

**THE EFFECT OF A LOTTERY-BASED INCENTIVE PROGRAM  
ON EMPLOYEE ABSENTEEISM PATTERNS AND ATTITUDES**

by

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(ABSTRACT)

The purpose of this study was to explain the effect of a lottery-based incentive program on employee absenteeism. Based on a review of the relevant literature, seven variables were examined: (1) past attendance behavior; (2) employee liking for the lottery program; (3) employee perceptions of the contingency of rewards; (4) employee perceptions of acceptable levels of absenteeism; (5) employee perceptions of the clarity of management's attendance goals; (6) employee perceptions of the reasonableness of management's attendance goals; and (7) employee expectations of success in improving attendance. It was hypothesized that:

1. these variables would be significantly related to employee absenteeism during the lottery program; and
2. the lottery program would result in changes in employee perceptions of the contingency of rewards, perceptions of acceptable absenteeism, and perceptions of the clarity of management's goals.

These hypotheses were partially supported. Past attendance behavior, perceptions of acceptable absenteeism and one item measuring expectations of success were significantly related to employee absenteeism. However, no significant relationship was found between employee absenteeism and liking for the program, perceptions that attendance is rewarded, perceptions of the reasonableness of management's attendance goals and the second item measuring expectations of success. Employee perceptions of the clarity of management's goals were found to be related to absenteeism only during the first six months of the program.

The results also indicate that the program was related to a significant positive change in perceptions that attendance is rewarded and perceptions of acceptable absenteeism. Employee perceptions of the clarity of management's attendance goals were also marginally affected.

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## I. INTRODUCTION

### Nature of the Problem

Employee absenteeism is a pervasive and costly problem in most organizations (Goodman and Atkin, 1984). According to Steers and Rhodes, average employee absenteeism nationwide was approximately 2.1% in 1982 (Steers and Rhodes, 1984). Although absenteeism has declined from the 1979 level of 3%, it still represents a major problem. A 2.1% national absenteeism rate means that on any scheduled work day over 2 million employees will not show up for work.

The consequences of absenteeism for the employee, the organization and society in general, are diverse. The costs of absenteeism to the employee may include loss of pay, disciplinary action and negative performance evaluations. In addition, on returning to work the employee may face the difficult task of catching up with work that has accumulated (Mowday, Porter and Steers, 1982). For the co-workers of the absentee, the worker's absence increases the workload and may interfere with their nonwork responsibilities. This may generate resentment towards the employee and threaten interpersonal relationships among employees. At the work group level, the introduction of a replacement for the absent employee may

diminish overall group effectiveness and create intra-group conflict.

The major costs of absenteeism are, however, the monetary costs at the organizational and societal levels. For the organization, the monetary costs include direct salary expenses associated with increased overtime and/or temporary replacement of the absent employee; fringe benefit expenses which the absent employee continues to receive; loss of profit because products are not delivered on time or because they are of poor quality; and the cost of maintaining and administering an absence control program. Mirvis and Lawler (1977) estimated the total cost of absenteeism for tellers in a bank to be \$66.45 per incident. At the societal level, Steers and Rhodes (1984) estimate that in 1983 the cost of absenteeism to the U.S. economy was close to \$30 billion.

Although absenteeism has generally been viewed as a negative factor, several researchers have suggested that it can have positive consequences (e.g. Mowday, Porter and Steers, 1982). For example, at the individual level, absenteeism may be a means of relieving job-related stress. This translates into benefits at the societal level in the form of reductions in mental health problems and consequently, in the need for mental health facilities (Goodman and Atkin, 1984). Nevertheless, as indicated above, absenteeism has important costs for the absentees, their co-workers, work groups, organizations and society in general. In recognition

of this, managers and researchers have long been concerned with understanding the phenomenon of absenteeism and devising methods for controlling it.

One method of improving employee attendance that has been receiving growing attention since the 1960's is the application of operant conditioning principles in positive reinforcement systems. Several studies have indicated that higher employee attendance may be motivated by explicitly reinforcing the employee for improved attendance behavior. Schmitz and Heneman (1980) reviewed the literature on the use of positive reinforcement in absenteeism control and found that in each of 10 studies examined, implementation of the program led to subsequent reduction in absenteeism.

One positive reinforcement technique that appears to have significant potential for reducing absenteeism is the use of lottery-based incentives. However, only a few studies have so far been conducted in this area (Pedalino and Gamboa, 1974; Wallin and Johnson, 1976; Stephens and Burroughs, 1978; Robertson, Johnson and Bethke, 1980; and Scott, Markham and Robers, 1985). These studies have had mixed results. Pedalino and Gamboa, Wallin and Johnson, Stephens and Burroughs, and Robertson, Johnson and Bethke all reported significant reductions in absenteeism levels through use of lottery based incentives. However, these studies suffered from a number of shortcomings. These included (1) the short duration of the programs (most programs did not last more

than 16 weeks); (2) failure to have control groups for comparison; and (3) comparison of the results to absence rates from months immediately prior to the experiment which meant that there was no control for seasonal influences or national economic conditions (Scott, Markham and Robers, 1985).

The study conducted by Scott, Markham and Robers (1985), was specifically designed to respond to these shortcomings. The study was conducted over a one year period as part of a field experiment to simultaneously compare a variety of positive attendance improvement programs under similar conditions. Two control groups were used and the results were compared to absenteeism rates averaged over the two years prior to the experiment. For the year during which the study was conducted, there was a statistically significant increase in absenteeism, going from 5.59% to 6.11%. The lottery program seemed to have no effect on absenteeism except in the second quarter when there was a statistically significant decrease (14%).

An interesting feature of the study was the collection of data on the perceptions and attitudes of the employees toward absenteeism and toward the attendance improvement programs. These data were collected in three waves - (1) immediately prior to the announcement of the program, (2) after the program had been in effect for 6 months, and (3) after the program had been in effect for one year. The purpose was to identify the changes (if any) in employee attitudes to-

wards absenteeism and towards the lottery program. The results of this aspect of the study indicate that, in general, employee attitudes toward absenteeism did change<sup>1</sup> .

While the Scott et al. (1985) study was an important extension of previous research, like the other studies, its concern was primarily with identifying the effect of lottery-based incentives on absenteeism rates. Its focus was, therefore, on plant level attendance data. It would appear, however, that useful insight into the phenomenon of absenteeism as well as the principles of positive reinforcement and goal setting may be obtained by examining the effects of lottery-based incentives at the level of the individual employee.

### Purpose and Significance of Study

The current study attempts to extend the findings of the Scott et al. (1985) research by examining the effect of a lottery-based incentive program on:

1. the absenteeism patterns of individual employees; and

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<sup>1</sup> For example, before implementation of the program only 42% of the employees believed attendance was rewarded by the company. After implementation, 64.2% (Wave II) and 59.3% (Wave III) of the employees felt attendance was rewarded (Scott, Markham and Robers, 1985).

2. the attitudes and perceptions of these employees towards absenteeism and the lottery program.

This study is of significance to both managers and researchers. Examination, at an individual level, of both absenteeism patterns and attitudes towards absenteeism should provide an indication of why lottery-based incentive programs have the effect they do. Such insight will contribute to knowledge of the operation of positive reinforcement programs and also will contribute to the development of more effective control policies.

Investigation of the effects of the lottery on individual absenteeism patterns will also reveal variations in responses to the lottery among employees. For example, the study will indicate whether the effects of the lottery program differ between chronic absentees and workers who are absent infrequently. This will also have important implications for the design of absenteeism control programs.

### Summary

This chapter has identified absenteeism as a pervasive and costly problem that has important consequences for individual employees, for organizations and for society. These consequences have prompted researchers and managers to investigate a variety of techniques for controlling absentee-

ism. One technique which has had some success in reducing absenteeism is the application of operant conditioning in lottery-based incentive systems. This study extends previous research in this area by examining the effect of a lottery-based incentive plan on the absenteeism patterns of individual employees and on the attitudes of these employees towards absenteeism.

In the next chapter, previous research on factors relating to absenteeism and to the principles of operant conditioning and goal theory are examined. Based on this review of the literature, the hypotheses which the study will test are presented. Chapter Three discusses the methodology employed in the study including the research location, measures of absenteeism, measures of employee attitudes and data analysis methods. Demographic data for the research location and the findings from the study are reported in Chapter Four. Finally, in Chapter Five the results are discussed and the practical implications are identified. Limitations of the study and recommendations for future research are presented.

## II. LITERATURE REVIEW

### Introduction

Reviews of the literature indicate that research into the phenomenon of employee absence has tended to focus primarily on the identification of the factors which cause absenteeism (Muchinsky, 1977; Steers and Rhodes, 1978). However, in recent years, researchers have taken their analysis a step further. Increasing attention is now being given to investigation of the effectiveness of various practices and procedures for the control of absenteeism (e.g. Baum, 1978; Schmitz and Heneman, 1980; Scott and Markham, 1982; Scott, Markham and Robers, 1985). In particular, attention has focused on the use of operant conditioning techniques in positive reinforcement systems as a method of improving employee attendance.

This chapter presents a review of relevant research findings concerning employee absenteeism. It begins with a brief overview of research into the factors which influence employee attendance. The second section discusses absenteeism control procedures, focusing primarily on the use of positive reinforcement techniques, particularly lottery-based incentives. The final section discusses the theoretical bases for the use of positive reinforcement in absenteeism control and identifies the hypotheses which will be tested.

## Major Influences on Employee Attendance

In efforts to identify the factors which influence employee attendance, researchers have examined numerous variables in relation to absenteeism. For example, absenteeism has been considered in relation to job satisfaction (e.g. Vroom, 1964; Hackman and Lawler, 1971; Nicholson et al., 1976); personal characteristics such as age, sex and length of service (e.g. Cooper and Payne, 1965; Nicholson et al., 1977); job stress (Hill and Trist, 1962; Parkes, 1983); perceived inequities in the job situation (Patchen, 1960); the psychological contract between the individual and the organization (Gibson, 1966; Nicholson and Johns, 1985); and the social context (Chadwick-Jones et al., 1982).

This research has often produced inconsistent and confusing results. For example, there has been considerable disagreement over the relationship between job satisfaction and absenteeism. There is a long-standing belief that absence from work is a direct consequence of job dissatisfaction. This hypothesis is popular for two main reasons. First, the notion that absenteeism is a consequence of job dissatisfaction has intuitive appeal (Chadwick-Jones et al., 1982). It is a plausible theory that employees will absent themselves from a painful work situation. Second, a number of studies have purported to show a reliable relationship between absenteeism and job satisfaction. However, empirical findings

have not been consistent. Although five literature reviews published between 1955 and 1977 concluded that absenteeism is negatively related to overall job satisfaction,<sup>2</sup> in recent years researchers have questioned the nature of this relationship. A number of studies have reported finding only a weak relationship between job satisfaction and absenteeism (e.g. Nicholson et al., 1976; and Ilegen and Hollenback, 1977). Other researchers have advanced the hypothesis that the relationship is not direct but is moderated by biographical and situational variables such as job involvement (e.g. Steers and Rhodes, 1978; Cheloha and Farr, 1980). More recently, Scott and Taylor (1985) conducted a meta-analytic examination of the research on job satisfaction and absenteeism. The results of this analysis offer some support for the traditional notion of a significant relationship between these variables.

Similar inconsistencies have characterized other areas of research into the influences on employee attendance. There have emerged a multitude of narrowly focused studies but little comprehensive theory building (Steers and Rhodes, 1978). In an effort to integrate the array of piecemeal findings on this subject, Steers and Rhodes (1978) reviewed

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<sup>2</sup> Brayfield and Crockett, 1955; Herzberg et al., 1957; Vroom, 1964; Porter and Steers, 1973; and Muchinsky, 1977.

104 studies of absenteeism and developed a general model of attendance.

The Steers and Rhodes model suggests that attendance is influenced by two primary factors:

1. attendance motivation - which is in turn a function of:
  - a. job satisfaction;
  - b. economic and market conditions;
  - c. incentive and reward systems within the organization;
  - d. work group norms concerning desirable attendance levels;
  - e. personal work ethic; and
  - f. commitment to the organization and its goals.
2. ability to attend - which is influenced by:
  - a. illness and accidents;
  - b. degree of family responsibility; and
  - c. possible transportation problems.

According to the model, the nature of the job interacts with the values and expectations of employees to determine satisfaction with job. This satisfaction, together with various pressures to attend, determine an employee's level of attendance motivation. The model also suggests that the relationship between attendance motivation and actual attendance is influenced by the employee's ability to attend. The model is cyclical in nature. It suggests that feedback from

the results of actual attendance behavior may influence subsequent perceptions of the job situation, pressures to attend and attendance motivation (Steers and Rhodes, 1978).

The Steers and Rhodes model has generated a great deal of research interest. A number of studies have attempted to test the model but, as noted by the authors themselves, the model is difficult if not impossible to test in its entirety (Steers and Rhodes, 1984). The tests have, therefore, focused on different aspects of the model. Such partial tests have produced mixed results. For example, Steers and Rhodes (1984) describe a study by Terborg, Davis and Smith (1980) which found support for the job satisfaction relationship proposed by the model but failed to find support for the role of ability to attend. Another study by Watson (1981) also found mixed support for the model.

In order to improve its general utility as well as to incorporate recent research findings, Steers and Rhodes have revised and simplified the model, as shown in Figure 1.

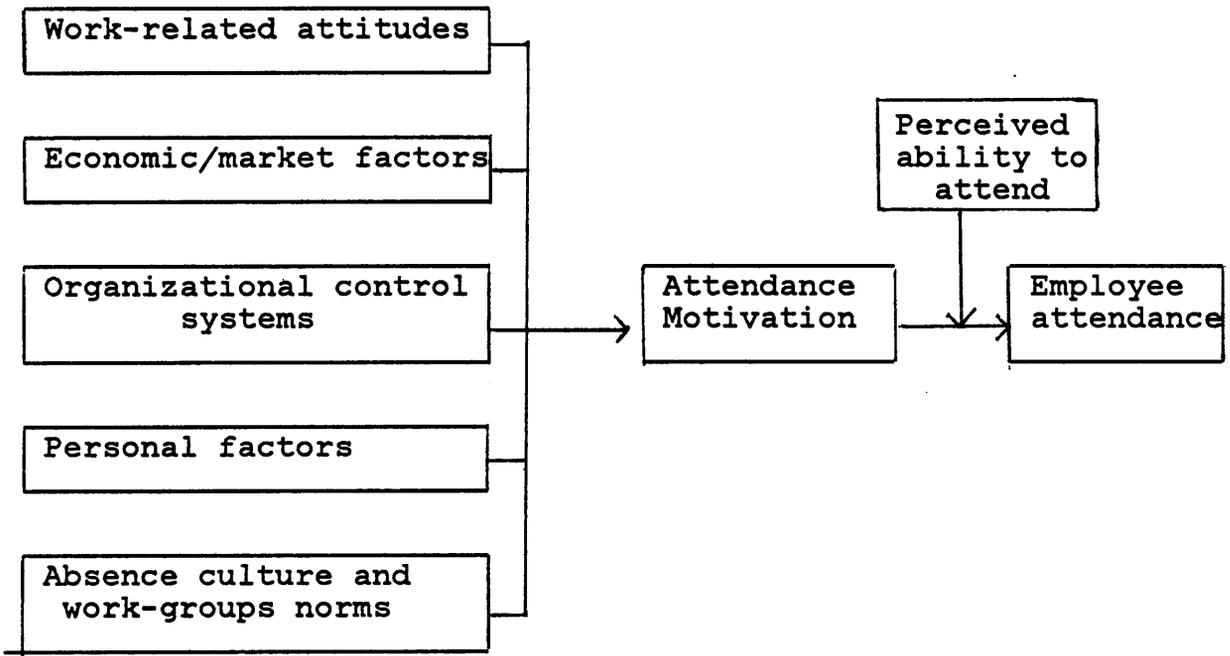


Figure 1 - The Revised Steers and Rhodes Model for Understanding Absence Research

As indicated by Figure 1, the model identifies attendance motivation as the primary influence on employee attendance, assuming the employee has the ability to attend (Steers and Rhodes, 1984, p. 235). This motivation is, in turn, a function of five broad categories of variables:

1. work-related attitudes which include job involvement, organizational commitment and various dimensions of job satisfaction;
2. economic and market conditions which place constraints on employees' ability to change jobs;
3. organizational control systems which involve policies and procedures used by organizations to encourage attendance;
4. personal factors such as values, age, sex, health problems and family size; and
5. absence culture and work-group norms.

The revised Steers and Rhodes model provides a useful integration of the findings of research into the major influences on employee attendance. While it highlights the fact that the influences on employee attendance are diverse, it also provides a logical framework for addressing the problem of employee absenteeism. It indicates that a major factor to be considered is attendance motivation. Although ability to attend is a necessary condition, it is largely outside the scope of organizational control. Attendance motivation, how-

ever, represents a voluntary decision by the employee to either attend or not attend work and, as depicted by the model, it may be influenced by a number of specific factors. One set of variables highlighted by the model as having the potential to influence attendance motivation are absenteeism control programs.

### Controlling Employee Absenteeism

The various absenteeism control procedures utilized by organizations may be grouped into three broad categories:

1. positive reinforcement systems;
2. systems based on punishment and negative incentives; and
3. mixed consequence systems (Steers and Rhodes, 1984).

Scott and Markham (1982) conducted a survey of a national sample of personnel managers and found that while respondents reported using a wide variety of absence control methods, the most prevalent were discipline/monitoring methods. For example, 99% of respondents reported using "employee call-in to give notice of absence", 96% used "termination based on excessive absenteeism" and 91% used progressive discipline. In addition, the nine methods rated most effective by the managers were those involving disciplinary and monitoring procedures.

Despite the perceptions of the managers, however, a comparison between absence rates of users and non-users of each method, revealed that the method which had the greatest effect on absenteeism was public recognition for good attendance. Organizations which used public recognition techniques had an absence rate a full percentage point below those that did not. Nevertheless, these techniques were ranked only 21st out of 34 in terms of perceived effectiveness and were used by only 22% of respondents.

Many managers reject the use of positive reinforcement techniques such as public recognition on the grounds that they involve bribing the worker to do what he or she should be doing anyway (Johnson and Peterson, 1975). These views have, however, not been shared by many management researchers. They generally tend to favor the use of rewards over sanctions for several reasons. First, it has been shown empirically that punishment and negative incentives often produce undesirable side effects. Second, studies of the efficacy of sanctions in reducing absenteeism have produced divided opinions and conflicting results (Steers and Rhodes, 1984). Most important, however, positive reinforcement programs have been shown to be effective in achieving significant reductions in absenteeism. For example, an examination of ten studies in which positive reinforcement programs were implemented, found that in all ten studies, implementation of the program was accompanied by subsequent reductions in

absenteeism (Schmitz and Heneman, 1980). Two of these studies utilized lottery-based incentive programs.

### Lottery-based Incentives

One of the earliest proposals for the use of lotteries in the organizational setting was put forward by Aldis (1961). He suggested that instead of an annual Christmas bonus or other type of salary supplement, employees should be allowed to participate in a lottery type system. If an employee produced above a given standard his/her name should be placed in a hat and a drawing held each week. The name(s) drawn would receive an amount of money proportionate to the number of units produced during that period.

