</td>
<td>.15</td>
<td>.12</td>
</tr>
<tr>
<td>Goals + formal self-feedback</td>
<td>$M$</td>
<td>1.11</td>
<td>1.15</td>
<td>1.13</td>
<td>1.12</td>
</tr>
<tr>
<td></td>
<td>$SD$</td>
<td>.12</td>
<td>.12</td>
<td>.23</td>
<td>.26</td>
</tr>
<tr>
<td>Goals + formal self-feedback + extrinsic feedback + praise</td>
<td>$M$</td>
<td>.72</td>
<td>1.29</td>
<td>.84</td>
<td>1.08</td>
</tr>
<tr>
<td></td>
<td>$SD$</td>
<td>.03</td>
<td>.28</td>
<td>.15</td>
<td>.35</td>
</tr>
<tr>
<td>Goals + informal feedback</td>
<td>$M$</td>
<td>1.10</td>
<td>1.05</td>
<td>.98</td>
<td>.98</td>
</tr>
<tr>
<td></td>
<td>$SD$</td>
<td>.18</td>
<td>.14</td>
<td>.14</td>
<td>.15</td>
</tr>
</tbody>
</table>

* The mean for the three posttreatment periods adjusted by the covariance analysis.
three posttreatment periods combined (1.09) was statistically significant ($F = 5.67, p < .03$), showing a significant improvement in cost performance after goal-setting plus feedback intervention occurred.

A planned comparison (Winer, 1971, p. 201) on cost performance for the posttreatment periods showed that the difference in cost performance between the three formal-feedback groups ($M' = 1.09$) and the goal-setting plus informal-feedback group ($M' = .95$) was statistically significant ($F = 8.22, p < .009$), thus supporting the position that the work groups receiving formal feedback in addition to goal setting would show a significant improvement in performance, as compared to the work groups receiving only goal setting. No significant difference existed between the cost performance of the intrinsic-feedback group ($M' = 1.08$), (knowledge-of-results-only group) and the extrinsic-feedback group ($M' = 1.09, F = .03$), (knowledge-of-results plus praise group). Although the adjusted cost performance of the goal-setting plus extrinsic- and intrinsic-feedback group (i.e., the maximum-feedback group) showed the highest value ($M' = 1.25$), it was not statistically superior to the adjusted mean cost performance of the self-feedback and the extrinsic-feedback group combined ($M' = 1.08$; $F = 2.53, ns$).

Table 2 presents the actual means and standard deviations of safety for both the pretreatment and three posttreatment periods, along with the adjusted means for the combined posttreatments.

While the safety performance of the goal-setting-only group for the pretreatment period ($M = 74.57$) was the lowest among the four groups, this pretreatment difference was not statistically significant ($F = .77, ns$). At the end of the 90-day feedback period, the highest level of safety performance was observed in the maximum-feedback group ($M = 94.16$), although all four groups met the safety objective of 1974 (87 points). Yet, when pretreatment differences were adjusted, the goal-setting-only group ($M' = 86.38$) was the only group that failed to meet the 1974 safety objective during the three posttreatment periods combined.

The analysis of variance with repeated measures on safety performance showed a significant main effect of time period ($F = 53.90, p < .001$). Further, a planned comparison revealed that an increase in safety performance between the pretreatment ($M' = 76.53$) and the three posttreatment measures

### Table 2

<table>
<thead>
<tr>
<th>Mode of feedback</th>
<th>Pretreatment</th>
<th>30 day</th>
<th>60 day</th>
<th>90 day</th>
<th>Adjusted means*</th>
</tr>
</thead>
<tbody>
<tr>
<td>Goals + extrinsic feedback + praise</td>
<td>$M$</td>
<td>77.23</td>
<td>91.50</td>
<td>92.15</td>
<td>91.93</td>
</tr>
<tr>
<td></td>
<td>$SD$</td>
<td>2.04</td>
<td>5.75</td>
<td>6.49</td>
<td>11.17</td>
</tr>
<tr>
<td>Goals + formal self-feedback</td>
<td>$M$</td>
<td>78.70</td>
<td>90.00</td>
<td>91.85</td>
<td>91.70</td>
</tr>
<tr>
<td></td>
<td>$SD$</td>
<td>3.95</td>
<td>4.69</td>
<td>4.68</td>
<td>5.16</td>
</tr>
<tr>
<td>Goals + formal self-feedback + extrinsic feedback + praise</td>
<td>$M$</td>
<td>76.98</td>
<td>87.86</td>
<td>90.33</td>
<td>94.16</td>
</tr>
<tr>
<td></td>
<td>$SD$</td>
<td>7.27</td>
<td>6.30</td>
<td>7.96</td>
<td>5.38</td>
</tr>
<tr>
<td>Goals + informal feedback</td>
<td>$M$</td>
<td>74.57</td>
<td>85.57</td>
<td>85.57</td>
<td>87.25</td>
</tr>
<tr>
<td></td>
<td>$SD$</td>
<td>3.17</td>
<td>3.77</td>
<td>3.77</td>
<td>.68</td>
</tr>
</tbody>
</table>

Note. The higher the score, the better the safety performance.

