Loyola University Chicago

From the SelectedWorks of Dow Scott

2002

Recognizing good attendance: A longitudinal quasi-experimental field study

S E Markham
Dow Scott, *Loyola University Chicago*
G McKee

Available at: https://works.bepress.com/dow_scott/49/

PERSONNEL PSYCHOLOGY
2002, 55

RECOGNIZING GOOD ATTENDANCE: A LONGITUDINAL, QUASI-EXPERIMENTAL FIELD STUDY

STEVEN E. MARKHAM
Department of Management
The R.B. Pamplin College of Business
Virginia Polytechnic Institute and State University

K. DOW SCOTT
Institute of Human Resources and Industrial Relations
Loyola University Chicago

GAIL H. McKEE
Department of Business Administration and Economics
Roanoke College

Three motivational theories (need, goal, and reinforcement) suggest that recognition programs should increase employee attendance. A 1-year, quasi-experimental field study of absenteeism was conducted at 4 manufacturing plants with a total 1,100 employees. The study compared a public recognition program for improving work attendance with 3 types of controls. The personal recognition treatment showed (a) significant decreases ranging from 29% to 52% for each quarter's baseline assessment, and (b) significant decreases when the control groups showed no decrease. Employees had favorable perceptions of the public recognition program.

Absenteeism is a chronic, costly problem for many organizations, with even Fortune 100 companies reporting an absenteeism rate up 6% at a cost of $75 million per year ("Absence Makes," 1997). Because of both direct and indirect costs, a variety of absenteeism control programs have been tried in industry, and hundreds of articles have been written on the topic (Brooke, 1986; Kleinbeck & Wegge, 1996; Scott & Markham, 1982). Although much of this research has focused on analyzing correlates of individual-level attributes of absenteeism (e.g., gender, age, job satisfaction, and stress), the evaluation of attendance improvement programs calls for the use of quasi-experimental field designs at the plant level of analysis (Cameron & Pierce, 1994), which is a specific oper-

Special thanks to Richard Robers, Jerry Fox, and Barbara Spencer for their assistance in collecting the data.

Correspondence and requests for reprints should be addressed to Steven E. Markham, Department of Management, The R.B. Pamplin College of Business, Virginia Tech, Blacksburg, VA 24061; markhami@vt.edu.

COPYRIGHT © 2002 PERSONNEL PSYCHOLOGY, INC.

ationalization of a more general call for quasi-experimental research (Scandura & Williams, 2000).

In the arena of absenteeism control, there is a tradition of experimental research that has focused most frequently on positive approaches to absence control. Given the multidimensional and complex nature of absenteeism, a variety of treatments have been examined. These include job redesign and flexible scheduling (Dalton & Mesch, 1990), attendance lotteries (Pedalino & Gamboa, 1974), process consultation interventions (Weir et al., 1997), information feedback (Gaudine & Saks, 2001), and financial incentive programs (Schmitz & Heneman, 1980). Because of the difficulty and cost of conducting field research, it is understandable why few studies, with some notable exceptions (Lee, Yang, & Chen, 2000; Miners, Moore, Champoux, & Martocchio, 1995; Schlotzhauer & Rosse, 1985), have lasted longer than 16 weeks, despite the importance of examining extended time frames of absence behavior (Harrison & Martocchio, 1998). Absenteeism rates are highly variable over time and are affected both by season of the year and long-term economic trends (Dansereau, Alutto, & Markham, 1978; Leonard, Dolan, & Arsenault, 1990; Markham, 1985). Moreover, given the possibility of inducing a Hawthorne effect, a simultaneous comparison of a treatment with controls seems warranted. Thus, the purpose of this research is to conduct a field experiment that would provide a comparative test of a positive attendance improvement program against controls over a substantial period of time.

Public recognition was selected for study as an example of a positive control program for two reasons. First, goal theory, need theory, and reinforcement theory suggest that recognition programs can have a substantial positive impact on employee attendance (Bandura, 1969; Locke & Latham, 1990; Skinner, 1953; Stajkovic & Luthans, 1997). Second, there is a major disconnection between the practitioner literature and the academic literature with respect to recognition programs. On one hand, the practitioner literature frequently advocates recognition programs to improve safety (Pardy, 1999), reduce turnover (Bursch, 1999; Davidson, 1999; Wallsten, 1998), increase job satisfaction (Davidson, 1999; Wallsten, 1998), improve performance and productivity (Schneier, 1989), and reduce absenteeism (Boyle, 1995). Furthermore, numerous books and manuals have been written detailing how to structure recognition programs (Glasscock & Gram, 1999; Nelson, 1994; Townsend & Gebhardt, 1997). On the other hand, there is a paucity of research targeted at these types of recognition programs (Fisher & Ackerman, 1998).

Why this disconnect? Quite simply, when practitioners discuss recognition programs, they refer to a variety of interventions that represent numerous constructs in an effort to design the most efficacious treat-

ment at a low cost. From an academic point of view, the lack of clear definition of what constitutes a public recognition program (Davidson, 1999) results in an ambiguous concept with little theoretical explication. Furthermore, it is easier to conduct individual level surveys with large sample sizes and correspondingly high levels of power, rather than design and conduct more expensive interventions for a field setting where the underlying model being tested is usually less complex and more risky.

Literature Review

Recognition is defined in the *Random House Collegiate Dictionary* as an appreciation of achievements and formal acknowledgment conveying approval. According to this definition, recognition given by a person in authority can be a spontaneous and personal acknowledgment of a job "well done" by an employee. However, as discussed here, a recognition program is defined as a formal organizational intervention that has established criteria that specify (a) how a person will be recognized, (b) the type of behavior being encouraged, (c) the manner of the public acknowledgement, and (d) a token or icon of the event for the recipient. Because public acknowledgement is a key factor in recognition programs, a financial reward program may not qualify as recognition per se if individuals receiving the reward are not identified or praised publicly.

Three motivation theories and research streams suggest that recognition programs should have a positive impact on employee attendance behavior. First, proponents of need theory contend that people have basic drives that motivate them to behave such that they can fulfill those needs. Both Maslow (1954) and Alderfer (1972), who are the best known of the need theorists in management circles, suggest that relationship and esteem needs might be satisfied through public recognition. The need for appreciation or recognition seems to be an enduring individual trait that can act as a motivator in energizing behavior regardless of theoretical framework (Maidani, 1991). In examining successive waves of survey data starting in 1946, Wiley (1997) has noted the underlying theme of employee need for appreciation and recognition. This need for recognition has remained surprisingly resilient during the past 45 years, usually as the second most frequently cited motivator (Wiley, 1997). Operationally, this need appears not to be met; opinion surveys often indicate that employees do not feel recognized for the contribution that they make (Cherrington, 1992; Lovio-George, 1992). Thus, as an energizer of behavior, the need to seek and obtain recognition can influence discretionary absence behavior.