The application of such a program to absenteeism control was first reported by Nord (1969). Nord described a case study of a hardware company which used a lottery system to decrease absenteeism and tardiness. Under the system, employees who were exactly on time (i.e. not even 1/2 minute late) for work at the start of each day and after breaks, were eligible for a drawing at the end of the month. One prize, valued between \$20 and \$25 was available for each 25 eligible employees. At the end of six months, employees who had perfect attendance for the entire period, were eligible for a drawing of a color television set. In addition, the names of all winners and eligible employees were printed in the com-

pany paper. Nord reported that after one month of implementation of the system, 151 of approximately 530 employees were eligible for the drawing. After approximately 16 months this figure had risen to 219 and sick leave costs had been reduced by 62%.

The use of a lottery system in absenteeism control was also advocated by B. F. Skinner (see Conversation, 1973). He proposed that awarding a daily door prize for which all employees who came to work would be eligible, would result in a decrease in absenteeism. However, no empirical support for his hypothesis was provided.

Since then, a number of empirical studies have explored the effects of lottery-based incentives on absenteeism levels. One of the earliest studies attempted to use a lottery incentive system to decrease absenteeism in a sample of 215 hourly employees at a manufacturing/distribution facility (Pedalino and Gamboa, 1974). Experimental intervention took place in one plant with four other plants serving as comparison groups. The intervention took the form of a poker game strategy. Each day an employee came to work and was on time, he was allowed to choose a card from a deck of playing cards. At the end of the five-day week employees who had received a card each day had a normal poker hand and the highest hand won \$20. The program ran for 16 weeks during which the strategy was implemented in two phases. In Phase 1 (the first

6 weeks) the program was run each week and in Phase 2 (the last 10 weeks) it was run every other week.

In the experimental group, the overall weekly absenteeism rate went from a baseline of 3.01% to 2.46% during the intervention. A 22-week follow-up after the system was phased out showed that the absence rate had risen to the original level (3.02%). There were no differences in absenteeism between the two phases indicating that stretching the schedule of reinforcement from weekly to biweekly could be achieved without a significant increase in the rate of absenteeism. During the intervention period there was a slight increase in absenteeism among the control groups.

At least three subsequent studies have also found lottery-based incentives systems to be effective in reducing absenteeism. Wallin and Johnson (1976) reported on a lottery program conducted in an electronics manufacturing firm. Under this program, employees could qualify for a monthly drawing provided they had perfect attendance and punctuality records for the month. Any absence, whether for illness, vacation etc., precluded employee eligibility for the month in which the absence occurred. A \$10 cash prize was awarded to the winner of each monthly lottery and, in addition, the names of all employees who qualified were listed on the plant bulletin board. The results of the study revealed a reduction in sick leave expenditures of \$3,100 during the eleven months duration of the program, at a total program cost of \$110.

Stephens and Burroughs (1978) designed two lottery-based absenteeism control systems for 92 employees in six nursing units of a hospital. One system permitted employees to become eligible for cash prize drawings of \$20 if they had no unscheduled absences for three weeks. Under the second system, employees became eligible for \$20 prize drawings if they were not absent on eight dates randomly selected from the three week period. Both systems resulted in significant decreases in absenteeism and there were no significant differences between the results of the two systems. Overall, the absenteeism rate declined from a baseline of 4.51% to 3.11%, and increased to 5.94% over a two week period after discontinuance of the program.

A lottery system was also experimentally shown to be effective in a classroom setting (Robertson, Johnson and Bethke, 1980). The study was conducted in a college of business administration of a state university and utilized students enrolled in two sections of a junior level personnel management course. The experiment was divided into two parts, each part utilizing an experimental and comparison group. In part one, the intervention consisted of the announcement of a lottery drawing for a \$10 prize, with the drawing to take place at the end of four weeks and eligibility being contingent upon perfect attendance during this period. Part two was similar to part one except that the intervention consisted of four \$2.50 lotteries scheduled at random intervals

during the four week period. Eligibility for each award was contingent upon perfect attendance since the previous lottery.

Part one of the program resulted in a reduction in the overall absenteeism rate from 11.2% to 9.1%, while absenteeism in the comparison group increased from 9.2% to 18.8%. During the four week period after removal of the intervention strategy, absenteeism increased in the experimental group to 17.0%. However, it also increased in the comparison group to an average of 24.0%.

In part two of the program, the average absenteeism rate actually increased following intervention from 21.6% to 22.8%, rather than decreasing as predicted. For the comparison group, absenteeism increased from 13.1% to 17.1%. It was suggested that the low effectiveness of this portion of the program may have been due, in part, to the reduced value of the reward. Although the actual expected value of the reward was the same in both experiments, it is possible that the perceived value of four \$2.50 prizes may have been less than the perceived value of a single \$10 prize.

Another more recent study also reported mixed results from implementation of a lottery program (Scott et al., 1985). This study differed in that it provided a simultaneous comparison of four positive attendance improvement programs in a garment manufacturing company. The four programs were (1) a financial incentive program, (2) a recognition program,

(3) an information feed-back program, and (4) a lottery program.

The lottery program involved the award of a prize valuing approximately \$200 at the end of each quarter. If an employee had perfect attendance for the quarter, his or her name was entered twice in the lottery. If the employee had one absence his or her name was entered only once.

The programs were instituted in four different plants with two other plants serving as controls. The results of the study indicate that the recognition program had the greatest effect in terms of reducing absenteeism, while both the financial incentive and feedback programs showed non-significant decreases. The lottery program, on the other hand, seemed to have no effect except during the second quarter when there was a statistically significant decrease in absenteeism at the plant.

From the foregoing, it appears that, in general, lottery-based incentive programs are effective in achieving reductions in employee absenteeism. A notable exception was, however, the Scott et al. study in which the lottery reduced absenteeism in only one of the four quarters during which the program was in effect. The purpose of this study is to determine why the lottery program had this effect. In order to do so it is first necessary to understand the theories upon which lottery programs are based.

## Theoretical Bases Of Lottery Programs

In using lottery programs as mechanisms of absenteeism control, the basic purpose is to influence employee behavior and attitudes. A number of models have been proposed to explain the process through which people's attitudes and behaviors are modified or changed. In relation to the use of lottery programs, two of these models are of particular relevance. They are:

1. operant conditioning theory; and
2. goal theory.

### **The Theory of Operant Conditioning**

The basic premise behind the operant conditioning approach is that behavior can be changed by its consequences (Gullet and Reisen, 1975). The primary elements of the operant conditioning model are:

1. the operant - a response or behavior which changes the environment and which is influenced by its environmental consequences;
2. the stimulus - the environmental consequence which follows the operant response and, in turn, affects subsequent operant behavior;and

3. the contingency of reinforcement - the relationship between the response and its consequence(s).

Operant conditioning, therefore, refers to a process in which characteristics of operant behavior are, over time, modified by the establishment of response-reinforcement contingencies. This modification may be directed towards various aspects of an individual's response including rate, latency and probability.

The environmental consequences which may impact on behavior may be classified as one of three types: positive reinforcers, negative reinforcers, and neutral stimuli. Both positive and negative reinforcers have the effect of increasing the probability of future occurrence of a response. However, a positive reinforcer does so when it is applied to a given operant behavior while a negative reinforcer increases the probability of response when it is withdrawn. A neutral stimuli is one which produces no change in probability. Reinforcers can be either primary (independent of past experience) or secondary (influenced by past experience). The reinforcers utilized by organizations are mainly secondary. For example, the effects of a salary increase or verbal praise are mediated by the individual's past experiences (Jablonsky and DeVries, 1972).

An important consideration in the application of operant conditioning is the frequency with which reinforcements fol-

low the operant responses. This is referred to as the reinforcement schedule. Reinforcement schedules can be of two main types - (a) continuous or (b) partial. Continuous reinforcement occurs where the consequence follows the behavior every time. Partial reinforcement occurs when the consequence only follows the behavior some of the time. It may be administered in two ways. First, the reinforcement can occur on a ratio basis in which a consequence follows a certain number of responses. If the number of responses required for a consequence to occur is constant from one reinforcement to the next, the pattern is a fixed ratio schedule, whereas, if the required number of responses varies from one reinforcement to the next, the pattern is a variable ratio schedule. Second, reinforcement can occur on an interval basis. In this case, a consequence follows a response only after a certain amount of time has elapsed. The interval schedule may also be fixed or variable.

Research indicates that the schedule of reinforcement determines, to a significant extent, the effectiveness of the program (Wallin and Johnson, 1976). For example, Yukl, Wexley and Seymore (1972) found that a variable ratio schedule of reinforcement was more effective in sustaining increased production than was a continuous reinforcement schedule. On the other hand, Robertson et al. (1980) failed to find support for the hypothesis that variable interval reinforcement

would decrease absenteeism significantly more than fixed interval reinforcement.

Response-reinforcement contingencies may be established through four basic procedures: punishment, extinction, negative reinforcement and positive reinforcement.

**Punishment.** There is a tendency in the literature to confuse punishment and negative reinforcement (e.g. Jablonsky and DeVries, 1972; and Organ and Hamner, 1982). For example, Organ and Hamner suggest that punishment is a form of negative reinforcement. This confusion may be due to the fact that both negative reinforcement and punishment involve the use of aversive stimuli. However, while negative reinforcement involves the withdrawal of an aversive stimulus, punishment involves the application of an aversive stimulus. Moreover, as pointed out by Heinman (1975), reinforcement whether positive or negative, refers to increasing the probability of a response. Punishment, on the other hand, is a procedure for reducing the probability of response. It may take one of two forms; either (a) making an aversive stimulus contingent upon an undesired response, or (b) removing a positive consequence contingent upon a desired behavior. The effect of both methods is to reduce the frequency or probability of the undesired behavior.

Punishment has been criticized as an inefficient technique for controlling behavior for several reasons. First,

punishment does not necessarily produced a desired response. It only suppresses one which is undesirable. Second, while punishment may suppress undesired behavior, it does not abolish it. The probability of the undesired response is reduced only when the threat of punishment is perceived to exist. Thus, when the punishing agent is not present, the undesired response may occur at its initial rate (Nord, 1969).

In addition to these effects, punishment may also have undesirable by-products. For example, the punishing agent may become associated with the punishment and also take on an aversive quality (Jablonsky and DeVries, 1972). The punishment may generate resentment and hostility towards the punishing agent and may even lead to counter-aggression against the punishing agent.

**Extinction.** Like punishment, extinction is a method of reducing the frequency of undesired behavior. It occurs when an operant that was previously reinforced is no longer reinforced. Under repeated nonreinforcement the behavior decreases and eventually disappears. Extinction generates fewer by-products than punishment. However, like punishment, it does not lead to the development of the desired response (Nord, 1969).

**Negative Reinforcement.** Unlike punishment and extinction, this procedure is aimed at strengthening desired behavior. It may take two main forms. A contingency arrangement in which an individual's response can remove an aversive stimulus is called **escape learning**. When the individual's response can prevent the onset of the stimulus, the procedure is called **avoidance learning**. In both cases, the result is the strengthening of the desired operant behavior (Organ and Hamner, 1982).

**Positive Reinforcement.** This is also a method of strengthening desired behavior. It occurs when a reinforcer is made contingent upon exhibition of a desired behavior and when this contingency increases the probability of that behavior occurring in the future (Schmitz and Heneman, 1980). Positive reinforcement differs from avoidance/escape learning in that, under positive reinforcement, the individual performs the desired behavior in order to gain positive environmental consequences, while under avoidance/escape learning, the individual performs in order to avoid negative environmental consequences.

As stated previously, research into the application of operant conditioning to absenteeism has indicated that positive reinforcement techniques are generally more effective than those based on negative reinforcement or punishment (Steers and Rhodes, 1984). Positive reinforcement seeks to

develop desired employee behavior rather than to suppress undesired acts. It, therefore, does not produce the adverse side-effects associated with punishment and may, in fact, have favorable side-effects.

### **Positive Reinforcement and Absenteeism**

The basic premise behind the application of operant conditioning principles to the problem of absenteeism is that coming (attendance) or not coming (absenteeism) to work are behaviors and are, therefore, a function of environmental consequences. Thus, according to operant conditioning theory, if a positive reinforcer is applied as a consequence of coming to work, the subsequent frequency of attendance behavior will increase. Research, however, indicates that the effectiveness of positive reinforcement is a function of several factors. These factors and the hypotheses arising from them are discussed below.

1. **Past Behavior Patterns.** Research indicates that responses to a positive reinforcement program, such as an attendance control program, may be a function of historical attendance patterns. Specifically, individual responses to an attendance control program may differ according to differences in attendance histories. Baum (1978) found that an attendance control program based on legal compliance was effective in

reducing absenteeism among chronic absentees but did not lead to improvements in attendance among workers who had a history of infrequent absences.

Based on these findings, Baum suggests that positive reinforcement techniques such as lotteries are likely to be more effective for workers who are absent infrequently than for chronic absentees. Workers who are absent infrequently have demonstrated a commitment to the managerial ethic of good attendance. Thus, positive reinforcement techniques have considerable potential for achieving improvements in attendance among these workers. Chronic absentees, on the other hand, have been willing to forego higher pay and other rewards associated with regular attendance for more time away from the job. It is, therefore, unlikely that a control policy based on positive reinforcement will be sufficiently attractive to cause them to alter their attendance patterns. Based on Baum's research, employees with a history of infrequent absences should exhibit more improved attendance behavior, after implementation of the lottery program, than chronic absentees. It is therefore hypothesized that:

**H1: There is a positive association between past attendance behavior and attendance behavior during the lottery program.**

**2. Value of Rewards.** For positive reinforcement to be effective, rewards must be valued by the potential recipients.

Thus, rewards for attendance must be meaningful and must offset the competing rewards for absenteeism (Luthans and Martinko, 1976). Although there is no specific empirical evidence to support this, it would appear that one indicator of the value attached to the rewards of a positive reinforcement program is the attitudes of employees toward the program. For example, in relation to the lottery program, it would be expected that employees who report that they like the program would exhibit less absenteeism than they did prior to implementation of the program. It is therefore hypothesized that:

**H2: There is a positive association between employee "liking" for the lottery program and changes in employee absenteeism while the program was in effect.**

An important consideration in the application of positive reinforcement in organizations is the existence of large individual differences in responses to stimuli. For example, Vroom (1964) has shown that the value attached to a reinforcer varies across individuals and therefore responses to the reinforcer also vary. This suggests that differences in employee attitudes toward the lottery program will lead to differences in their responses. In terms of absenteeism, it would be expected that during the implementation of the program, people who like the program will exhibit less ab-

senteism than those who do not. Hence, it is hypothesized that:

**H3: There is a negative association between employee "liking" for the lottery program and employee absenteeism.**

**3. Contingency of Rewards.** Based on research into the effects of contingent and noncontingent rewards, Cherrington et al. (1971) concluded that if rewards are not positively contingent, they will fail to encourage performance. They emphasized that contingencies between behavior and rewards are important for the effective use of reward systems to influence employee behavior and attitudes. An important requirement for an effective attendance reward system is, therefore, the existence of a contingent relationship between rewards and desired attendance behavior. In addition, employees must perceive that such a relationship exists (Nord, 1969; Luthans and Martinko, 1976).

An indication of employee perceptions of the contingency of rewards under an attendance reward system may be obtained by comparing their perceptions of whether attendance is rewarded before implementation of the program, to their perceptions after implementation. A positive change in employees perceptions may be taken as an indication that those employees perceive the rewards to be contingent on attendance. It is therefore hypothesized that:

**H4: Employee perceptions of whether attendance is rewarded will be more favorable after implementation of the lottery program.**

According to the findings of Cherrington et al., such employees should exhibit improved attendance behavior. Thus, it is further hypothesized that:

**H5: There is a negative association between changes in employees' perceptions of whether attendance is rewarded and employee absenteeism behavior.**

Research has shown that perceptions of the contingency of rewards are also subject to variation across individuals. For example, Vroom (1964) has shown that perceptions of the instrumentality of operant behavior in achieving the desired positive reinforcer may vary across individuals. Employee perceptions of the instrumentality of operant behavior in achieving a desired reward may be deduced from their perceptions of whether the particular behavior is rewarded. Thus, according to Vroom's findings, employees who feel that good attendance is rewarded will behave differently from those who do not feel that it is rewarded. It would be expected that employees who feel that attendance is being rewarded, during implementation of the program, will exhibit less absenteeism than those who do not. Hence, it is hypothesized that:

**H6: There is a negative association between employee perceptions of the contingency of rewards for good attendance and employee absenteeism.**

As has been stated, positive reinforcement involves making rewards contingent upon the attainment of certain objectives or goals. The principles of goal-setting theory are, therefore, integrally related to the use of a positive reinforcement system.

### **Goal-setting Theory**

The basic premise of goal theory is that an individual's conscious intentions (goals) affect what he or she does (Locke, 1968). As presented by Locke, goal theory focuses on the relationship between goal-setting and task performance. According to the theory, the act of setting clear goals results in improved performance. In addition, the theory states that:

1. hard goals result in a higher level of performance than do easy goals;
2. specific goals result in better performance than vague "do your best" goals; and

3. assigned goals will affect behavior only to the degree that they are consciously accepted by the individual to whom they are assigned.

### **Goal Theory and Absenteeism**

Although research on goal theory has focused primarily on its effects on task performance, it seems feasible that the principles underlying the theory are also applicable to attendance behavior and to the use of a lottery program to control such behavior. An essential feature of a lottery program is the establishment of goals in the form of a clear statement of desired behavior. Thus, to the extent that setting task goals results in improved task performance, setting attendance goals under a lottery program should result in improved attendance behavior. Numerous studies have examined the relationship between goal-setting and task performance since Locke's 1968 theoretical article (e.g. Latham and Blades, 1975). This research has provided strong and consistent evidence that the act of setting clear goals does generally result in improved performance (Steers and Porter, 1974).

The research has also provided support for specific aspects of goal theory. For example, several studies have examined the effects of goal specificity, both in laboratory settings and in the field, and have provided strong support for the proposition that specific goals result in better

performance than no goals or vague unspecified goals (e.g. Latham and Blades, 1975; Becker, 1978).

Similar support has been found for the goal difficulty proposition. Locke (1968) suggested that, provided they are accepted, difficult goals will result in higher levels of performance than easy goals. Locke and his associates tested this hypothesis in a series of laboratory experiments and found a strong positive linear relationship between the difficulty of the goal and the level of task performance. Subsequent laboratory experiments and several field studies have also provided support for the hypothesis (e.g. Campbell and Illgen, 1976; Yukl and Latham, 1978).

Based on these research findings, it would appear that, other things being equal, setting attendance goals will result in improved attendance behavior. Further, the more specific and challenging the attendance goals, the greater should be the improvements in attendance.