* The means for the three posttreatment periods adjusted by the covariance analysis.
**TABLE 3**

**ACTUAL MEANS, STANDARD DEVIATIONS, AND ADJUSTED MEANS OF SERVICE**

<table>
<thead>
<tr>
<th>Mode of feedback</th>
<th>Pretreatment</th>
<th>30 day</th>
<th>60 day</th>
<th>90 day</th>
<th>Adjusted means*</th>
</tr>
</thead>
<tbody>
<tr>
<td>Goals + extrinsic feedback + praise</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>M</td>
<td>74.66</td>
<td>87.55</td>
<td>85.05</td>
<td>87.90</td>
<td>87.68</td>
</tr>
<tr>
<td>SD</td>
<td>10.42</td>
<td>4.91</td>
<td>4.42</td>
<td>4.65</td>
<td></td>
</tr>
<tr>
<td>Goals + formal self-feedback</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>M</td>
<td>74.05</td>
<td>80.16</td>
<td>82.16</td>
<td>82.50</td>
<td>81.87</td>
</tr>
<tr>
<td>SD</td>
<td>3.96</td>
<td>4.66</td>
<td>3.65</td>
<td>3.72</td>
<td></td>
</tr>
<tr>
<td>Goals + formal self-feedback + extrinsic feedback + praise</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>M</td>
<td>76.13</td>
<td>82.43</td>
<td>83.30</td>
<td>83.67</td>
<td>83.30</td>
</tr>
<tr>
<td>SD</td>
<td>4.14</td>
<td>6.64</td>
<td>6.64</td>
<td>6.64</td>
<td></td>
</tr>
<tr>
<td>Goals + informal feedback</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>M</td>
<td>81.14</td>
<td>85.22</td>
<td>90.72</td>
<td>91.64</td>
<td>88.54</td>
</tr>
<tr>
<td>SD</td>
<td>3.67</td>
<td>4.02</td>
<td>2.91</td>
<td>2.46</td>
<td></td>
</tr>
</tbody>
</table>

*The means for the three posttreatment periods adjusted by the covariance analysis.

Note. The higher the score, the better the service performance.

During the pretreatment period, the service performance for all four groups was below the 1974 service objective, and there was no statistical difference among the group scores ($F = 1.83$, $ns$). At the end of the experimental periods, service performance of the intrinsic-feedback (knowledge-of-results-only) group had improved (74.05 vs. 82.50), but was still below the service objective for 1974, while the goal-setting-only group showed a considerable improvement in the same category, both in terms of past performance and in terms of goals set.

Analysis of variance with repeated measures revealed that there was significant main effects of both mode of feedback and time period. Further, the difference in service between the pretreatment measures ($M = 76.68$) and the three posttreatment measures combined ($M = 85.55$) was statistically significant ($F = 45.78$, $p < .001$). Again, this finding alone would support the external validity of goal setting.

The planned comparisons showed that the goal-setting-only group was significantly higher in service performance than the three formal-feedback groups combined. This finding is contrary to the previous findings in...
the area of cost and safety performance. Further, there was no difference in service performance between the maximum-feedback group and the two other formal-feedback groups ($F = .56$). Yet, there was a significant difference in service between the extrinsic-feedback (knowledge-of-results plus praise) group and the intrinsic-feedback (knowledge-of-results-only) group ($F = 6.5, p < .02$), indicating superior service ratings by supervisors of their subordinates in the extrinsic-feedback (knowledge-of-results plus praise) group as compared to the intrinsic-feedback (knowledge-of-results-only) group.

A fourth measure of job performance was obtained by recording the incidental and disability absenteeism of the employees. The absenteeism objective was 4.7% of the total working hours for the work groups. It should be noted that this objective was adopted from the regional objective for all company employees in this metropolitan area, and that these four plants had one of the lowest absenteeism rates (2.92%) for the 1973 base year of all the company units. An examination of the absenteeism data over the experimental period showed that the data were positively skewed, indicating that most of the absenteeism figures were zero or near zero with a few high values in each cell. In analyzing these positively skewed data, we used a logarithmic transformation $[X' = \log (X + 1)]$ to normalize the distribution. Our analysis indicated that there was no significant shift in the absenteeism rate over time or over feedback conditions. The absenteeism rate remained extremely low (2.75%) for this company and this region, especially considering the fact that the experimental period occurred immediately prior to contract negotiations, and other plants in this company were experiencing an increased absenteeism rate. However, this low absenteeism rate appears to be more a function of factors external to the experiment, since no main or interaction effects were present.