Second, goal theory suggests that recognition programs can improve attendance, but through an additional mechanism. One of the primary

tenets of goal theory is that specific difficult goals lead to higher performance than "do your best" goals (Knight, Durham, & Locke, 2001; Locke, 1982; Locke, Chah, Harrison, & Lustgarten, 1989; Locke, Frederick, Buckner, & Bobko, 1984; Locke & Latham, 1990). Therefore, if an attendance recognition program establishes a challenging, specific goal, employees should respond by reducing their absenteeism behavior. Consistent with this application of public recognition, symbols and ceremonies are instrumental in creating a value system in the organization that communicates to employees how they should behave (Dessler, 1999) . Thus, one might expect that even employees who could not obtain the goal would have fewer absences because of the change in culture.

Third, reinforcement theory and behavioral modification predict an improvement in attendance when a long-term intervention is being attempted. This theory is built on the premise that people behave based on the consequences of their behavior (Luthans & White, 1971; Skinner, 1953, 1969). Quite simply, people will repeat behavior or actions that they find rewarding, avoid behavior that is punished, and not repeat behavior that is ignored. Behavioral modification has been found to have a powerful affect on human behavior. A recent meta-analysis (Stajkovic & Luthans, 1997) found that behavior modification programs improved productivity 33% for manufacturing organizations and 13% for service organizations where monetary performance feedback, social attention/recognition, or some combination of reinforcement was used. In service organizations where social attention and recognition was isolated, average performance improved 15%, which was slightly higher than monetary (13%) and performance feedback (6%) treatment. They concluded that performance feedback and social recognition and attention appeared to be as effective as pay in reinforcing behavior.

Hypotheses

A variety of anecdotal evidence has asserted that recognition can have a positive affect on employee attendance. A national survey of human resource managers (Scott & Markham, 1982) identified recognition as one of the most effective strategies for improving attendance. In another study, praise, instead of money, helped to increase the social motivation of the subjects to perform the task at hand (Deci, 1971). In a study of 20 female workers, limited support for recognition as a means of reducing absenteeism was found (Silva, Duncan, & Doudna, 1981). A later meta-analysis indicated that rewards, particularly recognition, increased performance (Luthans & Stajkovic, 1999). In sum, theories (e.g., need, goal, and reinforcement), empirical research, and field ex-

periences suggest that changes in employee behavior can be linked to a desire for recognition (Crandall & Wallace, 1999; Patton, 1999).

As a result, we hypothesize that:

Hypothesis 1: The plant receiving the personal recognition reward treatment will show significant decreases in absenteeism compared to its baseline.

The operationalization of a recognition program must necessarily occur at the plant level of analysis (a) for administrative purposes, and (b) because the official absence rate is calculated at the plant level of analysis. As a cross check, however, we recognize the need to track individual responses to ensure that the treatment is working correctly. Because positive recognition is commonly desired (Maidani, 1991; Wiley, 1997), we hypothesize:

Hypothesis 2: The individuals in the personal recognition treatment will report an increase in positive responses to the program (degree to which attendance is recognized, program knowledge, program liking, and program effectiveness) during the course of the intervention.

Control Groups

Even if the recognition program is found to improve attendance, it is still desirable to rule out alternative explanations. For example, if the intervention proved successful, it is possible that employees were responding to: (a) management's increased focus on attendance; (b) the novelty of a new program; and/or (c) their own efforts to keep better personal absence records. Therefore, additional controls were operationalized at three other plants to rule out these possibilities. As described in the Methods and Measures section, these plants were very similar to the plant where the attendance recognition program was implemented.

Information feedback. One possible explanation is that employees were simply responding to the fact that more attention had been drawn to their absence behavior because of these programs, and that, out of a sense of duty or fear, they had modified their behavior (Ilgen, Fisher, & Taylor, 1979). A field experiment involving 371 hospital workers found that giving feedback reduced absenteeism amongst the high absence workers (Gaudine & Saks, 2001). Thus, in an attempt to isolate this effect, a control group at one plant was given feedback about their attendance. Program details are provided below.

Survey only. Another aspect of this study was the administration of an employee attitude survey. Although this survey is not a treatment per se, it can possibly confound the results of the treatments. Therefore,

to assess and control for the effects of the survey, questionnaire and attendance data only were collected at a one plant. No treatment was installed.

No intervention. As a check for external, environmental, or other confounding effects, a final plant was used as a control. A treatment program was not installed at this plant, nor were any surveys administered.

In summary, we attempt to isolate not only the treatment effect, but also to draw a stronger inference using a variety of control groups. Our inferential procedure will contrast all of these pieces of information to ascertain if the recognition program (i.e., treatment) has a positive effect on attendance. The treatment and controls are described more fully in the Methods and Measures section.

Methods and Measures

Research Location

The criteria for selection of the field site to conduct our study were: (a) that an absence control (i.e., discipline) policy was already in place and functioned appropriately; (b) that there were at least four geographically separated plant facilities with similar operations, policies, and employees; (c) that the organization was willing to implement a personal recognition attendance program for a period of one year; and (d) that the organization was willing to have its employees surveyed on company time during the experiments. After considerable search, a company meeting these requirements was found.

The research location was a corporation that had four cut-and-sew garment factories in the mid-Atlantic area. These plants were nearly identical in terms of the work force, manufacturing technology, and employment policies. The plants were geographically dispersed, with distances ranging from 50 to 200 miles. For the most part, each plant operated independently, thus there was limited communication between them. Plant sizes ranged from 149 to 400 for a total of about 1,100 employees. About 94% of the employees were women and most worked as sewing machine operators; the remaining men worked primarily as cutters. Absenteeism rates for the plants ranged from 4% to 9% with a large amount of seasonal variation. Turnover rates varied from 30% per year to 106%. (The historical industry average is about 65%.) Both the absence and the turnover rates were generally lower than industry averages. Employees were paid on a piece rate system.

The extant absence policy. There were formal, preexisting attendance control policies at all the plants before the experiments. Employees were disciplined (but very rarely terminated) for excessive absenteeism, which was defined the same way at each plant. (Termination occurred

when three absences occurred in a row without the employee contacting the company.) When an employee was absent, he or she received no pay. Absenteeism also was tied to the paid vacation program in that the fewer days an employee was absent, the higher the amount they were paid during vacations. At each plant, absenteeism was considered by management to be neither high nor low compared to industry norms.