In relation to the use of a lottery program to control absenteeism, it would appear that such a program may have several effects from a goal theory perspective. First, by specifically identifying desired behavior, the lottery program should influence employee perceptions of acceptable attendance behavior. Thus, it is hypothesized that:

**H7: Employee perceptions of what constitutes acceptable absenteeism will change after implementation of the lottery program.**

Further, based on research on goal theory, it would seem that employees who perceive high levels of absenteeism as acceptable will have higher levels of absenteeism than those whose perception of acceptable levels of absenteeism is lower. It is therefore hypothesized that:

**H8: There is a positive association between employee perceptions of acceptable levels of absenteeism and employee absenteeism behavior.**

By specifically identifying desired behavior, the lottery program should also influence employee perceptions of management's goals for attendance. For example, employees who previously perceived management as having no attendance goals or who saw management's goals as vague and unchallenging may, after the introduction of the lottery program, begin to perceive management's attendance goals as clear and specific. Hence, it hypothesized that:

**H9: Employee perceptions of management's goals will be more favorable after implementation of the lottery program.**

Finally, the research on goal theory suggests that employees who perceive that management has clear and challenging goals for attendance will exhibit improved attendance behavior. Thus, it is expected that after implementation of the lottery program, employees who perceive that management has a specific and challenging goal for attendance will exhibit less absenteeism than those who see management's goal as vague and/or unchallenging. It is therefore hypothesized that:

**H10: There is a negative association between employee absenteeism and employee perceptions of the clarity and challenge of management's absenteeism goals.**

A basic assumption of this hypothesis and of the goal specificity and goal difficulty propositions is that assigned goals are accepted by the employees. As presented by Locke (1968), goal acceptance is viewed in terms of a congruence between assigned task goals and individual aspiration level with respect to these goals. Locke's theory states that task goals will influence behavior only to the extent that this congruence exists.

Locke presents considerable laboratory evidence in support of this contention (e.g. Locke, 1968). However, few subsequent studies have specifically examined goal acceptance as an intervening variable between goals and performance.

Research into goal acceptance has focused primarily on identifying its determinants. This research has identified several factors which may influence goal acceptance. Two of these are of particular relevance. They are:

**1. Expectations of Success.** Research indicates that, other things being equal, individuals are more likely to accept or choose a given goal when they have high rather than low expectations of reaching it (Locke et al., 1981). It therefore follows that employees who regard perfect attendance as attainable and believe they can improve their attendance behavior will exhibit more improved attendance behavior than those who have low expectations. Based on this it is hypothesized that:

**H11: There is a negative association between employee's expectations of success in improving their attendance under the lottery program and their absenteeism behavior.**

**2. Perceived Reasonableness of Goal.** Research also suggests that individuals are more likely to accept a goal if they perceive it to be reasonable (Latham and Yukl, 1975). It, therefore, follows that employees who regard management's goals for attendance as too high will not accept the goals and will, consequently, exhibit little or no improvement in attendance behavior. Thus, it is hypothesized that:

**H12: There is a negative association between employee absenteeism behavior and their perceptions of the reasonableness of management's attendance goals.**

### **Summary**

This chapter has presented a review of the literature pertaining to the control of employee absenteeism and particularly the use of positive reinforcement techniques and goal-setting. It has indicated that the effectiveness of a positive reinforcement approach to the control of absenteeism is influenced by several factors including schedules of reinforcement, the value attached to reinforcers, the contingency of reinforcers and the differences among individuals in their responses to stimuli. It has also been shown that goal-setting can be an important aspect of absenteeism control. In particular, provided they are accepted, specific challenging goals should result in more improved attendance behavior than vague "do your best" goals.

Twelve hypotheses were formulated based on research in these areas. They are:

**H1: There is a positive association between past attendance behavior and attendance behavior during the lottery program.**

**H2: There is a positive association between employee "liking" for the lottery program and changes in employee absenteeism while the program was in effect.**

**H3: There is a negative association between employee "liking" for the lottery program and employee absenteeism.**

H4: Employee perceptions of whether attendance is rewarded will be more favorable after implementation of the lottery program.

H5: There is a negative association between changes in employees' perceptions of whether attendance is rewarded and employee absenteeism behavior.

H6: There is a negative association between employee perceptions of the contingency of rewards for good attendance and employee absenteeism.

H7 Employee perceptions of what constitutes acceptable absenteeism will change during implementation of the lottery program.

H8: There is a positive association between employee perceptions of acceptable levels of absenteeism and employee absenteeism behavior.

H9: Employee perceptions of management's goals will be more favorable after implementation of the lottery program.

H10: There is a negative association between employee absenteeism and employee perceptions of the clarity and challenge of management's absenteeism goals.

H11: There is a negative association between employee's expectations of success in improving their attendance under the lottery program and their absenteeism behavior.

H12: There is a negative association between employee absenteeism behavior and their perceptions of the reasonableness of management's attendance goals.

In summary, therefore, it is hypothesized that the effect of a lottery program on employee absenteeism and attitudes is a function of:

1. employee pre-lottery attendance behavior;
2. employee feelings toward the lottery program;
3. employee perceptions of the contingency of rewards;

4. employee perceptions of what constitutes acceptable absenteeism;
5. employee perceptions of the clarity and challenge of management's goals for attendance;
6. employee perceptions of the reasonableness of management's goals; and
7. employee expectations of success in attaining these goals.

Examination of these hypotheses will provide insight into the effects of lottery-based incentives on the attendance patterns and perceptions of individual employees. This should enhance understanding of the application of positive reinforcement techniques and goal-setting principles and should indicate why lottery-based attendance control programs have the effects they do.

The next chapter will present a discussion of the procedures and methods employed to test these hypotheses.

### III. METHODOLOGY

#### Introduction

The purpose of this chapter is to discuss the methodology employed in the study. It presents a description of the research location and the lottery program, as well as a discussion of the measures, data collection methods and the analytical procedures employed in testing the hypotheses.

#### Research Location

This research was conducted in a "cut-and-sew" garment factory in Southwestern Virginia. The factory is one of six plants owned by the Maid Bess Corporation. It has about 150 employees of whom approximately 97% are women. Employees are on a piece rate pay system and are not paid when absent. Although they are guaranteed the minimum wage of \$3.35 an hour, their average hourly wages are \$4.50 with some workers earning up to \$9.00 per hour.

An attendance control policy was in effect at the plant prior to implementation of the lottery program. Employees with excessive absenteeism were subject to progressive discipline and termination. In addition, absenteeism was tied to the paid vacation program. The fewer days an employee was absent, the higher was the amount paid during vacation. The absenteeism rate was calculated daily. It was computed by dividing the number of absentees (disregarding those on va-

cation, jury duty and layoff) by the total number on the payroll for that day. The plant had an average absenteeism rate of 5.7% which is moderate for the garment industry.

### The Lottery Program

The lottery program was implemented for an entire year (July 1983 through June 1984). A year's length was chosen in order to (a) control for the influence of seasonal variation, and (b) test the endurance of the program. Under the program, if an employee had perfect attendance for a quarter, his or her name was entered twice in the lottery. If the employee had one absence during the quarter, his or her name was entered just once for the drawing. The prize (valued at approximately \$200) was given at the end of each quarter. In the first quarter the prize was a mantle clock while in the other three quarters it was a portable television or stereo cassette.

### Data Collection

The data for this study were collected as part of a larger study described in Scott et al. (1985). Absenteeism data were compiled from employee records on a monthly basis. In order to control for seasonal influences, baseline data were collected for 13 months prior to the implementation of the program (Period 1 - June 1982 through June 1983). Data were then collected for the year during which the program was

implemented (Period 2 - July 1983 through December 1983, and Period 3 - January 1984 through June 1984).

Biographical and attitudinal data were collected by means of a questionnaire specifically designed to assess employee attitudes and perceptions toward absenteeism. A copy of the questionnaire is presented in Appendix A.

The questionnaire data were collected in three "waves": Wave 1 - immediately prior to the announcement of the program; Wave 2 - after the program had been in effect for six months; and Wave 3 - after the program had been in effect for one year. All employees at the plant were asked to participate. The entire plant was shut down for approximately forty-five minutes for this purpose, and the employees were paid for their time. Employees who had other duties and were not able to complete the questionnaire at the designated time were given an envelope in which to mail it to the researchers at Virginia Tech. Figure 2 summarizes the data collection schedule.

TIME PERIOD	ACTIVITY
<b>PERIOD 1</b>	
June 1982 through June 1983	Collection of attendance data.
July 1983	Announcement of lottery program.
	Administration of questionnaire - Wave 1.
<b>PERIOD 2</b>	
July 1983 through December 1983	Collection of attendance data.
January 1984	Administration of questionnaire - Wave 2.
<b>PERIOD 3</b>	
January 1984 through June 1984	Collection of attendance data.
July 1984	Administration of questionnaire Wave 3.
	Termination of program.

**FIGURE 2 - DATA COLLECTION SCHEDULE**

## Measures of Variables

Seven variables were examined in this study. They are:

1. Employee absenteeism.
2. Employee liking for the lottery program.
3. Employee perceptions of the contingency of rewards.
4. Employee perceptions of acceptable absenteeism.
5. Employee perceptions of the clarity and challenge of management's goals.
6. Employee expectations of success in improving their attendance.
7. Employee perceptions of the reasonableness of management's attendance goals.

## **Measures of Absenteeism**

A review of the literature on employee absenteeism reveals that there is little consensus about the meaning or nature of absence from work. There is no uniform operational definition of absence; the term has been used to refer to sickness absence, absence for unknown causes, "certificated" absence and "uncertificated" absence (Chadwick-Jones et al., 1982). Researchers have also distinguished between voluntary absences and absences where the individual does not exercise choice (e.g. Steers and Rhodes, 1978).

The way in which absenteeism is defined depends to a large extent on the aspect of the phenomenon that is being studied. In this study, the concern was with the control of total absenteeism and, therefore, a broad definition of absence was appropriate. Absence from work was defined as any

failure to report for work for whatever reason other than vacation, jury duty, lay-off and clock-outs<sup>3</sup>.

Two measures of absence were used:

1. time lost index; and
2. frequency index.

The time lost index is a measure of the absolute absenteeism rate and is based on total number of days absent per employee adjusted for number of days worked. In this study it was computed for each wave using the following formula:

$$(\text{Total days absent} / \text{Total workdays} - \text{Total clockouts}) * 100$$

The frequency index is based on the number of incidences of absence per employee adjusted for the number of days worked, where an incidence is defined as any period of consecutive absences due to a single cause. It was computed for each wave as follows:

$$(\text{Total incidences} / \text{Total workdays} - \text{Total clockouts}) * 100$$

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<sup>3</sup> Clockouts refer to situations in which employees reported for work but were sent home because of lack of work.

The frequency index is generally regarded as a more accurate indicator of (controllable) absenteeism than the time lost index because the latter tends to be heavily weighted by long-term sickness (Chadwick-Jones et al., 1982). The frequency index is more effective in identifying absenteeism "problems". However, for purposes of comparison both measures were used in this study.

### **Attitudinal Measures**

Prior to the Scott et al. study, no comprehensive instrument existed for assessing employee attitudes and behaviors with respect to absenteeism and positive reinforcement programs. A questionnaire was therefore developed specifically for this purpose using a number of different theories in the absenteeism literature (Markham et al., 1984). The questionnaire is presented in the Appendix. Since this questionnaire was developed as part of a larger field experiment to compare different positive attendance programs, a number of the items do not relate directly to this study.

Six attitudinal variables were examined in relation to employee absenteeism. They are - (a) employee liking for the lottery program; (b) employee perceptions of the contingency of rewards; (c) employee perceptions of acceptable levels of absenteeism; (d) employee perceptions of management's goals; (e) employee expectations of success; and (f) employee per-

ceptions of the reasonableness of management's goals. The individual questionnaire items related to each hypothesis in this study and the related attitudinal variables are presented in Figure 3.

HYPOTHESES	VARIABLES	QUESTIONS	RESPONSES
H2 and H3	Employee liking for lottery program	I like the attendance program that was started in July ...	SA A ?A ?D D SD NA
H4, H5, H6	Perceptions of Contingency of Rewards	Good attendance is rewarded here.	SA A ?A ?D D SD NA
		Employees with good attendance get better work than employees with poor attendance records.	SA A ?A ?D D SD NA
		Employees with poor attendance records are likely to lose their jobs.	SA A ?A ?D D SD NA
H7 and H8	Perceptions of acceptable absenteeism	Speaking for yourself, what is an acceptable level of absenteeism?	_____ days a year
H9 and H10	Perceptions of management's goals	What do you think management's goal for absenteeism is for you? _ Perfect Attendance _ 3 or 4 days/year _ 7 days/year or more _ management does not seem to have a clear goal	_ 1 or 2 days/year _ 5 or 6 days/year
H11	Expectations of success	If I tried harder, I could improve my attendance.	SA A ?A ?D D SD NA
		Perfect attendance for a whole year is pretty easy to do.	SA A ?A ?D D SD NA
H12	Perceptions of reasonableness mgt.'s goals	Mgt's standards for attendance are too high.	SA A ?A ?D D SD NA

SA - Strongly Agree (1)

?D - Somewhat Disagree (4)

NA - Not applicable (7)

A - Agree (2)

D - Disagree (5)

?A - Somewhat Agree (3)

SD - Strongly Disagree (6)

**FIGURE 3 - QUESTIONNAIRE ITEMS**

## Analytical Procedures

The data were analyzed using a number of analytical techniques which included Pearson product-moment correlations, analysis of variance, Duncan's Multiple Range Test, Scheffe's Method For Multiple Comparisons, multiple regression analysis and step-wise regression analysis. The specific procedures used to test each hypothesis are described below.

H1 - The association between pre-lottery absenteeism patterns and absenteeism after implementation of the lottery program was tested by correlating absenteeism during the 13 months prior to the introduction of the program (period 1) with absenteeism during the program (periods 2 and 3). For purposes of comparison, the 13 month pre-lottery period was divided into 2 parts - seven months from June to December 1982 and six months from January to June 1983.

H2 - Univariate correlations were computed to examine the association between employee liking for the lottery program and changes in employee absenteeism after implementation of the program. Two new variables were created to represent the difference in employee absenteeism between periods 1 and 2, and between periods 2 and 3. These variables were then cor-

related with the measures of employee liking for the program in wave 2 and wave 3, respectively.

H3 - This hypothesis relates to a cross-sectional examination of the association between employee liking for the program and employee absenteeism. It was tested by correlating employee liking for the program in waves 2 and 3 with employee absenteeism during periods 2 and 3.

H4 - The hypothesis that employee perceptions of whether attendance is rewarded will change after introduction of the program was tested using the entire sample as well as two modified samples. The modified samples were used for purposes of comparison. One contained only those employees who were present in all three waves while the other contained those employees who were not present in all three waves. Analyses were carried out using the three items which measure employee perceptions of whether attendance is rewarded (see Figure 3) as well as the 3-item scale formed by combining them. The analyses involved the use of one-way ANOVA with a within-subjects design with one main effect and one observation per cell. Multiple comparisons were also done using Duncan's Multiple Range Test and Scheffe's Method for Multiple Comparisons.

H5 - In order to examine the association between employee absenteeism and changes in employee perceptions of whether attendance is rewarded, six new variables were created. These variables represent (a) changes in employee perceptions between waves 1 and 2, and (b) changes in employee perceptions between waves 2 and 3, for each of the three questionnaire items pertaining to perceptions of whether attendance is rewarded (see Figure 3).

Two correlational analyses were conducted. First, the three variables measuring changes in employee perceptions between waves 1 and 2 were individually correlated with employee absenteeism during period 2, and the variables measuring changes in perceptions between waves 2 and 3 were correlated with employee absenteeism during period 3.

The second analysis was carried out using scales. Two 3-item scales were created by combining the variables representing changes in perceptions between waves 1 and 2, and between waves 2 and 3. These two scales were correlated with employee absenteeism during period 2 and period 3, respectively.

H6 - This hypothesis relates to cross-sectional examination of the association between employee perceptions of the contingency of rewards and employee absenteeism. It was tested by computing two sets of correlations. First, the three items which measure employee perceptions of whether attendance is

rewarded (see Figure 3) were individually correlated with employee absenteeism for each of the three periods. Second, the three measures were combined to form scales for each wave. The scales were then correlated with the two measures of employee absenteeism.

H7 - The hypothesis that employee perceptions of what constitutes acceptable absenteeism will change after implementation of the program was tested using the entire sample, and the two modified samples described above. The analysis involved the use of one-way ANOVA, Duncan's Multiple Range Test and Scheffe's Method for Multiple Comparisons.

H8 - This hypothesis was tested by correlating employee perceptions of what constitutes acceptable absenteeism with both measures of employee absenteeism. Correlations were computed for the three time periods.

H9 - The hypothesis that employee perceptions of management's goals will change after implementation of the program was tested for both the entire sample and the two modified samples. It used an ANOVA procedure as well as Duncan's Multiple Range Test and Scheffe's Method for Multiple Comparisons.

H10 - Univariate correlations were computed to examine the relationship between employee perceptions of management's

goals for attendance in the three waves and employee attendance behavior during the three time periods.

H11 - This hypothesis was tested by correlating the two measures of employee expectations of success in improving their attendance with employee absenteeism. Correlations were computed for the three time periods. Because of very low inter-item correlations, the two measures were not combined to form a scale in the analyses.

H12 - This hypothesis was tested by correlating employee perceptions of the reasonableness of management's goals with employee absenteeism behavior for the three time periods.

### **Regression Analysis**

In addition to testing the individual hypotheses, exploratory regression analysis was also conducted. Multiple regression analysis was used to examine the linear association between employee absenteeism behavior and a combination of the factors described in hypotheses 1 to 12. The literature review suggests that a possible model for employee absenteeism behavior (Y) is:

$$Y = f(\text{pre-lottery attendance behavior, perceptions of contingency of rewards, liking for the program, perceptions of acceptable absenteeism, perceptions$$

of management's goals, perceptions of reasonableness of mgt.'s goals, expectations of success).

The multiple regression analysis was carried out for each of the three periods. In addition, step-wise regression was used to determine what combinations of factors explain the most variance.

Figure 4 on page 58 provides a summary of the variables and analytical procedures related to each hypothesis and to the overall model.

### Summary

This chapter has reported the characteristics of the population and described the research location. An explanation of the variable measures has also been presented and the data collection methods and statistical techniques used have been discussed. The next chapter will present the findings of the study.

VARIABLES										
ABSEN- TEEISM	ACCEP T	MGT. GOALS	PRE-LOT. ABSENT.	LIKING FOR PROG.	CONTIN- GENCY	ACCEP T	MGT. GOALS	EXPECT- ATIONS	REASON- ABLENESS	ANALYSIS
H1	X		X							CORRELATION
H2	X			X						CORRELATION
H3	X			X						CORRELATION
H4					X					ANOVA
H5	X				X					CORRELATION
H6	X				X					CORRELATION
H7		X								ANOVA
H8	X					X				CORRELATION
H9			X							ANOVA
H10	X						X			CORRELATION
H11	X							X		CORRELATION
H12	X								X	CORRELATION
MODEL	X		X	X	X	X	X	X	X	REGRESSION

**KEY**

- ACCEPT --- Employee perceptions of acceptable absenteeism.
- MGT. GOALS --- Employee perceptions of management's goals.
- LIKING FOR PROG. --- Employee liking for lottery program.
- CONTINGENCY --- Employee perceptions of contingency of rewards.
- PRE-LOT. ABSENT. --- Pre-lottery absenteeism.
- EXPECTATIONS --- Employee expectations of success.
- REASONABLENESS --- Employee perceptions of the reasonableness of management's attendance goals.
- ANALYSIS --- Analytical procedures used to test hypotheses.

FIGURE 4  
HYPOTHESES, VARIABLES AND ANALYTICAL PROCEDURES

## IV. RESEARCH FINDINGS

### Introduction

This chapter presents the findings of the study. The first section describes characteristics of the population and sample studied. Section two discusses the measures used in the study and describes the inter-correlations among the items. The third section presents findings relevant to each hypothesis examined and to the overall model.