In addition to the four measures of performance, the worker’s pre and post level of satisfaction as measured by the 5-factor Job Description Inventory (JDI) scale was also ascertained. Table 4 shows the means and standard deviations of job satisfaction measures, and Table 5 shows the summary of analysis of variance with repeated measures.
on the same variables. The results shown in Tables 4 and 5 reveal that while there was no change in the level of satisfaction of these employees with their perceived opportunity for promotion or their work on the present job, significant increase over time in the satisfaction levels of the employees with their superior on the present job and with their co-workers occurred. At the same time, there was a significant decrease over time in the satisfaction level of the employees with their present levels of pay. Also shown in Tables 4 and 5, is the fact that feedback when combined with goal setting was not superior to goal setting alone in determining the perceived satisfaction level on these five dimensions.

**DISCUSSION**

The results indicate that a combination of goal setting and feedback is superior to goal setting alone on the cost and safety measures of performance. These two results tend to support the general hypothesis that feedback has a positive impact on performance. The results are consistent with the Hundal (1969) study, which showed significant improvement in performance of a repetitive industrial task between the pre- and post-experimental periods of feedback. These findings also support the Warm et al. (1972) results which show that extrinsic feedback is not superior to intrinsic feedback. However, in the area of cost performance, the combined effect of extrinsic plus intrinsic (maximum) feedback resulted in the highest level of performance. This was also true in the last 30 days of the experimental period on the safety performance measure.

Since sources of information (internally vs. externally generated knowledge of results) did not differentially affect performance, the rival hypothesis that the locus of the information source, rather than the amount of information, could have brought about the dramatic increase in performance was ruled out. This interpretation is given support by other findings in the literature. Several researchers (Aronfreed, 1966; Bandura & Perloff, 1967) found that self-feedback parallels the effect of external feedback. Warm et al. (1972) and Baron and Ganz (1972) found no difference in level of performance between intrinsic- and extrinsic-feedback groups.

On the subjective service rating, we found that while service improved over all treatment conditions, the greatest amount of improvement occurred in the external-feedback plus praise groups; again indicating that goal setting plus external feedback and praise is superior to goal setting alone in bringing about improvements in performance. In addition to the present study's data, the management noted that numerous unsolicited comments on the service being provided were being received, and that other managers had begun to investigate the change that was obviously taking place in this division.

In the area of employee satisfaction, we found that goal setting alone enhanced satisfaction as much as the formal-feedback groups in the areas of people on the present job and supervision on the present assignment. The self-feedback group showed no increase in satisfaction on these items, while the other three groups (including the goal-
setting-only group) showed improvement in their satisfaction level. Again, self-feedback alone may do little to enhance productivity or satisfaction.

On one dimension, present pay, satisfaction actually decreased over time. We interpret this to be rational, since inflation was high at this time, and a new contract was being negotiated. Also, the employees were aware that their performance was improving, and thus, from an equity point of view, could be expected to see themselves as relatively underpaid and deserving of more money.

The results of this study, therefore, when viewed in conjunction with previous field work by Latham and his associates (Latham & Baldes, 1975; Latham & Kinne, 1974; Latham & Yukl, 1975; Ronan et al., 1973), yield strong support for the external validity of goal-setting theory for organizational settings. The results show that it is possible for goal setting alone to enhance performance without a formal-feedback program, but when self-generated knowledge of results plus supervisory generated knowledge of results and praise was added to a formal-goal-setting program, performance was generally enhanced even more. Thus it seems that while goal setting is the major determinant of motivation to improve performance for these Bell employees, evaluative and descriptive knowledge of results enables the employees to accept the goals being set as reasonable and attainable and gives meaning to their persistence with the task. It can be argued, therefore, that future research should look at the additive effect of goal setting with evaluative and descriptive knowledge of results on task performance.

While this study has attempted to expand the field work of Latham and his associates by looking at the additive effect of non-evaluative knowledge of results and praise, future research is needed to overcome several limitations of this study. While this study looks at certain types of feedback in combination with goal setting, it fails to examine others. For example, what would be the effect of (a) feedback without a goal-setting program, (b) external feedback without evaluative comments, (c) internal feedback plus a formal self-reinforcing program, or (d) negative and positive evaluative comments? In other words, while the present study extends the external validity of goal setting, it suggests that feedback, when added to goals, is also a key variable in determining the motivational level of employees. Future systematic field experiments with random assignments of subjects to groups are now needed to test the external and practical validity of the combined effect of goal setting and feedback.

**REFERENCE NOTES**


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