The administration of the study. The treatment was randomly assigned to the plants without prior knowledge of organizational or management differences. The treatment program and control strategies were conducted during the same 1-year period. The fact that the experiments lasted for a full year was very important for two reasons. From a methodological viewpoint, this reduces the possibility that the results were attributable to seasonal variation (Cook & Campbell, 1976). Second, it also provides a test of the endurance of the program, in response to the criticism that there are longitudinal attenuation problems associated with any of these programs.

Description of the Interventions

Common design features of recognition programs (Nelson & Dailey, 1999) often include: (a) personal attention (in this case, are good attendees clearly identified and notified), (b) public celebration (such as a team or plant-level ceremony), (c) the use of mementos (some physical object such as a certificate, plaque, cup, engraving, etc., to commemorate the event), (d) the time frame for the recognition (good attendance for a week, month, year, quarter, etc.), (e) the clarity of expectations for the target behavior (e.g., what constitutes good attendance vs. perfect attendance), and (f) the source of the acknowledge (peers, subordinates, boss, top management). All of these features were considered in the design of these treatments.

Recognition program. At a randomly selected plant, a personal recognition program was installed with the following design features: (a) personal attention (Employees with perfect attendance for an entire month had their names posted with a gold star for that month. At the end of each quarter employees with no more than two absences, that is, perfect or good attendance records, received a personal card notifying and congratulating them of this fact.); (b) public celebration (At the end of the year there was a plant-wide meeting to recognize both levels of attendance, good and perfect.); (c) the use of mementos (Small, engraved mementos, a gold necklace for women and a gold penknife for men, were awarded to those employees who had perfect attendance during the entire year. Those employees who had either one or two days absence, termed good attendance, received a silver necklace or silver penknife. The cost of either item was less than $50.); (d) the time frame

for the recognition (Monthly, quarterly, and annual time frames were selected.); (e) the clarity of expectations for the target behavior (Posters were exhibited and changed quarterly encouraging attendance and explaining the program's rules. Perfect and good attendance requirements were defined.); and (f) the source of the acknowledgement. (Plant management gave out the awards and conducted the ceremony.) New employees who came after the inception of the program were still eligible for whatever monthly or quarterly awards remained.

Control I: Information feedback. At this plant, an information feedback program was implemented. Every 2 months, employees received a year-to-date absenteeism note with their paychecks, as well as a record of their current absenteeism during that 2-month period. No attempt was made to change the absence policy; no positive or negative connotation was attached to the information about absences. Unlike Gaudine and Saks (2001), no comparative norms or group data were provided.

Control II: Survey only. At this plant, the same survey was administered at the same time as the other plants, that is, at the beginning, the midpoint and the conclusion of the experiments. No other treatment (absence program) was implemented at this site.

Control III: No intervention. At this plant, a treatment program was not installed, nor were any surveys administered. The only time the plant was visited was to establish a procedure to collect the absenteeism data from employee records. These data were collected by the personnel assistant who was informed that this information was being used for an experiment and was not an evaluation of either her or of the plant's management. Although we attempted to keep "contamination" to a minimum, plant management did know that their counterparts at the other plants within the corporation were actively pursuing attendance improvement programs.

Data Collection and Measures

Absence measures. The absenteeism rate for each plant was collected daily and computed by dividing the number of absentees by the total number on the payroll for that day. These daily attendance data were collected from each of the plants for the 2 years prior to the experiments and for the experimental year. Absences due to scheduled plant vacations, holidays, and lack of work were not included by plant management in these figures.

Questionnaire data were collected in three waves. As can be seen in Figure 1, Wave 1 refers to the first administration of the questionnaire (July). It was administered immediately prior to the announcement of the attendance program. Wave 2 was the second administration (Jan-