### Population and Sample Characteristics

The population consists of non-supervisory employees of a "cut-and-sew" garment factory in Southwestern Virginia, while the sample consists of only those employees for whom both absenteeism data and usable questionnaire data were available. The sizes of the population and sample vary across the three time periods because of employee turnover and new entrants. The population contains 158 employees in period 1, 148 in period 2 and 144 in period 3, while the sample contains 133, 98 and 107, in each of the three periods, respectively.

In both the population and the sample, subjects range in age from 17 to 63 and are predominantly female. Distributions by gender and time period for the population and the sample are presented in Tables 1 and 2, respectively. The tables (pages 61 and 62) show the absolute number of each gender, with the percentage number indicated in parentheses.

In all three time periods the sample was at least 66% of the population. It should be noted that the sample contained only one male in period 1 and had no males in either periods 2 or 3 (see Table 2). Because males account for only approximately 2% of the population the effect of gender could not be addressed.

**TABLE 1**  
**DISTRIBUTION OF POPULATION BY WAVE AND GENDER**

GENDER	TIME PERIOD		
	1	2	3
Male	4 ( 2.5%)	3 ( 2.0%)	3 ( 2.1%)
Female	154 (97.5%)	145 (98.0%)	141 (97.9%)
Total	158	148	144

**KEY**

Time Period 1 - June 1982 to June 1983

Time Period 2 - July 1983 to December 1983

Time Period 3 - January 1984 to June 1984

**TABLE 2**  
**DISTRIBUTION OF SAMPLE BY WAVE AND GENDER**

GENDER	TIME PERIOD		
	1	2	3
Male	1 ( .8%)	0	0
Female	132 (99.2%)	98 (100%)	107 (100%)
Total	133	98	107

**KEY**

Time Period 1 - June 1982 to June 1983

Time Period 2 - July 1983 to December 1983

Time Period 3 - January 1984 to June 1984

Absenteeism information for the sample is presented in Tables 3 to 5. Table 3 on page 65 indicates the average number of days absent per employee (time lost index) as well as the average number of incidences of absence per employee (frequency index) in each of the three time periods. The table shows that during period 2 there was a slight decline in both the average number of days absent and the average number of incidences of absence. However, in the third period, the average absenteeism rates increased to slightly above what they were in the first period.

Tables 4 and 5 present a frequency distribution of the number of days absent and the number of incidences of absence, respectively. In both tables, the distribution is shown for the three time periods and, for purposes of comparison, the distribution for period 1 is divided into two - the seven month period from June 1982 to December 1982, and the six month period from January 1983 to June 1983. In Table 4 (page 66), the first column lists categories for the number of days absent while in Table 5 (page 67) the first column lists categories for the number of incidences of absence. The remaining columns in both tables give the absolute number of people absent for each category with the percentage number of people absent in parentheses.

Both tables indicate that there was a noticeable improvement in attendance during the first six months of the program (period 2). For example, during this period, 19% of

employees had perfect attendance, in comparison to 7% during the same period of the previous year. However, attendance declined in the third period with only 13% of employees having perfect attendance. This was just slightly above the figure for January to June of the previous year (12%).

**TABLE 3**  
**AVERAGE ABSENTEEISM BY TIME PERIOD**

TIME PERIOD	AVERAGE ABSENTEEISM	
	T. I.*	F. I.*
1 (June 82/June 83)	4.026	2.847
2 (July 83/Dec. 83)	3.955	2.738
3 (Jan. 84/June 84)	4.558	3.157

\* Time Lost Index = (Total no. of days absent/Total workdays - Total clockouts) \* 100

\* Frequency Index = (Total no. of incidences/Total workdays - Total clockouts) \* 100

**TABLE 4**

**DISTRIBUTION OF NUMBER OF DAYS ABSENT AMONG SUBJECTS**

DAYS ABSENT	NO. OF SUBJECTS			
	TIME PERIOD			
	1	2	3	
	JUNE/DEC 82	JAN/JUN 83	JULY/DEC 83	JAN/JUNE 84
0 < 1	8 ( 7.3%)	16 (11.9%)	19 (19.4%)	14 (13.1%)
1 - 5	56 (51.4)	63 (47.0)	45 (45.9)	56 (52.3)
6 - 10	26 (23.9)	30 (22.4)	20 (20.4)	21 (19.6)
11 - 15	10 (9.2)	11 (8.2)	11 (11.2)	9 (8.4)
16 - 20	4 (3.7)	2 (1.5)	1 ( 1.0)	1 ( .9)
21 - 25	4 (3.7)	2 (1.5)	1 ( 1.0)	1 ( .9)
Over 25	1 ( .9)	3 (2.2)	0	2 (1.9)
Total	109	134	98	107

**TABLE 5**  
**DISTRIBUTION OF NUMBER OF INCIDENCES OF ABSENCE AMONG**  
**SUBJECTS**

INCI- DENCES	NO. OF SUBJECTS			
	TIME PERIOD			
	1	2	3	
	JUNE/DEC 82	JAN/JUNE 83	JULY/DEC 83	JAN/JUNE 84
0 < 1 (13.0%)	8 ( 7.3%)	16 (11.9%)	19 (19.4%)	14
1 - 5	75 (68.8)	79 (59.0)	59 (60.2)	70 (65.4)
6 - 10	17 (15.6)	27 (20.2)	16 (16.3)	19 (17.8)
11 - 15	8 ( 7.3)	11 ( 8.2)	3 ( 3.1)	3 ( 2.8)
16 - 20	1 ( .9)	1 ( .9)	1 ( 1.0)	1 ( .9)
21 - 25	0	0	0	0
Over 25	0	0	0	0
<b>Total</b>	<b>109</b>	<b>134</b>	<b>98</b>	<b>107</b>

## Measurement of Variables

As discussed in chapter 3, six attitudinal variables were examined in relation to employee absenteeism. Of these, two were measured by more than one questionnaire item. These two variables are (a) employee perceptions of the contingency of rewards - measured by three items, and (b) employee expectations of success - measured by two items (see Figure 3). In addition to these two variables, a third variable was also created in order to test hypothesis 5. This variable relates to changes in employee perceptions of the contingency of rewards and was also measured by three items. Table 6 on page 69 presents these variables, and the corresponding average interitem correlations and alpha coefficients. The correlations and alpha coefficients are presented for each wave.

As shown in Table 6, the internal consistency (indicated by coefficient alpha) of the 3-item scale measuring employee perceptions of the contingency of rewards is marginal for all three waves. The scale measuring changes in employee perceptions of the contingency of rewards has much less internal consistency, while there is very little internal consistency in the scale measuring employee expectations of success, particularly for waves 1 and 2.

TABLE 6

AVERAGE INTERITEM CORRELATIONS & VALUES OF CRONBACH'S ALPHA

VARIABLE	NO. OF ITEMS	AVERAGE CORRELATION	COEFF. ALPHA
<hr/>			
Perceptions of contingency of rewards			
Wave 1	3	.33	.60
Wave 2	3	.34	.61
Wave 3	3	.40	.67
<hr/>			
Changes in perceptions of contingency of rewards			
Wave 1 to wave 2	3	.17	.38
Wave 2 to wave 3	3	.22	.46
<hr/>			
Expectations of success			
Wave 1	2	-.01	.02
Wave 2	2	-.04	.08
Wave 3	2	.18	.31
<hr/>			

## Results of Hypothesis Testing

This section presents the findings relevant to the hypotheses concerning the impact of a lottery program on employee absenteeism.

**H1: There is a positive association between past attendance behavior and attendance behavior during the lottery program.**

Table 7 presents the correlations between pre-lottery absenteeism (Time Period 1) and absenteeism during the program (Time Periods 2 and 3). Correlations were computed for both the time lost index (number of days absent) and the frequency index (number of incidences of absence). The table indicates that there is a significant positive relationship ( $\alpha = .001$ ) between absenteeism during both portions of period 1 and absenteeism during periods 2 and 3. The hypothesis that there is a positive association between absenteeism behavior before the introduction of the lottery program and absenteeism behavior during the program was therefore supported.

TABLE 7  
CORRELATIONS BETWEEN PRE-LOTTERY ABSENTEEISM  
AND ABSENTEEISM DURING THE LOTTERY PROGRAM

	CORRELATIONS			
	(June/Dec. 82)		PERIOD 1 (Jan./June 83)	
	T. I.	F. I.	T. I.	F. I.
Period 2 (July/Dec 83)	.56***	.67***	.57***	.69***
Period 3 (Jan/June 84)	.49***	.61***	.56***	.64***

T. I. - Time Lost Index

F. I. - Frequency Index

\*\*\* significance level:  $p < .001$

**H2: There is a positive association between employee "liking" for the lottery program and changes in employee absenteeism during the time the program was in effect.**

This hypothesis is based on the notion that employees who report that they like the lottery program will exhibit better attendance behavior than they did prior to implementation of the program. The hypothesis was tested by correlating the measure of employee "liking" for the program with changes in employee absenteeism during the program. The correlations are shown in Table 8. The measures of changes in absenteeism are listed in the first column of the table. The second column shows the correlations between employee liking for the program in wave 2 and changes in absenteeism between periods 1 and 2. The final column shows correlations between employee liking for the program in wave 3 and changes in absenteeism between time periods 2 and 3.

None of the correlations were found to be significant at the .05 level of significance. The null hypothesis of no association between employee "liking" for the lottery program and changes in employee absenteeism during the program was therefore not rejected.

**TABLE 8**  
**CORRELATIONS BETWEEN CHANGES IN EMPLOYEE**  
**ABSENTEEISM AND EMPLOYEE LIKING FOR THE PROGRAM**

	CORRELATIONS	
	EMPLOYEE LIKING FOR PROGRAM	
	WAVE 2	WAVE 3
Change in absenteeism between periods 1 and 2 - Time Lost Index	-.12	
Change in absenteeism between periods 1 and 2 - Frequency Index	-.14	
Change in absenteeism between periods 2 and 3 - Time Lost Index		.14
Change in absenteeism between periods 2 and 3 - Frequency Index		.14

**H3: There is a negative association between employee "liking" for the lottery program and employee absenteeism.**

This hypothesis relates to an examination of the association between employee absenteeism and employee liking for the lottery program from a cross-sectional viewpoint. It is based on the notion that employees who report liking the lottery program will exhibit less absenteeism than those who do not.

Table 9 shows the results of correlating the measure of employee liking for the program with the two measures of employee absenteeism. These correlations were computed for periods 2 and 3 - the duration of the program. The first column of the table lists the measures of absenteeism while the second and third columns show the correlations for period 2 and period 3, respectively.

The correlations were not significant at the .05 level. Consequently, the null hypothesis of no association between employee absenteeism and employee "liking" for the program was not rejected.

**TABLE 9**  
**CORRELATIONS BETWEEN EMPLOYEE ABSENTEEISM**  
**AND EMPLOYEE LIKING FOR THE LOTTERY PROGRAM**

	CORRELATIONS	
	EMPLOYEE LIKING FOR PROGRAM	
	WAVE 2	WAVE 3
<b>Absenteeism - Period 2</b>		
Time Lost Index	.09	
Frequency Index	.07	
<b>Absenteeism - Period 3</b>		
Time Lost Index		-.03
Frequency Index		-.04

**H4: Employee perceptions of whether attendance is rewarded will be more favorable after implementation of the lottery program.**

Employee perceptions of whether attendance is rewarded were compared across the three waves using ANOVA, Duncans's Multiple Range Test and Scheffe's Method for Multiple Comparisons. The tests were carried out on the entire sample and on two modified samples. One modified sample contained employees who were present in all three waves while the other contained employees who were not present in all three waves.

As discussed previously, perceptions of whether attendance is rewarded were measured by three items. For purposes of comparison and explanation, the analyses were carried out first on the 3-item scale and then on the individual items. Tables 10.A to 12.B present the results of the analyses on the 3-item scale for the total sample and the two modified samples.

As shown in Tables 10.A and 10.B (page 78), all three tests indicate the existence of significant differences in perceptions of the contingency of rewards within the total sample. The ANOVA procedure (Table 10.A) indicates that there is a significant difference at the .01 level while the Duncan and Scheffe tests indicate that perceptions in both waves 2 and 3 differ significantly from perceptions in wave 1. However, contrary to the hypothesis, the means for each wave

indicate that the change in perceptions was not favorable. Wave 1 has the highest mean response indicating that perceptions of the contingency of rewards were strongest in that wave.

Tables 11.A and 11.B on page 79 show the results of the analysis on the sample containing only employees who were present in all three waves (Modified Sample 1). Both the ANOVA procedure and the Duncan test indicate a significant difference in employee perceptions of whether attendance is rewarded between wave 1, on the one hand, and waves 2 and 3 on the other. However, the results of the Scheffe procedure indicate that there were no significant changes in perceptions between the three waves.

The results of the analysis for employees who were not present in all three waves are shown in Tables 12.A and 12.B on page 80. In this case, none of the three tests found a significant difference in employee perceptions of the contingency of rewards across the three waves.

**TABLE 10.A**

**PERCEPTIONS OF CONTINGENCY OF REWARDS - ANALYSIS OF VARIANCE**

**(Total Sample)**

<b>SOURCE</b>	<b>DF</b>	<b>TYPE I SS</b>	<b>F-VALUE</b>	<b>PR &gt; F</b>
Wave	2	58.433	5.36	0.0056
Subj	147	2953.441	3.69	0.0001

**TABLE 10.B**

**PERCEPTIONS OF CONTINGENCY OF REWARDS - DUNCAN & SCHEFFE**

**COMPARISON ACROSS WAVES (Total Sample)**

<b>DUNCAN &amp; SCHEFFE GROUPINGS*</b>	<b>MEAN</b>	<b>N</b>	<b>WAVE</b>
A	10.876	121	1
B	10.033	91	2
B	9.949	99	3

\* Means with same letter are not significantly different

**TABLE 11.A**

**PERCEPTIONS OF CONTINGENCY OF REWARDS - ANALYSIS OF VARIANCE**

**(Modified Sample 1)**

<b>SOURCE</b>	<b>DF</b>	<b>TYPE I SS</b>	<b>F-VALUE</b>	<b>PR &gt; F</b>
Wave	2	34.398	3.05	0.0508
Subj	61	1626.758	4.74	0.0001

**TABLE 11.B**

**PERCEPTIONS OF CONTINGENCY OF REWARDS - DUNCAN & SCHEFFE**

**COMPARISON ACROSS WAVES (Modified Sample 1)**

<b>GROUPINGS*</b>	<b>MEAN</b>	<b>N</b>	<b>WAVE</b>
<b>DUNCAN</b>			
A	10.677	62	1
B	9.790	62	2
B	9.742	62	3
<b>SCHEFFE</b>			
A	10.677	62	1
A	9.790	62	2
A	9.742	62	3

\* Means with same letter are not significantly different

**TABLE 12.A**

**PERCEPTIONS OF CONTINGENCY OF REWARDS - ANALYSIS OF VARIANCE**

**(Modified Sample 2)**

<b>SOURCE</b>	<b>DF</b>	<b>TYPE I SS</b>	<b>F-VALUE</b>	<b>PR &gt; F</b>
Wave	2	20.468	2.24	0.1194
Subj	86	1410.990	3.59	0.0001

**TABLE 12.B**

**PERCEPTIONS OF CONTINGENCY OF REWARDS - DUNCAN & SCHEFFE**

**COMPARISON ACROSS WAVES (Modified Sample 2)**

<b>DUNCAN &amp; SCHEFFE GROUPINGS*</b>	<b>MEAN</b>	<b>N</b>	<b>WAVE</b>
A	10.883	59	1
A	10.133	29	2
A	10.051	37	3

\* Means with same letter are not significantly different

The results of the analyses on the individual items are shown in Tables 13.A to 21.B. Tables 13.A to 15.B present the results for the item which directly measures perceptions that attendance is rewarded. The results of the three tests indicate that, for the total sample, there is a significant difference in perceptions across the three waves. The ANOVA procedure (Table 13.A on page 83) shows a difference at the .004 level while both the Duncan and Scheffe tests (Table 13.B) indicate that while there is a significant difference between wave 1 and wave 2, neither of these waves differ significantly from wave 3. The results also indicate that the change in perceptions between wave 1 and wave 2 was favorable. That is, employees felt more strongly in wave 2 that attendance is rewarded ( $X = 3.8$ ) than they did in wave 1 ( $X = 3.2$ ). This is in contrast to the change demonstrated by the 3-item scale discussed above.

Results for the sample containing only employees who were present in all three waves are shown in Tables 14.A and 14.B on page 84. Again, the results show that employee perceptions that attendance is rewarded in wave 1 differ significantly from their perceptions in waves 2 and 3. The results also indicate that the change in perceptions was favorable.

Tables 15.A and 15.B (page 85) present results for the sample containing employees who were not present in all three

waves. In this case, none of the tests found significant differences between employee perceptions in the three waves.

**TABLE 13.A**

**PERCEPTIONS THAT ATTENDANCE IS REWARDED- ANALYSIS OF VARIANCE**

**(Total Sample)**

<b>SOURCE</b>	<b>DF</b>	<b>TYPE I SS</b>	<b>F-VALUE</b>	<b>PR &gt; F</b>
Wave	2	16.733	5.72	0.0039
Subj	149	594.590	2.73	0.0001

**TABLE 13.B**

**PERCEPTIONS THAT ATTENDANCE IS REWARDED- DUNCAN & SCHEFFE**

**COMPARISON ACROSS WAVES (Total Sample)**

<b>DUNCAN &amp; SCHEFFE GROUPINGS*</b>	<b>MEAN</b>	<b>N</b>	<b>WAVE</b>
A	3.771	96	2
B A	3.510	104	3
B	3.218	124	1

\* Means with same letter are not significantly different

**TABLE 14.A**

**PERCEPTIONS THAT ATTENDANCE IS REWARDED- ANALYSIS OF VARIANCE**

**(Modified Sample 1)**

<b>SOURCE</b>	<b>DF</b>	<b>TYPE I SS</b>	<b>F-VALUE</b>	<b>PR &gt; F</b>
Wave	2	15.353	5.49	0.0051
Subj	66	347.503	3.76	0.0001

**TABLE 14.B**

**PERCEPTIONS THAT ATTENDANCE IS REWARDED- DUNCAN & SCHEFFE**

**COMPARISON ACROSS WAVES (Modified Sample 1)**

<b>DUNCAN &amp; SCHEFFE GROUPINGS*</b>	<b>MEAN</b>	<b>N</b>	<b>WAVE</b>
A	3.642	67	2
A	3.508	67	3
B	3.000	67	1

\* Means with same letter are not significantly different

**TABLE 15.A**

**PERCEPTIONS THAT ATTENDANCE IS REWARDED- ANALYSIS OF VARIANCE**

**(Modified Sample 2)**

<b>SOURCE</b>	<b>DF</b>	<b>TYPE I SS</b>	<b>F-VALUE</b>	<b>PR &gt; F</b>
Wave	2	7.481	2.29	0.1147
Subj	82	241.341	1.80	0.0229

**TABLE 15.B**

**PERCEPTIONS THAT ATTENDANCE IS REWARDED- DUNCAN & SCHEFFE**

**COMPARISON ACROSS WAVES (Modified Sample 2)**

<b>DUNCAN &amp; SCHEFFE GROUPINGS*</b>	<b>MEAN</b>	<b>N</b>	<b>WAVE</b>
A	4.069	29	2
A	3.514	37	3
A	3.470	57	1

\* Means with same letter are not significantly different

The second measure of employee perceptions of the contingency of rewards was the item related to perceptions that good attenders get good work. Results of the analyses conducted on this item are presented in Tables 16.A to 18.B.

As shown in the tables, (pages 87 to 89) for all three samples, the tests indicate that there was a significant change in employee perceptions that good attenders get good work between wave 1, on the one hand, and waves 2 and 3, on the other. However, for the sample containing employees who were not present in all three waves, (Modified Sample 2) the results of the Duncan and Scheffe tests differ. According to the Duncan test, there is no significant difference between waves 2 and 3 but they both differ significantly from wave 1. The Scheffe test also indicates that there is a significant difference between waves 1 and 2 but it did not find a significant difference between wave 1 and wave 3. As for the 3-item scale, the means for each wave indicate that the change in perceptions was not in a favorable direction.

**TABLE 16.A**  
**PERCEPTIONS THAT GOOD ATTENDERS GET GOOD WORK -**  
**ANALYSIS OF VARIANCE**  
**(Total Sample)**

SOURCE	DF	TYPE I SS	F-VALUE	PR > F
Wave	2	41.172	13.06	0.0001
Subj	152	496.295	2.07	0.0001

**TABLE 16.B**  
**PERCEPTIONS THAT GOOD ATTENDERS GET GOOD WORK -**  
**DUNCAN & SCHEFFE**  
**COMPARISON ACROSS WAVES (Total Sample)**

DUNCAN & SCHEFFE GROUPINGS*	MEAN	N	WAVE
A	3.432	132	1
B	2.810	105	3
B	2.636	96	2

\* Means with same letter are not significantly different

**TABLE 17.A**  
**PERCEPTIONS THAT GOOD ATTENDERS GET GOOD WORK -**  
**ANALYSIS OF VARIANCE**  
**(Modified Sample 1)**

SOURCE	DF	TYPE I SS	F-VALUE	PR > F
Wave	2	22.798	6.63	0.0018
Subj	70	245.493	2.04	0.0002

**TABLE 17.B**  
**PERCEPTIONS THAT GOOD ATTENDERS GET GOOD WORK -**  
**DUNCAN & SCHEFFE**  
**COMPARISON ACROSS WAVES (Modified Sample 1)**

DUNCAN & SCHEFFE GROUPINGS*	MEAN	N	WAVE
A	3.338	71	1
B	2.690	71	3
B	2.606	71	2

\* Means with same letter are not significantly different

**TABLE 18.A**  
**PERCEPTIONS THAT GOOD ATTENDERS GET GOOD WORK -**  
**ANALYSIS OF VARIANCE**  
**(Modified Sample 2)**

SOURCE	DF	TYPE I SS	F-VALUE	PR > F
Wave	2	14.710	7.24	0.0021
Subj	83	250.071	2.96	0.0001

**TABLE 18.B**  
**PERCEPTIONS THAT GOOD ATTENDERS GET GOOD WORK - DUNCAN &**  
**SCHEFFE**  
**COMPARISON ACROSS WAVES (Modified Sample 2)**

GROUPINGS*	MEAN	N	WAVE
<b>DUNCAN</b>			
A	3.508	61	1
B	3.028	34	3
B	2.667	25	2
<b>SCHEFFE</b>			
A	3.508	61	1
B A	3.028	34	3
B	2.667	25	2

\* Means with same letter are not significantly different

The final item measuring employee perceptions of the contingency of rewards relates to perceptions that poor attenders are fired. Tables 19.A to 21.B present the results of the analyses for this item.

As shown in Tables 19.A and 19.B (page 91) and Tables 20.A and 20.B (page 92) significant differences were found in the total sample and in the sample containing employees who were present in all three waves. For both, employee perceptions that poor attenders are fired changed in an unfavorable direction between wave 1 and waves 2 and 3.

The results for the sample containing only employees who were not present in all 3 waves are slightly different (Tables 21.A and 21.B on page 93). While the Duncan and Scheffe tests indicate the existence of significant differences in perceptions between wave 1 and wave 3, they show that wave 2 did not differ significantly from either of the two. It should be noted also that the large differences in sample sizes in each wave could limit the reliability of these results.

**TABLE 19.A**  
**PERCEPTIONS THAT POOR ATTENDERS ARE FIRED -**  
**ANALYSIS OF VARIANCE**  
**(Total Sample)**

SOURCE	DF	TYPE I SS	F-VALUE	PR > F
Wave	2	30.663	12.77	0.0001
Subj	153	600.895	3.27	0.0001

**TABLE 19.B**  
**PERCEPTIONS THAT POOR ATTENDERS ARE FIRED - DUNCAN & SCHEFFE**  
**COMPARISON ACROSS WAVES (Total Sample)**

DUNCAN & SCHEFFE GROUPINGS*	MEAN	N	WAVE
A	4.237	131	1
B	3.640	98	2
B	3.596	104	3

\* Means with same letter are not significantly different

**TABLE 20.A**  
**PERCEPTIONS THAT POOR ATTENDERS ARE FIRED -**  
**ANALYSIS OF VARIANCE**  
**(Modified Sample 1)**

SOURCE	DF	TYPE I SS	F-VALUE	PR > F
Wave	2	16.516	6.85	0.0015
Subj	70	364.000	4.31	0.0001

**TABLE 20.B**  
**PERCEPTIONS THAT POOR ATTENDERS ARE FIRED -**  
**DUNCAN & SCHEFFE**  
**COMPARISON ACROSS WAVES (Modified Sample 1)**

DUNCAN & SCHEFFE GROUPINGS*	MEAN	N	WAVE
A	4.056	71	1
B	3.521	71	3
B	3.423	71	2

\* Means with same letter are not significantly different

**TABLE 21.A**  
**PERCEPTIONS THAT POOR ATTENDERS ARE FIRED -**  
**ANALYSIS OF VARIANCE**  
**(Modified Sample 2)**

SOURCE	DF	TYPE I SS	F-VALUE	PR > F
Wave	2	10.230	4.51	0.0176
Subj	82	223.131	2.40	0.0020

**TABLE 21.B**  
**PERCEPTIONS THAT POOR ATTENDERS ARE FIRED -**  
**DUNCAN & SCHEFFE**  
**COMPARISON ACROSS WAVES (Modified Sample 2)**

DUNCAN & SCHEFFE GROUPINGS*	MEAN	N	WAVE
A	4.450	60	1
B A	4.172	29	2
B	3.758	33	3

\* Means with same letter are not significantly different

**H5: There is a negative association between changes in employees' perceptions of whether attendance is rewarded and employee absenteeism behavior.**

The association between employee absenteeism and changes in employee perceptions of whether attendance is rewarded was examined using two sets of correlational analyses. First, the three variables which measure changes in employee perceptions of whether attendance is rewarded (see Figure 3) were individually correlated with employee absenteeism. The results of this analysis are presented in Table 22 on page 96.

The first column of Table 22 lists the items which measured the changes which occur in employees' perceptions of whether attendance is rewarded, between waves 1 and 2 and between waves 2 and 3. The second and third columns present the correlations between changes in employee perceptions between waves 1 and 2 and employee absenteeism in period 2. The fourth and fifth columns present correlations between changes in employee perceptions between waves 2 and 3 and employee absenteeism in period 3. Correlations are presented for both measures of absenteeism. No significant relationships between changes in employee perceptions of whether attendance is rewarded and employee absenteeism were found at the .05 level of significance.

For the second set of correlational analyses, the three variables measuring changes in employee perceptions of

whether attendance is rewarded between waves 1 and 2, and between waves 2 and 3 were combined to form scales. The two new variables created were then correlated with employee absenteeism. Table 23 on page 97 presents the results of this analysis. Again, no significant relationships were found. The hypothesis of a negative association between changes in employee perceptions of whether attendance is rewarded and employee absenteeism behavior was therefore not supported by either set of analyses.

**TABLE 22**

**CORRELATIONS BETWEEN EMPLOYEE ABSENTEEISM & CHANGES IN PERCEPTIONS OF WHETHER ATTENDANCE IS REWARDED (ITEMS)**

	EMPLOYEE ABSENTEEISM			
	PERIOD 2		PERIOD 3	
	T. I.	F. I.	T. I.	F. I.
Change in perception that attendance is rewarded (wave 1 to wave 2)	-.10	-.08		
Change in perception that good attenders get good work (wave 1 to wave 2)	.09	.13		
Change in perception that poor attenders are fired (wave 1 to wave 2)	.05	-.06		
Change in perception that attendance is rewarded (wave 2 to wave 3)			.04	.07
Change in perception that good attenders get good work (wave 2 to wave 3)			.10	-.01
Change in perception that poor attenders are fired (wave 2 to wave 3)			.09	-.10

**TABLE 23**

**CORRELATIONS BETWEEN EMPLOYEE ABSENTEEISM & CHANGES IN PERCEPTIONS OF WHETHER ATTENDANCE IS REWARDED (SCALE)**

	EMPLOYEE ABSENTEEISM			
	PERIOD 2		PERIOD 3	
	T. I.	F. I.	T. I.	F. I.
Change in perception that attendance is rewarded (wave 1 to wave 2)	.02	.09		
Change in perception that attendance is rewarded (wave 2 to wave 3)			.07	.09

T. I. - Time Lost Index

F. I. - Frequency Index

**H6: There is a negative association between employee perceptions of the contingency of rewards for good attendance and employee absenteeism.**

This hypothesis relates to a cross-sectional analysis of the relationship between employee absenteeism and employee perceptions of the contingency of rewards for good attendance. It is based on the notion that employees who feel that good attendance is rewarded will exhibit less absenteeism than those who do not. The hypothesis was tested using two sets of correlational analyses. First, the three variables which measure employee perceptions of the contingency of rewards (see Figure 3) were individually correlated with employee absenteeism. This was done for all three waves. Table 24 on page 101 shows the correlations computed.

As indicated in the table, the results of the analysis were mixed. The only factor found to correlate significantly to either measure of absenteeism in period 1 was employee perceptions that good attenders get good work. The hypothesis of a negative association was supported although the correlation with the time lost index was only marginally significant at the .10 level. Employee perceptions that good attenders get good work in wave 2, was found to be significantly related only to the frequency index in time period 2. In addition, the relationship was only significant at the .10 level and was in the opposite direction from that hy-

pothesized. Employee perceptions that poor attenders are fired was found to be related to both measures of absenteeism at the .05 level of significance. However, the relationship was also in the opposite direction from that hypothesized.

Employee perceptions in wave 3 that good attenders get good work was positively related to both measures of absenteeism in time period 3, at the .10 level. Perceptions that poor attenders are fired was related to the frequency index, but only at the .10 level. Again the relationship was in the opposite direction from that hypothesized. The item which directly measures employee perceptions of whether good attendance is rewarded was not found to be significantly related to either measure of employee absenteeism in any of the time periods.

The second set of correlational analyses involved the creation of scales by combining the three measures of employee perceptions of the contingency of rewards. This was done for each of the three waves. The three new variables created were then correlated with both measures of employee absenteeism. The correlations computed are shown in Table 25 on page 103.

The results of this analysis were also mixed. No significant relationship was found between employee absenteeism in period 1 and employee perceptions of the contingency of rewards in wave 1. In the second period, although the relationship was found to be significant at the .05 level for

both measures of absenteeism, it was in the opposite direction from that hypothesized. Finally, in wave 3 the relationship to the frequency index was significant at the .05 level but again, was in the opposite direction from that hypothesized. There was no significant relationship to the time lost index.

**TABLE 24**

**CORRELATIONS BETWEEN EMPLOYEE ABSENTEEISM & PERCEPTIONS**  
**OF THE CONTINGENCY OF REWARDS FOR ATTENDANCE (ITEMS)**

	EMPLOYEE ABSENTEEISM					
	PERIOD 1		PERIOD 2		PERIOD 3	
	T. I.	F. I.	T. I.	F. I.	T. I.	F. I.
<b>WAVE 1</b>						
Good attendance is rewarded	.06	.05				
Good attenders get good work	-.16+	-.18*				
Poor attenders are fired	.04	.03				
<b>WAVE 2</b>						
Good attendance is rewarded			.11	.07		
Good attenders get good work			.14	.17+		
Poor attenders are fired			.21*	.24*		
<b>WAVE 3</b>						
Good attendance is rewarded					.05	.11
Good attenders get good work					.16+	.18+
Poor attenders are fired					.11	.19

Table 24 (cont.)

T. I. - Time Lost Index

F. I. - Frequency Index

+ significance level:  $.05 < p < .10$

\* significance level:  $.01 < p < .05$

TABLE 25

CORRELATIONS BETWEEN EMPLOYEE ABSENTEEISM & PERCEPTIONS  
OF THE CONTINGENCY OF REWARDS FOR ATTENDANCE (SCALE)

	EMPLOYEE ABSENTEEISM					
	PERIOD 1		PERIOD 2		PERIOD 3	
	T. I.	F. I.	T. I.	F. I.	T. I.	F. I.
<hr/>						
WAVE 1						
Perceptions that attendance is rewarded/absenteeism is punished	-.03	-.04				
WAVE 2						
Perceptions that attendance is rewarded/absenteeism is punished			.21*	.23*		
WAVE 3						
Perceptions that attendance is rewarded/absenteeism is punished					.15	.22*

T. I. - Time Lost Index

F. I. - Frequency Index

\* significance level: .01 < p < .05

**H7: Employee perceptions of what constitutes acceptable absenteeism will change after implementation of the lottery program.**

Employee perceptions of what constitutes acceptable absenteeism were compared across the three waves using ANOVA, Duncan's Multiple Range Test and Scheffe's Method for Multiple Comparisons. The tests were carried out on the entire sample and two modified samples.

Tables 26.A and 26.B on page 106 present the results of the total sample analysis. Both tables indicate the existence of significant differences in employee perceptions of what constitutes acceptable absenteeism across the three waves. The ANOVA procedure (Table 26.A) indicates a difference at the .002 level of significance. Both the Duncan and Scheffe tests indicate that there were no significant differences between waves 2 and 3, but both these waves differ significantly from wave 1. As shown in Table 26.B, the mean in wave 2 was significantly lower than it was in wave 1. This indicates that during the first six months of the program there was a significant decline in the level of absenteeism which employees perceived as acceptable. Further, although there was an increase in wave 3, it was not significantly above the wave 2 level.

Tables 27.A and 27.B on page 107 present the results of the analysis for only those employees who were present in all

three waves (Modified Sample 1). In this case, none of the tests showed significant differences between the waves. It should be noted, however, that the modified sample contained only 67 subjects.

The results of the analysis for subjects who were not present in all three waves (Modified Sample 2) are shown in Tables 28.A and 28.B on page 108. As indicated, the results are very similar to those for the total sample. All three tests - ANOVA, Duncan and Scheffe - indicate the existence of significant differences in employee perceptions between the waves. The ANOVA procedure (Table 28.A) indicates a difference at the .0001 level of significance while both the Duncan and Scheffe tests indicate that while there were no significant differences between waves 2 and 3, both these waves differ significantly from wave 1. In addition, as with the total sample, the means indicate that the change in perceptions of acceptable absenteeism was favorable.

**TABLE 26.A**

**PERCEPTIONS OF ACCEPTABLE ABSENTEEISM - ANALYSIS OF VARIANCE**

**(Total Sample)**

<b>SOURCE</b>	<b>DF</b>	<b>TYPE I SS</b>	<b>F-VALUE</b>	<b>PR &gt; F</b>
Wave	2	236.647	6.50	0.0019
Subj	148	13307.631	4.94	0.0001

**TABLE 26.B**

**PERCEPTIONS OF ACCEPTABLE ABSENTEEISM - DUNCAN & SCHEFFE**

**COMPARISON ACROSS WAVES (Total Sample)**

<b>DUNCAN &amp; SCHEFFE GROUPINGS*</b>	<b>MEAN</b>	<b>N</b>	<b>WAVE</b>
A	10.703	118	1
B	9.104	106	3
B	8.778	98	2

\* Means with same letter are not significantly different

**TABLE 27.A**

**PERCEPTIONS OF ACCEPTABLE ABSENTEEISM - ANALYSIS OF VARIANCE**

**(Modified Sample 1)**

<b>SOURCE</b>	<b>DF</b>	<b>TYPE I SS</b>	<b>F-VALUE</b>	<b>PR &gt; F</b>
Wave	2	41.463	1.06	0.3842
Subj	66	6897.542	5.36	0.0001

**TABLE 27.B**

**PERCEPTIONS OF ACCEPTABLE ABSENTEEISM - DUNCAN & SCHEFFE**

**COMPARISON ACROSS WAVES (Modified Sample 1)**

<b>DUNCAN &amp; SCHEFFE GROUPINGS*</b>	<b>MEAN</b>	<b>N</b>	<b>WAVE</b>
A	9.985	67	3
A	9.940	67	1
A	9.000	67	2

\* Means with same letter are not significantly different

**TABLE 28.A**

**PERCEPTIONS OF ACCEPTABLE ABSENTEEISM - ANALYSIS OF VARIANCE**

**(Modified Sample 2)**

<b>SOURCE</b>	<b>DF</b>	<b>TYPE I SS</b>	<b>F-VALUE</b>	<b>PR &gt; F</b>
Wave	2	465.521	17.40	0.0001
Subj	86	6235.773	5.62	0.0001

**TABLE 28.B**

**PERCEPTIONS OF ACCEPTABLE ABSENTEEISM - DUNCAN & SCHEFFE**

**COMPARISON ACROSS WAVES (Modified Sample 2)**

<b>DUNCAN &amp; SCHEFFE GROUPINGS*</b>	<b>MEAN</b>	<b>N</b>	<b>WAVE</b>
A	11.604	51	1
B	8.080	31	2
B	7.488	39	3

\* Means with same letter are not significantly different

**H8: There is a positive association between employee perceptions of acceptable levels of absenteeism and employee absenteeism behavior.**

This hypothesis was tested by correlating employee perceptions of acceptable absenteeism to both measures of employee absenteeism for each of the three periods. The correlations computed are presented in Table 29.

As shown in the table, the hypothesis was supported for all three periods. In period 1 the relationship was significant for the time lost index at the .01 level and for the frequency index at the .0001 level. In period 2, the relationships were only significant at the .10 level while in period 3, the relationship was significant for both measures of absenteeism at the .001 level of significance.

**TABLE 29**  
**CORRELATIONS BETWEEN EMPLOYEE ABSENTEEISM &**  
**EMPLOYEE PERCEPTIONS OF ACCEPTABLE ABSENTEEISM**

	EMPLOYEE ABSENTEEISM					
	PERIOD 1		PERIOD 2		PERIOD 3	
	T. I.	F. I.	T. I.	F. I.	T. I.	F. I.
<hr/>						
WAVE 1 Perceptions of acceptable absenteeism	.32**	.36***				
WAVE 2 Perceptions of acceptable absenteeism			.18+	.18+		
WAVE 3 Perceptions of acceptable absenteeism					.41***	.36***
<hr/>						

T. I. - Time Lost Index

F. I. - Frequency Index

+ significance level:  $.05 < p < .10$

\* significance level:  $.01 < p < .05$

\*\* significance level:  $.001 < p < .01$

\*\*\* significance level:  $p < .001$

**H9: Employee perceptions of management's goals will be more favorable after implementation of the lottery program.**

This hypothesis was tested using ANOVA, Duncan's Multiple Range Test and Scheffe's Method for Multiple Comparisons. As with hypothesis 7, the test was carried out first for the entire sample and then for two modified samples.