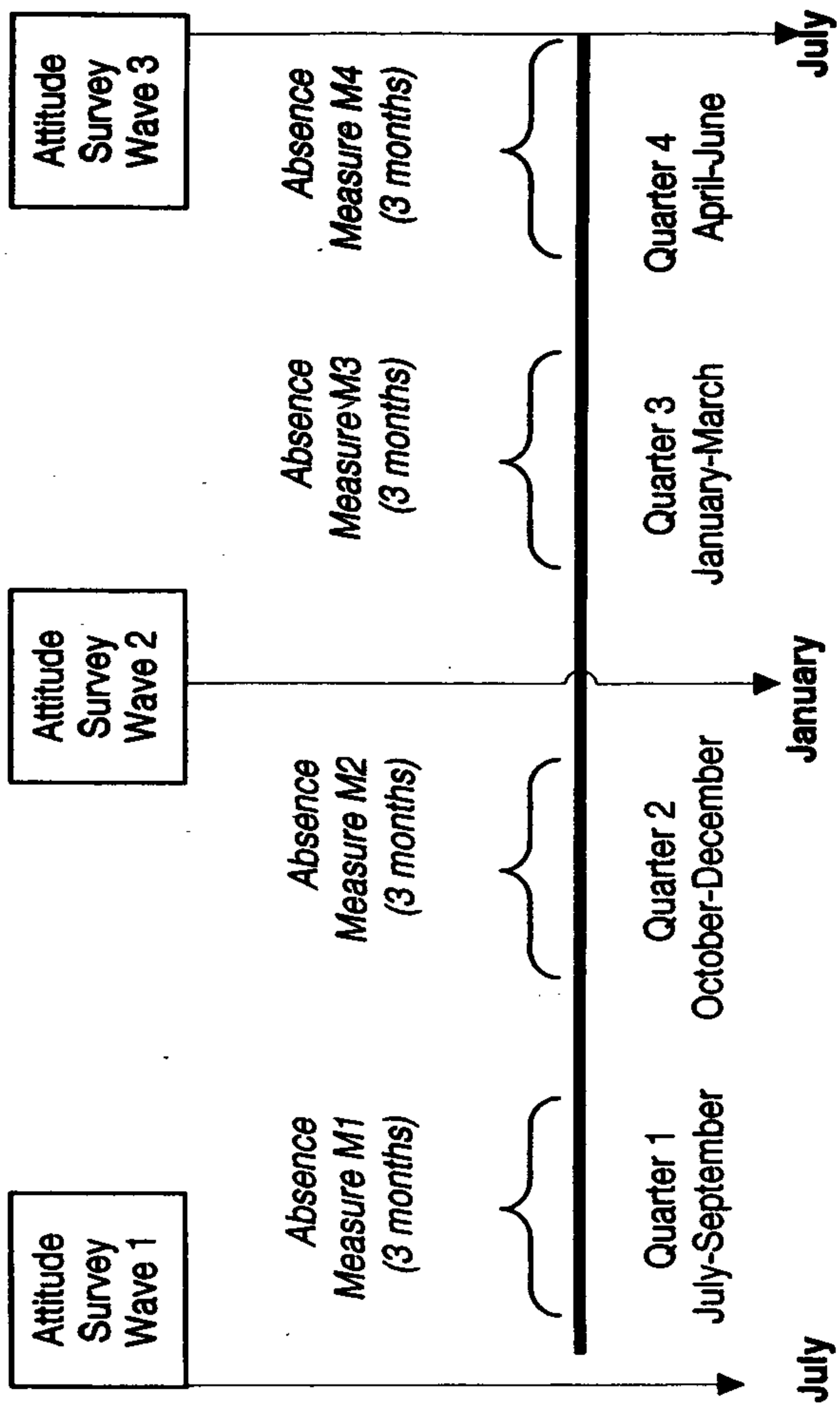

Figure 1: **Time Sequence of the Field Experiment**

uary). This occurred after the program had been in effect for 6 months. Wave 3 refers to the third administration of the questionnaire (July, 1 year later), which occurred at the conclusion of the experiment.

The following items from the survey were used to verify the effects of the treatments:

1. Program knowledge: "I know about the new attendance program here."
2. Program effectiveness: "I feel that the new attendance program has worked here."
3. Program liking: "I like the attendance program that was started in July."
4. Perceived rewards for attendance: "Good attendance is rewarded here."

All of the above questions used the following response categories: 1 = *strongly disagree* to 6 = *strongly agree*. Employees completed the survey during work hours and were paid for their time. Surveys and postage paid envelopes were left for absent employees to be mailed back directly to the researchers. The response rates ranged between 86% and 98% at the plants where the surveys were administered.

Analytical Method

One of the threats to internal validity that Cook and Campbell (1976) identified was historical, preexisting heterogeneity between sites. Even though the plants were closely matched in terms of operating characteristics, there were between-plant differences with respect to absenteeism. Therefore, a between-plant comparison of raw absence scores would be misleading. Furthermore, as has been well noted when analyzing absenteeism data, large seasonal variation makes standard comparisons using immediately preceding quarters suspect (Cook & Campbell, 1976; Dansereau et al., 1978; Markham, Dansereau, & Alutto, 1983). Each of these plants had statistically significant amounts of variation between years, between seasons, and between days of the week. Thus, on two counts, that is, preexisting plant differences and large amounts of seasonality, a traditional between-plant comparison was ruled out. As an alternative, within-plant comparisons represent an acceptable analysis with each plant acting as its own control (Landau, 1993). Because of these two problems, the results of the experimental quarters were compared against the average of matching quarters from the previous 2 years of the same plant. This comparison was selected for three reasons: (a) there were too few years of data from all plants to allow for the creation of a fully deseasonalized X-11 monthly index, (b) there was a significant amount of seasonal variation in absenteeism rates that ruled out the

use of the previous quarter from the same year, and (c) for some of the plants there were strong relationships between national unemployment rates and absenteeism that made using only the prior year problematical because of the employment cyclicality. Having selected the basis for comparison to be the previous matching quarters during the past 2-year time period, an F-test for unequal cell sizes was utilized to test for mean differences.

In other words, the following steps were followed to generate these analyses for Table 1.

1. Three years of daily absence rates were collected from each plant. These data were tagged with the appropriate date stamp to identify which daily rates were a part of the treatment quarters.

2. For each plant, four one-way ANOVAs for unequal cells, one for each quarter, were calculated. Each contained approximately 60 scheduled workdays of absence data from the treatment quarter, which was to be compared with the matching 60 days from the same quarter for the previous 2 years.

3. The mean values for the four quarters of the treatment were entered into Table 1. The matching average values for the same quarters from the previous years were also tabled.

4. The percentage change between the treatment averages and the matching quarter averages were calculated and displayed as a convenient way to visualize the results.

5. The actual significance levels from the F tests associated with the ANOVAs described in Step 2 were transferred to Table 1.

Results

Each of the corresponding data tables for each treatment contains the results for all four quarters of the experiment. Each plant's absence rate for each experimental quarter is shown along with the matching comparison quarters. The difference between the two is expressed as a percentage change; the level of significance is based on the one-way ANOVA described above.

Personal Recognition.

Absence data: For the plant with the personal recognition program, a significant decrease occurred during each of the four quarters as indicated in Table 1. These decreases were substantial and statistically significant, ranging from 29% to 52%. The null hypothesis can be rejected for all four quarters for this treatment when using matched quarters as the basis for comparison. However, because of the improvements in attendance at the controls during the first quarter, we cannot conclude that

TABLE 1

The Effects of the Personal Recognition Intervention Compared to Three Control Plants

		(1) Summer QT	(2) Fall QT	(3) Winter QT	(4) Spring QT
Personal recognition plant	Experimental QT.	4.34	4.03	6.35	3.34
	Matching QTs.	6.13	6.47	8.96	6.95
	% change	29% decrease***	38% decrease***	29% decrease**	52% decrease***
Control I: Information feedback & survey plant	Experiment QT.	5.19	5.56	7.73	5.51
	Matching QTs.	8.16	5.49	6.83	4.82
	% change	36% decrease†	1% increase	13% increase	14% increase*
Control II: Survey only plant	Experimental QT.	3.42	3.53	5.52	4.36
	Matching QTs.	4.27	3.75	4.80	4.10
	% change	20% decrease***	6% decrease	15% increase*	6% increase
Control III: no treatment	Experimental QT.	4.31	3.48	5.37	4.52
	Matching QTs.	5.56	4.57	4.78	4.53
	% change	22% decrease**	24% decrease**	12% increase	.2% decrease

Notes: The first experimental quarter was summer (July, August, September); the second was fall (October, November, December); the third was winter (January, February, March); and the last experimental quarter was spring (April, May, June).

Matching absenteeism rates were the average of absenteeism rates for the same 3-month periods of the previous 2 years.

$*p < .05$ $**p < .01$ $***p < .0001$ $\dagger p < .08$

QT = 1 quarter

this program provided unique effects above and beyond the controls. Attention should be focused instead on the third and fourth quarters in which only the personal recognition plant showed significant decreases amongst all of the plants.