Tables 30.A and 30.B present the results of the total sample analysis. Based on the ANOVA procedure (Table 30.A) and the Duncan Test (Table 30.B) there is a significant difference in employee perceptions across the three waves. The Duncan Multiple Range Test shows a significant difference between waves 1 and 2, while indicating that wave 3 does not differ significantly from either of the two. The Scheffe Method (Table 30.B) shows no significant difference between the waves.

The results of the analysis on the sample containing only employees who were present in all three waves are shown in Tables 31.A and 31.B on page 114. None of the tests showed significant differences between the waves. It should be noted, however, that the modified sample included only 71 subjects.

The results of the analysis on the sample containing employees who were not present for all three waves are shown in Tables 32.A and 32.B (page 115). Again, all three tests

indicate that there was no significant change in employee perceptions of management's goals across the three waves.

**TABLE 30.A**

**PERCEPTIONS OF MANAGEMENT' GOALS - ANALYSIS OF VARIANCE**

**(Total Sample)**

<b>SOURCE</b>	<b>DF</b>	<b>TYPE I SS</b>	<b>F-VALUE</b>	<b>PR &gt; F</b>
Wave	2	9.169	2.40	0.0939
Subj	149	656.663	2.30	0.0001

**TABLE 30.B**

**PERCEPTIONS OF MANAGEMENT' GOALS - DUNCAN & SCHEFFE**

**COMPARISON ACROSS WAVES (Total Sample)**

<b>GROUPINGS*</b>	<b>MEAN</b>	<b>N</b>	<b>WAVE</b>
<b>DUNCAN</b>			
A	3.242	98	2
B A	3.111	107	3
B	2.848	125	1
<b>SCHEFFE</b>			
A	3.242	98	2
A	3.111	107	3
A	2.848	125	1

\* Means with same letter are not significantly different

**TABLE 31.A**

**PERCEPTIONS OF MANAGEMENT' GOALS - ANALYSIS OF VARIANCE**

**(Modified Sample 1)**

<u>SOURCE</u>	<u>DF</u>	<u>TYPE I SS</u>	<u>F-VALUE</u>	<u>PR &gt; F</u>
Wave	2	8.685	2.14	0.1220
Subj	72	381.239	2.68	0.0001

**TABLE 31.B**

**PERCEPTIONS OF MANAGEMENT' GOALS - DUNCAN & SCHEFFE**

**COMPARISON ACROSS WAVES (Modified Sample 1)**

<u>DUNCAN &amp; SCHEFFE GROUPINGS*</u>	<u>MEAN</u>	<u>N</u>	<u>WAVE</u>
A	3.394	71	2
A	3.183	71	3
A	2.090	71	1

\* Means with same letter are not significantly different

**TABLE 32.A**

**PERCEPTIONS OF MANAGEMENT' GOALS - ANALYSIS OF VARIANCE**

**(Modified Sample 2)**

<b>SOURCE</b>	<b>DF</b>	<b>TYPE I SS</b>	<b>F-VALUE</b>	<b>PR &gt; F</b>
Wave	2	0.837	0.27	0.7635
Subj	78	269.259	2.24	0.0037

**TABLE 32.B**

**PERCEPTIONS OF MANAGEMENT' GOALS - DUNCAN & SCHEFFE**

**COMPARISON ACROSS WAVES (Modified Sample 2)**

<b>DUNCAN &amp; SCHEFFE GROUPINGS*</b>	<b>MEAN</b>	<b>N</b>	<b>WAVE</b>
A	2.973	36	3
A	2.857	27	2
A	2.778	54	1

\* Means with same letter are not significantly different

**H10: There is a negative association between employee absenteeism and employee perceptions of the clarity and challenge of management's absenteeism goals.**

This hypothesis suggests that employees who perceive management as having a clear and challenging goal for employee attendance will have less absenteeism than those who see management's goal as vague and/or unchallenging. It was tested by correlating employee perceptions of management's goals with both measures of employee absenteeism. This was done for all three periods. Table 33 presents the correlations computed.

As shown in the table, the results of the analysis are mixed. There is a significant negative association between both measures of employee absenteeism and employee perceptions of management's goals in period 1 and period 2. However, in period 3 the relationship is not significant at even the .10 level. The hypothesis is, therefore, only partially supported.

TABLE 33

CORRELATIONS BETWEEN EMPLOYEE ABSENTEEISM & EMPLOYEE  
PERCEPTIONS OF MANAGEMENT'S ATTENDANCE GOALS

	EMPLOYEE ABSENTEEISM					
	PERIOD 1		PERIOD 2		PERIOD 3	
	T. I.	F. I.	T. I.	F. I.	T. I.	F. I.
WAVE 1						
Perceptions of mgt's. goals	-.26**	-.28**				
WAVE 2						
Perceptions of mgt's. goals			-.24*	-.22*		
WAVE 3						
Perceptions of mgt's. goals					-.02	.02

T. I. - Time Lost Index

F. I. - Frequency Index

+ significance level: .05 < p < .10

\*\* significance level: .001 < p < .01

**H11: There is a negative association between employee's expectations of success in improving their attendance under the lottery program and their absenteeism behavior.**

This hypothesis was tested by correlating the two items which measure employee expectations of success (see Figure 3), individually with employee absenteeism. As was indicated in the previous section on interitem correlations, the relationship between the two items measuring employee expectations was not significant for either waves 1 or 2 and was only marginally significant at the .10 level in wave 3. The alpha coefficients for these items was .02, .08 and .31 for waves 1, 2 and 3, respectively. Because of this apparently low relationship among the items, correlational analyses were not carried out on the scales.

Table 34 on page 120 presents the results of correlating the items individually with employee absenteeism for the three periods. As shown in the table, the results are noticeably different for the two variables. Employee perceptions that perfect attendance is easy is negatively correlated with employee absenteeism in all three periods thus providing support for the hypothesis.

In relation to employee perceptions that they can improve their attendance, there is no significant relationship with either measure of absenteeism in period 1. In period 2, there is an association with the frequency index at the .10

level, and in period 3 there is a significant relationship between employee perceptions that they can improve their attendance and both measures of absenteeism. However, the relationship is in the opposite direction from that hypothesized.

**TABLE 34**

**CORRELATIONS BETWEEN EMPLOYEE ABSENTEEISM & EMPLOYEE  
EXPECTATIONS OF SUCCESS IN IMPROVING ATTENDANCE**

	EMPLOYEE ABSENTEEISM					
	PERIOD 1		PERIOD 2		PERIOD 3	
	T. I.	F. I.	T. I.	F. I.	T. I.	F. I.
WAVE 1						
Perceptions that perfect attendance is easy	-.24**	-.25**				
Perceptions that could improve attendance	.12	.13				
WAVE 2						
Perceptions that perfect attendance is easy			-.26**	-.29**		
Perceptions that could improve attendance			.11	.18+		
WAVE 3						
Perceptions that perfect attendance is easy					-.15+	-.17+
Perceptions that could improve attendance					.31**	.41***

**Table 34 (cont.)**

T. I. - Time Lost Index

F. I. - Frequency Index

+ significance level:  $.05 < p < .10$

\*\* significance level:  $.001 < p < .01$

\*\*\* significance level:  $p < .001$

**H12: There is a negative association between employee absenteeism behavior and their perceptions of the reasonableness of management's attendance goals.**

The proposition behind this hypothesis is that employees who perceive management's attendance standards as reasonable will display less absenteeism than employees who feel that management's attendance standards are unreasonable. Table 35 presents the results of correlating employee perceptions of the reasonableness of management's standards with employee absenteeism for all three periods. As indicated, a marginally significant relationship (.10 level) was found only between employee perceptions in wave 3 and employee absenteeism in period 3. The null hypothesis that there is no association between employee absenteeism and their perceptions of the reasonableness of management's attendance goals could therefore not be rejected.

**TABLE 35**

**CORRELATIONS BETWEEN EMPLOYEE ABSENTEEISM & EMPLOYEE PERCEPTIONS OF THE REASONABLENESS OF MANAGEMENT'S STANDARDS**

	EMPLOYEE ABSENTEEISM					
	PERIOD 1		PERIOD 2		PERIOD 3	
	T. I.	F. I.	T. I.	F. I.	T. I.	F. I.
WAVE 1 Perceptions of reasonableness of mgt's. standards						
Wave 1	-.02	-.04				
Wave 2			-.11	-.08		
Wave 3					-.17+	-.17+

T. I. - Time Lost Index

F. I. - Frequency Index

+ significance level:  $.05 < p < .10$

## RESULTS OF EXPLORATORY ANALYSES

In addition to testing the individual hypotheses, exploratory analyses was carried out using multiple regression and step-wise regression techniques. The purpose was to examine the linear association between employee absenteeism and a combination of the factors tested in the hypotheses.

### Multiple Regression Analysis

Multiple regression analysis was carried out for the three time periods. In each case, the dependent variable was employee absenteeism measured by both the time lost index and the frequency index. In period 1 the independent variables were employee perceptions:

1. of the contingency of rewards;
2. of what constitutes acceptable absenteeism;
3. of the reasonableness of management's standards;
4. of the clarity and challenge management's goals;
5. that perfect attendance is easy; and
6. that they can improve their attendance.

The latter two items are measures of employee expectations of success. However, as indicated in chapter 4, the correlation between these two items was very low. They were therefore included in the regression analyses as separate items rather than being combined into a scale.

The independent variables were the same for periods 2 and 3 except that in both periods, two additional independent variables were added. These were (a) employee liking for the lottery program, and (b) past absenteeism. Past absenteeism refers to absenteeism in periods 1 and 2. For purposes of comparison, absenteeism in period 1 was divided into two - the seven month period from June 1982 to December 1982, and the six month period from January 1983 to June 1983.

Table 36 on page 128 presents the results of the analysis. The upper section of the table presents the analysis of variance while the lower section shows the parameter estimates related to each independent variable and indicates their levels of significance. Columns 2 to 5 show the results for the two portions of period 1. The analysis of variance indicates, among other things, that in this period, between 30% and 35% of the variance in absenteeism is explained by the linear combination of the six independent variables.

The lower section of the table indicates that for period 1 three parameter estimates are significantly different from zero for both measures of absenteeism. These are the parameters related to (1) perceptions of the clarity and challenge of managements goals; (2) perceptions that perfect attendance is easy and (3) employee perceptions that they can improve their attendance. However, the latter parameter is in the opposite direction from that hypothesized.

In addition to these three, the parameter estimate related to perceptions of the contingency of rewards is marginally significant ( $\alpha = .10$ ) for the time lost index for the June/December 1982 period, while the estimate related to perceptions of acceptable absenteeism is significant for the frequency index for the January/December 1983 period. However, for both, the relationship is in the opposite direction to that hypothesized.

Columns 6 and 7 present the results of the analysis for period 2. As indicated, the analysis of variance test was also significant for both measures of absenteeism ( $\alpha = .0006$  and  $.0001$ ). The results show that approximately 43% of the variance is explained for the time lost index and approximately 60% is explained for the frequency index. In relation to the parameter estimates, only one is significantly different from zero for the time lost index. This is absenteeism during the first seven months of period 1 which is significant at the .05 level. For the frequency index absenteeism during both portions of period 1 are significant at the .01 level and perceptions that perfect attendance is easy is marginally significant at the .10 level.

The results for period 3 are shown in columns 8 and 9. Again, the analysis of variance test is significant for both measures of absenteeism ( $\alpha = .0001$ ). In relation to the parameter estimates, three are significant for the time lost index. They are (1) perceptions of acceptable absenteeism (2)

absenteeism during the second portion of period 1 and (3) absenteeism during period 2. All three are significant at the .05 level. For the frequency index, the parameter relating to perceptions that perfect attendance is easy is significant at the .05 level. In addition, absenteeism during the second portion of period 1 and during period 2 are significant at the .01 level.

**TABLE 36 - MULTIPLE REGRESSION ANALYSIS**

STATISTIC	PERIOD 1 June/Dec. 82		PERIOD 2 Jan/June 83		PERIOD 3	
	T. I.	F. I.	T. I.	F. I.	T. I.	F. I.
R-square	.299	.315	.345	.322	.659	.759
SS Regression	288.730	113.493	759.641	279.573	802.404	361.778
SS Error	676.508	247.007	1441.317	590.001	416.193	114.816
SS Total	965.239	360.500	2200.958	869.575	1218.597	476.594
Overall F	4.695	5.054	5.798	6.555	8.097	13.234
Overall p-value	.0005	.0003	.0001	.0001	.0001	.0001

VARIABLE	PERIOD 1		PERIOD 2		PERIOD 3	
	T. I.	F. I.	T. I.	F. I.	T. I.	F. I.
Contingency of rewards	.229 +	.104	.235	.111	-.047	.016
Perceptions of mgt's goals	-.864**	-.398*	-.941*	-.474*	.252	-.211
Acceptable absenteeism	-.030	.006	.078	.076 +	.185*	.020
Can improve attendance	.631**	.514**	1.132**	.340 +	.217	-.178
Perfect attendance easy	-.499*	-.333*	-1.018**	-.655	-.562	-.623 +
Management's standards	-.028	-.127	-.185	.071	.157	-.002
Liking for program			.161	.102	-.177	.102
Absenteeism: Period 1 - 1st 7 mths.			.410*	.490**	.005	.490**
Period 1 - 2nd 6 mths.			.232	.409**	.348*	.409**
Period 2					.338**	.447**

T. I. - Time Lost Index      + p < .10      \*\* p < .01

### Step-Wise Regression Analysis

The results of the step-wise regression analysis are presented in Table 37, on page 132. As shown in the table, employee absenteeism between June and December 1982 (based on the time lost index) is best explained by a combination of four variables. They are:

1. perceptions of the contingency of rewards;
2. perceptions of the clarity and challenge of management's goals;
3. employee perceptions that they can improve their attendance; and
4. employee perceptions that perfect attendance is easy.

However, both perceptions of the contingency of rewards and employee perceptions that they can improve their attendance are in the opposite direction from that hypothesized.

For the frequency index, three variables are significant - perceptions of managements's goals, employee perceptions that they can improve their attendance and perceptions that perfect attendance is easy. Again, employee perceptions that they can improve their attendance is in the opposite direction from that hypothesized.

These three variables are also significant for the period January to June 1983 for both measures. In addition, the

parameter related to perceptions of acceptable absenteeism is also significant for the frequency index at the .10 level.

For period 2 (columns 6 and 7), the model includes only three variables. For the time lost index, these variables are employee perceptions that perfect attendance is easy, and absenteeism during the two portions of period 1. For the frequency index, the three significant variables are employee absenteeism during both portions of period 1 and employee perceptions that they can improve their attendance which is again in the opposite direction to that hypothesized.

In period 3 absenteeism, measured by the time lost index, is best explained by a combination of four variables - perceptions of acceptable absenteeism, perceptions that perfect attendance is easy and absenteeism during the second portion of period 1 and during period 2. These four variables explain approximately 65% of the variance in employee absenteeism.

Absenteeism measured by the frequency index is also best explained by a combination of four variables - perceptions that perfect attendance is easy, employee perceptions that they can improve their attendance and absenteeism during the second portion of period 1 and during period 2. These variables explain 74% of the variance in absenteeism.

#### Summary

This chapter has highlighted the major findings of the

study. Population and sample characteristics were described and the results of the analyses conducted were presented. In summary, these results indicate that the lottery program resulted in a significant reduction in employee absenteeism during the first six months of its implementation but did not significantly affect absenteeism during the final six months. The results also suggest that the impact which the program had on employee absenteeism was a function of both past attendance behavior and employee attitudes toward absenteeism.

The next chapter will provide an indepth discussion of these findings including their interpretation and implications. The chapter will also discuss the limitations of the study and identify potential areas of future research.

**TABLE 37 - STEP-WISE REGRESSION ANALYSIS**

STATISTIC	PERIOD 1		PERIOD 2		PERIOD 3			
	June/Dec. 82	Jan/June 83	F. I.	T. I.	F. I.	T. I.	F. I.	T. I.
R-square	.296	.290	.308	.245	.668	.378	.645	.742
SS Regression	285.58	104.45	268.05	631.96	400.29	305.99	785.93	353.82
SS Error	679.66	256.05	601.52	1944.84	659.71	151.85	432.66	122.77
SS Total	965.24	360.50	869.58	2576.81	1060.00	457.83	1218.60	476.60
Overall F	7.15	9.38	9.48	9.33	11.12	30.90	21.80	34.58
Overall p-value	.0001	.0001	.0001	.0001	.0001	.0001	.0001	.0001

VARIABLE	PARAMETER ESTIMATES					
	T. I.	F. I.	T. I.	F. I.	T. I.	F. I.
Contingency of rewards	.232*	N.A	N.A	N.A	N.A	N.A
Perceptions of mgt's. goals	-.778**	-.392**	-.981**	-.457*	N.A	N.A
Acceptable absenteeism	N.A	N.A	N.A	.073 +	N.A	.163**
Can improve attendance	.626**	.553**	.739*	.400*	N.A	.463 +
Perfect attendance easy	-.523*	-.303*	-.952*	-.611**	-1.125*	N.A
Management's standards	N.A	N.A	N.A	N.A	N.A	N.A
Liking for program					.161	.102
Absenteeism :						
Period 1 - 1st 7 mths.					.372*	.651**
Period 1 - 2nd 6 mths.					.299*	.368 +
Period 2						.348**

\*\* p < .01

+ p < .10

T. I. - Time Lost Index

## V. DISCUSSION, LIMITATIONS, RECOMMENDATIONS

### Introduction

The purpose of this chapter is to discuss the findings of the research. This discussion will include a summary of the study, interpretation of the findings and discussion of their implications. Finally, limitations of the study will be identified and recommendations will be made for future research.

### Summary of Study

The purpose of the study was to explain the effect of a lottery-based incentive program on the absenteeism patterns of individual employees by examining the historical attendance patterns of these employees as well as their attitudes towards absenteeism and towards the lottery program.

Past research into the effect of lottery programs on employee absenteeism has produced mixed results. In the majority of studies on this subject, lottery-based incentives systems were found to be effective in reducing employee absenteeism. However, in a few studies, such programs had no effect on absenteeism. This study sought to explain the impact of such programs by examining the relationship between employee absenteeism and various attitudinal variables. The attitudinal variables were examined for their relationship

to employee absenteeism both before and during the implementation of the lottery program. In addition, the relationship between absenteeism behavior before implementation of the program and absenteeism behavior during the program was also examined.

### Discussion of Findings

The findings of the study will be discussed in relation to each of the variables examined.

#### **Past Attendance Behavior**

It was hypothesized that there is a positive association between pre-lottery absenteeism and absenteeism during the lottery program. This hypothesis is based on the notion that employee responses to the lottery program are, in part, a function of their past attendance patterns.

The hypothesis was supported by correlation analysis. The correlations between absenteeism during period 1 (prior to the program) and absenteeism during periods 2 and 3 were significant at the .001 level for both measures of absenteeism.