Attitudinal data: Consistent with the treatment, this is the only plant in which the questionnaire items dealing with employee perceptions about the new attendance program showed significant between-wave improvements. Employees increasingly liked the program and felt it worked as shown in Table 2. The recognition program also showed the greatest increase in the perception that employee attendance was rewarded (W1 = 3.48, W2 = 3.97, W3 = 4.19, $p < .001$). From a validity point of view, there was no difference between the plants at Wave 1 in terms of this reward issue. This finding speaks to the essential similarity of the absence culture at these plants. However, as the treatments unfolded, between-plant differences, also noted in Table 2, were significant at Wave 2 and 3.

Control I: Information Feedback.

Absence data: At the end of the first experimental quarter, the information feedback control at this plant experienced a drop in absenteeism from 8.16% to 5.19% as shown in Table 1. (Because of high daily variation in absenteeism at this plant, the statistical level of significance for this difference is only $p = .08$). In the second quarter of the experiment, there was no significant change between the average plant rate for the quarter (5.56%) when compared to its baseline (5.49%). In the third and fourth quarters there was a 13% and 14% increase in absenteeism, respectively. The last quarter's increase was statistically significant at the .05 level.

Attitudinal data: At this plant, the only treatment was a note sent to all employees in their pay envelope every 2 months listing the number of days the employee was absent. There were no significant between-wave differences for the program-related variables. Perceptions by employees that attendance was rewarded did show a significant between-wave decrease during the experimental year (W1 = 3.52, W2 = 3.35 and W3 = 3.14, $p < .05$). As mentioned in the previous paragraph, absence at this plant rose significantly during the third and fourth quarters. This plant also showed an inverse pattern between employee perceptions that attendance was rewarded and absence rate. When employee absence rate was at its highest and had shown a significant increase in the fourth quarter (14%, $p < .05$), employee perceptions that attendance was rewarded were at their lowest (W3 = 3.14), as would be expected.

TABLE 2

Changes in Program Check Variables at Quarterly Intervals for the Personal Recognition Intervention[1]

Plant treatment	Program evaluation variable	Wave 1[2]	Wave 2	Wave 3	Test of Between-wave differences
T[3]: Personal recognition	Program knowledge	—	4.71	4.83	$F_{2,562} = 2.2$ *ns*
CI: Information feedback	Program knowledge	—	4.02	3.88	$F_{2,491} = 1.2$ *ns*
CII: Survey	Program knowledge	—	3.71	3.84	$F_{2,333} = .7$ *ns*
Test of between-plant differences			$F_{2,710} = 36.4$***	$F_{2,562} = 46.6$***	
T: Personal recognition	Program effectiveness	—	3.40	4.09	$F_{2,542} = 48.0$***
CI: Information feedback	Program effectiveness		3.81	3.86	$F_{2,456} = .2$ *ns*
CII: Survey	Program effectiveness	—	3.79	3.60	$F_{2,289} = 1.5$ *ns*
Test of between-plant differences			$F_{2,665} = 8.1$**	$F_{2,714} = 8.2$**	
T: Personal recognition	Program liking	—	4.10	4.35	$F_{2,539} = 8.2$**
CI: Information feedback	Program liking	—	4.50	4.47	$F_{2,446} = .1$ *ns*
CII: Survey	Program liking	—	4.10	4.21	$F_{2,284} = .6$ *ns*
Test of between-plant differences			$F_{2,650} = 10.4$***	$F_{2,615} = 3.1$*	
T: Personal recognition	Reward for attendance	3.48	3.97	4.19	$F_{2,850} = 16.6$***
CI: Information feedback	Reward for attendance	3.52	3.35	3.14	$F_{2,692} = 3.2$*
CII: Survey	Reward for attendance	3.42	3.89	3.44	$F_{2,588} = 5.0$**
Test of between-plant differences		$F_{2,714} = .2$ *ns*	$F_{2,728} = 12.1$***	$F_{2,686} = 31.6$***	

[1]Plant 4: Control III - No treatment. This plant had no survey administered and no intervention during this study.

[2]Variables concerning the nature of the attendance improvement program could not be assessed for Wave 1, because the attendance treatments had just begun.

[3]T = Treatment plan; CI = Control I; CII = Control II

*$p < .05$ based on one-way ANOVA F test for unequal cell sizes (SAS Proc GLM)

**$p < .01$ ***$p < .001$

Control II: Survey only

Absence data: At the end of the first quarter, a significant decrease in absenteeism was recorded at the survey control plant. (The experimental rate was 3.42% compared to 4.27%.) A survey had been administered, as was the case at the other plants, at the beginning of this quarter. At the end of the second quarter there was a nonsignificant decrease in the absence rate. No survey had been administered at the beginning of this quarter. At the end of the third quarter, a significant increase of 15% in the absenteeism rate occurred. Note that survey (Wave 2) was administered at the beginning of this quarter. The fourth quarter showed a nonsignificant increase of 6%. No survey had been administered at the beginning of this quarter.

Attitudinal data: No significant between-wave differences were found for the survey items assessing employee perceptions about the absence control program, but there was a significant between-wave difference for the question assessing employee perceptions of how well attendance was rewarded. Employee perceptions that attendance was rewarded increased from Wave 1 (3.42) to Wave 2 (3.89), and decreased at the end of Wave 3 (3.44). Once again, absence rate showed an inverse pattern to the employee perception that attendance was rewarded. Thus, when the plant's absence rate was at its lowest point, employee perceptions that attendance was rewarded were highest. Following the increase in absence rate during the third quarters, employee perceptions that attendance was rewarded decreased.

Control III: No Treatment.

Absence data: No survey or treatment was conducted at this plant, but a statistically significant 22% decrease in absenteeism (falling from 5.56% to 4.31%) was recorded during the first experimental quarter as shown in Table 1. The second experimental quarter also was a significant 24% decrease in absenteeism. During the third and fourth quarters, absenteeism was stable.

Attitudinal data: No questionnaires were administered at this plant as a part of this study.

Discussion

A chronological view: A time-based review of these programs reveals an interesting pattern of results as shown in Table 3. At the end of the first quarter, it appears that there is a pervasive decrease in absenteeism across all but one of the plants. Therefore, we cannot rule out the possibility that at least some of the improvements in the personal recognition program could be due simply to (a) administering a survey about

TABLE 3

Comparison of Significant Decreases and Increases in Absenteeism Rate by Quarter

Treatment:	Quarter 1	Quarter 2	Quarter 3	Quarter 4
Personal recognition	↓	↓	↓	↓
Control I: Information feedback				↑
Control II: Survey only	↓		↑	
Control III: No treatment	↓	↓		

↓ = Significant decrease in absenteeism
↑ = Significant increase in absenteeism

absenteeism, (b) providing relevant information about individual absence behavior, (c) raising awareness of the issue, and/or (d) external changes in the economy. Thus, the results of the first quarter may well document an initial "honeymoon" effect for the new program, regardless of the program type.

Because the results were puzzling at the plant that had no treatment, at the end of the program we made further inquires. During the first quarter, sewing orders fell, which necessitated that employees be laid off at this plant. These layoffs were based on employee performance. This was the only plant in this group of plants to suffer layoffs during the year previous to the program; employment had been stable at the other plants.

This observation does raise an important question pertaining to an internal threat to the validity of this study. Namely, given the high turnover rates, is it possible that none of the employees at the start of the program remained at the end, thereby vitiating the effects of the treatments? To assess this possibility, we used some additional information that included individual level data concerning employee hire and termination dates. Thus, we can identify the individuals who were part of each starting cohort and then calculate how many of this group remained at the end of the year. The stability of the starting cohort is critical because turnover figures can be deceptive, especially in the cut-and-sew industry. For example, a turnover rate of 100% could indicate that each job in the organization was filled by a new incumbent at least once during the year, or it could mean that a few jobs were replaced every few months but the majority of positions were stable. Data in Table 4 help clarify this issue.

These data indicate that, especially at the recognition plant, a large and stable portion (78.6%) of the startup group remained at least through the end of the treatment year. In fact, given that new employees were only eligible for the short-term rewards, it is noteworthy that the overall absence rate in the recognition plant was so much lower than the previous 2 years. Similarly, each of the plants had a majority of employees who remained employed throughout the year. Thus, the velocity of

TABLE 4

Comparison of Average Plant Size, Turnover Rates, and Stability of Original Cohorts

Plant:	Average plant size rate	Annual turnover	Number of employees lasting entire year	Percentage of original cohort remaining
Treatment: Personal recognition	323	57.5%	254	78.6%
Control I: Information feedback	284	29.9%	204	71.8%
Control II: Survey only	250	38.4%	162	64.8%
Control III: No treatment	230	105.6%	124	53.9%

turnovers occurred in the same positions such that many newcomers did not stay. Plant management did not view this as an unusual problem because of the unique physical skills required to do this type of cut-and-sew work.

Even though the recognition program seemed to have substantially reduced absenteeism during all four quarters, such a strong inference is not fully warranted when the control groups are considered. During the first quarter, the information feedback control, the survey control, and the no-treatment control showed significant decreases in absenteeism. Therefore, part of the effect during that quarter could also be attributed to the survey and to external influences. However, in light of the increases in absenteeism during the fourth experimental quarter at other plants, the 52% decrease (from 6.95% to 3.34%) at the plant receiving the treatment recognition was impressive, and suggests, when coupled with the results of the second and third quarters, that the recognition program might have the greatest long-term impact. This view is supported by a comparison of participants' reaction to the question, "good attendance is rewarded here," as shown in Figure 2. Note that in the information feedback and survey control groups, there was a constant, significant decrease in this variable. In the survey-only treatment, this variable followed an inverted-U function, with a sharp rise from Wave 1 to 2 and an equally sharp decrease in Wave 3.

The information feedback control only showed a marginally significant decrease ($p = .08$), during the first quarter that could be due to the survey administration itself. In the remaining quarters at the information feedback plant, absenteeism was either stable or increasing. It is unlikely, therefore, that simply providing feedback in the recognition condition was responsible for the decreases in absenteeism.

The attitudinal data provide a clearer understanding of these results in the plant with the recognition program in that this was the only treatment that showed significant between-wave differences for any of the program-related variables. As can be seen from Table 2, employees'