These findings provide support for the proposal put forward by Baum (1978) that positive reinforcement techniques such as lotteries are likely to be more effective for workers who are absent infrequently than for chronic absentees.

Chronic absentees have been willing to forego the usual benefits associated with regular attendance (e.g. higher pay). It is therefore unlikely that the rewards provided by a lottery program will be sufficiently attractive to cause them to alter their attendance patterns to a significant degree. On the other hand, employees who have a history of infrequent absences have displayed a commitment to good attendance and are more likely to respond positively to incentives.

#### **Employee "Liking" For The Lottery Program**

**Liking for Program & Changes in Absenteeism:** The relationship between employee absenteeism and employee "liking" for the program was examined from both a longitudinal and cross-sectional perspective. From the longitudinal viewpoint, it was hypothesized that there is a positive association between employee "liking" for the lottery program and changes in employee absenteeism during implementation of the program. In other words, employees who like the program will display improvements in their attendance behavior during the program.

Correlation analysis provided no support for this hypothesis. Correlations between changes in both measures of employee absenteeism and employee "liking" for the program were not significant.

These results indicate that there was no significant relationship between employee feelings toward the lottery

program and changes in their absenteeism behavior. In other words, employees who reported liking the lottery program did not necessarily display improved attendance behavior. This suggests that some other variable(s) played a more significant role in influencing employee attendance behavior during the program than did their feelings toward the program.

**Liking for Program & Absenteeism:** The relationship between employee absenteeism and employee "liking" for the lottery program was tested from a cross-sectional perspective by correlating both measures of employee absenteeism with employee liking for the program. The hypothesis was that there is a negative association between the two variables. That is, employees who report liking the lottery program will exhibit less absenteeism than those who do not.

No support was found for this hypothesis. Correlations between employee absenteeism and employee liking for the program were not significant for either period 2 or period 3.

These results are consistent with the findings of the longitudinal analysis which indicate that employee feelings toward the lottery program did not significantly influence their responses to the program. It is possible, however, that the apparent lack of significance of employee liking for the program may be due to the fact that there was very little variability in attitudes toward the program. The results

indicate that employees did not have very strong feelings about the program either negatively or positively. The average responses to the statement "I like the attendance program . . . ." fell between "some what agree" (4) and "agree" (5) for both waves 2 and 3, with standard deviations of 1.2 and 0.9, respectively.

#### **Perceptions of Contingency of Rewards for Good Attendance**

**Changes in Perceptions of Contingency of Rewards:** Employee perceptions of the contingency of rewards was first examined by comparing their perceptions of whether attendance is rewarded across the three waves. It was hypothesized that employee perceptions that attendance is rewarded would be more favorable after implementation of the lottery program.

Multiple comparison analyses were first carried out on the 3-item scale which measures employee perceptions of the contingency of rewards. These analyses indicate that during the program, there was no change in the perceptions of "short-timers" (employees who were not present in all three waves). This suggests that the operation of the lottery program may have been affected by tenure and turnover. In other words, it is possible that the program had no effect

on the perceptions of some employees because they were not present for the entire time it was in effect.<sup>4</sup>

This conclusion is supported by the fact that two of the tests showed a significant change in perceptions among employees who were present in all three waves. However, this change was in the opposite direction to that hypothesized. Thus, according to these results, during the program employees felt less strongly that rewards were contingent on attendance than they did prior to the introduction of the program.

In an effort to explain these unexpected results, the analyses were repeated for the individual items which comprise the scale. The results of these analyses indicate that the perceptions of employees who were present in the three waves changed with respect to all three items. However, while perceptions that attendance is rewarded did change in a favorable direction, changes in perceptions that good attenders get good work and that poor attenders are fired were not favorable.

These findings indicate that the program did, in fact, have a favorable impact on employee perceptions of whether attendance is rewarded. However, not surprisingly, it had no effect on perceptions that good attenders get good work

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<sup>4</sup> It should be noted, however, that the large differences in the sizes of the waves may limit the reliability of the results.

and that poor attenders are likely to be fired. It is also possible that some factor(s) unrelated to the program may have had an unfavorable influence on employee perceptions in these two areas during the time the program was in effect.

In relation to employees who were not present in all three waves, changes occurred in perceptions that good attenders get good work and poor attenders are fired, but these changes were again not in the anticipated direction. There was no change in perceptions that good attendance is rewarded. This provides additional support for the proposition that the impact of the program was affected by tenure and turnover.

**Absenteeism & Changes in Perceptions of Contingency of Rewards:** In addition to examining whether perceptions of the contingency of rewards changed after implementation of the program, the association between these changes and employee absenteeism were also examined. In this regard it was hypothesized that there is a negative association between employee absenteeism and changes in employee perceptions of whether attendance is rewarded. This hypothesis was based on the expectation that after implementation of the program there would be a favorable change in employee perceptions of whether attendance is rewarded and this change would be accompanied by a reduction in absenteeism. As discussed above, this change occurred for only one of the three items used to

measure employee perceptions of whether attendance is rewarded.

Two sets of correlational analyses, one using the three individual items and the other using the scale, failed to provide support for the hypothesis. Correlations between absenteeism and perceptions of the contingency of rewards were not significant for any of the three items or for the scale.

These results indicate that although employee perceptions that attendance is rewarded did change favorably during the program, this change was not related to any change in absenteeism. This suggests that even though, during the program, employees felt that rewards were contingent on attendance, the reward was not perceived as sufficiently attractive to cause them to alter their absenteeism behavior.

**Absenteeism & Perceptions of Whether Attendance Is Rewarded:**  
These conclusions were supported when the relationship between absenteeism and employee perceptions of whether attendance is rewarded was analyzed from a cross-sectional viewpoint. This analysis was based on the hypothesis that there is a negative association between employee absenteeism and employee perceptions of the contingency of rewards for good attendance. In other words, employees who perceive that rewards are contingent on attendance will display less absenteeism than those who do not.

Correlation analysis using the 3-item scale indicated that there was no association between absenteeism during period 1 and employee perceptions of the contingency of rewards in wave 1, but a significant positive relationship to both measures of absenteeism was found in period 2 and to the frequency index in period 3.

When the correlations were run on the individual items, there was no significant association between absenteeism and perceptions that attendance is rewarded, for any of the three waves. On the other hand, perceptions that good attenders get good work was significantly related to absenteeism in the three periods. However, in periods 2 and 3, the relationship was in the opposite direction to that hypothesized. Similarly, perceptions in wave 2 that poor attenders are likely to be fired were positively associated with absenteeism in period 2.

It is difficult to provide an explanation for these results which suggest that during the program, employees who felt that good attenders get good work and poor attenders are fired, displayed more absenteeism than employees who felt otherwise. One possible explanation is that these employees are not motivated by the prospect of good work or the threat of being fired. It is also possible that they do not perceive any significant variability in the available work. In other words, "good work" does not differ significantly from "bad work".

## Employee Perceptions of Acceptable Absenteeism

**Changes in Perceptions of Acceptable Absenteeism:** Two hypotheses were examined in relation to employee perceptions of what constitutes acceptable absenteeism. First, it was hypothesized that employee perceptions of what constitutes acceptable absenteeism will change after implementation of the lottery program. Multiple comparison analyses supported this hypothesis and, in addition, revealed that the program had a differential impact on employee perceptions depending on whether employees were or were not present in all three waves.

Analysis of the total sample indicated that during the first six months of the program there was a significant decline in the level of absenteeism which employees perceived as acceptable. In addition, although there was a slight increase during the second six months of the program, the increase was not significant.

However, analyses conducted on a modified sample containing only employees who were present in all three waves did not reveal any significant differences in employee perceptions across the three waves. Since the modified sample did not include "short-timers", these results suggest that the program had no significant effect on the perceptions of "old-timers" and that the "short-timers" were the ones on whom the program had the greatest impact.

In order to test this, analyses were also carried out on a modified sample comprised of employees who were not present in all three waves. The results of these analyses revealed the existence of very significant differences in perceptions between wave 1, on the one hand, and waves 2 and 3, on the other.

These findings support the proposition put forward earlier that the effect of the lottery program was influenced by turnover and tenure. In this case, it appears that the perceptions of "short-timers" were most affected by the program. The perceptions of the "old-timers" may have been well-established to be significantly influenced by the program. Nevertheless, for the sample as a whole, there was a significant reduction in the level of absenteeism considered acceptable during the program. The effect which this had on employee absenteeism is discussed below.

**Absenteeism & Perceptions of Acceptable Absenteeism:** It was hypothesized that there is a positive association between employee absenteeism and employee perceptions of acceptable absenteeism. This hypothesis was supported for all three time periods indicating that, by itself, employee perceptions of acceptable absenteeism is an important factor in explaining employee absenteeism.

These results, together with the results of the multiple comparison analyses discussed above suggest that the re-

duction in absenteeism during period 2 was due, in part, to the effect which the program had on employee perceptions of acceptable levels of absenteeism.

### **Perceptions of Management's Attendance Goals**

Two hypotheses were examined in relation to employee perceptions of management's goals for employee attendance.

**Changes in Perceptions of Management's Goals:** Based on goal theory, it was hypothesized that employee perceptions of management's goals would change after implementation of the lottery program. Specifically, it was thought that by clearly identifying desired attendance behavior, the lottery program would indicate to employees that management has a clear and challenging goal for attendance.

Multiple comparison analyses provided partial support for this hypothesis. Of the three tests conducted on the total sample, two (ANOVA and Duncan) indicated the existence of marginally significant differences between the waves. The ANOVA procedure showed a difference at the .10 level of significance while the Duncan test indicated that there was a significant and favorable change in perceptions between wave 1 and wave 2. The Duncan test, however, found no significant differences between these two waves and wave 3. The third test (Scheffe) indicated that there were no significant dif-

ferences between the waves. Analyses conducted on two modified samples, composed of (1) employees who were present in all three waves, and (2) employees who were not present in all three waves, also showed no significant differences between the waves.

It appears, therefore, that while the lottery program did have some impact employee perceptions of management's goals, the change in perceptions was only marginally significant. One possible reason for this may be that employees did not identify the lottery program with management, seeing it rather as an experiment being conducted by outsiders. Thus, the attendance goals specified under the program may not have been seen as management's goals. It may also be possible that the results may have been affected by the small sample sizes.

**Absenteeism & Perceptions of Management's Goals:** The second hypothesis related to this variable was that there is a negative association between employee absenteeism and employee perceptions of management's attendance goals. In other words, employees who perceive that management has clear and challenging goals for attendance will exhibit less absenteeism than those who see management's goals as vague or unchallenging.

The hypothesis was supported for waves 1 and 2 but not for wave 3 indicating that both before the program and during

the first six months of its implementation, employee absenteeism was significantly influenced by perceptions of management's attendance goals. This suggests that the reduction in absenteeism which took place during the first six months of the program was, to some extent, related to the marginal change which took place in employee perceptions of management's goals between wave 1 and wave 2.

### **Employee Expectations of Success**

Based on goal theory it was hypothesized that there is a negative association between employee absenteeism and employee expectations of success in improving their attendance. Analyses were carried out on the two items which measure employee expectations. As discussed previously, because of the low correlations between the two items, they were not combined to form a scale.

The results are noticeably different for the two items. As hypothesized, there was a significant relationship between perceptions that perfect attendance is easy and employee absenteeism in all three periods. This indicates that employees who felt that perfect attendance was easy had significantly less absenteeism than those who did not feel it was easy.

On the other hand, analyses on the item measuring employee perceptions that they could improve their attendance provided no support for the hypothesis. Employee perceptions

in wave 1 were not significantly related to absenteeism in period 1. In period 2 although there was a marginally significant association ( $\alpha = .10$ ) between employee perceptions and absenteeism measured by the frequency index, the relationship was not in the direction hypothesized. Similarly, in the third period there was a significant relationship ( $\alpha = .01$ ) with both measures of absenteeism but again, it was not in the anticipated direction.

These results indicate that before implementation of the lottery program, employees who felt they could improve their attendance did not display any less absenteeism than those who felt they could not. Two reasons for this may be suggested. First, it is possible that employees who reported that they could not improve their attendance did so because they felt that there was no need for improvement. In other words, their absenteeism levels were already low. Another possible explanation is that, although employees felt they could improve their attendance, they had no motivation to do so. In this case, one would expect that the lottery program would have provided such motivation thus leading to a reduction in absenteeism among the employees. However, the results indicate that this did not occur and suggest that, in fact, the program had the opposite effect.

## **Employee Perceptions of The Reasonableness of Management's Attendance Goals.**

It was hypothesized that there is a negative association between employee absenteeism and their perceptions of the reasonableness of management's attendance goals. Correlational analysis provided no support for this hypothesis. The analysis indicated that there was no significant relationship between the two variables in periods 1 and 2, and in period 3 there was a positive relationship at the .10 level. The results therefore indicate that employee perceptions of the reasonableness of management's attendance standards did not significantly influence their attendance either before or during the program.

### **Findings of Regression Analysis**

Regression analysis was used to explore the linear association between employee absenteeism and a combination of the variables tested in the hypotheses. The results of the regression analyses indicate that although certain variables were not by themselves significantly related to employee absenteeism, in combination with other variables they did have a significant impact on absenteeism. For example, during the first seven months of period 1, approximately 30% of the variance in absenteeism (measured by the time lost index) was

explained by a linear combination of four variables.<sup>5</sup> These are:

1. perceptions of management's goals;
2. perceptions that perfect attendance is easy;
3. employee perceptions that they can improve their attendance; and
4. perceptions of the contingency of rewards.

The latter two variables were, by themselves, not significantly related to absenteeism in this period. On the other hand, perceptions of acceptable absenteeism, which by itself was significantly related to absenteeism in all three periods, was only significant in the regression model in period 3 (time lost index). Both employee perceptions of the reasonableness of management's attendance goals and employee liking for the program were not significantly correlated to absenteeism and were not significant in the regression model.

#### Limitations of Study

A major limitation of this study is that the research location may not be representative of other organizations.

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<sup>5</sup> Past attendance was not included in the regression model for period 1.

The study focused exclusively on the garment industry, and on only one company within that industry and one plant within that company. This company (located in rural Virginia) may not be representative of the industry and the industry may not be representative of other industries. In addition, the sample was limited to females, to employees engaged in piece-work and to employees who were not paid when absent. The findings of the study, therefore, have limited generalizability. For example, it is possible that males or salaried employees may have responded quite differently to the lottery program.

A number of other potential limitations should also be noted. One is that the design of the lottery program may have affected how employees responded. It is possible that a monthly or weekly drawing or numerous, smaller prizes might have been more effective.

Two other potential limitations relate to the instrument used in the study. Like most instruments used for measuring the direction and strength of people's beliefs, this instrument used Likert scaling. However, despite its widespread use Likert scaling has a number of weaknesses. A major weakness is that it represents only an ordinal level of measurement (Lodge, 1981). Because of this, the statistical methods which could be employed in the study were limited. Further, by offering a fixed number of categories, the scales may have inadvertently affected employee responses.

The second limitation pertaining to the instrument is that most of the attitudinal variables were measured by one-item scales. Thus, there is no certainty that the questions actually measured what they purported to measure.

### Recommendations for Future Research

A number of the hypotheses concerning the relationship between employee absenteeism and certain attitudinal variables were not supported by the findings of the study. These include hypotheses that:

1. there is a negative association between absenteeism and liking for the lottery program;
2. there is a positive association between improvements in absenteeism and liking for the lottery program;
3. there is a negative association between absenteeism and changes in employee perceptions of whether attendance is rewarded;
4. there is a negative association between absenteeism and employee perceptions of the contingency of rewards; and
5. there is a negative association between absenteeism and employee perceptions of the reasonableness of management's attendance goals.

However, given the potential limitations of the lottery program and the instrument used, these hypotheses should not be dismissed without further research. It is therefore recommended that the lottery program should be replicated. For example, as discussed above, the findings of the study suggest that employee feelings toward the program had no significant influence on absenteeism. However, as indicated, these results may have been due to the limited variation in employee attitudes toward the program. It would, therefore, be useful to replicate the lottery program using different designs to increase the variation in employee feelings toward the program and allow for comparative analyses. The use of different designs could be based on different reinforcement schedules and/or prizes of different value. It would also be useful for the lottery program to be replicated in different settings and with samples of different compositions. Further, studies could use both a treatment group and a control group in order to lessen the degree of uncontrolled variability within the sample.

This study did not directly examine employee feelings about the reward offered in the program. The closest it came to testing this was examination of employee feelings toward the program. However, research indicates that the effectiveness of a positive reinforcement program is influenced by the value which the employees place on the reward offered. It is therefore recommended that in replicating the program, at-

tention should be given to examination of employee attitudes toward the reward offered and the impact of these attitudes on absenteeism behavior.

### Implications of Research Findings

The above discussion of the research findings indicates that the impact which the lottery program had on employee absenteeism was a function of (1) past attendance behavior; and (2) the effect which the program had on employee attitudes.

First, the research findings indicate that past attendance patterns were a significant determinant of employee responses to the program. Specifically, employees with a history of infrequent absences responded much more favorably to the program than did chronic absentees. From a practical viewpoint, these findings suggest that in order to be effective, control policies should be multifaceted. That is, they should be tailored to the differing responses of employees. For example, research conducted by Baum indicates that chronic absenteeism can be reduced by the use of sanctions. Thus, an effective control policy could rely simultaneously on positive reinforcements (as in the lottery program) and on sanctions for those employees who do not respond to the incentives.

In relation to employee attitudes the research findings indicate that, in combination with each other and with past attendance, the following variables had the most significant impact on absenteeism in the three periods. They are:

1. employee perceptions of management's attendance goals;
2. employee perceptions that perfect attendance is easy; and
3. employee perceptions that they can improve their attendance.

However, as discussed above, the impact of the latter variable was in the opposite direction to that hypothesized. These findings also have important implications for the control of absenteeism. First, they indicate that it is important for management to have specific and challenging attendance goals and ensure that these goals are clearly communicated to its employees. Second, these results could be interpreted as indicating that although employees may perceive that they can improve their attendance, unless there is some motivation to do so, there will be no reduction in their absenteeism.

Although perceptions of acceptable absenteeism contributed to the prediction of employee absenteeism in only one period, its significant relationship to employee absenteeism, when tested by itself, indicates that it can be important in absence control. Thus, absenteeism control programs should

seek to influence employee perceptions in this area as was done by the lottery program in this study.