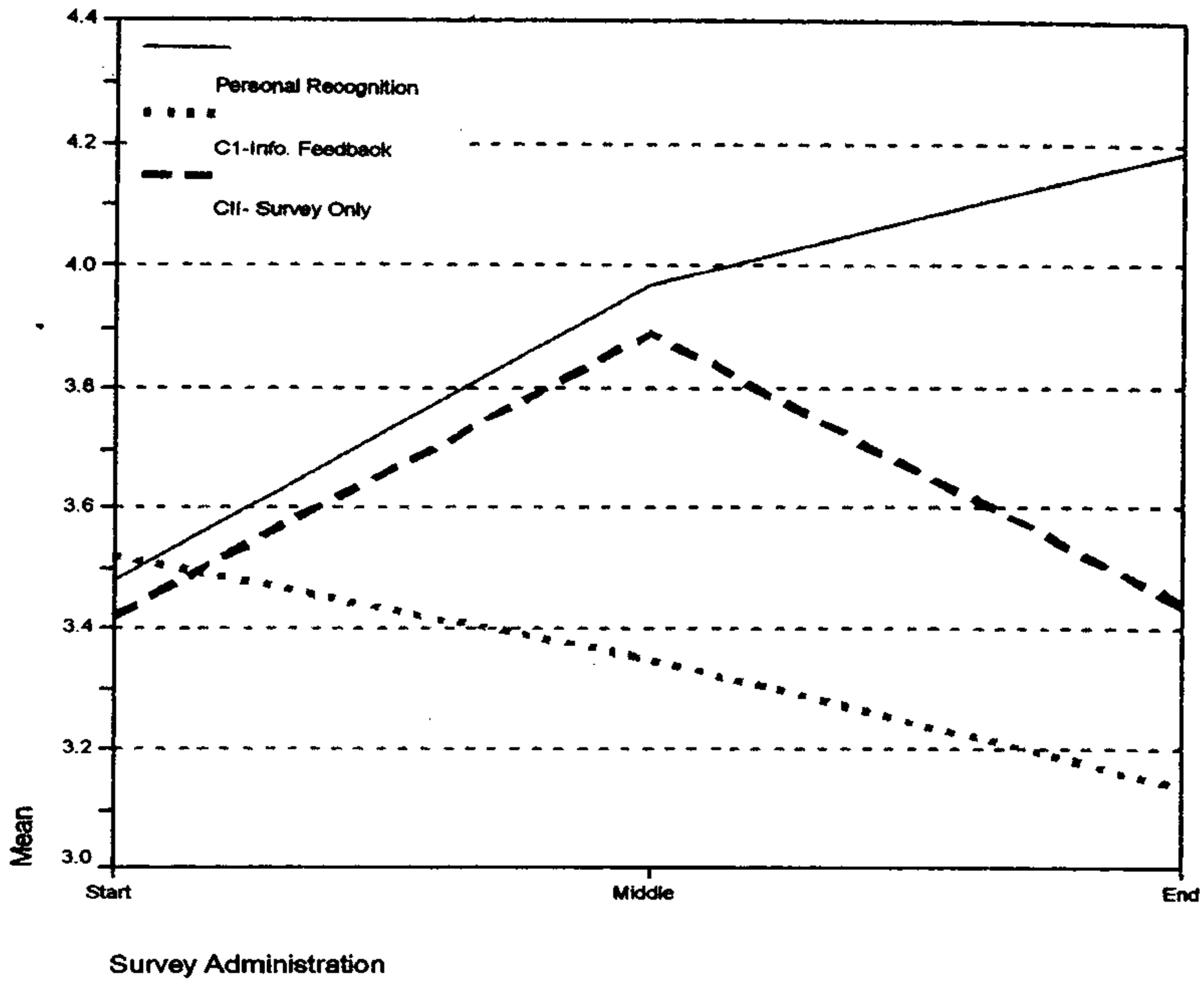

Figure 2: **Comparison of Treatments by Wave for the Question: "Good attendance is rewarded here." (Range: 1 to 6)**

perceptions of how much they liked the program showed a significant positive change, as did their perception that the program was effective. The recognition program also had the greatest percentage increase in employees' perceptions that attendance was rewarded during the experimental year.

Conclusions

The clarity of the results with respect to the personal recognition program as reported in Table 3 would appear to speak for itself. However, such a simplistic approach would belie the realities and complexities of conducting this type of field research. To more fully understand what this field experiment informs us about both management practice and theory, we must refer back to a more general reward framework and the details of how such programs are administered.

By default, the recognition program had specific goals required for recognition at each of the study's time intervals. The formal structure and administration of this program might have come closest to providing an optimum reinforcement schedule to employees throughout the entire year because the success in changing the strength of a behavior is partly dependent upon the frequency of reinforcement (Luthans & Kreitner, 1975). The personal recognition program reinforced employees on a monthly, quarterly, and an annual basis. It also allowed for public recognition of those employees with perfect or near-perfect attendance. It is unlikely that the incentives were too powerful and employees were not discouraged from taking an occasional absence, as indicated by the fact that there was still a fair amount of absenteeism during the course of the treatments (Hackett & Bycio, 1996). Two further points about the recognition program are noteworthy. First, given that employees were not paid when they were absent because of the piece-rate incentive pay system, this environment would not appear to be one in which a recognition program would have much of a chance to succeed. Second, given the low cost of the program to design and administer, there appears to be a very high return to the organization for its investment.

Two methodological strengths of this research are its comparison of multiple plants and its year long implementation. Had this experiment been limited to one quarter, the results would have been interpreted very differently. Had it been restricted to just one plant, without controls, a different conclusion also would have been drawn.

In terms of future research, three caveats should be noted about the external validity of this study. First, our validity was limited by the fact that 94% of the participants were female. This is not a major problem in that a large proportion of the current U.S. work force is now female. However, further experimentation would be required to know how these treatments affect male employees. This point is important because it raises the concern that gender should be controlled in any future studies of absenteeism. This is not just due to the fact that absenteeism for women is typically higher than for men (Markham, Dansereau, & Alutto, 1982), a finding that has been demonstrated many times (e.g., Scott & McClellan, 1990). There appears to be some evidence to suggest that women respond differentially to the drivers of absenteeism (Hackett, 1989; Johns, 1997; VandenHeuvel & Wooden, 1995). As such, further research in this area should include gender.

In summary, the results of a major field experiment that compared a personal recognition program with three types of controls have been reported. The results suggest that the recognition program showed a significant decrease in absenteeism, and an effect that appeared to last the entire length of the program. Future research can now be directed at

discovering the optimum mix of program features to produce the most powerful results.

REFERENCES

Absence makes employers' hearts grow darker—but less often these days [Special news report]. (1997, August 26). *Wall Street Journal*, A-1.

Alderfer C. (1972). *Existence, relatedness, and growth: Human needs in organizational settings*. New York: Free Press.

Bandura A. (1969). *Principles of behavior modification*. New York: Holt, Rinehart & Winston.

Boyle DC. (1995). *Secrets of a successful employee recognition system*. Houston, TX: Productivity Press.

Brooke PP. (1986). Beyond the Steers and Rhodes model of employee attendance. *Academy of Management Review, 11*, 345–361.

Bursch J. (1999, November). Well-structured employee reward/recognition programs yield positive results. *HR Focus, 76*, 1–3.

Cameron J, Pierce WD. (1994). Reinforcement, reward and intrinsic motivation: A meta-analysis. *Review of Educational Research, 64(3)*, 363–423.

Cherrington DJ. (1992). Follow-through on award programmes. *HR Magazine, 37(4)*, 52–55.

Cook TD, Campbell DT. (1976). The design and conduct of quasi-experiments and true experiments in field settings. In Dunnette MD (Ed.), *Handbook of industrial and organizational psychology*. Chicago: Rand-McNally.

Crandall F, Wallace M. (1999). An explanation of rewards in the virtual workplace. *Workforce(78)*, 36.

Dalton DR, Mesch DJ. (1990). The impact of flexible scheduling on employee attendance and turnover. *Administrative Science Quarterly, 35*, 370–387.

Dansereau F, Alutto JA, Markham SE. (1978). An initial investigation into the suitability of absenteeism rates as measures of performance. In Bryant D, Neihouse R (Eds.), *Manpower planning and organization design* (pp. 721–731). New York: Plenum Press.

Davidson L. (1999). The power of personal recognition. *Workforce, 78(7)*, 44–48.

Deci EL. (1971). Effects of externally mediated rewards on intrinsic motivation. *Journal of Personality and Social Psychology, 18*, 105–115.

Dessler G. (1999). How to earn your employees' commitment. *Academy of Management Executive, 13(2)*, 58–67.

Fisher RJ, Ackerman D. (1998). The effects of recognition and group need on volunteerism: A social norm perspective. *Journal of Consumer Research, 25*, 262–275.

Gaudine AP, Saks AM. (2001). Effects of an absenteeism feedback intervention on employee absence behavior. *Journal of Organizational Behavior, 22*, 15–29.

Glasscock S, Gram K. (1999). Workplace recognition : Step-by-step examples of a positive reinforcement strategy: London, U.K.: Brasseys.

Hackett RD. (1989). Work attitudes and employee absenteeism: A synthesis of the literature. *Journal of Occupational Psychology, 62(3)*, 235–248.

Hackett RD, Bycio P. (1996). An evaluation of employee absenteeism as a coping mechanism among hospital nurses. *Journal of Occupational and Organizational Psychology, 69*, 327–338.