## BIBLIOGRAPHY

- Adam, Everett E. Jr. (1972) "An Analysis of Changes in Performance Quality with Operant Conditioning Procedures", Journal of Applied Psychology, 56 (6), 480 - 486.
- Aldis, Owen (1961) "Of Pigeons and Men", in R. Ulrick, T. Stachnik and J. Mabry (eds.), Control of Human Behavior, Glenview, Ill.: Scott, Foresman & Co., 1966, 218 - 221.
- Baum, John F. and Stuart A. Youngblood (1975) "Impact of an Organizational Control Policy on Absenteeism, Performance, and Satisfaction", Journal of Applied Psychology, 60 (6), 688 - 694.
- Baum, John F. (1978) "Effectiveness of an Attendance Control Policy in Reducing Chronic Absenteeism", Personnel Psychology, 31, 71 - 81.
- Becker, Lawrence J. (1978) "Joint Effect of Feedback and Goal Setting on Performance: A Field Study of Residential Energy Conservation", Journal of Applied Psychology, 63 (4), 428 - 433.
- Brayfield, A. H. and W. H. Crockett (1955) "Employee Attitudes and Employee Performance", Psychological Bulletin, 52, 396 - 424.
- Campbell, D. J., and D. R. Illgen (1976) "Additive Effects of Task Difficulty and Goal Setting on Subsequent Task Performance", Journal of Applied Psychology, 61, 319 - 324.
- Chadwick-Jones, J. K., C. A. Brown, N. Nichloson and C. Sheppard (1971) "Absence Measures: Their Reliability and Stability in An Industrial Setting", Personnel Psychology, 24, 463 - 470.
- Chadwick-Jones, J. K., C. A. Brown and N. Nichloson (1973) "Absence From Work: Its Meaning, Measurement and Control", International Review of Applied Psychology, 22 (2), 136 - 154.
- Chadwick-Jones, J. K., N. Nichloson and C. Brown (1982) Social Psychology of Absenteeism, NY: Praeger Publishers.

- Cheloha, Randall S. and James L. Farr (1980) "Absenteeism, Job Involvement, and Job Satisfaction in an Organizational Setting", Journal of Applied Psychology, 65 (4), 467 - 473.
- Cherrington, David J., H. J. Reitz and W. E. Scott, Jr. (1971) "Effects of Contingent and Noncontingent Reward on the Relationship Between Satisfaction and Task Performance", Journal of Applied Psychology, 55 (6), 531 - 536.
- Conversation with B. F. Skinner (1973), Organizational Dynamics, 1 (3), 31 - 40.
- Cooper, Robert and Roy Payne (1965) "Age and Absence: A Longitudinal Study in Three Firms", Occupational Psychology, 39, 31 - 35.
- Gibson, R. Oliver (1966) "Toward a Conceptualization of Absence Behavior of Personnel in Organizations," Administrative Science Quarterly, 2 (1), 107-133.
- Goodman, P. and R. Atkin (1984) Absenteeism: New Approaches to Understanding, Measuring and Managing Employee Absence, San Francisco: Josey - Bass.
- Gullett, C. Ray and Robert Reisen (1975) "Behavior Modification: A Contingency Approach to Employee Performance", Personnel Journal, April, 206 - 211.
- Hackman, J. R. and E. E. Lawler (1971) "Employee Reactions to Job Characteristics", Journal of Applied Psychology, 55, 259 - 286.
- Heinman, Gary W. (1975) "A Note on 'Operant Conditioning Principles Extrapolated to the Theory of Management'", Organizational Behavior and Human Performance, 13 (1), 165 - 170.
- Herzberg, F., B. Mausner, R. O. Peterson and D. F. Capwell (1957) Job Attitudes: Review of Research and Opinion, Pittsburgh: Psychological Services of Pittsburgh.
- Hill, J. and E. Trist (1962) Industrial Accidents, Sickness and Other Absences (Pamphlet 4) London: Tavistock.
- Ilgen, Daniel R. and John H. Hollenback (1977) "The Role of Job Satisfaction in Absence Behavior," Organizational Behavior and Human Performance, 19 (1), 148-161.

- Jablonsky, Stephen F. and David L. De Vries (1972) "Operant Conditioning Principles Extrapolated to the Theory of Management", Organizational Behavior and Human Performance, 7, 340 - 358.
- Johnson, Ronald D. and Tim O. Peterson (1975) "Absenteeism or Attendance: Which is Industry's Problem?", Personnel Journal, November, 568 - 572.
- Larson, Erik W. and Cynthia V. Fukami (1985) "Employee Absenteeism: The Role of Ease of Movement", Academy of Management Journal, 28 (2), 464 -471.
- Latham, Gary P. and J. James Blades (1975) "The 'Practical Significance of Locke's Theory of Goal Setting", Journal of Applied Psychology, 60 (1), 122 - 124.
- Latham, Gary P. and Gary A. Yukl (1975) "A Review of Research on the Application of Goal Setting in Organizations", Academy of Management Journal, 18 (4), 824 - 843.
- Locke, Edwin A. and Judith F. Bryan (1966) "Cognitive Aspects of Psychomotor Performance: The Effects of Performance Goals on Level of Performance", Journal of Applied Psychology, 50 (4), 286 - 291.
- Locke, Edwin A. (1966) "The Relationship of Intentions to Level of Performance", Journal of Applied Psychology, 50 (1), 60 - 66.
- Locke, Edwin A. (1968) "Toward a Theory of Task Motivation and Incentives", Organizational Behavior and Human Performance, 3, 157 - 189.
- Locke, Edwin A. (1977) "The Myths of Behavior Mod in Organizations", Academy of Management Review, 543 - 551.
- Locke, Edwin A., Karyll N. Shaw, Lise M. Saari and Gary P. Latham (1981) "Goal Setting and Task Performance: 1969 - 1980", Psychological Bulletin, 90 (1), 125 - 152.
- Lodge, Milton (1981) Magnitude Scaling - Quantitative Measurement of Opinions, CA: Sage Publications, Inc.
- Luthans, Fred and Mark, Martinko (1976) "An Organizational Behavior Modification Analysis of Absenteeism", Human Resource Management, 15 (3), 11 - 18.
- Markham, Steven E., Barbara Spencer and K. Dow Scott (1984) "Perceptions and Attitudes Toward Absenteeism: An As-

essment of Measurement Reliabilities and Validities, Southern Management Association Proceedings, 380 - 382.

Markham, Steven E. and K. Dow Scott (1985) "A Comparison of Four Attendance Improvement Programs: Results of a One-Year Field Experiment", Academy of Management Proceedings '85, 269 - 273.

Mowday, R. T., L. W. Porter and R. M. Steers (1982) Employee - Organization Linkages: The Psychology of Commitment, Absenteeism & Turnover, N. Y.: Academic Press.

Mirvis, Phillip H. and Edward E. Lawler III (1977) "Measuring the Financial Impact of Employee Attitudes", Journal of Applied Psychology, 62 (1), 1 - 8.

Mowday, R. T., L. W. Porter and R. M. Steers (1982) Employee - Organization Linkages: The Psychology of Commitment, Absenteeism & Turnover, N. Y.: Academic Press.

Muchinsky, P. M. (1977) "Employee Absenteeism: A Review of The Literature", Journal of Vocational Behavior, 10, 316 - 340.

Nicholason, Nigel (1976) "Management Sanctions and Absence Control", Human Relations, 29 (2), 139 - 151.

Nicholson, Nigel, Colin A. Brown and J. K. Chadwick-Jones (1976) "Absence from Work and Job Satisfaction", Journal of Applied Psychology, 61 (6), 728 - 737.

Nicholason, N. (1977) "Absence Behavior & Attendance Motivation: A Conceptual Synthesis", Journal of Management Studies, 14 (3), 231 - 252.

Nicholson, Nigel, Colin A. Brown and J. K. Chadwick-Jones (1977) "Absence from Work and Personal Characteristics", Journal of Applied Psychology, 62 (3), 319 - 327.

Nicholson, Nigel and Gary Johns (1985) "The Absence Culture and the Psychological Contract - Who's in Control of Absence", Academy of Management Review, 10 (3), 397 - 407.

Nord, Walter R. (1969) "Beyond the Teaching Machine: The Neglected Area of Operant Conditioning in the Theory and Practice of Management", in W. E. Scott and L. L. Cummings (eds.), Readings in Organizational Behavior and Human Performance, Homewood, Ill.: Richard D. Irwin, Inc., 1973, 15 - 28.

- Organ, Dennis W. and W. Clay Hamner (1982) Organizational Behavior: An Applied Psychological Approach, Plano, Texas: Business Publications, Inc.
- Parkes, K. R. (1983) "Smoking as a Moderator of the Relationship Between Affective State and Absence From Work", Journal of Applied Psychology, 68, 698 - 708.
- Patchen, Martin (1960) "Absence and Employee Feelings About Fair Treatment", Personnel Psychology, 13 (3), 349 - 360.
- Pedalino, Ed and Victor U. Gamboa (1974) "Behavior Modification and Absenteeism in One Industrial Setting", Journal of Applied Psychology, 59 (6), 694 - 698.
- Porter, L. W. and R. M. Steers (1973) "Organizational, Work, and Personal Factors in Employee Turnover and Absenteeism", Psychological Bulletin, 80, 151 - 176.
- Porwoll, Paul J. (1980) Employee Absenteeism: A Summary of Research, VA: Educational Research Service, Inc.
- Reynolds, G. S. (1975) A Primer of Operant Conditioning, Glenview, Ill: Scott, Foresman and Co.
- Robertson, David E., Ronald D. Johnson and Arthur L. Bethke (1980) "Reducing Absenteeism With Fixed and Variable Interval Reinforcement" Review of Business & Economic Research, 15, 73 - 82.
- SAS Users' Guide: Basic (1982) NC: SAS Institute Inc.
- SAS Users' Guide: Statistics (1982) NC: SAS Institute Inc.
- Schlotzhauer, Dale L. and Joseph G. Rosse (1985) "A Five-Year Study of a Positive Incentive Absence Control Program", Personnel Psychology, 38 (3), 575 - 585.
- Schmitz Loretta M. and Herbert G. Heneman III (1980) "Do Positive Reinforcement Programs Reduce Employee Absenteeism", Personnel Administrator, Sept., 87 - 93.
- Schneier, Craig E. (1974) "Behavior Modification in Management: A Review and Critique", Academy of Management Journal, 17 (3), 528 - 548.
- Scott, K. Dow and Steven E. Markham (1982) "Absenteeism Control Methods: a Survey of Practices and Results", Personnel Administrator, 27, (6), 73 - 85. \*

- Scott, K. Dow and G. Stephen Taylor (1985) "An Examination of Conflicting Findings on the Relationship Between Job Satisfaction and Absenteeism: A Meta Analysis", Academy of Management Journal, 28 (3), 599 - 612.
- Scott, K. Dow, Steven E. Markham and Richard W. Robers (1985) "Rewarding Good Attendance: A Comparative Study of Positive Ways to Reduce Absenteeism", Personnel Administrator, August, 72 -83.
- Smulders, Peter G. W. (1980) "Comments on Employee Absence/Attendance as a Dependent Variable in Organizational Research", Journal of Applied Psychology 65 (3), 368 - 371.
- Steers, Richard M. and Lyman W. Porter (1974) "The Role of Task-Goal Attributes in Employee Performance", Psychological Bulletin, 81 (7), 434 -452.
- Steers, Richard M. and Susan R. Rhodes (1978) "Major Influences on Employee Attendance: A Process Model," Journal of Applied Psychology, 63 (4), 391-407.
- Steers, Richard M. and Susan R. Rhodes (1984) "Knowledge and Speculation about Absenteeism" in P. Goodman and R. Atkin, Absenteeism: New Approaches to Understanding, Measuring and Managing Employee Absence, 229 - 275, San Francisco: Josey - Bass.
- Stephens, T. A. and W. A. Burroughs (1978) "An Application of Operant Conditioning to Absenteeism in a Hospital Setting", Journal of Applied Psychology, 63 (4), 518 - 521.
- Vroom, Victor H. (1964) Work and Motivation, N. Y.: Wiley.
- Wallin, Jerry A. and Ronald D. Johnson (1976) "The Positive Reinforcement Approach to Controlling Employee Absenteeism", Personnel Journal, August, 390 - 392.
- Watson, C. J. (1981) "An Evaluation of Some Aspects of the Steers and Rhodes Model of Employee Attendance", Journal of Applied Psychology 66 (3), 385 - 389.
- Yukl, Gary, Kenneth N. Wexley and James D. Seymore (1972) "Effectiveness of Pay Incentives Under Variable Ratio and Continous Reinforcement Schedules" Journal of Applied Psychology, 56 (1), 19 - 23.
- Yukl, Gary A. and Gary P. Latham (1978), "Interrelationships Among Employee Participation, Individual Differences,

Goal Difficulty, Goal Acceptance, Goal Instrumentality,  
and Performance", Personnel Psychology, 31, 305 - 323.

Yolles, Stanley F., Pasquale A. Carone and Leonard W. Krinsky  
(1975) Absenteeism in Industry, Ill.: Charles C. Thomas.

**APPENDIX A. SURVEY INSTRUMENT**



2. How much personal consideration and attention do you get from your supervisor?  
*almost none      a little      a moderate amount      quite a bit a great deal*
3. How much does your supervisor help you solve job-related problems?  
*almost none      a little      a moderate amount      quite a bit a great deal*
4. How satisfied are you with your job in general?  
*very                      dissat-                      I can't                      satisfied                      very*  
*dissatisfied              isfied                      decide                                           satisfied*

\* \* \* CHECK ONE \* \* \*

1. I am absent:  
 More often than other employees.  
 About the same number of times as other employees.  
 Less often than other employees.
2. What is your marital status?  
 single     married     widowed     divorced/separated
3. Do you have a second job elsewhere?     Yes     No
4. Choose one of the following:  
 I earn most or all of the income at my house.  
 My spouse or parent earns most of the income.  
 We both earn about the same amount.
5. When you were last absent (NOT "clocked out"), what happened?  
*Check YES or NO. (Leave blank if not absent in past year.)*
- |   |                              |                             |
|---|------------------------------|-----------------------------|
| Did your supervisor talk with you about it?       | <input type="checkbox"/> YES | <input type="checkbox"/> NO |
| Did the Plant Manager talk with you about it?     | <input type="checkbox"/> YES | <input type="checkbox"/> NO |
| Did Personnel talk with you about it?             | <input type="checkbox"/> YES | <input type="checkbox"/> NO |
| Did at least one other employee ask you about it? | <input type="checkbox"/> YES | <input type="checkbox"/> NO |
6. What do you think management's goal for absenteeism is for you? (*Check only one below.*)
- Perfect attendance  
 1 or 2 days a year  
 3 or 4 days a year  
 5 or 6 days a year  
 7 days a year or more  
 Management does not seem to have a clear goal.
7. I would describe my health as:  
 Excellent  
 Good  
 Good most of the time  
 Poor
8. I would describe my smoking habits as:  
 I NEVER smoke  
 Less than a pack a day  
 Between 1 and 2 packs a day  
 More than 2 packs a day
8. What is your job?  
 sewing machine operator     final inspector     maintenance  
 cutting room     pressor or folder     clerical  
 service     quality (in process)     other

This means QUESTION  
 DOES NOT APPLY TO YOU  
 STRONGLY DISAGREE D  
 DISAGREE D  
 SOMEWHAT DISAGREE ?A  
 AGREE A  
 SOMEWHAT AGREE ?A  
 STRONGLY AGREE SA

Please circle the appropriate letters in the column on the right:

1. Employees with good attendance get better work than employees with poor attendance records..... SA A ?A ?D D SD NA
2. One of the reasons that it's "OK" to be absent is that when I don't work I don't get paid..... SA A ?A ?D D SD NA
3. Management's standards for attendance are too high..... SA A ?A ?D D SD NA
4. I often think about quitting..... SA A ?A ?D D SD NA
5. My Supervisor encourages good attendance..... SA A ?A ?D D SD NA
6. I will probably look for a new job in the next year ..... SA A ?A ?D D SD NA
7. Good attendance is rewarded here..... SA A ?A ?D D SD NA
8. If I tried harder, I could improve my attendance..... SA A ?A ?D D SD NA
9. Perfect attendance for a whole year is pretty easy to do..... SA A ?A ?D D SD NA
10. Sometimes I need to be absent to get some rest..... SA A ?A ?D D SD NA
11. The Personnel Assistant encourages good attendance..... SA A ?A ?D D SD NA
12. Being absent occasionally is one of the benefits of this job..... SA A ?A ?D D SD NA
13. I am quite proud to tell people who it is I work for..... SA A ?A ?D D SD NA
14. My spouse or family asks me to take a day off work once in a while..... SA A ?A ?D D SD NA
15. I need to work every possible day because I need the money..... SA A ?A ?D D SD NA
16. Sometimes family problems make it impossible to get to work..... SA A ?A ?D D SD NA
17. My supervisor often tells how many times I have been absent..... SA A ?A ?D D SD NA
18. I am satisfied with the wages I am paid for the work that I do..... SA A ?A ?D D SD NA
19. A poor attendance record increases the chance that I will be "clocked out" if there is no work..... SA A ?A ?D D SD NA
20. Employees with poor attendance records are likely to lose their jobs..... SA A ?A ?D D SD NA
21. A person with high absenteeism gets off easy around here..... SA A ?A ?D D SD NA
22. I prefer to follow a set routine at home & at work each day..... SA A ?A ?D D SD NA

This means QUESTION  
 DOES NOT APPLY TO YOU NA  
 STRONGLY DISAGREE SD  
 DISAGREE D  
 SOMEWHAT DISAGREE A  
 AGREE A  
 SOMEWHAT AGREE ?A  
 STRONGLY AGREE SA

- 23. When looking for work elsewhere, poor attenders will get a poor job recommendation from this company.....SA A ?A ?D D SD NA
- 24. I will probably remain with this company for at least the next 12 months.....SA A ?A ?D D SD NA
- 25. I don't keep track of how many times I have been absent.....SA A ?A ?D D SD NA
- 26. I know about the new attendance program here.....SA A ?A ?D D SD NA
- 27. I am sorry that I ever took this job.....SA A ?A ?D D SD NA
- 28. My Supervisor is an excellent person to work for.....SA A ?A ?D D SD NA
- 29. The physical working conditions here are excellent.....SA A ?A ?D D SD NA
- 30. I am satisfied with my job.....SA A ?A ?D D SD NA
- 31. I am absent sometimes because of car trouble or my ride doesn't come.....SA A ?A ?D D SD NA
- 32. It is easy for me to wake up in the morning.....SA A ?A ?D D SD NA
- 33. I would change jobs if I could make a little extra money.....SA A ?A ?D D SD NA
- 34. The Plant Manager encourages good attendance.....SA A ?A ?D D SD NA
- 35. I am willing to put myself out just to help the company.....SA A ?A ?D D SD NA
- 36. I feel that the new attendance program has worked here.....SA A ?A ?D D SD NA
- 37. I would recommend this company as a place to work to a close friend,SA A ?A ?D D SD NA
- 38. I would be happy to know that my own work had helped this company,SA A ?A ?D D SD NA
- 39. I like the attendance program that was started in July.....SA A ?A ?D D SD NA
- 40. I keep track of the number of times I'm absent by myself.....SA A ?A ?D D SD NA
- 41. It would be easy for me to find another job as good as this one.....SA A ?A ?D D SD NA
- 42. The Personnel Assistant often tells me how many times I have been absent.....SA A ?A ?D D SD NA
- 43. I find real enjoyment in my work.....SA A ?A ?D D SD NA

CLOCK NUMBER: \_\_\_\_\_ LAST NAME: |\_|\_|\_|\_|\_|\_|\_|\_|\_|\_|\_|\_|\_|\_|\_|\_|\_|  
 (PLEASE PRINT CLEARLY) FIRST NAME: |\_|\_|\_|\_|\_|\_|\_|\_|\_|\_|\_|\_|\_|\_|\_|\_|\_|

To be eligible for the drawing, please answer ALL QUESTIONS and don't forget your name. **MANY, MANY THANKS FOR YOUR HELP!**

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the scanned document**