Harrison DA, Martocchio JJ. (1998). Time for absenteeism: A 20-year review of origins, offshoots, and outcomes. *Journal of Management, 24(3)*, 305–350.

Ilgen DR, Fisher CD, Taylor MS. (1979). Consequences of individual feedback on behavior in organizations. *Journal of Applied Psychology, 64*, 349–371.

Johns G. (1997). Contemporary research on absence from work: Correlates, causes and consequences. In Cooper CL, Robertson IT (Eds.), *International review of industrial and organizational psychology*, (vol. 12, pp. 115–173). New York: Wiley.

Kleinbeck U, Wegge J. (1996). Absenteeism in organizations: Motivational approaches to identify determinants and suggestions for interventions to promote health at the workplace. *Zeitschrift Fur Arbeits und Organisationspsychologie, 40(4)*, 161–172.

Knight D, Durham CC, Locke EA. (2001). The relationship of team goals, incentives and efficacy to strategic risk, tactical implementation, and performance. *Academy of Management Journal, 44(2)*, 326–338.

Landau JC. (1993). The impact of a change in an attendance control system on absenteeism and tardiness. *Journal of Organizational Behavior Management, 13*, 51–70.

Lee LC, Yang KP, Chen TY. (2000). A quasi-experimental study on a quality circle program in a Taiwanese hospital. *International Journal of Quality Health Care, 12*, 413–418.

Leonard C, Dolan SL, Arsenault A. (1990). Longitudinal examination of the stability and variability of two common measures of absence. *Journal of Occupational Psychology, 63(4)*, 309–316.

Locke EA. (1982). Relation of goal level to performance with a short work period and multiple goal levels. *Journal of Applied Psychology, 67*, 512–514.

Locke EA, Chah DO, Harrison S, Lustgarten N. (1989). Separating the effects of goal specificity from goal level. *Organizational Behavior and Human Decision Processes, 43*, 270–287.

Locke EA, Frederick E, Buckner E, Bobko P. (1984). Effect of previously assigned goals on self-set goals and performance. *Journal of Applied Psychology, 69*, 694–699.

Locke EA, Latham GP. (1990). *A theory of goal setting and task performance*. Englewood, New Jersey: Prentice Hall.

Lovio-George C. (1992). What motivates best? *Sales and Marketing Management, 144(4)*, 113–114.

Luthans F, Kreitner R. (1975). *Organizational behavior modification*. Glenview: Scott, Foresman & Co.

Luthans F, Stajkovic AD. (1999). Reinforce for performance: The need to go beyond pay and even rewards. *Academy of Management Executive, 13(2)*, 49–57.

Luthans F, White DD Jr. (1971). Behavior modification: Application to manpower management. *Personnel Administration, 34*(4), July/August, 41–50.

Maidani EA. (1991). Comparative study of Herzberg's two-factor theory of job satisfaction among public and private sectors. *Public Personnel Management, 20(4)*, 441–448.

Markham SE. (1985). An investigation of the relationship between unemployment and absenteeism: A multi-level approach. *Academy of Management Journal, 28*, 228–234.

Markham SE, Dansereau F, Alutto JA. (1982). Female vs. male absence rates: A temporal analysis. PERSONNEL PSYCHOLOGY, *35*, 371–382.

Markham SE, Dansereau F, Alutto JA. (1983). Absenteeism rates as measures in organizational experiments: Hidden cyclical and structural variation. *Review of Business and Economic Research, 18*, 21–31.

Maslow A. (1954). *Motivation and personality*. New York: Harper & Row.

Miners IA, Moore ML, Champoux JE, Martocchio JJ. (1995). Time-serial substitution effects of absence control on employee time-use. *Human Relations, 48(3)*, 307–326.

Nelson B. (1994). *1001 ways to reward employees*. New York: Workman.

Nelson B, Dailey P. (1999). Four steps for evaluating recognition programs. *Workforce, 78*, 74–78.

Pardy WG. (1999). *Safety incentives: The pros and cons of award and recognition programs*, Greenbrier, TN: Moran Associates.

Patton F. (1999). Money talks when it comes to recognition. *Workforce*, May, 101–103.

Pedalino E, Gamboa VU. (1974). Behavior modification and absenteeism: Intervention in one industrial setting. *Journal of Applied Psychology, 59*, 694–698.

Scandura TA, Williams EA. (2000). Research methodology in management: Current practices, trends, and implications for future research. *Academy of Management Journal, 43*, 1248–1264.

Schlotzhauer DL, Rosse JG. (1985). A five-year study of a positive incentive absence control program. PERSONNEL PSYCHOLOGY, *38*, 575–585.

Schmitz L, Heneman HG. (1980). Do positive reinforcement programs reduce employee absenteeism? *Personnel Administrator, 25(9)*, 87–93.

Schneier CE. (1989). Capitalizing on performance management, recognition, and reward systems. *Compensation and Benefits Review, 21(2)*, 20–30.

Scott KD, Markham SE. (1982). Absenteeism control methods: A survey of practices and results. *Personnel Administrator, 27(6)*, 73–85.

Scott KD, McClellan EL. (1990). Gender differences in absenteeism. *Public Personnel Management, 19(2)*, 229–253.

Silva DB, Duncan PK, Doudna D. (1981). The effects of attendance-contingent feedback and praise on attendance and work efficiency. *Journal of Organizational Behavior Management, 3*, 59–69.

Skinner BF. (1953). *Science and human behavior*. New York: Free Press.

Skinner BF. (1969). *Contingencies of reinforcement: A theoretical analysis*. New York: Appleton-Century-Crofts.

Stajkovic AD, Luthans F. (1997). A meta-analysis of the effects of organization behavior modification on task performance, 1975–95. *Academy of Management Journal, 40(5)*, 1122–1149.

Townsend PL, Gebhardt J. (1997). *Recognition, gratitude and celebration*, Truckee, CA: Crisp.

VandenHeuvel A, Wooden M. (1995). Do explanations of absenteeism differ for men and women? *Human Relations, 48(11)*, 1309–1329.

Wallsten K. (1998). Targeted rewards have greater value and bigger impact. *Workforce, 77(11)*, 66–71.

Weir R, Stewart L, Browne G, Roberts J, Gafni A, Easton S, Seymour L. (1997). The efficacy and effectiveness of process consultation in improving staff morale and absenteeism. *Medical Care, 35(4)*, 334–353.

Wiley C. (1997). What motivates employees according to over 40 years of motivation surveys. *International Journal of Manpower, 18(3)*, 263–280.